Wisconsin Knowledge and Concepts Examinations(WKCE)

November 2004 Testing

Technical Report

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Foreword

The technical information herein is intended for use by those who evaluate tests, interpret scores, or use test results in making educational decisions. It is assumed that the reader has technical knowledge of test construction and measurement procedures, as stated in Standards for Educational and Psychological Testing (American Educational Research Association, American Psychological Association, National Council on Measurement in Education, 1999).

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Part 1: Overview

The *Wisconsin Knowledge and Concepts Examinations* (WKCE) are designed to evaluate students' knowledge and to measure achievement in the basic skills taught in schools at Grades 4, 8, and 10. *TerraNova* is a norm-referenced test that forms the basis of the WKCE. The *TerraNova* assessment is designed to measure concepts, processes, and skills taught throughout the nation. From 1997 through 2002 (years that involved Spring testing), the WKCE used an equated form of *TerraNova.* From 2002 through 2004 (years involving Fall testing), the WKCE used *TerraNova* forms along with Wisconsin customized items for Grades 4 and 8 (in Mathematics, Science, and Social Studies) and Wisconsin customized items only for Grade 10 (Wisconsin High School Graduation Test (HSGT) pool).

The subject areas assessed in the WKCE are Reading, Mathematics, Language Arts, Social Studies, and Science. Items are organized by content categories reflecting educational objectives contained in the Wisconsin Model Academic Standards, which are listed below.

This report consists of one main document and five appendices. Appendix A is for raw score distributions, Appendix B for scale score distributions, Appendix C for item fit statistics, Appendix D for rater agreement, and Appendix E for classification consistency and accuracy. Appendices D and E include descriptions.

1-1 WKCE Operational 04-05 Objectives and Subskills

English Language Arts

Content and Performance Standards for ELA are identical across grades.

Objective (Content Standard): A Reading/Literature. Students in Wisconsin will read and respond to a wide range of writing to build an understanding of written materials, of themselves, and of others.

Subskills (Performance Standards):
A.1. Students will use effective reading strategies to achieve their purposes in reading.
A.2. Students will read, interpret, and critically analyze literature.
A.3 Students will read and discuss literary and nonliterary texts in order to understand human experience.
A.4 Students will read to acquire information.

Objective (Content Standard): B Writing. Students in Wisconsin will write clearly and effectively to share information and knowledge, to influence and persuade, to create and entertain.

Subskills (Performance Standards)

B.1 Students will create or produce writing to communicate with different audiences for a variety of purposes.
B.2 Students will plan, revise, edit, and publish clear and effective writing.
B. 3 Students will understand the function of various forms, structures, and punctuation marks of standard American English and use them appropriately in written communication.

Objective (Content Standard): D Language. Students in Wisconsin will apply their knowledge of the nature, grammar, and variations of American English.

Subskills (Performance Standards)
D.1 Students will develop their vocabulary and ability to use words, phrases, idioms, and various grammatical structures as a means of improving communication.

Objective (Content Standard): E Media and Technology. Students in Wisconsin will use media and technology critically and creatively to obtain, organize, prepare and share information; to influence and persuade; and to entertain and be entertained.

Subskills (Performance Standards)
E.2 Students will make informed judgments about media and products.
E.5 Students will analyze and edit media work as appropriate to audience and purpose.

Objective (Content Standard): F Research and Inquiry. Students in Wisconsin will locate, use, and communicate information from a variety of print and nonprint materials.

Subskills (Performance Standards)
F.1 Students will conduct research and inquiry on self-selected or assigned topics, issues, or problems and use an appropriate form to communicate their findings.

Mathematics

Content Standards for Mathematics are identical across all grades. Performance Standards differ from grade to grade.

Objective (Content Standard): A. Mathematical Processes. Students in Wisconsin will draw on a broad body of mathematical knowledge and apply a variety of mathematical skills and strategies including reasoning, oral and written communication, and the use of appropriate technology, when solving mathematical, real-world and non-routine problems.

Objective (Content Standard): B. Number Operations and Relationships. Students in Wisconsin will use numbers effectively for various purposes, such as counting, measuring, estimating, and problem solving.

Objective (Content Standard): C. Geometry. Students in Wisconsin will be able to use geometric concepts, relationships and procedures to interpret, represent, and solve problems.

Objective (Content Standard): D. Measurement. Students in Wisconsin will select and use appropriate tools (including technology) and techniques to measure things to a specified degree of accuracy. They will use measurements in problem-solving situations.

Objective (Content Standard): E. Statistics and Probability. Students in Wisconsin will use data collection and analysis, statistics and probability in problem-solving situations, employing technology where appropriate.

Objective (Content Standard): F. Algebraic Relationships. Students in Wisconsin will discover, describe, and generalize simple and complex patterns and relationships. In the context of real-world situations, the student will use algebraic techniques to define and describe the problem to determine and justify appropriate solutions.

Subskills (Performance Standards): Grade 4

A. Mathematical Processes

A.1 Use reasoning abilities to perceive patterns, identify relationships, formulate questions for further exploration, justify strategies, test reasonableness of results.

A.2 Communicate mathematical ideas in a variety of ways, including words, numbers, symbols, pictures, charts, graphs, tables, diagrams, and models.

A.3 Connect mathematical learning with other subjects, personal experiences, current events, and personal interests.

A.4 Use appropriate mathematical vocabulary, symbols, and notation with understanding based on prior conceptual work.

A.5 Explain solutions to problems clearly and logically in oral and written work and support solutions with evidence.

B. Number Operations and Relationships

B.1 Represent and explain whole numbers, decimals, and fractions with physical materials, number lines and other pictorial models, verbal descriptions, place-value concepts and notation, symbolic renaming.

B.2 Determine the number of things in a set by grouping and counting, combining and arranging, estimation, including rounding.

B.3 Read, write, and order whole numbers, simple fractions and commonly-used decimals.

B.4 Identify and represent equivalent fractions for halves, fourths, eights, tenths, sixteenths.

B.5 In problem-solving situations involving whole numbers, select and efficiently use appropriate computational procedures such as recalling the basic facts of addition, subtraction, multiplication, and division; using mental math; estimation; selecting and applying algorithms for addition, subtraction, multiplication, and division; using a calendar.

B.6 Add and subtract fractions with like denominators.

B.7 In problem-solving situations involving money, add and subtract decimals.

C. Geometry

C.1 Describe two-and three-dimensional figures by naming them; comparing, sorting, and classifying them; drawing and constructing physical models to specifications; identifying their properties; predicting the results of combining or subdividing two-dimensional figures; explaining how these figure are related to objects in the environment.

C.2 Use physical materials and motion geometry to identify properties and relationships, including but not limited to symmetry, congruence, and similarity.

C.3 Identify and use relationships among figures, including but not limited to location, position, and intersection.

C.4 Use simple two-dimensional coordinate systems to find locations on maps and to represent points and simple figures.

D. Measurement

D.1 Recognize and describe measurable attributes, such as length, liquid, capacity, time, weight (mass), temperature, volume, monetary value, and angle size, and identify the appropriate units to measure them.

D.2 Demonstrate understanding of basic facts, principles, and techniques of measurement, including appropriate use of arbitrary and standard units; appropriate use and conversion of units within a system; judging the reasonableness of an obtained measurement as it relates to prior experience and familiar benchmarks.

D.3 Read and interpret measuring instruments.

D.4 Determine measures directly by using standard tools to these suggested degrees of accuracy: length to the nearest half-inch or nearest cm, weight (mass) to the nearest ounce or nearest 5 grams, temperature to the nearest 5, time to the nearest minute, monetary value to dollars and cents, liquid capacity to the nearest fluid ounce.

D.5 Determine measurements by using basic relationships (such as perimeter and area) and approximate measurements by using estimation techniques.

E. Statistics and Probability

E.1 Work with data in the context of real-world situations by formulating questions that lead to data collection and analysis, determining what data to collect and when and how to collect them, collecting, organizing, and displaying data, drawing reasonable conclusions based on data.

E. 2 Describe a set of data using high and low values, and range; most frequent value (mode); middle value of a set of ordered data (median).

E.3 In problem-solving situations, read, extract, and use information presented in graphs, tables, or charts.

E.4 Determine if future events are more, less, or equally likely, impossible, or certain to occur.

E.5 Predict outcomes of future events and test predictions using data from a variety of sources.

F. Algebraic Relationships

F.1 Use letters, boxes, or other symbols to stand for any number, measured quantity, or object in simple situations.

F.2 Use the vocabulary, symbols, and notation of algebra accurately.

F.3 Work with simple linear patterns and relationships in a variety of ways, including recognizing and extending number patterns; describing them verbally; representing them with pictures, tables, charts, graphs; recognizing that different models can represent the same pattern or relationship; using them to describe real-world phenomena.

F.4 Recognize variability in simple functional relationships by describing how a change in one quantity can produce a change in another.

F.5 Use simple equations and inequalities in a variety of ways, including using them to represent problem situations; solving them by different methods; recording and describing solution strategies.

F.6 Recognize and use generalized properties and relationships of arithmetic.

Subskills (Performance Standards) Grade 8:

A. Mathematical Processes

A.1 Use reasoning abilities to evaluate information, perceive patterns, identify relationships, formulate questions for further exploration, evaluate strategies, justify statements, test reasonableness of results, defend work.

A.2 Communicate logical arguments clearly to show why a result makes sense.

A.3 Analyze non-routine problems by modeling, illustrating, guessing, simplifying, generalizing, shifting to another point of view, etc.

A.4 Develop effective oral and written presentations that include appropriate use of technology, the conventions of mathematical discourse, mathematical language, clear organization of ideas and procedures, understanding of purpose and audience.

A.5 Explain mathematical concepts, procedures, and ideas to others who may not be familiar with them.

A.6 Read and understand mathematical texts and other instructional materials and recognize mathematical ideas as they appear in other contexts.

B. Number Operations and Relationships

B.1 Read, represent, and interpret various rational numbers with verbal descriptions, geometric models, and mathematical notation.

B.2 Perform and explain operations on rational numbers.

B.3 Generate and explain equivalencies among fractions, decimals, and percents.

B.4 Express order relationships among rational numbers using appropriate symbols.

B.5 Apply proportional thinking in a variety of problem situations that include, but are not limited to ratios and proportions; percents, including those greater than 100 and less than one.

B.6 Model and solve problems involving number-theory concepts such as prime and composite numbers, divisibility and remainders, greatest common factors, least common multiples.

B.7 In problem-solving situations, select and use appropriate computational procedures with rational numbers such as calculating mentally; estimating; creating, using, and explaining algorithms; using technology.

C. Geometry

C.1 Describe special and complex two- and three-dimensional figures and their component parts by naming, defining, and giving examples; comparing, sorting, and classifying them; identifying and contrasting their properties; drawing and constructing physical models to specifications; explaining how these figures are related to objects in the environment.

C.2 Identify and use relationships among the component parts of special and complex two- and three-dimensional figures.

C.3 Identify three-dimensional shapes from two-dimensional perspectives and draw two-dimensional sketches of three-dimensional objects preserving their significant features.

C.4 Perform transformations on two-dimensional figures and describe and analyze the effects of the transformations on the figures.

C.5 Locate objects using the rectangular coordinate system.

D. Measurement

D.1 Identify and describe attributes in situations where they are not directly or easily measurable.

D.2 Demonstrate understanding of basic measurement facts, principles, and techniques including the following: approximate comparisons between metric and US Customary units; knowledge that direct measurement produces approximate, not exact, measures; the use of smaller units to produce more precise measures.

D.3 Determine measurement directly using standard units (metric and US Customary) with these suggested degrees of accuracy: lengths to the nearest mm or 1/16 of an inch; weight (mass) to the nearest 0.1 g or 0.5 ounce; liquid capacity to the nearest ml; angles to the nearest degree; temperature to the nearest C or F; elapsed time to the nearest second.

D.4 Determine measurements indirectly using estimation; conversion of units within a system; ratio and proportion; geometric formulas to derive lengths, areas, volumes of common figures; the Pythagorean relationship; geometric relationships and properties for angle size.

E. Statistics and Probability

E.1 Work with data in the context of real-world situations by formulating questions that lead to data collection and analysis, designing and conducting a statistical investigation, using technology to generate displays, summary statistics, and presentations.

E.2 Organize and display data from statistical investigations using appropriate tables, graphs, and/or charts; appropriate plots.

E.3 Extract, interpret, and analyze information from organized and displayed data by using frequency and distribution, including mode and range; central tendencies of data; indicators of dispersion.

E.4 Use the results of data analysis to make predictions, develop convincing arguments, draw conclusions.

E.5 Compare several sets of data to generate, test, and as the data dictate, confirm or deny hypothesis.

E.6 Evaluate presentations and statistical analyses from a variety of sources for credibility of the source; techniques of collection, organization, and presentation of data; missing or incorrect data; inferences; possible sources of bias.

E.7 Determine the likelihood of occurrence of simple events by using a variety of strategies (e.g., lists, tables, tree diagrams) to identify possible outcomes; by conducting an experiment; by designing and conducting simulations; by applying theoretical notions of probability.

F. Algebraic Relationships

F.1 Work with algebraic expressions in a variety of ways, including using appropriate symbolism, including exponents and variables; evaluating expressions through numerical substitution; generating equivalent expressions; adding and subtracting expressions.

F.2 Work with linear and nonlinear patterns and relationships in a variety of ways, including representing them with tables, with graphs, and with algebraic expressions, equations, and inequalities; describing and interpreting their graphical representations (e.g., slope, rate of change, intercepts); using them as models of real-world phenomena; describing a real-world phenomenon that a given graph might represent.

F.3 Recognize, describe, and analyze functional relationships by generalizing a rule that characterizes the pattern of change among variables. These functional relationships include exponential growth and decay (e.g., cell division, depreciation).

F.4 Use linear equations and inequalities in a variety of ways, including writing them to represent problem situations and to express generalizations; solving them by different methods (e.g., informally, graphically, with formal properties, with technology); writing and evaluating formulas (including solving for a specified variable); using them to record and describe solution strategies.

F.5 Recognize and use generalized properties and relations, including additive and multiplicative property of equations and inequalities; commutatively and associatively of addition and multiplication; distributive property; inverses and identities for addition and multiplication; transitive property.

Subskills (Performance Standards) Grade 10:

A. Mathematical Processes

A.1 Use reason and logic to evaluate information, perceive patterns, identify relationships, formulate questions, pose problems, and make and test conjectures, pursue ideas that lead to further understanding and deeper insight.

A.2 Communicate logical arguments and clearly show why a result does or does not make sense; why the reasoning is or is not valid; an understanding of the difference between examples that support a conjecture and a proof of the conjecture.

A.3 Analyze non-routine problems and arrive at solutions by various means, including models and simulations, often starting with provisional conjectures and progressing, directly or indirectly, to a solution, justification, or counter-example.

A.4 Develop effective oral and written presentations employing correct mathematical terminology, notation, symbols, and conventions for mathematical arguments and display of data.

A.5 Organize work and present mathematical procedures and results clearly, systematically, succinctly, and correctly.

A.6 Read and understand mathematical texts and other instructional materials; writing about mathematics (e.g. articles in journals) and mathematical ideas as they are used in other contexts.

B. Number Operations and Relationships

B.1 Use complex counting procedures such as union and intersection of sets and arrangements (permutations and combinations) to solve problems.

B.2 Compare real numbers using order relations and transitivity; ordinal scales including logarithmic (e.g., Richter, pH rating); arithmetic differences; ratios, proportions, percents, rates of change.

B.3 Perform and explain operations on real numbers (add, subtract, multiply, divide, raise to a power, extract a root, take opposites and reciprocals, determine absolute value).

B.4 In problem-solving situations involving the application of different number systems (natural, integers, rational, real) select and use appropriate computational procedures; properties (e.g. commutatively and associatively, inverses); modes of representation (e.g. rationales as repeating decimals, indicated roots as fractional exponents).

B.5 Create and critically evaluate numerical arguments presented in a variety of classroom and real-world situations (e.g., political, economic, scientific, social).

B.6 Routinely assess the acceptable limits of error when evaluating strategies, testing the reasonableness of results, using technology to carry out computations.

C. Geometry

C.1 Identify, describe, and analyze properties of figures, relationships among figures, and relationships among their parts by constructing physical models; drawing precisely with paper-and-pencil, hand calculators, and computer software using appropriate transformations (e.g., translations, rotations, reflections, enlargements); using reason and logic.

C.2 Use geometric models to solve mathematical and real-world problems.

C.3 Present convincing arguments by means of demonstration, informal proof, counter-examples, or any other logical means to show the truth of statements (e.g., these two triangles are not congruent); generalizations (e.g., the Pythagorean theorem holds for all right triangles).

C.4 Use the two-dimensional rectangular coordinate system and algebraic procedures to describe and characterize geometric properties and relationships such as slope, intercepts, parallelism, and perpendicularity.

C.5 Identify and demonstrate an understanding of the three ratios used in right-triangle trigonometry (sine, cosine, tangent).

D. Measurement

D.1 Identify, describe, and use derived attributes (e.g., density, speed, acceleration, pressure) to represent and solve problem situations.

D.2 Select and use tools with appropriate degree of precision to determine measurements directly within specified degrees of accuracy and error (tolerance).

D.3 Determine measurements indirectly, using estimation; proportional reasoning, including those involving squaring and cubing (e.g., reasoning that areas of circles are proportional to the squares of their radii); techniques of algebra, geometry, and right triangle trigonometry; formulas in applications (e.g. for compound interest, distance formula); geometric formulas to derive lengths, areas, or volumes of shapes and objects (e.g., cones, parallelograms, cylinders, pyramids); geometric relationships and properties of circles and polygons (e.g., size of central angles, area of a sector of a circle); conversion constants to relate measures in one system to another (e.g., meters to feet, dollars to Deutschemarks).

E. Statistics and Probability

E.1 Work with data in the context of real-world situation by formulating hypotheses that lead to collection and analysis of one- and two-variable data; designing a data collection plan that considers random sampling, control groups, the role of assumptions, etc.; conducting an investigation based on that plan; using technology to generate displays, summary statistics, and presentations.

E.2 Organize and display data from statistical investigations using frequency distributions; percentiles, quartiles, deciles; line of best fit (estimated regression line); matrices.

E.3 Interpret and analyze information from organized and displayed data when given measures of dispersion, including standard deviation and variance; measures of reliability; measures of correlation.

E.4 Analyze, evaluate, and critique the methods and conclusions of statistical experiments reported in journals, magazines, news media, advertising, etc.

E.5 Determine the likelihood of occurrence of complex events by using a variety of strategies (e.g. combinations) to identify possible outcomes; conducting an experiment; designing and conducting simulations; applying theoretical probability.

F. Algebraic Relationships

F.1 Analyze and generalize patterns of change (e.g. direct and inverse variation) and numerical sequences, and then represent them with algebraic expressions and equations.

F.2 Use mathematical functions (e.g., linear, exponential, quadratic, power) in a variety of ways, including recognizing that a variety of mathematical and real-world phenomena can be modeled by the same type of function; translating different forms of representing them (e.g. tables, graphs, functional notation, formulas); describing the relationships among variable quantities in a problem; using appropriate technology to interpret properties of their graphical representations (e.g., intercepts, slopes, rates of change, changes in rates of changes, maximum, minimum).

F.3 Solve linear and quadratic equations, linear inequalities, and system of linear equations and inequalities numerically; graphically, including use of appropriate technology; symbolically, including use of the quadratic formula.

F.4 Model and solve a variety of mathematical and real-world problems by using algebraic expressions, equations, and inequalities.

Social Studies

Content Standards for Social Studies are identical across all grades. Performance Standards differ from grade to grade.

Objective (Content Standard): A. Geography: Students in Wisconsin will learn about geography through the study of relationships among people, places, and environments.

Objective (Content Standard): B. History: Students in Wisconsin will learn about the history of Wisconsin, the United States, and the world, examining change and continuity over time in order to develop historical perspective, explain historical relationships, and analyze issues that affect the present and the future.

Objective (Content Standard): C. Political Science and Citizenship: Students in Wisconsin will learn about political science and acquire the knowledge of political systems necessary for developing individual civic responsibility by studying the history and contemporary uses of power, authority, and governance.

Objective (Content Standard): D. Economics: Students in Wisconsin will learn about production, distribution, exchange, and consumption so that they can make informed economic decisions.

Objective (Content Standard): E. Behavioral Sciences: Students in Wisconsin will learn about the behavioral sciences by exploring concepts from the discipline of sociology, the study of the interactions among individuals, groups, and institutions; the discipline of psychology, the study of factors that influence individual identity and learning; and the discipline of anthropology, the study of cultures in various times and settings.

Subskills (Performance Standards): Grade 4

A. Geography

A.1 Use reference points, latitude and longitude, direction, size, shape, and scale to locate positions on various representations of the earth's surface.

A.2 Locate on a map or globe physical features such as continents, oceans, mountain ranges, and land forms, natural features such as resources, flora, and fauna; and human features such as cities, states, and national borders.

A.3 Construct a map of the world from memory, showing the location of major land masses, bodies of water, and mountain ranges.

A.4 Describe and give examples of ways in which people interact with the physical environment, including use of land, location of communities, methods of construction, and design of shelters.

A.5 Use atlases, databases, grid systems, charts, graphs, and maps to gather information about the local community, Wisconsin, the United States, and the world.

A.6 Identify and distinguish between predictable environmental changes, such as weather patterns and seasons, and unpredictable changes, such as floods and droughts, and describe the social and economic effects of these changes.

A.7 Identify connections between the local community and other places in Wisconsin, the United States, and the world.

A.8 Identify major changes in the local community that have been caused by human beings, such as a construction project, a new highway, a building torn down, or a fire; discuss reasons for these changes; and explain their probable effects on the community and the environment.

A.9 Give examples to show how scientific and technological knowledge has led to environmental changes, such as pollution prevention measures, air-conditioning, and solar heating.

B. History

B.1 Identify and examine various sources of information that are used for constructing an understanding of the past, such as artifacts, documents, letters, diaries, maps, textbooks, photos, paintings, architecture, oral presentations, graphs, and charts.

B.2 Use a timeline to select, organize, and sequence information describing eras in history.

B.3 Examine biographies, stories, narratives, and folk tales to understand the lives of ordinary and extraordinary people, place them in time and context, and explain their relationship to important historical events.

B.4 Compare and contrast changes in contemporary life with life in the past by looking at social, economic, political, and cultural roles played by individuals and groups.

B.5 Identify the historical background and meaning of important political values such as freedom, democracy, and justice.

B.6 Explain the significance of national and state holidays, such as Independence Day and Martin Luther King, Jr. Day, and national and state symbols, such as the United States flag and the state flags.

B.7 Identify and describe important events and famous people in Wisconsin and United States history.

B.8 Compare past and present technologies related to energy, transportation, and communications and describe the effects of technological change, either beneficial or harmful, on people and the environment.

B.9 Describe examples of cooperation and interdependence among individuals, groups, and nations.

B.10 Explain the history, culture, tribal sovereignty, and current status of the American Indian tribes and bands in Wisconsin.

C. Political Science and Citizenship

C.1 Identify and explain the individual's responsibilities to family, peers, and the community, including the need for civility and respect for diversity.

C.2 Identify the documents, such as the Declaration of Independence, the Constitution, and the Bill of Rights, in which the rights of citizens in our country are guaranteed.

C.3 Explain how families, schools, and other groups develop, enforce, and change rules of behavior and explain how various behaviors promote or hinder cooperation.

C.4 Explain the basic purpose of government in American society, recognizing the three levels of government.

C.5 Explain how various forms of civic action such as running for political office, voting, signing an initiative, and speaking at hearings, can contribute to the well-being of the community.

C.6 Locate, organize, and use relevant information to understand an issue in the classroom or school, while taking into account the viewpoints and interests of different groups and individuals.

D. Economics

D.1 Describe and explain the role of money, banking, and savings in everyday life.

D.2 Identify situations requiring an allocation of limited economic resources and appraise the opportunity cost (for example, spending one's allowance on a movie will mean less money saved for a new vide game).

D.3 Identify local goods and services that are part of the global economy and explain their use in Wisconsin.

D.4 Give examples to explain how businesses and industry depend upon workers with specialized skills to make production more efficient.

D.5 Distinguish between private goods and services (for example, the family car or a local restaurant) and public goods and services (for example, the interstate highway system or the United States Postal Service).

D.6 Identify the economic roles of various institutions, including households, businesses, and government.

D.7 Describe how personal economic decisions, such as deciding what to buy, what to recycle, or how much to contribute to people in need, can affect the lives of people in Wisconsin, the United States, and the world.

E. Behavioral Science

E.1 Explain the influence of prior knowledge, motivation, capabilities, personal interests, and other factors on individual learning.

E.2 Explain the influence of factors such as family neighborhood, personal interests, language, likes and dislikes, and accomplishments on individual identity and development.

E.3 Describe how families are alike and different, comparing characteristics such as size, hobbies, celebrations, where families live, and how they make a living.

E.4 Describe the ways in which ethnic cultures influence the daily lives of people.

E.5 Identify and describe institutions such as school, church, police, and family and describe their contributions to the well being of the community, state, nation, and global society.

E.6 Give examples of group and institutional influences such as laws, rules, and peer pressure on people, events, and culture.

E.7 Explain the reasons why individuals respond in different ways to a particular event and the ways in which interactions among individuals influence behavior.

E.8 Describe and distinguish among the values and beliefs of different groups and institutions.

E.9 Explain how people learn about others who are different from themselves.

E.10 Give examples and explain how the media may influence opinions, choices, and decisions.

E.11 Give examples and explain how language, stories, folk tales, music, and other artistic creations are expressions of culture and how they convey knowledge of other peoples and cultures.

E.12 Give examples of important contributions made by Wisconsin citizens, United States citizens, and world citizens.

E.13 Investigate and explain similarities and differences in ways that cultures meet human needs.

E.14 Describe how differences in cultures may lead to understanding or misunderstanding among people.

E.15 Describe instances of cooperation and interdependence among individuals, groups, and nations, such as helping others in famines and disasters.

Subskills (Performance Standards): Grade 8

Geography

A.1 Use a variety of geographic representations, such as political, physical, and topographic maps, a globe, aerial photographs, and satellite images, to gather and compare information about a place.

A.2 Construct mental maps of selected locales, regions, states, and countries and draw maps from memory, representing relative location, direction, size, and shape.

A.3 Use an atlas to estimate distance, calculate scale, identify dominant patterns of climate and land use, and compute population density.

A.4 Conduct a historical study to analyze the use of the local environment in a Wisconsin community and to explain the effect of this use on the environment.

A.5 Identify and compare the natural resource bases of different states and regions in the United States and elsewhere in the world, using a statistical atlas, aerial photographs, satellite images, and computer databases.

A.6 Describe and distinguish between the environmental effects on the earth of short-term physical changes, such as those caused by floods, droughts, and snowstorms, and long-term physical changes, such as those caused by plate tectonics, erosion, and glaciations.

A.7 Describe the movement of people, ideas, diseases, and products throughout the world.

A.8 Describe and analyze the ways in which people in different regions of the world interact with their physical environments through vocational and recreational activities.

A.9 Describe how buildings and their decoration reflect cultural values and ideas, providing examples such as cave paintings, pyramids, sacred cities, castles, and cathedrals.

A.10 Identify major discoveries in science and technology and describe their social and economic effects on the physical and human environment.

A.11 Give examples of the causes and consequences of current global issues, such as the expansion of global markets, the urbanization of the developing world, the consumption of natural resources, and the extinction of species, and suggest possible responses by various individuals, groups, and nations.

History

B.1 Interpret the past using a variety of sources, such as biographies, diaries, journals, artifacts, eyewitness interviews, and other primary source materials, and evaluate the credibility of sources used.

B.2 Employ cause-and-effect arguments to demonstrate how significant events have influenced the past and the present in United States and world history.

B.3 Describe the relationships between and among significant events, such as the causes and consequences of wars in United States and world history.

B.4 Explain how and why events may be interpreted differently depending upon the perspectives of participants, witnesses, reporters, and historians.

B.5 Use historical evidence to determine and support a position about important political values, such as freedom, democracy, equality, or justice, and express the position coherently.

B.6 Analyze important political values such as freedom, democracy, equality, and justice embodied in documents such as the Declaration of Independence, the United States Constitution, and the Bill of Rights.

B.7 Identify significant events and people in the major eras of United States and world history.

B.8 Identify major scientific discoveries and technological innovations and describe their social and economic effects on society.

B.9 Explain the need for laws and policies to regulate science and technology.

B.10 Analyze examples of conflict, cooperation, and interdependence among groups, societies, or nations.

B.11 Summarize major issues associated with the history, culture, tribal sovereignty, and current status of the American Indian tribes and bands in Wisconsin.

B.12 Describe how history can be organized and analyzed using various criteria to group people and events chronologically, geographically, thematically, topically, and by issues.

Political Science and Citizenship

C.1 Identify and explain democracy's basic principles, including individual rights, responsibility for the common good, equal opportunity, equal protection of the laws, freedom of speech, justice, and majority rule with protection for minority rights.

C.2 Identify, cite, and discuss important political documents, such as the Constitution, the Bill of Rights, and landmark decisions of the Supreme Court, and explain their function in the American political system.

C.3 Explain how laws are developed, how the purposes of government are established, and how the powers of government are acquired, maintained, justified, and sometimes abused.

C.4 Describe and explain how the federal system separates the powers of federal, state, and local governments in the United States, and how legislative, executive, and judicial powers are balanced at the federal level.

C.5 Explain how the federal system and the separation of powers in the Constitution work to sustain both majority rule and minority rights.

C.6 Explain the role of political parties and interest groups in American politics.

C.7 Locate, organize, and use relevant information to understand an issues of public concern, take a position, and advocate the position in a debate.

C.8 Identify ways in which advocates participate in public policy debates.

C.9 Describe the role of international organizations such as military alliances and trade associations.

Economics

D.1 Describe and explain how money makes it easier to trade, borrow, save, invest, and compare the value of goods and services.

D.2 Identify and explain basic economic concepts: supply, demand, production, exchange, and consumption; labor, wages, and capital; inflation and deflation; market economy and command economy; public and private goods and services.

D.3 Describe Wisconsin's role in national and global economies and give examples of local economic activity in national global markets.

D.4 Describe how investments in human and physical capital, including new technology, affect standard of living and quality of life.

D.5 Give examples to show how government provides for national defense; health, safety, and environmental protection; defense of property rights; and the maintenance of free and fair market activity.

D.6 Identify and explain various points of view concerning economic issues, such as taxation, unemployment, inflation, the national debt, and distribution of income.

D.7 Identify the location of concentrations of selected natural resources and describe how their acquisition and distribution generates trade and shapes economic patterns.

D.8 Explain how and why people who start new businesses take risks to provide goods and services, considering profits as an incentive.

D.9 Explain why the earning power of workers depends on their productivity and the market value of what they produce.

D.10 Identify the economic roles of institutions such as corporations and businesses, banks, labor unions, and the Federal Reserve System.

D.11 Describe how personal decisions can have a global impact on issues such as trade agreements, recycling, and conserving the environment.

Behavioral Science

E.1 Give examples to explain and illustrate the influence of prior knowledge, motivation, capabilities, personal interests, and other factors on individual learning.

E.2 Give examples to explain and illustrate how factors such as family, gender, and socioeconomic status contribute to individual identity and development.

E.3 Describe the ways in which local, regional, and ethnic cultures may influence the everyday lives of people.

E.4 Describe and explain the means by which individuals, groups, and institutions may contribute to social continuity and change within a community.

E.5 Describe and explain the means by which groups and institutions meet the needs of individuals and societies.

E.6 Describe and explain the influence of status, ethnic origin, race, gender, and age on the interactions of individuals.

E.7 Identify and explain examples of bias, prejudice, and stereotyping, and how they contribute to conflict in a society.

E.8 Give examples to show how the media may influence the behavior and decision-making of individuals and groups.

E.9 Give examples of the cultural contributions of racial and ethnic groups in Wisconsin, the United States, and the world.

E.10 Explain how language, art, music, beliefs, and other components of culture can further global understanding or cause misunderstanding.

E.11 Explain how beliefs and practices, such as ownership of property or status at birth, may lead to conflict among people of different regions or cultures and give examples of such conflicts that have and have not been resolved.

E.12 Describe conflict resolution and peer mediation strategies used in resolving differences and disputes.

E.13 Select examples of artistic expressions from several different cultures for the purpose of comparing and contrasting the beliefs expressed.

E.14 Describe cooperation and interdependence among individuals, groups, and nations, such as helping others in times of crisis.

Subskills (Performance Standards): Grade 10

Geography

A.1 Use various types of atlases and appropriate vocabulary to describe the physical attributes of a place or region, employing such concepts as climate, plate tectonics, volcanism, and landforms, and to describe the human attributes, employing such concepts as demographics, birth and death rates, doubling time, emigration, and immigration.

A.2 Analyze information generated from a computer about a place, including statistical sources, aerial and satellite images, and three-dimensional models.

A.3 Construct mental maps of the world and the world's regions and draw maps from memory showing major physical and human features.

A.4 Analyze the short-term and long-term effects that major changes in population in various parts of the world have had or might have on the environment.

A.5 Use a variety of geographic information and resources to analyze and illustrate the ways in which the unequal global distribution of natural resources influences trade and shapes economic patterns.

A.6 Collect and analyze geographic information to examine the effect that a geographic or environmental change in one part of the world, such as volcanic activity, river diversion, ozone depletion, air pollution, deforestation, or desertification, may have on other parts of the world.

A.7 Collect relevant data to analyze the distribution of products among global markets and the movement of people among regions of the world.

A.8 Identify the world's major ecosystems and analyze how different economic, social, political, religious, and cultural systems have adapted to them.

A.9 Identify and analyze cultural factors, such as human needs, values, ideals, and public policies, that influence the design of places, such as an urban center, an industrial park, a public project, or a planned neighborhood.

A.10 Analyze the effect of cultural ethics and values in various parts of the world on scientific and technological development.

A.11 Describe scientific and technological development in various regions of the world and analyze the ways in which development affects environment and culture.

A.12 Assess the advantages and disadvantages of selected land use policies in the local community, Wisconsin, the United States, and the world.

A.13 Give examples and analyze conflict and cooperation in the establishment of cultural regions and political boundaries.

History

B.1 Explain different points of view on the same historical event, using data gathered from various sources, such as letters, journals, diaries, newspapers, government documents, and speeches.

B.2 Analyze primary and secondary sources related to a historical question to evaluate their relevance, make comparisons, integrate new information with prior knowledge, and come to a reasoned conclusion.

B.3 Recall, select, and analyze significant historical periods and the relationships among them.

B.4 Assess the validity of different interpretations of significant historical events.

B.5 Gather various types of historical evidence, including visual and quantitative data, to analyze issues of freedom and equality, liberty and order, region and nation, individual and community, law and conscience, diversity and civic duty; form a reasoned conclusion in the light of other possible conclusions; and develop a coherent argument in the light of other possible arguments.

B.6 Select and analyze various documents that have influenced the legal, political, and constitutional heritage of the United States.

B.7 Identify major works of art and literature produced in the United States and elsewhere in the world and explain how they reflect the era in which they were created.

B.8 Recall, select, and explain the significance of important people, their work, and their ideas in the areas of political and intellectual leadership, inventions, discoveries, and the arts, within each major era of Wisconsin, United States, and world history.

B.9 Select significant changes caused by technology, industrialization, urbanization, and population growth, and analyze the effects of these changes in the United States and the world.

B.10 Select instances of scientific, intellectual, and religious change in various regions of the world at different times in history and discuss the impact those changes had on beliefs and values.

B.11 Compare examples and analyze why governments of various countries have sometimes sought peaceful resolution to conflicts and sometimes gone to war.

B.12 Analyze the history, culture, tribal sovereignty, and current status of the American Indian tribes and bands in Wisconsin.

B.13 Analyze examples of ongoing change within and across cultures, such as the development of ancient civilizations; the rise of nation-states; and social, economic, and political revolutions.

B.14 Explain the origins, central ideas, and global influence of religions, such as Buddhism, Islam, Hinduism, Judaism, and Christianity.

B.15 Identify a historical or contemporary event in which a person was forced to take an ethical position, such as a decision to go to war, the impeachment of a president, or a presidential pardon, and explain the issues involved.

B.16 Describe the purpose and effects of treaties, alliances, and international organizations that characterize today's interconnected world.

B.17 Identify historical and current instances when national interests and global interests have seemed to be opposed and analyze the issues involved.

B.18 Explain the history of slavery, racial and ethnic discrimination, and efforts to eliminate discrimination in the United States and elsewhere in the world.

Political Science and Citizenship

C.1 Identify the sources, evaluate the justification, and analyze the implications of certain rights and responsibilities of citizens.

C.2 Describe how different political systems define and protect individual human rights.

C.3 Trace how legal interpretations of liberty, equality, justice, and power, as identified in the Constitution, the Bill of Rights, and other Constitutional Amendments, have changed and evolved over time.

C.4 Explain the multiple purposes of democratic government, analyze historical and contemporary examples of the tensions between those purposes, and illustrate how governmental powers can be acquired, used, abused, or legitimized.

C.5 Analyze different theories of how governmental powers might be used to help promote or hinder liberty, equality, and justice, and develop a reasoned conclusion.

C.6 Identify and analyze significant political benefits, problems, and solutions to problems related to federalism and the separation of powers.

C.7 Describe how past and present American political parties and interest groups have gained or lost influence on political decision-making and voting behavior.

C.8 Locate, organize, analyze, and use information from various sources to understand an issue of public concern, take a position, and communicate the position.

C.9 Identify and evaluate the means through which advocates influence public policy.

C.10 Identify ways people may participate effectively in community affairs and the political process.

C.11 Evaluate the ways in which public opinion can be used to influence and shape public policy.

C.12 Explain the United States' relationship to other nations and its role in international organizations, such as the United Nations, North Atlantic Treaty Organization, World Bank, International Monetary Fund, and North American Free Trade Agreement.

C.13 Describe and evaluate ideas of how society should be organized and political power should be exercised, including the ideas of monarchism, anarchism, socialism, fascism, and communism; compare these ideas to those of representative democracy; and assess how such ides have worked in practice.

C.14 Explain and analyze how different political and social movements have sought to mobilize public opinion and obtain governmental support in order to achieve their goals.

C.15 Describe and analyze the origins and consequences of slavery, genocide, and other forms of persecution, including the Holocaust.

C.16 Describe the evolution of movements to assert rights by people with disabilities, ethnic and racial groups, minorities, and women.

Economics

D.1 Explain how decisions about spending and production made by households, businesses, and governments determine the nation's levels of income, employment, and prices.

D.2 Use basic economic concepts (such as supply and demand; production, distribution, and consumption; labor, wages, and capital; inflation and deflation; market economy and command economy) to compare and contrast local, regional, and national economies across time and at the present time.

D.3 Analyze and evaluate the role of Wisconsin and the United States in the world economy.

D.4 Explain and evaluate the effects of new technology, global economic interdependence, and competition on the development of national policies and on the lives of individuals and families in the United States and the world.

D.5 Explain how federal budgetary policy and the Federal Reserve System's monetary policies influence overall levels of employment, interest rates, production, and prices.

D.6 Use economic concepts to analyze historical and contemporary questions about economic development in the United States and the world.

D.7 Compare, contrast, and evaluate different types of economies (traditional, command, market, and mixed) and analyze how they have been affected in the past by specific social and political systems and important historical events.

D.8 Explain the basic characteristics of international trade, including absolute and comparative advantage, barriers to trade, exchange rates, and balance of trade.

D.9 Explain the operations of common financial instruments (such as stocks and bonds) and financial institutions (such as credit companies, banks, and insurance companies).

D.10 Analyze the ways in which supply and demand, competition, prices, incentives, and profits influence what is produced and distributed in a competitive market system.

D.11 Explain how interest rates are determined by market forces that influence the amount of borrowing and saving done by investors, consumers, and government officials.

D.12 Compare and contrast how values and beliefs, such economic freedom, economic efficiency, equity, full employment, price stability, security, and growth, influence decisions in different economic systems.

D.13 Describe and explain global economic interdependence and competition, using examples to illustrate their influence on national and international policies.

D.14 Analyze the economic roles of institutions, such as corporations and businesses, banks, labor unions, and the Federal Reserve System.

Behavioral Science

E.1 Summarize research that helps explain how the brain's structure and function influence learning and behavior.

E.2 Explain how such factors as physical endowment and capabilities, family, gender, ethnicity, religion, socioeconomic status, attitudes, beliefs, work, and motivation contribute to individual identify and development.

E.3 Compare and describe similarities and differences in the ways various cultures define individual rights and responsibilities, including the use of rules, folkways, mores, and taboos.

E.4 Analyze the role of economic, political, educational, familial, and religious institutions as agents of both continuity and change, citing current and past examples.

E.5 Describe the ways cultural and social groups are defined and how they have changed over time.

E.6 Analyze the means by which and extent to which groups and institutions can influence people, events, and cultures in both historical and contemporary settings.

E.7 Use scientific methods to assess the influence of media on people's behavior and decisions.

E.8 Analyze issues of cultural assimilation and cultural preservation among ethnic and racial groups in Wisconsin, the United States, and the world.

E.9 Defend a point of view related to an ethical issue such as genetic engineering, declaring conscientious objector status, or restricting immigration.

E.10 Describe a particular culture as an integrated whole and use that understanding to explain its language, literature, arts, traditions, beliefs, values, and behaviors.

E.11 Illustrate and evaluate ways in which cultures resolve conflicting beliefs and practices.

E.12 Explain current and past efforts of groups and institutions to eliminate prejudice and discrimination against racial, ethnic, religious, and social groups such as women, children, the elderly, and individuals who are disabled.

E.13 Compare the ways in which a universal theme is expressed artistically in three different world cultures.

E.14 Use the research procedures and skills of the behavioral sciences (such as gathering, organizing, and interpreting data from several sources) to develop an informed position on an issue.

E.15 Identify the skills needed to work effectively alone, in groups, and in institutions.

E.16 Identify and analyze factors that influence a person's mental health.

E.17 Examine and describe various belief systems that exist in the world, such as democracy, socialism, and capitalism.

Science

Content Standards for Science are identical across all grades. Performance Standards differ from grade to grade.

Objective (Content Standard): A. Science Connections. Students in Wisconsin will understand that among the science disciplines there are unifying themes: systems, order, organization, and interactions; evidence, models, and explanations; constancy, change, and measurement; evolution, equilibrium, and energy; and form and function.

Objective (Content Standard): B. Nature of Science. Students in Wisconsin will understand that science is ongoing and inventive, and that scientific understandings have changed over time as new evidence is found.

Objective (Content Standard): C. Science Inquiry. Students in Wisconsin will investigate questions using scientific methods and tools, revise their personal understanding to accommodate knowledge, and communicate these understandings to others.

Objective (Content Standard): D. Physical Science. Students in Wisconsin will demonstrate an understanding of the physical and chemical properties of matter, the forms and properties of energy, and the ways in which matter and energy interact.

Objective (Content Standard): E. Earth and Space Science. Students in Wisconsin will demonstrate an understanding of the structure and systems of the earth and other bodies in the universe and their interactions.

Objective (Content Standard): F. Life and Environmental Science. Students in Wisconsin will demonstrate an understanding of the characteristics and structures of living things, the processes of life, and how living things interact with one another and their environment.

Objective (Content Standard): G. Science Applications. Students in Wisconsin will demonstrate an understanding of the relationship between science and technology and the ways in which that relationship influences human activities.

Objective (Content Standard): H. Science in Social and Personal Perspectives. Students in Wisconsin will use scientific information and skills to make decisions about themselves, Wisconsin, and the world in which they live.

Subskills (Performance Standards): Grade 4

Science Connections

A.1 When conducting science investigations, ask and answer questions that will help decide the general areas of science being addressed.

A.2 When faced with a science-related problem, decide what evidence, models, or explanations previously studied can be used to better understand what is happening now.

A.3 When investigating a science-related problem, decide what data can be collected to determine the most useful explanations.

A.4 When studying science-related problems, decide which of the science themes are important.

A.5 When studying a science-related problem, decide what changes over time are occurring or have occurred.

Nature of Science

B.1 Use encyclopedias, source books, texts, computers, teachers, parents, other adults, journals, popular press, and various other sources, to help answer science-related questions and plan investigations.

B.2 Acquire information about people who have contributed to the development of major ideas in the sciences and learn about the cultures in which these people lived and worked.

B.3 Show how the major developments of scientific knowledge in the earth and space, life and environment, and physical sciences have changed over time.

Science Inquiry

C.1 Use the vocabulary of the unifying themes to ask questions about objects, organisms, and events being studied.

C.2 Use the science content being learned to task questions, plan investigations, make observations, make predictions, and offer explanations.

C.3 Select multiple sources of information to help answer questions selected for classroom investigations.

C.4 Use simple science equipment safely and effectively, including rulers, balances, graduated cylinders, hand lenses, thermometers, and computers, to collect data relevant to questions and investigations.

C.5 Use data they have collected to develop explanations and answer questions generated by investigations.

C.6 Communicate the results of their investigations in ways their audiences will understand by using charts, graphs, drawings, written descriptions, and various other means, to display their answers.

C.7 Support their conclusions with logical arguments.

C.8 Ask additional questions that might help focus or further an investigation.

Physical Science

PROPERTIES OF EARTH MATERIALS

D.1 Understand that objects are made of more than one substance, by observing, describing and measuring the properties of earth materials, including properties of size, weight, shape, color, temperature, and the ability to react with other substances.

D.2 Group and/or classify objects and substances based on the properties of earth materials.

D.3 Understand that substances can exist in different states—solid, liquid, gas.

D.4 Observe and describe changes in form, temperature, color, speed, and direction of objects and construct explanations for the changes.

D.5 Construct simple models of what is happening to materials and substances undergoing change, using simple instruments or tools to aid observations and collect data.

POSITION AND MOTION OF OBJECTS

D.6 Observe and describe physical events in objects at rest or in motion.

D.7 Observe and describe physical events involving objects and develop record-keeping systems to follow these events by measuring and describing changes in their properties, including position relative to another object, motion over time, and position due to forces.

LIGHT, HEAT, ELECTRICITY, AND MAGNETISM

D.8 Ask questions and make observations to discover the differences between substances that can be touched (matter) and substances that cannot be touched (forms of energy, light, heat, electricity, sound, and magnetism).

Earth and Space Science

PROPERTIES OF EARTH MATERIALS

E.1 Investigate that earth materials are composed of rocks and soils and correctly use the vocabulary for rocks, minerals, and soils during these investigations.

E.2 Show that earth materials have different physical and chemical properties, including the properties of soils found in Wisconsin.

E.3 Develop descriptions of the land and water masses of the earth and of Wisconsin's rocks and minerals, using the common vocabulary of earth and space science.

OBJECTS IN THE SKY

E.4 Identify celestial objects (stars, sun, moon, planets) in the sky, noting changes in patterns of those objects over time.

CHANGES IN THE EARTH AND SKY

E.5 Describe the weather commonly founding Wisconsin in terms of clouds, temperature, humidity, and forms of precipitation, and the changes that occur over time, including seasonal changes.

E.6 Using the science themes, find patterns and cycles in the earth's daily, yearly, and long-term changes.

E.7 Using the science themes, describe resources used in the home, community, and nation as a whole.

E.8 Illustrate human resources use in mining, forestry, farming, and manufacturing in Wisconsin and everywhere else in the world.

Life and Environmental Science

THE CHARACTERISTICS OF ORGANISMS

F.1 Discover how each organism meets its basic needs for water, nutrients, protection, and energy in order to survive.

F.2 Investigate how organisms, especially plants, respond to both internal cues (the need for water) and external cues (changes in the environment).

LIFE CYCLES OF ORGANISMS

F.3 Illustrate the different ways that organisms grow through life stages and survive to produce new members of their type.

ORGANISMS AND THEIR ENVIRONMENT

F.4 Using the science themes, develop explanations for the connections among living and non-living things in various environments.

Science Applications

G.1 Identify the technology used by someone employed in a job or position in Wisconsin and explain how the technology helps.

G.2 Discover what changes in technology have occurred in a career chosen by a parent, grandparent, or an adult friend over a long period of time.

G.3 Determine what science discoveries have led to changes in technologies that are being used in the workplace by someone employed locally.

G.4 Identify the combinations of simple machines in a device used in the home, the workplace, or elsewhere in the community, to make or repair things, or to move goods or people.

G.5 Ask questions to find answers about how devices and machines were invented and produced.

Science in Personal and Social Perspectives

H.1 Describe how science and technology have helped, and in some cases hindered, progress in providing better food, more rapid information, quicker and safer transportation, and more effective health care.

H.2 Using the science themes, identify local and state issues that are helped by science and technology and explain how science and technology can also cause a problem.

H.3 Show how science has contributed to meeting personal needs, including hygiene, nutrition, exercise, safety, and health care.

H.4 Develop a list of issues that citizens must make decisions about and describe a strategy for becoming informed about the science behind those issues.

Subskills (Performance Standards): Grade 8

Science Connections

A.1 Develop their understanding of the science themes by using the themes to frame questions about science-related issues and problems.

A.2 Describe limitations of science systems and give reasons why specific science themes are included in or excluded from those systems.

A.3 Defend explanations and models by collecting and organizing evidence that supports them and critique explanations and models by collecting and organizing evidence that conflicts with them.

A.4 Collect evidence to show that models developed as explanations for events were (and are) based on the evidence available to scientists at the time.

A.5 Show how models and explanations, based on systems, were changed as new evidence accumulated (the effects of constancy, evolution, change, and measurement should all be part of these explanations).

A.6 Use models and explanations to predict actions and events in the natural world.

A.7 Design real or thought investigations to test the usefulness and limitations of a model.

A.8 Use the themes of evolution, equilibrium, and energy to predict future events or changes in the natural world.

Nature of Science

B.1 Describe how scientific knowledge and concepts have changed over time in the earth and space, life and environmental, and physical sciences.

B.2 Identify and describe major changes that have occurred in conceptual models and explanations in the earth and space, life and environment, and physical sciences and identify the people, cultures, and conditions that led to these developments.

B.3 Explain how the general rules of science apply to the development and use of evidence in science investigations, model-making, and applications.

B.4 Describe types of reasoning and evidence used outside of science to draw conclusions about the natural world.

B.5 Explain ways in which science knowledge is shared, checked, and extended, and show how these processes change over time.

B.6 Explain the ways in which scientific knowledge is useful and also limited when applied to social issues.

Science Inquiry

C.1 Identify questions they can investigate using resources and equipment they have available.

C.2 Identify data and locate sources of information including their own records to answer the questions being investigated.

C.3 Design and safely conduct investigations that provide reliable quantitative or qualitative data, as appropriate, to answer their questions.

C.4 Use inferences to help decide possible results of their investigations, use observations to check their inferences.

C.5 Use accepted scientific knowledge, models, and theories to explain their results and to raise further questions about investigations.

C.6 State what they have learned from investigations, relating their inferences to scientific knowledge and to data they have collected.

C.7 Explain their data and conclusions in ways that allow an audience to understand the questions they selected for investigation and the answers they have developed.

C.8 Use computer software and other technologies to organize, process, and present their data.

C.9 Evaluate, explain, and defend the validity of questions, hypotheses, and conclusions to their investigations.

C.10 Discuss the importance of their results and implications of their work with peers, teachers, and other adults.

C.11 Raise further questions which still need to be answered.

Physical Science

PROPERTIES AND CHANGES OF PROPERTIES IN MATTER

D.1 Observe, describe, and measure physical and chemical properties of elements and other substances to identify and group them according to properties such as density, melting points, boiling points, conductivity, magnetic attraction, solubility, and reactions to common physical and chemical tests.

D.2 Use the major ideas of atomic theory and molecular theory to describe physical and chemical interactions among substances, including solids, liquids, and gases.

D.3 Understand how chemical interactions and behaviors lead to new substances with different properties.

D.4 While conducting investigations, use the science themes to develop explanations of physical and chemical interactions and energy exchanges.

MOTIONS AND FORCES

D.5 While conducting investigations, explain the motion of objects by describing the forces acting on them.

D.6 While conducting investigations, explain the motion of objects using concepts of speed, velocity, acceleration, friction, momentum, and changes over time, among others, and apply these concepts and explanations to real-life situations outside the classroom.

D.7 While conducting investigations of common physical and chemical interactions occurring in the laboratory and the outside world, use commonly accepted definitions of energy and the idea of energy conservation.

TRANSFER OF ENERGY

D.8 Describe and investigate the properties of light, heat, gravity, radio waves, magnetic fields, electrical fields, and sound waves as they interact with material objects in common situations.

D.9 Explain the behaviors of various forms of energy by using the models of energy transmission, both in the laboratory and in real-life situations in the outside world.

D.10 Explain how models of the atomic structure of matter have changed over time, including historical models and modern atomic theory.

Earth and Space Science

STRUCTURE OF EARTH SYSTEM

E.1 Using the science themes, explain and predict changes in major features of land, water, and atmospheric systems.

E.2 Describe underlying structures of the earth that cause changes in the earth's surface.

E.3 Using the science themes during the process of investigation, describe climate, weather, ocean currents, soil movements and changes in the forces acting on the earth.

E.4 Using the science themes, analyze the influence living organisms have had on the earth's systems, including their impact on the composition of the atmosphere and the weathering of rocks.

EARTH'S HISTORY

E.5 Analyze the geologic and life history of the earth, including change over time, using various forms of scientific evidence.

E.6 Describe through investigations the use of the earth's resources by humans in both past and current cultures, particularly how changes in the resources used for the past 100 years are the basis for efforts to conserve and recycle renewable and non-renewable resources.

EARTH IN THE SOLAR SYSTEM

E.7 Describe the general structure of the solar system, galaxies, and the universe.

E.8 Using past and current models of the structure of the solar system, explain the daily, monthly, yearly, and long-term cycles of the earth, citing evidence gained from personal observation as well as evidence used by scientists.

Life and Environmental Science

STRUCTURE AND FUNCTION IN LIVING THINGS

F.1 Understand the structure and function of cells, organs, tissues, organ systems, and whole organisms.

F.2 Show how organisms have adapted structures to match their functions, providing means of encouraging individual and group survival within specific environments.

F.3 Differentiate between single-celled and multiple-celled organisms (humans) through investigation, comparing the cell functions of specialized cells for each type of organism.

REPRODUCTION AND HEREDITY

F.4 Investigate and explain that heredity is comprised of the characteristic traits found in genes within the cell of an organism.

F.5 Show how different structures both reproduce and pass on characteristics of their group.

REGULATION AND BEHAVIOR

F.6 Understand that an organism is regulated both internally and externally.

F.7. Understand that an organism's behavior evolves through adaptation to its environment.

POPULATIONS AND ECOSYSTEMS

F.8 Show through investigations how organisms both depend on and contribute to the balance or imbalance of populations and/or ecosystems, which in turn contribute to the total system of life on the planet.

DIVERSITY AND ADAPTATIONS OF ORGANISMS

F.9 Explain how some of the changes on the earth are contributing to changes in the balance of life and affecting the survival or population growth of certain species.

F.10 Project how current trends in human resource use and population growth will influence the natural environment, and show how current policies affect those trends.

Science Applications

G.1 Identify and investigate the skills people need for a career in science or technology and identify the academic courses that a person pursuing such a career would need.

G.2 Explain how current scientific and technological discoveries have an influence on the work people do and how some of these discoveries also lead to new careers.

G.3 Illustrate the impact that science and technology have had, both good and bad, on careers, systems, society, environment, and quality of life.

G.4 Propose a design (or re-design) of an applied science model or a machine that will have an impact in the community or elsewhere in the world and show how the design (or re-design) might work, including potential side-effects.

G.5 Investigate a specific local problem to which there has been a scientific or technological solution, including proposals for alternative courses of action, the choices that were made, reasons for the choices, any new problems created, and subsequent community satisfaction.

G.6 Use current texts, encyclopedias, source books, computers, experts, the popular press, or other relevant sources to identify examples of how scientific discoveries have resulted in new technology.

G.7 Show evidence of how science and technology are interdependent, using some examples drawn from personally conducted investigations.

Science in Personal and Social Perspectives

H.1 Evaluate the scientific evidence used in various media (for example, television, radio, Internet, popular press, and scientific journals) to address a social issue, using criteria of accuracy, logic, bias, relevance of data, and credibility of sources.

H.2 Present a scientific solution to a problem involving the earth and space, life and environmental, or physical sciences and participate in a consensus-building discussion to arrive at a group decision.

H.3 Understand the consequences of decisions affecting personal health and safety.

Subskills (Performance Standards): Grade 10

Science Connections

A.1 Apply the underlying themes of science to develop defensible visions of the future.

A.2 Show how conflicting assumptions about science themes lead to different opinions and decisions about evolution, health, population, longevity, education, and use of resources, and show how these opinions and decisions have diverse effects on an individual, a community, and a country, both now and in the future.

A.3 Give examples that show how partial systems, models, and explanations are used to give quick and reasonable solutions that are accurate enough for basic needs.

A.4 Construct arguments that show how conflicting models and explanations of events can start with similar evidence.

A.5 Show how the ideas and themes of science can be used to make real-life decisions about careers, work places, life-styles, and use of resources.

A.6 Identify and, using evidence learned or discovered, replace inaccurate personal models and explanations of science-related events.

A.7 Re-examine the evidence and reasoning that led to conclusions drawn from investigations, using the science themes.

Nature of Science

B.1 Show how cultures and individuals have contributed to the development of major ideas in the earth and space, life and environmental, and physical sciences.

B.2 Identify the cultural conditions that are usually present during great periods of discovery, scientific development, and invention.

B.3 Relate the major themes of science to human progress in understanding science and the world.

B.4 Show how basic research and applied research contribute to new discoveries, inventions, and applications.

B.5 Explain how science is based on assumptions about the natural world and themes that describe the natural world.

Science Inquiry

C.1 When studying science content, ask questions suggested by current social issues, scientific literature, and observations of phenomena, build hypotheses that might answer some of these questions, design possible investigations, and describe results that might emerge from such investigations.

C.2 Identify issues from an area of science study, write questions that could be investigated, review previous research on these questions, and design and conduct responsible and safe investigations to help answer the questions.

C.3 Evaluate the data collected during an investigation, critique the data-collection procedures and results, and suggest ways to make any needed improvements.

C.4 During investigations, choose the best data-collection procedures and materials available, use them competently, and calculate the degree of precision of the resulting data.

C.5 Use the explanations and models found in the earth and space, life and environmental, and physical sciences to develop likely explanations for the results of their investigations.

C.6 Present the results of investigations to groups concerned with the issues, explaining the meaning and implications of the results, and answering questions in terms the audience can understand.

C.7 Evaluate articles and reports in the popular press, in scientific journals, on television, and on the Internet, using criteria related to accuracy, degree of error, sampling, treatment of data, and other standards of experimental design.

Physical Science

STRUCTURE OF ATOMS AND MATTER

D.1 Describe atomic structure and the properties of atoms, molecules, and matter during physical and chemical interactions.

D.2 Explain the forces that hold the atom together and illustrate how nuclear interactions change the atom.

D.3 Explain exchanges of energy in chemical interactions and exchange of mass and energy in atomic/nuclear reactions.

CHEMICAL REACTIONS

D.4 Explain how substances, both simple and complex, interact with one another to produce new substances.

D.5 Identify patterns in chemical and physical properties and use them to predict likely chemical and physical changes and interactions.

D.6 Through investigations, identify the types of chemical interactions, including endothermic, exothermic, oxidation, photosynthesis, and acid/base reactions.

MOTIONS AND FORCES

D.7 Qualitatively and quantitatively analyze changes in the motions of objects and the forces that act on them and represent analytical data both algebraically and graphically.

D.8 Understand the forces of gravitation, the electromagnetic force, intermolecular force, and explain their impact on the universal system.

D.9 Describe models of light, heat, and sound and through investigations describe similarities and differences in the way these energy forms behave.

CONSERVATION OF ENERGY AND THE INCREASE IN DISORDER

D.10 Using the science themes, illustrate the law of conservation of energy during chemical and nuclear reactions.

INTERACTIONS OF MATTER AND ENERGY

D.11 Using the science themes, explain common occurrences in the physical world.

D.12 Using the science themes and knowledge of chemical, physical, atomic, and nuclear interactions, explain changes in materials, living things, earth's features, and stars.

Earth and Space Science

ENERGY IN THE EARTH SYSTEM

E.1 Using the science themes, distinguish between internal energies (decay of radioactive isotopes, gravity) and external energies (sun) in the earth's systems and show how these sources of energy have an impact on those systems.

GEOCHEMICAL CYCLES

E.2 Analyze the geochemical and physical cycles of the earth and use them to describe movements of matter.

THE ORIGIN AND EVOLUTION OF THE EARTH SYSTEM

E.3 Using the science themes, describe theories of the origins and evolution of the universe and solar system, including the earth system as a part of the solar system, and relate these theories and their implications to geologic time on earth.

E.4 Analyze the benefits, costs, and limitations of past, present, and projected use of resources and technology and explain the consequences to the environment.

THE ORIGIN AND EVOLUTION OF THE UNIVERSE

E.5 Using the science themes, understand that the origin of the universe is not completely understood, but that there are current ideas in science that attempt to explain its origin.

Life and Environmental Science

THE CELL

F.1 Evaluate the normal structures and the general and special functions of cells in single-celled and multiple-celled organisms.

F.2 Understand how cells differentiate and how cells are regulated.

THE MOLECULAR BASIS OF HEREDITY

F.3 Explain current scientific ideas and information about the molecular and genetic basis of heredity.

F.4 State the relationship between functions of the cell and functions of the organism as related to genetics and heredity.

BIOLOGICAL EVOLUTION

F.5 Understand the theory of evolution, natural selection, and biological classification.

F.6 Using concepts of evolution and heredity, account for changes in species and the diversity of species, include the influence of these changes on science, e.g. breeding of plants or animals.

THE INTERDEPENDENCE OF ORGANISMS

F.7 Investigate how organisms both cooperate and compete in ecosystems.

F.8 Using the science themes, infer changes in ecosystems prompted by the introduction of new species, environmental conditions, chemicals, and air, water, or earth pollution.

MATTER, ENERGY AND ORGANIZATION IN LIVING SYSTEMS

F.9 Using the science themes, investigate energy systems (related to food chains) to show how energy is stored in food (plants and animals) and how energy is released by digestion and metabolism.

F.10 Understand the impact of energy on organisms in living systems.

F.11 Investigate how the complexity and organization of organisms accommodate the need for obtaining, transforming, transporting, releasing, and eliminating the matter and energy used to sustain an organism.

THE BEHAVIOR OF ORGANISMS

F.12 Trace how the sensory and nervous systems of various organisms react to the internal and external environment and transmit survival or learning stimuli to cause changes in behavior or responses.

Science Applications

G.1 Identify personal interests in science and technology, implications that these interests might have for future education, and decisions to be considered.

G.2 Design, build, evaluate, and revise models and explanations related to the earth and space, life and environmental, and physical sciences.

G.3 Analyze the costs, benefits, or problems resulting from a scientific or technological innovation, including implications for the individual and the community.

G.4 Show how a major scientific or technological change has had an impact on work, leisure, or the home.

G.5 Choose a specific problem in our society, identify alternative scientific or technological solutions to that problem and argue its merits.

Science in Personal and Social Perspectives

H.1 Using the science themes and knowledge of the earth and space, life and environmental, and physical sciences, analyze the costs, risks, benefits, and consequences of a proposal concerning resource management in the community and determine the potential impact of the proposal on life in the community and the region.

H.2 Evaluate proposed policy recommendations (local, state, and/or national) in science and technology for validity, evidence, reasoning, and implications, both short and long-term.

H.3 Show how policy decisions in science depend on social values, ethics, beliefs, and time-frames as well as considerations of science and technology.

H.4 Advocate a solution or combination of solutions to a problem in science or technology.

H.5 Investigate how current plans or proposals concerning resource management, scientific knowledge, or technological development will have an impact on the environment, ecology, and quality of life in a community or region.

H.6 Evaluate data and sources of information when using scientific information to make decisions.

H.7 When making decisions, construct a plan that includes the use of current scientific knowledge and scientific reasoning.

1-2 Test Design

Tables 1 through 6 present information regarding the configuration of the 2004 WKCE assessments. Table 1 provides the number of multiple-choice (MC) and constructed-response (CR) items on each test, as well as the number of obtainable points on each MC item and CR item. Except for Language Arts, all contents for grade 10 do not contain any CR items. The CR items for Language Arts are items from Writing. Also, Grade 10 tests have a lower possible score point compared to tests for grades 4 and 8.

Tables 2 through 6 provide the number of items and score points for each MC and CR item by content standard for Reading, Mathematics, Language Arts, Social Studies, and Science. For example, Content Standard A for Reading grade 4 consists of 30 MC items and 1 CR item, and its total score points are 34.

Every item is associated with a content standard, and the definition of each content standard can be found in the preceding section, “WKCE Operational 04-05 Objectives and Subskills.”

One item, #25, of Mathematics Grade 10 was removed because the item was flawed.

Part 2: 2004 WKCE Test Results

In November 2004, Wisconsin Grade 4, 8, and 10 students took WKCE assessments, which consist of Reading, Mathematics, Language Arts, Social Studies, and Science.

Test results for test content level and sub-content level were summarized. For test content level, raw scores, scale scores based on IRT pattern scoring, and percentages at performance level were prepared, and for sub-content level, raw scores and scale scores of standard performance index (SPI) were summarized. Following NCLB's recommendation, raw scores and scale scores for content level were analyzed by five different sample groups: the census data, gender, ethnicity, socioeconomic status (SES), disability, and English Language Proficiency (ELP).

2-1 Summary Statistics for Raw Scores

Summary statistics are based on the total Wisconsin student population who took 2004 Fall WKCE assessment. Table 7 presents the number of students, the mean, mean P-value, standard deviation (SD), skewness, kurtosis, minimum observed score, maximum observed score, reliability (Cronbach's alpha) and standard error of measurement for raw scores based on the census data. Mean P-value is computed by the following formula,
mean P-value = mean / total score points. For example, the mean P-value of 0.72 for Reading grade 4 was computed by dividing the mean 35.36 by the total score of
49 (See Table 1). Skewness and kurtosis informed the shape of the raw score distribution. When the distribution is normal, 0 is a value for both skewness and kurtosis. If any student failed all items in the test, the minimum observed score is 0, while if any student got the full scores for all items, the maximum observed score is the total score points of the test. For Reading grade 4, 0 and 49 indicates that there are students who failed all items, or got the maximum score. Alpha and SEM are related to reliability, and the concepts for these two are described in a later section. In general, a test with high reliability and low SEM is considered a good test. Test length (number of items and score points) is one of important factors that influence reliability and SEM. Descriptive information for subgroups, gender, ethnicity, socioeconomic status, disability, and English language proficiency, were summarized from Table 8 to Table 14.

Reading

Grade 4

The mean raw score for the total population of students taking the 2005 Grade 4 Reading Assessment is 35.36 (p=0.72) with a standard deviation of 8.58. The "p" in parenthesis represents mean p-value. The mean raw score for males is 34.29 (p=0.70) with a standard deviation of 8.81, and for females the mean is 36.49 (p=0.74) with a standard deviation of 8.18. The mean raw scores for White, African American, Hispanic, and Others is 36.77 (p=0.75), 29.21 (p=0.60), 31.04 (p=0.63), and 32.98 (p=0.67) with standard deviations of 7.95, 9.07, 8.43, and 8.46 respectively.

The mean raw score for "Economically Disadvantaged" to SES is 31.25 (p=0.64) with a standard deviation of 8.85, and for "Not Disadvantaged" the mean is 37.35 (p=0.76) with a standard deviation of 7.70. The mean raw score for "Disabled" to Disability is 27.42 (p=0.56) with a standard deviation of 9.85, and for "Not Disabled" the mean is 37.35 (p=0.74) with a standard deviation of 7.70. The mean raw score for "Proficient" to ELS is 35.58 (p=0.73) with a standard deviation of 8.49, and for "Not Proficient" the mean is 29.24 (p=0.60) with a standard deviation of 7.90.

The raw score frequency distribution of the fourth-grade Reading assessment for the total population is shown in Table A-1[1]. Figure A-1 graphically represents the raw score frequency distributions for the total population.

Grade 8

The mean raw score for the total population of students taking the 2005 Grade 8 Reading Assessment is 35.93 (p=0.70) with a standard deviation of 9.48. The "p" in parenthesis represents mean p-value. The reliability is .90 and its SEM is 2.93. The mean raw score for males is 34.43 (p=0.68) with a standard deviation of 9.74, and for females the mean is 37.52 (p=0.74) with a standard deviation of 8.93. The mean raw scores for White, African American, Hispanic, and Others is 37.55 (p=0.74), 27.02 (p=0.53), 30.91 (p=0.61), and 32.71 (p=0.64) with standard deviations of 8.58, 9.93, 9.82, and 9.53 respectively.

The mean raw score for "Economically Disadvantaged" to SES is 30.45 (p=0.60) with a standard deviation of 10.05, and for "Not Disadvantaged" the mean is 38.03 (p=0.75) with a standard deviation of 8.35. The mean raw score for "Disabled" to Disability is 24.96 (p=0.49) with a standard deviation of 9.67, and for "Not Disabled" the mean is 37.61 (p=0.74) with a standard deviation of 8.25. The mean raw score for "Proficient" to ELS is 36.19 (p=0.71) with a standard deviation of 9.37, and for "Not Proficient" the mean is 27.26 (p=0.53) with a standard deviation of 9.13.

Table A-2 represents the raw score frequency distribution of the eighth-grade Reading assessment based on the census data, and Figure A-2 graphically represents the frequency distribution.

Grade 10

The mean raw score for the total population of students taking the 2005 Grade 10 Reading Assessment is 21.43 (p=0.79) with a standard deviation of 4.53. The "p" in parenthesis represents mean p-value. The reliability is .85 and its SEM is 1.78. The mean raw score for males is 20.97 (p=0.78) with a standard deviation of 4.81, and for females the mean is 21.90 (p=0.81) with a standard deviation of 4.17. The mean raw scores for White, African American, Hispanic, and Others is 22.02 (p=0.82), 17.53 (p=0.65), 19.03 (p=0.70), and 19.96 (p=0.74) with standard deviations of 4.11, 5.44, 5.22, and 4.72 respectively.

[1] All tables and figures referenced in this section (A-1 through A-29) can be found in Appendix A.

The mean raw score for “Economically Disadvantaged” to SES is 19.05 (p=0.71) with a standard deviation of 5.18, and for “Not Disadvantaged” the mean is 22.08 (p=0.82) with a standard deviation of 4.10. The mean raw score for “Disabled” to Disability is 16.31 (p=0.60) with a standard deviation of 5.33, and for “Not Disabled” the mean is 22.13 (p=0.82) with a standard deviation of 3.91. The mean raw score for “Proficient” to ELS is 21.52 (p=0.80) with a standard deviation of 4.47, and for “Not Proficient” the mean is 16.92 (p=0.63) with a standard deviation of 4.86.

Table A-3 represents the raw score frequency distribution of the tenth-grade Reading assessment based on the census data, and Figure A-3 graphically represents the frequency distribution.

Mathematics

Grade 4

The mean raw score for the total population of students taking the 2005 Grade 4 Mathematics Assessment is 42.26 (p=0.61) with a standard deviation of 11.95. The “p” in parenthesis represents mean p-value. The reliability is .90 and its SEM is 3.83. The mean raw score for males is 42.82 (p=0.62) with a standard deviation of 12.11, and for females the mean is 41.68 (p=0.60) with a standard deviation of 11.75. The mean raw scores for White, African American, Hispanic, and Others is 44.18 (p=0.64), 32.42 (p=0.47), 36.90 (p=0.53), and 41.58 (p=0.60) with standard deviations of 11.29, 11.34, 10.80, and 11.68 respectively.

The mean raw score for “Economically Disadvantaged” to SES is 36.60 (p=0.53) with a standard deviation of 11.49, and for “Not Disadvantaged” the mean is 45.00 (p=0.65) with a standard deviation of 11.19. The mean raw score for “Disabled” to Disability is 35.00 (p=0.51) with a standard deviation of 12.04, and for “Not Disabled” the mean is 43.31 (p=0.63) with a standard deviation of 11.57. The mean raw score for “Proficient” to ELS is 42.51 (p=0.62) with a standard deviation of 11.96, and for “Not Proficient” the mean is 37.47 (p=0.54) with a standard deviation of 10.64.

Table A-4 represents the raw score frequency distribution of the fourth-grade Mathematics assessment based on the census data, and Figure A-4 graphically represents the frequency distribution.

Grade 8

The mean raw score for the total population of students taking the 2005 Grade 8 Mathematics Assessment is 41.97 (p=0.63) with a standard deviation of 12.47. The “p” in parenthesis represents mean p-value. The reliability is .91 and its SEM is 3.74. The mean raw score for males is 41.99 (p=0.63) with a standard deviation of 12.87, and for females the mean is 41.95 (p=0.63) with a standard deviation of 12.04. The mean raw scores for White, African American, Hispanic, and Others is 44.12 (p=0.66), 29.18 (p=0.44), 35.71 (p=0.53), and 39.28 (p=0.59) with standard deviations of 11.55, 11.40, 11.40, and 11.77 respectively.

The mean raw score for “Economically Disadvantaged” to SES is 34.69 (p=0.52) with a standard deviation of 12.07, and for “Not Disadvantaged” the mean is 44.76 (p=0.67) with a standard deviation of 11.46. The mean raw score for “Disabled” to Disability is 29.03 (p=0.43) with a standard deviation of 11.42, and for “Not Disabled” the mean is 43.96 (p=0.66) with a standard deviation of 11.39. The mean raw score for “Proficient” to ELS is 42.18 (p=0.63) with a standard deviation of 12.46, and for “Not Proficient” the mean is 34.70 (p=0.52) with a standard deviation of 10.61.

Table A-5 represents the raw score frequency distribution of the eighth-grade Mathematics assessment based on the census data, and Figure A-5 graphically represents the frequency distribution.

Grade 10

The mean raw score for the total population of students taking the 2005 Grade 10 Mathematics Assessment is 35.62 (p=0.73) with a standard deviation of 8.78. The “p” in parenthesis represents mean p-value. The reliability is .91 and its SEM is 2.69. The mean raw score for males is 35.63 (p=0.73) with a standard deviation of 9.09, and for females the mean is 35.61 (p=0.73) with a standard deviation of 8.45. The mean raw scores for White, African American, Hispanic, and Others is 37.05 (p=0.76), 25.64 (p=0.52), 29.88 (p=0.61), and 32.78 (p=0.67) with standard deviations of 7.96, 8.72, 8.71, and 8.70 respectively.

The mean raw score for “Economically Disadvantaged” to SES is 30.05 (p=0.61) with a standard deviation of 9.20, and for “Not Disadvantaged” the mean is 37.15 (p=0.76) with a standard deviation of 8.01. The mean raw score for “Disabled” to Disability is 25.39 (p=0.52) with a standard deviation of 8.67, and for “Not Disabled” the mean is 37.03 (p=0.76) with a standard deviation of 7.81. The mean raw score for “Proficient” to ELS is 35.78 (p=0.73) with a standard deviation of 8.73, and for “Not Proficient” the mean is 28.00 (p=0.57) with a standard deviation of 8.03.

Table A-6 represents the raw score frequency distribution of the tenth-grade Mathematics assessment based on the census data, and Figure A-6 graphically represents the frequency distribution.

Language Arts

Grade 4

The mean raw score for the total population of students taking the 2005 Grade 4 Language Arts Assessment is 30.07 (p=0.63) with a standard deviation of 8.41. The “p” in parenthesis represents mean p-value. The reliability is .85 and its SEM is 3.31. The mean raw score for males is 28.95 (p=0.60) with a standard deviation of 8.45, and for females the mean is 31.25 (p=0.65) with a standard deviation of 8.19. The mean raw scores for White, African American, Hispanic,

and Others is 31.34 (p=0.65), 24.38 (p=0.51), 26.13 (p=0.54), and 28.29 (p=0.59) with standard deviations of 7.98, 8.43, 7.94, and 8.23 respectively.

The mean raw score for "Economically Disadvantaged" to SES is 26.26 (p=0.55) with a standard deviation of 8.30, and for "Not Disadvantaged" the mean is 31.91 (p=0.66) with a standard deviation of 7.82. The mean raw score for "Disabled" to Disability is 22.54 (p=0.47) with a standard deviation of 8.58, and for "Not Disabled" the mean is 31.12 (p=0.65) with a standard deviation of 7.83. The mean raw score for "Proficient" to ELS is 30.35 (p=0.63) with a standard deviation of 8.36, and for "Not Proficient" the mean is 24.72 (p=0.51) with a standard deviation of 7.50.

Table A-7 represents the raw score frequency distribution of the fourth-grade Language Arts assessment based on the census data, and Figure A-7 graphically represents the frequency distribution.

Grade 8

The mean raw score for the total population of students taking the 2005 Grade 8 Language Arts Assessment is 31.92 (p=0.63) with a standard deviation of 9.18. The "p" in parenthesis represents mean p-value. The reliability is .86 and its SEM is 3.46. The mean raw score for males is 30.62 (p=0.60) with a standard deviation of 9.37, and for females the mean is 33.31 (p=0.65) with a standard deviation of 8.76. The mean raw scores for White, African American, Hispanic, and Others is 33.41 (p=0.66), 24.06 (p=0.47), 27.00 (p=0.53), and 28.71 (p=0.56) with standard deviations of 8.58, 9.00, 8.76, and 8.57 respectively.

The mean raw score for "Economically Disadvantaged" to SES is 26.74 (p=0.53) with a standard deviation of 9.04, and for "Not Disadvantaged" the mean is 33.92 (p=0.67) with a standard deviation of 8.42. The mean raw score for "Disabled" to Disability is 21.91 (p=0.43) with a standard deviation of 8.06, and for "Not Disabled" the mean is 33.46 (p=0.66) with a standard deviation of 8.33. The mean raw score for "Proficient" to ELS is 32.16 (p=0.63) with a standard deviation of 9.12, and for "Not Proficient" the mean is 24.16 (p=0.47) with a standard deviation of 7.49.

Table A-8 represents the raw score frequency distribution of the eighth-grade Language Arts assessment based on the census data, and Figure A-8 graphically represents the frequency distribution.

Grade 10

The mean raw score for the total population of students taking the 2005 Grade 10 Language Arts Assessment is 20.38 (p=0.68) with a standard deviation of 4.39. The "p" in parenthesis represents mean p-value. The reliability is .80 and its SEM is 1.96. The mean raw score for males is 19.62 (p=0.65) with a standard deviation of 4.58, and for females the mean is 21.16 (p=0.71) with a standard deviation of 4.03. The mean raw scores for White, African American, Hispanic, and Others is 20.98 (p=0.70), 16.57 (p=0.55), 17.80 (p=0.59), and 18.66 (p=0.62) with standard deviations of 4.03, 4.86, 4.83, and 4.39 respectively.

The mean raw score for “Economically Disadvantaged” to SES is 17.84 (p=0.60) with a standard deviation of 4.63, and for “Not Disadvantaged” the mean is 21.07 (p=0.70) with a standard deviation of 4.05. The mean raw score for “Disabled” to Disability is 15.27 (p=0.51) with a standard deviation of 4.41, and for “Not Disabled” the mean is 21.08 (p=0.70) with a standard deviation of 3.89. The mean raw score for “Proficient” to ELS is 20.47 (p=0.68) with a standard deviation of 4.34, and for “Not Proficient” the mean is 15.97 (p=0.53) with a standard deviation of 4.17.

Table A-9 represents the raw score frequency distribution of the tenth-grade Language Arts assessment based on the census data, and Figure A-9 graphically represents the frequency distribution.

Social Studies

Grade 4

The mean raw score for the total population of students taking the 2005 Grade 4 Social Studies Assessment is 36.85 (p=0.72) with a standard deviation of 7.71. The “p” in parenthesis represents mean p-value. The reliability is .85 and its SEM is 2.95. The mean raw score for males is 36.87 (p=0.72) with a standard deviation of 7.79, and for females the mean is 36.82 (p=0.72) with a standard deviation of 7.64. The mean raw scores for White, African American, Hispanic, and Others is 38.23 (p=0.75), 30.00 (p=0.59), 33.33 (p=0.65), and 35.23 (p=0.69) with standard deviations of 6.85, 8.85, 7.80, and 7.61 respectively.

The mean raw score for “Economically Disadvantaged” to SES is 33.09 (p=0.65) with a standard deviation of 8.17, and for “Not Disadvantaged” the mean is 38.66 (p=0.76) with a standard deviation of 6.77. The mean raw score for “Disabled” to Disability is 32.15 (p=0.63) with a standard deviation of 8.74, and for “Not Disabled” the mean is 37.53 (p=0.74) with a standard deviation of 7.30. The mean raw score for “Proficient” to ELS is 37.06 (p=0.73) with a standard deviation of 7.66, and for “Not Proficient” the mean is 32.55 (p=0.64) with a standard deviation of 7.61.

Table A-10 represents the raw score frequency distribution of the fourth-grade Social Studies assessment based on the census data, and Figure A-10 graphically represents the frequency distribution.

Grade 8

The mean raw score for the total population of students taking the 2005 Grade 8 Social Studies Assessment is 37.28 (p=0.68) with a standard deviation of 9.09. The “p” in parenthesis represents mean p-value. The reliability is .87 and its SEM is 3.25. The mean raw score for males is 37.26 (p=0.68) with a standard deviation of 9.36, and for females the mean is 37.30 (p=0.68) with a standard deviation of 8.80. The mean raw scores for White, African American, Hispanic, and Others is 38.93 (p=0.71), 27.78 (p=0.51), 32.44 (p=0.59), and 34.47 (p=0.63) with standard deviations of 8.10, 9.74, 9.29, and 8.70 respectively.

The mean raw score for “Economically Disadvantaged” to SES is 31.81 (p=0.58) with a standard deviation of 9.57, and for “Not Disadvantaged” the mean is 39.37 (p=0.72) with a standard deviation of 7.97. The mean raw score for “Disabled” to Disability is 28.34 (p=0.52) with a standard deviation of 9.52, and for “Not Disabled” the mean is 38.66 (p=0.70) with a standard deviation of 8.20. The mean raw score for “Proficient” to ELS is 37.49 (p=0.68) with a standard deviation of 9.03, and for “Not Proficient” the mean is 30.32 (p=0.55) with a standard deviation of 8.40.

Table A-11 represents the raw score frequency distribution of the eighth-grade Social Studies assessment based on the census data, and Figure A-11 graphically represents the frequency distribution.

Grade 10

The mean raw score for the total population of students taking the 2005 Grade 10 Social Studies Assessment is 35.75 (p=0.72) with a standard deviation of 8.83. The “p” in parenthesis represents mean p-value. The reliability is .90 and its SEM is 2.80. The mean raw score for males is 35.80 (p=0.72) with a standard deviation of 9.29, and for females the mean is 35.71 (p=0.71) with a standard deviation of 8.33. The mean raw scores for White, African American, Hispanic, and Others is 37.06 (p=0.74), 26.74 (p=0.53), 30.70 (p=0.61), and 32.72 (p=0.65) with standard deviations of 8.03, 9.63, 9.51, and 8.80 respectively.

The mean raw score for “Economically Disadvantaged” to SES is 30.42 (p=0.61) with a standard deviation of 9.54, and for “Not Disadvantaged” the mean is 37.22 (p=0.74) with a standard deviation of 8.04. The mean raw score for “Disabled” to Disability is 26.69 (p=0.53) with a standard deviation of 9.46, and for “Not Disabled” the mean is 37.01 (p=0.74) with a standard deviation of 7.96. The mean raw score for “Proficient” to ELS is 35.93 (p=0.72) with a standard deviation of 8.76, and for “Not Proficient” the mean is 27.70 (p=0.55) with a standard deviation of 8.36.

Table A-12 represents the raw score frequency distribution of the tenth-grade Social Studies assessment based on the census data, and Figure A-12 graphically represents the frequency distribution.

Science

Grade 4

The mean raw score for the total population of students taking the 2005 Grade 4 Science Assessment is 46.50 (p=0.65) with a standard deviation of 9.54. The “p” in parenthesis represents mean p-value. The reliability is .87 and its SEM is 3.49. The mean raw score for males is 47.14 (p=0.66) with a standard deviation of 9.59, and for females the mean is 45.83 (p=0.65) with a standard deviation of 9.43. The mean raw scores for White, African American, Hispanic,

and Others is 48.48 (p=0.68), 37.34 (p=0.53), 40.82 (p=0.57), and 43.71 (p=0.62) with standard deviations of 8.42, 9.94, 9.42, and 9.37 respectively.

The mean raw score for "Economically Disadvantaged" to SES is 41.51 (p=0.59) with a standard deviation of 9.79, and for "Not Disadvantaged" the mean is 48.92 (p=0.69) with a standard deviation of 8.41. The mean raw score for "Disabled" to Disability is 40.80 (p=0.57) with a standard deviation of 10.39, and for "Not Disabled" the mean is 47.34 (p=0.67) with a standard deviation of 9.11. The mean raw score for "Proficient" to ELS is 46.88 (p=0.66) with a standard deviation of 9.41, and for "Not Proficient" the mean is 39.08 (p=0.55) with a standard deviation of 8.94.

Table A-13 represents the raw score frequency distribution of the fourth-grade Science assessment based on the census data, and Figure A-13 graphically represents the frequency distribution.

Grade 8

The mean raw score for the total population of students taking the 2005 Grade 8 Science Assessment is 50.45 (p=0.66) with a standard deviation of 11.73. The "p" in parenthesis represents mean p-value. The reliability is .90 and its SEM is 3.67. The mean raw score for males is 51.04 (p=0.67) with a standard deviation of 12.10, and for females the mean is 49.82 (p=0.66) with a standard deviation of 11.29. The mean raw scores for White, African American, Hispanic, and Others is 52.89 (p=0.70), 36.92 (p=0.49), 42.91 (p=0.56), and 45.74 (p=0.60) with standard deviations of 10.18, 12.17, 11.87, and 11.03 respectively.

The mean raw score for "Economically Disadvantaged" to SES is 43.00 (p=0.57) with a standard deviation of 12.31, and for "Not Disadvantaged" the mean is 53.30 (p=0.70) with a standard deviation of 10.15. The mean raw score for "Disabled" to Disability is 39.62 (p=0.52) with a standard deviation of 12.44, and for "Not Disabled" the mean is 52.13 (p=0.69) with a standard deviation of 10.68. The mean raw score for "Proficient" to ELS is 50.78 (p=0.67) with a standard deviation of 11.60, and for "Not Proficient" the mean is 39.11 (p=0.51) with a standard deviation of 10.56.

Table A-14 represents the raw score frequency distribution of the eighth-grade Science assessment based on the census data, and Figure A-14 graphically represents the frequency distribution.

Grade 10

The mean raw score for the total population of students taking the 2005 Grade 10 Science Assessment is 33.16 (p=0.66) with a standard deviation of 7.82. The "p" in parenthesis represents mean p-value. The reliability is .86 and its SEM is 2.93. The mean raw score for males is 33.80 (p=0.68) with a standard deviation of 8.13, and for females the mean is 32.49 (p=0.65) with a standard deviation of 7.43. The mean raw scores for White, African American, Hispanic, and Others is 34.44 (p=0.69), 24.41 (p=0.49), 28.17 (p=0.56), and 29.99 (p=0.60) with standard deviations of 7.09, 7.73, 7.86, and 7.81 respectively.

The mean raw score for "Economically Disadvantaged" to SES is 28.33 (p=0.57) with a standard deviation of 8.16, and for "Not Disadvantaged" the mean is 34.48 (p=0.69) with a standard deviation of 7.18. The mean raw score for "Disabled" to Disability is 25.62 (p=0.51) with a standard deviation of 8.14, and for "Not Disabled" the mean is 34.21 (p=0.68) with a standard deviation of 7.17. The mean raw score for "Proficient" to ELS is 33.33 (p=0.67) with a standard deviation of 7.75, and for "Not Proficient" the mean is 25.29 (p=0.51) with a standard deviation of 7.02.

Table A-15 represents the raw score frequency distribution of the tenth-grade Science assessment based on the census data, and Figure A-15 graphically represents the frequency distribution.

2-2 Summary Statistics for Scale Scores

Scale scores for WKCE are estimated based on IRT pattern scoring. With pattern scoring, students with the same number of raw scores can receive different scale scores. Table 15 presents the mean, SD, skewness, kurtosis, minimum observed score (min), and maximum observed score (max) for the total population by content and grade. Tables 16 through 22 present the mean, SD, and min and max by subgroups (gender, ethnicity, socioeconomic status, disability status, and ELP) by content and grade. As grade increases, the mean scale score increases because vertical scaling is applied to *TerraNova*, and WKCE is on the *TerraNova* scale.

Reading

Grade 4

The mean scale score for the total population of students taking the 2005 Grade 4 Reading Assessment is 645.92 with a standard deviation of 36.49. The mean scale score for males is 641.29 with a standard deviation of 36.57, and for females the mean is 650.78 with a standard deviation of 35.74. The mean scale scores for White, African American, Hispanic, and Others is 651.46, 621.48, 628.70, and 636.97 with standard deviations of 34.85, 36.73, 32.65, and 33.79 respectively.

The mean scale score for "Economically Disadvantaged" to SES is 629.28 with a standard deviation of 35.34, and for "Not Disadvantaged" the mean is 653.94 with a standard deviation of 34.25. The mean scale score for "Disabled" to Disability is 613.47 with a standard deviation of 41.57, and for "Not Disabled" the mean is 650.45 with a standard deviation of 33.30. The mean scale score for "Proficient" to ELS is 647.14 with a standard deviation of 36.34, and for "Not Proficient" the mean is 622.19 with a standard deviation of 30.83.

Table B-1[2] represents the scale score frequency distribution of the fourth-grade Reading assessment based on the census data, and Figure B-1 graphically represents the frequency distribution.

[2] All tables and figures referenced in this section (B-1 through B-15) can be found in Appendix B.

Grade 8

The mean scale score for the total population of students taking the 2005 Grade 8 Reading Assessment is 680.38 with a standard deviation of 36.26. The mean scale score for males is 683.29 with a standard deviation of 36.33, and for females the mean is 695.69 with a standard deviation of 35.08. The mean scale scores for White, African American, Hispanic, and Others is 695.11, 657.68, 671.07, and 677.73 with standard deviations of 33.59, 37.64, 35.29, and 34.12 respectively.

The mean scale score for "Economically Disadvantaged" to SES is 669.44 with a standard deviation of 36.89, and for "Not Disadvantaged" the mean is 696.94 with a standard deviation of 32.97. The mean scale score for "Disabled" to Disability is 649.90 with a standard deviation of 37.62, and for "Not Disabled" the mean is 695.36 with a standard deviation of 32.00. The mean scale score for "Proficient" to ELS is 690.22 with a standard deviation of 35.97, and for "Not Proficient" the mean is 658.77 with a standard deviation of 32.39.

Table B-2 represents the scale score frequency distribution of the eighth-grade Reading assessment based on the census data, and Figure B-2 graphically represents the frequency distribution.

Grade 10

The mean scale score for the total population of students taking the 2005 Grade 10 Reading Assessment is 712.80 with a standard deviation of 42.62. The mean scale score for males is 715.65 with a standard deviation of 43.13, and for females the mean is 723.50 with a standard deviation of 41.70. The mean scale scores for White, African American, Hispanic, and Others is 724.22, 688.67, 699.98, and 707.47 with standard deviations of 41.36, 40.75, 41.26, and 38.93 respectively.

The mean scale score for "Economically Disadvantaged" to SES is 699.97 with a standard deviation of 40.26, and for "Not Disadvantaged" the mean is 724.87 with a standard deviation of 41.67. The mean scale score for "Disabled" to Disability is 681.99 with a standard deviation of 38.60, and for "Not Disabled" the mean is 724.70 with a standard deviation of 40.49. The mean scale score for "Proficient" to ELS is 720.22 with a standard deviation of 42.51, and for "Not Proficient" the mean is 685.69 with a standard deviation of 32.71.

Table B-3 represents the scale score frequency distribution of the tenth-grade Reading assessment based on the census data, and Figure B-3 graphically represents the frequency distribution.

Mathematics

Grade 4

The mean scale score for the total population of students taking the 2005 Grade 4 Mathematics Assessment is 645.93 with a standard deviation of 33.57. The mean scale score for males is 634.72 with a standard deviation of 34.41, and for females the mean is 631.20 with a standard deviation of 32.56. The mean scale scores for White, African American, Hispanic, and Others is 638.21, 606.14, 618.44, and 631.48 with standard deviations of 31.61, 33.85, 29.67, and 32.62 respectively.

The mean scale score for "Economically Disadvantaged" to SES is 617.40 with a standard deviation of 32.30, and for "Not Disadvantaged" the mean is 640.54 with a standard deviation of 31.51. The mean scale score for "Disabled" to Disability is 611.62 with a standard deviation of 35.82, and for "Not Disabled" the mean is 636.07 with a standard deviation of 32.08. The mean scale score for "Proficient" to ELS is 633.68 with a standard deviation of 33.64, and for "Not Proficient" the mean is 619.58 with a standard deviation of 29.09.

Table B-4 represents the scale score frequency distribution of the fourth-grade Mathematics assessment based on the census data, and Figure B-4 graphically represents the frequency distribution.

Grade 8

The mean scale score for the total population of students taking the 2005 Grade 8 Mathematics Assessment is 689.30 with a standard deviation of 40.17. The mean scale score for males is 704.48 with a standard deviation of 42.17, and for females the mean is 704.00 with a standard deviation of 37.91. The mean scale scores for White, African American, Hispanic, and Others is 710.94, 663.71, 685.41, and 696.65 with standard deviations of 36.99, 40.71, 36.04, and 36.91 respectively.

The mean scale score for "Economically Disadvantaged" to SES is 681.40 with a standard deviation of 39.55, and for "Not Disadvantaged" the mean is 713.01 with a standard deviation of 36.81. The mean scale score for "Disabled" to Disability is 662.89 with a standard deviation of 41.28, and for "Not Disabled" the mean is 710.61 with a standard deviation of 36.00. The mean scale score for "Proficient" to ELS is 704.90 with a standard deviation of 40.20, and for "Not Proficient" the mean is 682.33 with a standard deviation of 32.21.

Table B-5 represents the scale score frequency distribution of the eighth-grade Mathematics assessment based on the census data, and Figure B-5 graphically represents the frequency distribution.

Grade 10

The mean scale score for the total population of students taking the 2005 Grade 10 Mathematics Assessment is 719.50 with a standard deviation of 45.15. The mean scale score for males is

743.63 with a standard deviation of 47.91, and for females the mean is 743.69 with a standard deviation of 42.09. The mean scale scores for White, African American, Hispanic, and Others is 750.43, 696.46, 716.27, and 730.53 with standard deviations of 41.79, 46.00, 41.81, and 42.33 respectively.

The mean scale score for “Economically Disadvantaged” to SES is 716.84 with a standard deviation of 44.93, and for “Not Disadvantaged” the mean is 751.01 with a standard deviation of 42.34. The mean scale score for “Disabled” to Disability is 694.42 with a standard deviation of 45.87, and for “Not Disabled” the mean is 750.45 with a standard deviation of 40.60. The mean scale score for “Proficient” to ELS is 744.40 with a standard deviation of 45.00, and for “Not Proficient” the mean is 708.78 with a standard deviation of 38.18.

Table B-6 represents the scale score frequency distribution of the tenth-grade Mathematics assessment based on the census data, and Figure B-6 graphically represents the frequency distribution.

Language Arts

Grade 4

The mean scale score for the total population of students taking the 2005 Grade 4 Language Arts Assessment is 633.00 with a standard deviation of 32.97. The mean scale score for males is 641.53 with a standard deviation of 33.11, and for females the mean is 650.51 with a standard deviation of 32.18. The mean scale scores for White, African American, Hispanic, and Others is 650.82, 623.85, 630.68, and 638.94 with standard deviations of 31.12, 34.30, 31.87, and 31.62 respectively.

The mean scale score for "Economically Disadvantaged" to SES is 631.06 with a standard deviation of 32.77, and for "Not Disadvantaged" the mean is 653.07 with a standard deviation of 30.59. The mean scale score for "Disabled" to Disability is 616.10 with a standard deviation of 37.75, and for "Not Disabled" the mean is 650.07 with a standard deviation of 29.98. The mean scale score for "Proficient" to ELS is 646.98 with a standard deviation of 32.72, and for "Not Proficient" the mean is 625.28 with a standard deviation of 30.80.

Table B-7 represents the scale score frequency distribution of the fourth-grade Language Arts assessment based on the census data, and Figure B-7 graphically represents the frequency distribution.

Grade 8

The mean scale score for the total population of students taking the 2005 Grade 8 Language Arts Assessment is 704.25 with a standard deviation of 33.67. The mean scale score for males is 675.49 with a standard deviation of 34.15, and for females the mean is 685.58 with a standard deviation of 32.36. The mean scale scores for White, African American, Hispanic, and Others is 685.47, 653.42, 663.66, and 669.52 with standard deviations of 31.88, 33.58, 31.31, and 30.38 respectively.

The mean scale score for "Economically Disadvantaged" to SES is 662.36 with a standard deviation of 32.43, and for "Not Disadvantaged" the mean is 687.31 with a standard deviation of 31.51. The mean scale score for "Disabled" to Disability is 644.83 with a standard deviation of 30.96, and for "Not Disabled" the mean is 685.85 with a standard deviation of 30.61. The mean scale score for "Proficient" to ELS is 681.18 with a standard deviation of 33.54, and for "Not Proficient" the mean is 653.90 with a standard deviation of 26.56.

Table B-8 represents the scale score frequency distribution of the eighth-grade Language Arts assessment based on the census data, and Figure B-8 graphically represents the frequency distribution.

Grade 10

The mean scale score for the total population of students taking the 2005 Grade 10 Language Arts Assessment is 743.65 with a standard deviation of 32.26. The mean scale score for males is 707.36 with a standard deviation of 32.81, and for females the mean is 718.46 with a standard deviation of 30.67. The mean scale scores for White, African American, Hispanic, and Others is 716.98, 686.98, 694.55, and 700.40 with standard deviations of 30.47, 33.32, 33.25, and 30.23 respectively.

The mean scale score for "Economically Disadvantaged" to SES is 695.30 with a standard deviation of 31.31, and for "Not Disadvantaged" the mean is 717.61 with a standard deviation of 30.82. The mean scale score for "Disabled" to Disability is 678.48 with a standard deviation of 29.18, and for "Not Disabled" the mean is 717.56 with a standard deviation of 29.68. The mean scale score for "Proficient" to ELS is 713.46 with a standard deviation of 32.04, and for "Not Proficient" the mean is 681.95 with a standard deviation of 26.80.

Table B-9 represents the scale score frequency distribution of the tenth-grade Language Arts assessment based on the census data, and Figure B-9 graphically represents the frequency distribution.

Social Studies

Grade 4

The mean scale score for the total population of students taking the 2005 Grade 4 Social Studies Assessment is 636.90 with a standard deviation of 25.64. The mean scale score for males is 646.41 with a standard deviation of 26.14, and for females the mean is 646.40 with a standard deviation of 25.11. The mean scale scores for White, African American, Hispanic, and Others is 650.76, 625.23, 634.81, and 641.17 with standard deviations of 23.63, 27.66, 23.62, and 24.12 respectively.

The mean scale score for "Economically Disadvantaged" to SES is 634.30 with a standard deviation of 25.13, and for "Not Disadvantaged" the mean is 652.26 with a standard deviation of 23.76. The mean scale score for "Disabled" to Disability is 631.67 with a standard deviation of 27.36, and for "Not Disabled" the mean is 648.56 with a standard deviation of 24.65. The mean scale score for "Proficient" to ELS is 647.11 with a standard deviation of 25.58, and for "Not Proficient" the mean is 632.44 with a standard deviation of 22.87.

Table B-10 represents the scale score frequency distribution of the fourth-grade Social Studies assessment based on the census data, and Figure B-10 graphically represents the frequency distribution.

Grade 8

The mean scale score for the total population of students taking the 2005 Grade 8 Social Studies Assessment is 698.71 with a standard deviation of 26.50. The mean scale score for males is 687.08 with a standard deviation of 27.75, and for females the mean is 686.81 with a standard deviation of 25.10. The mean scale scores for White, African American, Hispanic, and Others is 691.65, 659.74, 673.21, and 678.98 with standard deviations of 23.44, 30.80, 26.71, and 24.13 respectively.

The mean scale score for "Economically Disadvantaged" to SES is 671.36 with a standard deviation of 28.21, and for "Not Disadvantaged" the mean is 692.91 with a standard deviation of 23.19. The mean scale score for "Disabled" to Disability is 661.43 with a standard deviation of 29.67, and for "Not Disabled" the mean is 690.89 with a standard deviation of 23.64. The mean scale score for "Proficient" to ELS is 687.53 with a standard deviation of 26.35, and for "Not Proficient" the mean is 667.20 with a standard deviation of 23.81.

Table B-11 represents the scale score frequency distribution of the eighth-grade Social Studies assessment based on the census data, and Figure B-11 graphically represents the frequency distribution.

Grade 10

The mean scale score for the total population of students taking the 2005 Grade 10 Social Studies Assessment is 725.32 with a standard deviation of 25.86. The mean scale score for males is 710.48 with a standard deviation of 27.89, and for females the mean is 709.66 with a standard deviation of 23.56. The mean scale scores for White, African American, Hispanic, and Others is 713.59, 685.90, 696.23, and 701.77 with standard deviations of 24.04, 28.48, 25.60, and 24.03 respectively.

The mean scale score for "Economically Disadvantaged" to SES is 695.60 with a standard deviation of 26.35, and for "Not Disadvantaged" the mean is 714.04 with a standard deviation of 24.27. The mean scale score for "Disabled" to Disability is 686.22 with a standard deviation of 27.25, and for "Not Disabled" the mean is 713.39 with a standard deviation of 23.84. The mean scale score for "Proficient" to ELS is 710.53 with a standard deviation of 25.75, and for "Not Proficient" the mean is 688.90 with a standard deviation of 22.02.

Table B-12 represents the scale score frequency distribution of the tenth-grade Social Studies assessment based on the census data, and Figure B-12 graphically represents the frequency distribution.

Science

Grade 4

The mean scale score for the total population of students taking the 2005 Grade 4 Science Assessment is 646.40 with a standard deviation of 32.76. The mean scale score for males is 638.77 with a standard deviation of 33.08, and for females the mean is 634.93 with a standard deviation of 32.28. The mean scale scores for White, African American, Hispanic, and Others is 643.80, 604.52, 617.35, and 627.67 with standard deviations of 27.97, 37.76, 33.63, and 32.20 respectively.

The mean scale score for "Economically Disadvantaged" to SES is 619.68 with a standard deviation of 34.89, and for "Not Disadvantaged" the mean is 645.24 with a standard deviation of 28.11. The mean scale score for "Disabled" to Disability is 616.84 with a standard deviation of 38.47, and for "Not Disabled" the mean is 639.84 with a standard deviation of 30.76. The mean scale score for "Proficient" to ELS is 638.19 with a standard deviation of 32.25, and for "Not Proficient" the mean is 611.48 with a standard deviation of 32.45.

Table B-13 represents the scale score frequency distribution of the fourth-grade Science assessment based on the census data, and Figure B-13 graphically represents the frequency distribution.

Grade 8

The mean scale score for the total population of students taking the 2005 Grade 8 Science Assessment is 686.95 with a standard deviation of 31.25 The mean scale score for males is 700.31 with a standard deviation of 33.11, and for females the mean is 697.00 with a standard deviation of 29.04. The mean scale scores for White, African American, Hispanic, and Others is 704.96, 663.95, 679.47, and 686.82 with standard deviations of 26.94, 36.45, 30.67, and 27.93 respectively.

The mean scale score for "Economically Disadvantaged" to SES is 679.61 with a standard deviation of 33.23, and for "Not Disadvantaged" the mean is 706.02 with a standard deviation of 27.09. The mean scale score for "Disabled" to Disability is 670.39 with a standard deviation of 36.60, and for "Not Disabled" the mean is 703.10 with a standard deviation of 27.87. The mean scale score for "Proficient" to ELS is 699.55 with a standard deviation of 30.97, and for "Not Proficient" the mean is 670.06 with a standard deviation of 26.86.

Table B-14 represents the scale score frequency distribution of the eighth-grade Science assessment based on the census data, and Figure B-14 graphically represents the frequency distribution.

Grade 10

The mean scale score for the total population of students taking the 2005 Grade 10 Science Assessment is 710.08 with a standard deviation of 37.27. The mean scale score for males is 728.12 with a standard deviation of 39.93, and for females the mean is 722.42 with a standard deviation of 34.04. The mean scale scores for White, African American, Hispanic, and Others is 731.23, 683.79, 703.43, and 712.13 with standard deviations of 32.20, 48.99, 41.24, and 37.25 respectively.

The mean scale score for "Economically Disadvantaged" to SES is 703.34 with a standard deviation of 43.70, and for "Not Disadvantaged" the mean is 731.35 with a standard deviation of 32.82. The mean scale score for "Disabled" to Disability is 689.77 with a standard deviation of 49.00, and for "Not Disabled" the mean is 730.27 with a standard deviation of 32.37. The mean scale score for "Proficient" to ELS is 726.08 with a standard deviation of 36.80, and for "Not Proficient" the mean is 689.82 with a standard deviation of 41.41.

Table B-15 represents the scale score frequency distribution of the tenth-grade Science assessment based on the census data, and Figure B-15 graphically represents the frequency distribution.

2-3 Standard Performance indicator (SPI) for Contend Standard

In addition to overall scores, teachers and educational decision–makers frequently need diagnostic information that can be used to inform instructional strategies and help identify student strengths and weaknesses. This information can be derived from student scores on subsets of test questions, called objective or Content Standard (or simply Standard). Scores stemming from Content Standards are called criterion-referenced scores, because they are estimates of how much a student knows in a clearly defined skill domain (i.e., the criterion). Content Standard level diagnostic information is reported using Standard Performance Indicator (SPI).

The SPI is an estimate of the true score (estimated proportion of total or maximum points possible) for a content standard based on the performance of a given student. Because most objectives are measured by a relatively small number of items, a Bayesian procedure that takes into account the overall test performance is used to improve the reliability of the objective scores. Given a student's scale score on the test, IRT is used, via the 3PL model for MC items and 2PPC model for CR items, to compute the estimated proportion of the maximum points obtained for that content standard. The estimated proportion of the maximum points obtained for the content standard provides the initial (Bayesian prior) estimate of the student's mastery score. If this initial estimate is consistent with the student's observed proportion, as indicated by a chi-square test, the two scores are combined as a weighted average to obtain the DPI score (the estimated true score). The appropriate weight for the Bayesian prior estimate is computed as a function of the standard error of the scale score on which it is based; the smaller the standard error, the larger the weight. If the prior estimate and the observed proportion differ significantly, the observed

proportion of the maximum score is used without the prior estimate to compute the student's SPI score on that content standard.

The SPI is an estimate of the number of items a student would be expected to answer correctly if there had been 100 similar items for that reporting category. For example, an SPI of 77 for a given reporting category means that if the student were given 100 similar items, the student would be expected to answer 77 of them correctly. The SPI provides a more reliable estimate of student achievement on each content standard than is possible by simply reporting percent correct. **However, the SPI information should be used at a low-stakes purpose because even the SPI can not be stable for any content standard with a short number of items.** Also, while the percentages belonging to each performance level based on SPI cut scores can be compared across years, the SPI value can not be compared across years. The approach to identifying student proficiency of each content standard relates to the Wisconsin Model Academic Standards. The SPI at each content standard is an estimate of the SPI for a student who has scored exactly at the standard for each cut score.

In terms of using the performance cuts, their use at the objective level can be described as consisting of three steps:

1. Use Bookmark to produce whatever number of performance levels for the total score. Performance cut scores were obtained in 2003 Standard setting based on Bookmark procedure.

2. For each objective simply compute the average of P (theta) for the items measuring that objective, where theta is defined by the total score performance level. Thus, four overall performance levels (three cuts) yields four overall performance levels for each objective.

3. Since the total scores are equated over forms, the Bookmark-based performance cuts are a once and done thing. However, since the objective level cuts vary due to variation in the item difficulties associated with the objective, they are form specific and need to be recomputed for each form.

Reading

Table 23 shows the mean and standard deviation of SPI scores in addition to the raw score mean, mean p-value, and standard deviation for the grade 4, 8, and 10 Reading assessments. The SPI mean and standard deviation of 74.74 and 17.68 for grade 4 Standard A implies that if Wisconsin students took a set of items totaling 100 score points, all of which measured Standard A, their average score would be 74.74 with a standard deviation of 17.68.

For grade 4, the mean SPI scores for Standards A, D, and E are 74.74, 73.34, and 55.71, respectively, and their corresponding mean raw score p-values are 0.74, 0.73, and 0.59.

For grade 8, the mean SPI scores for Standard A and E are 71.67 and 65.65, respectively, and their corresponding mean raw score p-values for raw score are 0.72 and 0.65.

For grade 10, the mean SPI scores for Standard A and E are 77.20 and 87.63, respectively and their corresponding mean raw score p-values for raw score are 0.77 and 0.88.

For all grades, the SPI and mean p-value for the same content standard are similar. For example, the SPI is 74.74 and the mean p-value is 0.74 for grade 4 Standard A. With the transformation of the mean p-value to percentage by multiplying 100, the mean p-value of 0.74 becomes 74, while the SPI is 74.74.

Mathematics

Table 24 shows the mean and standard deviation of SPI scores in addition to the raw score mean, mean p-value, and standard deviation for the grade 4, 8, and 10 Mathematics assessments. The SPI mean and standard deviation of 46.09 and 18.76 for grade 4 Standard A implies that if Wisconsin students took a set of items totaling 100 score points, all of which measured Standard A, their average score would be 46.09 with a standard deviation of 18.76.

For grade 4, the mean SPI scores for Standards A, B, C, D, E and F are 46.09, 65.64, 85.58, 54.53, 56.94, and 56.73, respectively, and their corresponding standard deviations are 18.76, 19.04, 11.53, 21.71, 16.60 and 21.52. The mean raw score p-values are respectively 0.49, 0.64, 0.90, 0.56, 0.60 and 0.55.

For grade 8, the mean SPI scores for Standards A, B, C, D, E and F are 64.18, 65.40, 67.10, 55.92, 60.05, and 58.94, respectively, and their corresponding standard deviations are 18.63, 20.38, 18.97, 18.99, 17.86 and 20.19. The mean raw score p-values are respectively 0.65, 0.64, 0.68, 0.57, 0.62 and 0.58.

For grade 10, the mean SPI scores for Standards A, B, C, D, E and F are 82.67, 71.24, 64.43, 65.74, 75.76, and 74.42, respectively, and their corresponding standard deviations are 15.53, 22.55, 19.13, 17.69, 18.28 and 17.12. The mean raw score p-values are respectively 0.84, 0.69, 0.62, 0.65, 0.78 and 0.79.

For all grades, the SPI and mean p-value for the same content standard are similar. For example, the SPI is 74.74 and the mean p-value is 0.74 for grade 4 Standard A. With the transformation of the mean p-value to percentage by multiplying 100, the mean p-value of 0.74 becomes 74, while the SPI is 74.74.

Language Arts

Table 25 shows the mean and standard deviation of SPI scores in addition to the raw score mean, mean p-value, and standard deviation for the grade 4, 8, and 10 Language Arts assessments. The SPI mean and standard deviation of 64.97 and 17.75 for grade 4 Standard B implies that if Wisconsin students took a set of items totaling 100 score points, all of which measured Standard A, their average score would be 64.97 with a standard deviation of 17.75.

For grade 4, the mean SPI scores for Standards B and F are 64.97 and 48.79, respectively, and their corresponding standard deviations are 17.75 and 16.17. The mean raw score p-values are respectively 0.65 and 0.49.

For grade 8, the mean SPI scores for Standard B and D are 62.17 and 60.75, respectively, and their corresponding standard deviations are 18.70 and 15.78. The mean raw score p-values are respectively 0.62 and 0.63.

For grade 10, the mean SPI scores for Standard A, D and F are 68.75, 70.87 and 60.11, respectively and their corresponding standard deviations are 11.98, 20.29, and 17.18. The mean raw score p-values are respectively are 0.69, 0.71, and 0.62.

For all grades, the SPI and mean p-value for the same content standard are similar. For example, the SPI is 64.97 and the mean p-value is 0.64 for grade 4 Standard A. With the transformation of the mean p-value to percentage by multiplying 100, the mean p-value of 0.64 becomes 64, while the SPI is 64.97.

Social Studies

Table 26 shows the mean and standard deviation of SPI scores in addition to the raw score mean, mean p-value, and standard deviation for the grade 4, 8, and 10 Social Studies assessments. The SPI mean and standard deviation of 71.80 and 14.79 for grade 4 Standard A implies that if Wisconsin students took a set of items totaling 100 score points, all of which measured Standard A, their average score would be 71.80 with a standard deviation of 14.79.

For grade 4, the mean SPI scores for Standards A, B, C, D and E are 71.80, 68.73, 61.21, 80.18, and 77.47, respectively, and their corresponding standard deviations are 14.79, 16.76, 17.33, 13.21 and 16.46. The mean raw score p-values are respectively 0.72, 0.68, 0.63, 0.79 and 0.77.

For grade 8, the mean SPI scores for Standards A, B, C, D and E are 73.17, 66.37, 65.85, 67.91, and 60.49, respectively, and their corresponding standard deviations are 16.65, 17.97, 16.62, 17.52 and 18.98. The mean raw score p-values are respectively 0.75, 0.65, 0.63, 0.66 and 0.66.

For grade 10, the mean SPI scores for Standards A, B, C, D and E are 74.96, 72.04, 65.72, 79.84, and 68.71, respectively, and their corresponding standard deviations are 13.98, 18.38, 19.30, 19.24 and 18.24. The mean raw score p-values are respectively 0.75, 0.72, 0.64, 0.81 and 0.69.

For all grades, the SPI and mean p-value for the same content standard are similar. For example, the SPI is 74.74 and the mean p-value is 0.74 for grade 4 Standard A. With the transformation of the mean p-value to percentage by multiplying 100, the mean p-value of 0.74 becomes 74, while the SPI is 74.74.

Science

Table 27 shows the mean and standard deviation of SPI scores in addition to the raw score mean, mean p-value, and standard deviation for the grade 4, 8, and 10 Science assessments. The SPI mean and standard deviation of 59.61 and 20.28 for grade 4 Standard A implies that if Wisconsin students took a set of items totaling 100 score points, all of which measured Standard A, their average score would be 59.61 with a standard deviation of 20.28.

For grade 4, the mean SPI scores for Standards A, B, C, D, E, F, G, and H are 59.61, 55.18, 80.17, 69.27, 58.04, 68.42, 59.18 and 70.25, respectively, and their corresponding standard deviations are 20.28, 13.12, 11.85, 14.72, 11.33, 16.28, 17.05 and 13.20. The mean raw score p-values are respectively 0.57, 0.56, 0.80, 0.69, 0.59, 0.70, 0.60 and 0.74.

For grade 8, the mean SPI scores for Standards B, C, D, E, F, and G are 56.73, 77.37, 53.15, 62.48, 76.56 and 63.68, respectively, and their corresponding standard deviations are 13.51, 11.92, 15.81, 20.04, 17.10 and 18.15. The mean raw score p-values are respectively 0.56, 0.79, 0.52, 0.61, 0.77, and 0.65.

For grade 10, the mean SPI scores for Standards A, B, C, D, E, F, G, and H are 65.29, 72.60, 67.96, 65.52, 71.81, 56.14, 70.58 and 62.38, respectively, and their corresponding standard deviations are 16.56, 14.18, 13.97, 13.35, 16.60, 17.63, 17.40 and 17.88. The mean raw score p-values are respectively 0.62, 0.73, 0.71, 0.68, 0.72, 0.53, 0.70 and 0.63.

For all grades, the SPI and mean p-value for the same content standard are similar. For example, the SPI is 59.61 and the mean p-value is 0.57 for grade 4 Standard A. With the transformation of the mean p-value to percentage by multiplying 100, the mean p-value of 0.57 becomes 57, while the SPI is 59.61.

2-4 Test Reliability (including sub-scale scores)

Reliability is an index of the consistency of test results. A reliable test is one that produces scores that are expected to be relatively stable if the test is administered repeatedly under similar conditions. Cronbach's alpha is a frequently used measure of internal consistency. Based on a single administration of a test, Cronbach's alpha provides a reliability estimate that equals the average of all split-half coefficients that would be obtained on all possible divisions of the test into halves. Such a split-half coefficient would be obtained by correlating one half of the test with the other half and then adjusting the correlation with the Spearman-Brown formula so that it applies to the whole test (see Allen & Yen, 1979, pp. 83-88).

Table 28 shows the estimated reliability index (Cronbach's alpha) for the total test and for each content standard by grade and content. The smallest reliability coefficient among the total scores is 0.80 for Reading Grade 10, and the largest one is 0.91 for Mathematics Grades 8 and 10. Among the five contents, on average, Mathematics shows the highest reliability and Language Arts shows the lowest reliability. Note that the test length influences reliability.

Table 28 also shows the reliability coefficients for individual standards. These coefficients tend to be somewhat lower than the coefficients for the total test scores. These results are consistent with the smaller numbers of items that contribute to each standard and sub-content area.

Table 29 presents reliability by subgroups. For gender, ethnicity, disability, and SES, there is not much difference between reliably coefficients for subgroups. For ELP, "not proficient" group always produces lower reliability.

2-5 Trend analysis

Using the 2004 fall data for the WKCE Year 9 test administration based on data from the state, the trend data for the state based on the 1997 through 2004 administrations of WKCE were analyzed. The data are summarized in Table 30. The table contains results reported separately for each combination of grade, content area, and test administration.

The trend data demonstrated a high degree of consistency, and general year–to–year changes were consistent with those observed in previous years. In general, for the state data, there was a slight increase in scores compared with the previous year. Mean scores went up for 9 subtests and down for 6 others. Nonetheless, we did focus special attention on the grades and content areas that demonstrated the greatest changes this year. Grade 8 Reading increased by approximately 7.6 scale score points, reversing a two–year decline in scores. The biggest drop was only 2.9 score points in Grade 4 Science. Mean scale scores increased between 2003 and 2004 in all five subject-area tests for students in grade 10, while scores increased for grade 8 students in three of the five subject areas (Reading, Math, and Science).

Since the variation observed between this year and last year is consistent with expectations and historical experience, the information system is ready for score production. A separate review of score reports is currently being conducted.

2-6 Performance Level Information

WKCE cut score were obtained form 2003 standard setting using Bookmark procedure. There are four performance levels, Advanced, Proficient, Basic, Minimum. Table 31 shows cut scores and standard errors for each content and grade. Students are classified to each category based on their scale scores. Figures 6 through 10 graphically present the location of each cut score in the scale score range for each content and grade.

Reading

Table 32 shows percentage of students taking the grades 4, 8, and 10 Reading assessments for each performance category. For grade 4, 4.54 percents of students are classified as Minimum, 12.43 as Basic, 40.24 as Proficient, and 42.80 as Advanced. For females, 3.17, 19.29, 38.88, and 47.65 percents of students are classified as Minimum, Basic, Proficient, and Advanced, respectively. Corresponding percents are 5.84, 14.47, 41.54, and 38.16, respectively, for males.

For white, 3.04 percents of students are classified as Minimum, 9.29 as Basic, 38.56 as Proficient, and 49.10 as Advanced. For African American, 13.01, 25.94, 43.46, and 17.56 are classified as Minimum, Basic, Proficient, and Advanced, respectively. For Hispanic, corresponding percents are 7.52, 22.40, 49.23, and 20.86. For others,

For “Proficient” to ELP, 4.34 percents of students are classified as Minimum, 11.73 as Basic, 39.55 as Proficient, and 44.39 as Advanced. For “Not Proficient”, the percents are 8.47, 25.97, 53.74, and 11.82, respectively. For “Disabled” to Disability, 19.89 percents of students are classified as Minimum, 27.25 as Basic, 39.00 as Proficient, and 13.86 as Advanced. For “Not Disabled”, the percents are 2.40, 10.36, 40.41, and 46.83, respectively. For “Economically Disadvantaged” to SES, 8.99 percents of students are classified as Minimum, 21.00 as Basic, 46.76 as Proficient, and 23.24 as Advanced. For “Not Disadvantaged”, the percents are 2.39, 8.29, 37.10, and 52.22, respectively.

The interpretation for the percentage of each category is the same for grades 8 and 10. Based on the census data, more grade 10 students (56.38) are classified as Advanced level compared to grades 4 and 8 (42.80 and 42.07, respectively). The patterns for subgroups are the same across grades. That is female students better performed to male students. White students better performed to African American and Hispanics. Proficient students for English, not disabled students for disability, and not disadvantaged students better performed to corresponding students.

Mathematics

Table 33 shows percentage of students taking the grades 4, 8, and 10 Mathematics assessments for each performance category. For grade 4, 16.35 percent of students are classified as Minimum, 10.39 as Basic, 41.33 as Proficient, and 31.93 as Advanced. For females, 17.16, 11.01, 42.60,

and 29.23 percent of students are classified as Minimum, Basic, Proficient, and Advanced, respectively. Corresponding percents are 15.57, 9.81, 40.12, and 34.51, respectively, for males.

For white students, 11.71 percent are classified as Minimum, 8.99 as Basic, 42.29 as Proficient, and 37.02 as Advanced. For African American students, 42.20, 16.07, 33.10, and 8.62 are classified as Minimum, Basic, Proficient, and Advanced, respectively. For Hispanic students, corresponding percents are 26.79, 15.70, 43.42, and 14.08. For others,

For “Proficient” to ELP, 15.91 percent of students are classified as Minimum, 10.11 as Basic, 41.17 as Proficient, and 32.82 as Advanced. For “Not Proficient”, the percents are 24.94, 16.01, 44.50 and 14.55, respectively. For “Disabled” to Disability, 37.33 percent of students are classified as Minimum, 14.23 as Basic, 34.95 as Proficient, and 13.49 as Advanced. For “Not Disabled”, the percents are 13.33, 9.84, 42.24, and 34.58, respectively. For “Economically Disadvantaged” to SES, 28.87 percent of students are classified as Minimum, 15.16 as Basic, 40.17 as Proficient, and 15.80 as Advanced. For “Not Disadvantaged”, the percents are 10.30, 8.00, 41.88, and 39.73, respectively.

The interpretation for the percentage of each category is the same for grades 8 and 10. Based on the census data, more grade 4 students (31.93) are classified as Advanced level compared to grades 8 and 10 (24.87 and 25.82, respectively). The patterns for subgroups are the same across grades. There was not a significant difference between the performance of males and females. White students performed better than African American and Hispanics. Proficient students for English, not disabled students for disability, and not disadvantaged students better performed than corresponding students.

Language Arts

Table 34 shows percentage of students taking the grades 4, 8, and 10 Language Arts assessments for each performance category. For grade 4, 4.52 percent of students are classified as Minimum, 14.82 as Basic, 44.60 as Proficient, and 36.05 as Advanced. For females, 3.24, 12.42, 42.88, and 41.46 percent of students are classified as Minimum, Basic, Proficient, and Advanced, respectively. Corresponding percents are 5.74, 17.13, 46.26, and 30.88, respectively, for males.

For white students, 2.93 percent are classified as Minimum, 11.53 as Basic, 44.03 as Proficient, and 41.51 as Advanced. For African American students, 13.40, 29.67, 43.13, and 13.81 are classified as Minimum, Basic, Proficient, and Advanced, respectively. For Hispanic students, corresponding percents are 8.08, 23.72, 51.14, and 17.06. For others,

For “Proficient” to ELP, 4.29 percent of students are classified as Minimum, 14.09 as Basic, 44.29 as Proficient, and 37.34 as Advanced. For “Not Proficient”, the percents are 8.96, 29.22, 50.81 and 11.01, respectively. For “Disabled” to Disability, 20.05 percent of students are classified as Minimum, 31.95 as Basic, 37.49 as Proficient, and 10.51 as Advanced. For “Not Disabled”, the percents are 2.36, 12.44, 45.59, and 39.61, respectively. For “Economically Disadvantaged” to SES, 8.94 percent of students are classified as Minimum, 24.03 as Basic,

48.22 as Proficient, and 18.81 as Advanced. For “Not Disadvantaged”, the percents are 2.39, 10.39, 42.86, and 44.36, respectively.

The interpretation for the percentage of each category is the same for grades 8 and 10. Based on the census data, more grade 4 students (36.05) are classified as Advanced level compared to grades 8 and 10 (25.28 and 18.80, respectively). The patterns for subgroups are the same across grades. That is female students performed better than male students. White students performed better than African American and Hispanics. Proficient students for English, not disabled students for disability, and not disadvantaged students better performed than corresponding students.

Social Studies

Table 35 shows percentage of students taking the grades 4, 8, and 10 Social Studies assessments for each performance category. For grade 4, 1.87 percent of students are classified as Minimum, 5.28 as Basic, 28.53 as Proficient, and 46.32 as Advanced. For females, 1.71, 5.26, 28.37, and 34.66 percent of students are classified as Minimum, Basic, Proficient, and Advanced, respectively. Corresponding percents are 2.01, 5.30, 28.69, and 64.00, respectively, for males.

For white students, 0.72 percent are classified as Minimum, 3.18 as Basic, 24.82 as Proficient, and 71.27 as Advanced. For African American students, 8.93, 16.52, 42.80, and 31.72 are classified as Minimum, Basic, Proficient, and Advanced, respectively. For Hispanic students, corresponding percents are 3.57, 9.07, 42.04, and 45.32. For others,

For “Proficient” to ELP, 1.77 percent of students are classified as Minimum, 5.03 as Basic, 27.63 as Proficient, and 65.57 as Advanced. For “Not Proficient”, the percents are 3.69, 10.28, 46.37 and 39.67, respectively. For “Disabled” to Disability, 6.23 percent of students are classified as Minimum, 11.98 as Basic, 40.40 as Proficient, and 41.39 as Advanced. For “Not Disabled”, the percents are 1.23, 4.30, 26.79, and 67.68, respectively. For “Economically Disadvantaged” to SES, 4.15 percent of students are classified as Minimum, 10.36 as Basic, 40.61 as Proficient, and 44.88 as Advanced. For “Not Disadvantaged”, the percents are 0.76, 2.82, 22.68, and 73.74, respectively.

The interpretation for the percentage of each category is the same for grades 8 and 10. Based on the census data, more grade 4 students (64.32) are classified as Advanced level compared to grades 8 and 10 (44.71 and 44.57, respectively). The patterns for subgroups are the same across grades. There was not a significant difference between the performance of males and females. White students performed better than African American and Hispanics. Proficient students for English, not disabled students for disability, and not disadvantaged students better performed than corresponding students.

Science

Table 36 shows percentage of students taking the grades 4, 8, and 10 Science assessments for each performance category. For grade 4, 4.81 percent of students are classified as Minimum, 15.88 as Basic, 52.12 as Proficient, and 21.19 as Advanced. For females, 5.19, 17.14, 59.01, and 18.66 percent of students are classified as Minimum, Basic, Proficient, and Advanced, respectively. Corresponding percents are 4.44, 14.69, 57.27, and 23.60, respectively, for males.

For white students, 1.92 percent are classified as Minimum, 11.02 as Basic, 61.72 as Proficient, and 25.35 as Advanced. For African American students, 20.97, 36.60, 37.99, and 4.44 are classified as Minimum, Basic, Proficient, and Advanced, respectively. For Hispanic students, corresponding percents are 310.63, 31.37, 51.24, and 6.75. For others,

For “Proficient” to ELP, 4.42 percent of students are classified as Minimum, 14.83 as Basic, 58.66 as Proficient, and 22.10 as Advanced. For “Not Proficient”, the percents are 12.50, 36.71, 47.47 and 3.33, respectively. For “Disabled” to Disability, 13.31 percent of students are classified as Minimum, 28.10 as Basic, 49.99 as Proficient, and 8.61 as Advanced. For “Not Disabled”, the percents are 3.56, 14.09, 59.31, and 23.04, respectively. For “Economically Disadvantaged” to SES, 10.85 percent of students are classified as Minimum, 28.04 as Basic, 52.50 as Proficient, and 8.60 as Advanced. For “Not Disadvantaged”, the percents are 1.88, 9.99, 60.84, and 27.29, respectively.

The interpretation for the percentage of each category is the same for grades 8 and 10. Based on the census data, more grade 10 students (63.49) are classified as Advanced level compared to grades 4 and 87 (21.19 and 27.71, respectively). The patterns for subgroups are the same across grades. That is male students performed better than female students. White students performed better than African American and Hispanics. Proficient students for English, not disabled students for disability, and not disadvantaged students better performed than corresponding students.

Part 3: Item Analysis

Tables 37 through 51 present item-level descriptive statistics for each of the test forms. These tables contain the following information: item type (MC, or CR), item *p*-value (p val), item correlation with the total test score (Corr), and correlation between each item choice and the total test score (pbis1, etc.). The *p*-value for an MC item represents the proportion of students who answered the item correctly. The *p*-value for a CR item represents the proportion of the obtained mean raw score for the item to the number of points possible for the item. A point-biserial correlation between the item score and the total score on the test was also computed for the MC items. For the CR items, a Pearson correlation between the item score and the total score on the test was computed. For the item analysis, the studied item was excluded from the computation of the total score so as to not inflate the correlation artificially. This effect would be most noticeable for CR items worth several points. For the correct answer choice, the correlation between item choice and total score is the same as the point-biserial correlation of the item. A similar formula was applied to compute the correlation between each distracter and the total score. In general, negative correlations are expected for all distracters when an item is good.

Reading

Grade 4

Table 37 presents item analysis results for the 2004 Grade 4 Reading assessment. The point-biserials for all MC items range from 0.19 to 0.63 with a mean of 0.43. The p-values for these items range from 0.27 to 0.98 with a mean of 0.72. The table also lists the results of the CR item analyses. The item-to-total-score correlations for the CR items range from 0.36 to 0.63 and their p-values range from 0.50 to 0.93.

The omit rate for the Grade 4 Reading assessment is small, ranging from 0% to 4.06% with a mean of 1.33 for MC items. For all CR items the omit rate is 0%.

Grade 8

Table 38 presents item analysis results for the 2004 Grade 8 Reading assessment. The point-biserials for all MC items range from 0.28 to 0.66 with a mean of 0.44. The p-values for these items range from 0.43 to 0.95 with a mean of 0.72. The table also lists the results of the CR item analyses. The item-to-total-score correlations for the CR items range from 0.50 to 0.66 and their p-values range from 0.50 to 0.69.

The omit rate for the Grade 8 Reading assessment is small, ranging from 0% to 2.23% with a mean of 0.79 for MC items. For all CR items the omit rate is 0%.

Grade 10

Table 39 presents item analysis results for the 2004 Grade 10 Reading assessment. The point-biserials for all MC items range from 0.31 to 0.58 with a mean of 0.45. The p-values for these items range from 0.47 to 0.97 with a mean of 0.79.

The omit rate for the Grade 10 Reading assessment is small, ranging from 0.11% to 0.72% with a mean of 0.30% for MC items.

Mathematics

Grade 4

Table 40 presents item analysis results for the 2004 Grade 4 Mathematics assessment. The point-biserials for all MC items range from 0.10 to 0.64 with a mean of 0.39. The p-values for these items range from 0.29 to 0.94 with a mean of 0.64. The table also lists the results of the CR item analyses. The item-to-total-score correlations for the CR items range from 0.39 to 0.64 and their p-values range from 0.29 to 0.72.

The omit rate for the Grade 4 Mathematics assessment is fairly small on average, however the range of 0% to 13.65% with a mean of 1.54 is broad for MC items. For all CR items the omit rate is 0%.

Grade 8

Table 41 presents item analysis results for the 2004 Grade 8 Mathematics assessment. The point-biserials for all MC items range from 0.19 to 0.63 with a mean of 0.41. The p-values for these items range from 0.26 to 0.94 with a mean of 0.64. The table also lists the results of the CR item analyses. The item-to-total-score correlations for the CR items range from 0.45 to 0.63 and their p-values range from 0.38 to 0.78.

The omit rate for the Grade 8 Mathematics assessment is small, ranging from 0% to 3.59% with a mean of 0.63 for MC items. For all CR items the omit rate is 0%.

Grade 10

Table 42 presents item analysis results for the 2004 Grade 10 Mathematics assessment. The point-biserials for all MC items range from 0.15 to 0.65 with a mean of 0.42. The p-values for these items range from 0.13 to 0.98 with a mean of 0.71.

The omit rate for the Grade 10 Mathematics assessment is fairly small on average, however the range of 0.14% to 21.71% with a mean of 0.99 is broad for MC items.

Language Arts

Grade 4

Table 43 presents item analysis results for the 2004 Grade 4 Language Arts assessment. The point-biserials for all MC items range from 0.17 to 0.76 with a mean of 0.41. The p-values for these items range from 0.25 to 0.90 with a mean of 0.62. The table also lists the results of the CR item analyses. The item-to-total-score correlations for the CR items range from 0.34 to 0.76 and their p-values range from 0.46 to 0.83.

The omit rate for the Grade 4 Language Arts assessment is moderate, ranging from 0% to 7.53% with a mean of 1.49 for MC items. For all CR items the omit rate is 0%.

Grade 8

Table 44 presents item analysis results for the 2004 Grade 8 Language Arts assessment. The point-biserials for all MC items range from -0.01 to 0.80 with a mean of 0.41. The p-values for these items range from 0.31 to 0.94 with a mean of 0.66. The table also lists the results of the CR item analyses. The item-to-total-score correlations for the CR items range from 0.34 to 0.80 and their p-values range from 0.49 to 0.87.

The omit rate for the Grade 8 Language Arts assessment was small, ranging from 0% to 3.0% with a mean of 0.72 for MC items. For all CR items the omit rate is 0%.

Grade 10

Table 45 presents item analysis results for the 2004 Grade 10 Language Arts assessment. The point-biserials for all MC items range from 0.25 to 0.63 with a mean of 0.43. The p-values for these items range from 0.45 to 0.96 with a mean of 0.72. The table also lists the results of the CR item analyses. The item-to-total-score correlations for the CR items range from 0.52 to 0.63 and their p-values range from 0.45 to 0.69.

The omit rate for the Grade 10 Language Arts assessment was small, ranging from 0% to 1.09% with a mean of 0.43% for MC items. For all CR items the omit rate is 0%.

Social Studies

Grade 4

Table 46 presents item analysis results for the 2004 Grade 4 Social Studies assessment. The point-biserials for all MC items range from 0.16 to 0.61 with a mean of 0.39. The p-values for these items range from 0.35 to 0.99 with a mean of 0.72. The table also lists the results of the CR item analyses. The item-to-total-score correlations for the CR items range from 0.38 to 0.61 and their p-values range from 0.43 to 0.91.

The omit rate for the Grade 4 Social Studies assessment is small, ranging from 0% to 1.62% with a mean of 0.49 for MC items. For all CR items the omit rate is 0%.

Grade 8

Table 47 presents item analysis results for the 2004 Grade 8 Social Studies assessment. The point-biserials for all MC items range from 0.17 to 0.59 with a mean of 0.39. The p-values for these items range from 0.32 to 0.97 with a mean of 0.69. The table also lists the results of the CR item analyses. The item-to-total-score correlations for the CR items range from 0.42 to 0.59 and their p-values range from 0.32 to 0.85.

The omit rate for the Grade 8 Social Studies assessment was small, ranging from 0% to 1.97% with a mean of 0.37 for MC items. For all CR items the omit rate is 0%.

Grade 10

Table 48 presents item analysis results for the 2004 Grade 10 Social Studies assessment. The point-biserials for all MC items range from 0.18 to 0.53 with a mean of 0.41. The p-values for these items range from 0.32 to 0.91 with a mean of 0.72.

The omit rate for the Grade 10 Social Studies assessment was small, ranging from 0.09% to 1.89% with a mean of 0.50% for MC items.

Science

Grade 4

Table 49 presents item analysis results for the 2004 Grade 4 Science assessment. The point-biserials for all MC items range from 0.11 to 0.54 with a mean of 0.32. The p-values for these items range from 0.18 to 0.99 with a mean of 0.66. The table also lists the results of the CR item analyses. The item-to-total-score correlations for the CR items range from 0.13 to 0.54 and their p-values range from 0.25 to 0.86.

The omit rate for the Grade 4 Science assessment is small, ranging from 0% to 4.34% with a mean of 0.71 for MC items. For all CR items the omit rate is 0%.

Grade 8

Table 50 presents item analysis results for the 2004 Grade 8 Science assessment. The point-biserials for all MC items range from 0.11 to 0.60 with a mean of 0.36. The p-values for these items range from 0.18 to 0.97 with a mean of 0.66. The table also lists the results of the CR item analyses. The item-to-total-score correlations for the CR items range from 0.26 to 0.60 and their p-values range from 0.35 to 0.96.

The omit rate for the Grade 8 Science assessment was small, ranging from 0% to 1.58% with a mean of 0.47 for MC items. For all CR items the omit rate is 0%.

Grade 10

Table 51 presents item analysis results for the 2004 Grade 10 Science assessment. The point-biserials for all MC items range from 0.16 to 0.51 with a mean of 0.36. The p-values for these items range from 0.29 to 0.90 with a mean of 0.66.

The omit rate for the Grade 10 Science assessment was small, ranging from 0.09% to 2% with a mean of 0.37% for MC items.

Part 4: Scaling, Calibration, and Scoring Procedures

There has been no calibration and equating for scoring students because WKCE is norm-referenced test based on *TerraNova* items. *TerraNova* item parameters were obtained from national samples in 2002 for all contents grades 4 and 8. Item parameters for grade 10 was obtained from 2002 Field test/standardized. These item parameters were placed on the *TerraNova* scale using *TerraNova* items as anchor items.

4-1 IRT Model

Item parameters for *TerraNova* or customized items were estimated using the combination of two IRT models. The three-parameter logistic model (3PL) was used to scale the SR items, and the two-parameter partial credit (2PPC) model was employed to scale the CR items. A brief explanation of the models is provided below.

Two types of IRT models have most commonly been used to scale large-scale education assessments containing mixed item types or formats. For SR items, the 3PL model has been employed. The 3PL model (Lord & Novick, 1968; Lord, 1980) defines a SR item in terms of three item parameters: item difficulty or location, item discrimination, and probability of a student with very low ability answering the item correctly (guessing parameter). In this model, the probability that a student with scale score θ responds correctly to item j is

$$p_j(\theta) = c_j + \frac{(1-c_j)}{1+\exp[-1.7a_j(\theta - b_j)]},$$

where a_j is the item discrimination, b_j is the item difficulty, and
c_j is the probability of a correct response by a very low-scoring student.

The 2PPC model defines a CR item in terms of item discrimination as well as location parameter for each score point. The 2PPC model is a special case of Bock's (1972) nominal model. Bock's model states that the probability of an examinee with ability θ having a score at the kth level of the jth item is

$$P_{jk}(\theta) = P(x_j = k-1|\theta) = \frac{\exp Z_{jk}}{\sum_{i=1}^{m_j} \exp Z_{ji}}, k = 1,\ldots,m_{j,}$$

where m_j is the number of score levels, and

$Z_{jk} = A_{jk}\theta + C_{jk}$,

$A_{jk} = \alpha_j(k-1)$, $k = 1, 2,\ldots m_j$, and

$$C_{jk} = -\sum_{i=0}^{k-1} \gamma_{ji}\ , \text{ where } \gamma_{j0} = 0\ ,$$

where A_{jk} is the discrimination parameter of the kth category of item j, C_{jk} is the intercept parameter of the nonlinear response function associated with the kth category of item j, α_j and γ_{ji} are the parameters to be estimated from the data.
For each item there are $m_j - 1$ independent γ_{ji} parameters and one α_j parameter; a total of m_j independent item parameters are estimated.

4-2 Scoring based on IRT

Scale Scores based on the IRT model

Scale scores are based on performance on all the items in the test. To obtain this scale score, either of two scoring procedures can be used: item-pattern scoring or number-correct (raw) scoring. For WKCE, the item-pattern scoring procedure has been used.

The item-pattern scoring procedure produces maximum-likelihood trait estimates (scale scores) based on patterns of item responses, as described by Lord (1974; 1980, 179-181). The likelihood equation can have multiple maxima; therefore, a scoring algorithm was developed (Yen, Burket, and Sykes, 1988) that found the scale score at the global maximum in the likelihood function. This item-pattern scoring algorithm was used to obtain scale scores for normative distributions and is used as the default scoring option as CTB.

Item-pattern scoring utilizes more information about students' responses than number-correct scoring. The item-pattern scoring is the maximum likelihood estimate for students with a give response pattern and known parameter estimates. This increase in accuracy is equivalent, on the average, to approximately a 15 to 20% increase in test length (Yen, 1984; Yen & Candell, 1991).

Lowest and Highest Obtainable Scores

A maximum likelihood procedure cannot produce scale score estimates for students with perfect scores or scores below the level expected from guessing. Also, while maximum likelihood estimates are available for students with extreme scores other than zero or perfect, occasionally these estimates have standard error of measurement that are very large, and differences between these extreme values have little meaning. Therefore, scores are established for these students based on a rational but necessarily non-maximum likelihood procedure. These values, which are set separately by grade, are called the lowest obtainable scale score (LOSS) and the highest obtainable scale score (HOSS). In general, these LOSS and HOSS are the same across alternate forms and years.

This LOSS and HOSS values can be found in the scoring tables from Table 52 to Table 66. The scale score for raw score of 0 is LOSS and the scale score for raw score of full score is HOSS. The same LOSS and HOSS for *TerraNova* are used as those for WKCE.

Standard Errors of Measurement

Measurement error is associated with every test score. A student's true score is the hypothetical average score that would result if the test could be administered repeatedly without the effects of practice or fatigue. The standard error of measurement (SEM) can be used to obtain a range within which a student's true score is likely to fall. The fact that the score for a single test may not represent an individual's true status gives rise to the need for the standard error.

For example, an obtained score should be regarded not as an absolute value but as a point within a range that probably includes a student's true score. It is expected that 68% of the time a student's score obtained from a single testing would fall within one SEM of that student's true score and that 95% of the time the obtained score would fall within two standard errors of the true score.

Tables 52 through 66 provide estimates, based on item response theory, of standard errors of measurement for pattern scale score corresponding to each raw score for each of the WKCE assessments. The tables show that scale scores closer to LOSS and HOSS, have higher measurement errors than scores closer to the mean. Also, Figures 11 through 15 show the plots of these standard errors of measurement across all scale scores.

4-3 Item Fit

Yen's Q_1

Item fit was assessed using the Q_1 statistic described by Yen (1984). Q_1 is a Pearson chi-square statistic,

$$Q_{1\,j} = \sum_{i=1}^{I} \frac{N_{ji}(O_{ji} - E_{ji})^2}{E_{ji}} + \sum_{i=1}^{I} \frac{N_{ji}[(1 - O_{ji}) - (1 - E_{ji})]^2}{1 - E_{ji}}$$

where N_{ji} is the number of examinees in cell i for item j, and O_{ji} and E_{ji} are the observed and expected proportion of examinees in in cell i obtaining the maximum possible score on item j.

Because Q_1 is influenced by sample size and by the number of possible score points for an item, this statistic was transformed to a Z-statistic,

$$Z_j = \frac{(Q_{1j} - DF_j)}{\sqrt{2DF_j}}$$

where Q_{1j} is the item chi-square statistic defined above,
j is an item, and
DF is the degrees of freedom for a given item *j*.

The *Z*-statistic is an index of the degree to which obtained proportions of students with each item score are close to the proportions that would be predicted by the estimated student ability and item parameters. These values, along with the associated chi-squares (Q_1) are computed for ten intervals corresponding to deciles of the ability distribution. Because the expected value of Z increases as the sample size increases, critical values for *Z* were established using the following equation (Yen, 1991a):

$$Z_{crit,j} = \frac{4N_j}{1500}$$

where $Z_{crit,j}$ is critical value of *Z* for item *j* and
N_j is the number of students who responded to item *j*.

Because *TerraNova* item parameters were estimated using a national sample, many item parameters were flagged based on this item fit analysis. In this report, item parameters for Wisconsin students were estimated and used for computing item fit.

Reading

The item parameters and fit statistics for the Grades 4, 8 and 10 Reading assessments are shown in Tables C1-C3. The observed Z-values range from -0.55 to 365.19 with a mean of 38.61 and the critical Z-values range from 154.11 to 176.46 with a mean of 168.28. Across grades, only six items exceeded these critical Z-values and exhibited less than optimal fit: one Grade 4 item (CR item 42) and five Grade 10 items (MC items 3, 10, 21, 22 and 24). The estimated and observed item characteristic curves (ICCs) for Grade 4 item 42 are plotted in Figures C2-C4 (Levels 1-3), and the ICCs for Grade 10 items 3, 10, 21, 22 and 24 are plotted in Figures C5-C9.

Mathematics

The item parameters and fit statistics for the Grades 4, 8 and 10 Mathematics assessments are shown in Tables C4-C6. The observed Z-values range from -0.20 to 237.66 with a mean of 21.37 and the critical Z-values range from 155.50 to 182.64 with a mean of 171.63. Across grades, only one item exceeded these critical Z-values and exhibited less than optimal fit: Grade 4 CR item 47. The estimated and observed item characteristic curves (ICCs) for Grade 4 item 47 are plotted in Figures C10-C12 (Levels 1-3).

Language Arts

The item parameters and fit statistics for the Grades 4, 8 and 10 Language Arts assessments are shown in Tables C7-C9. The observed Z-values range from -0.18 to 435.27 with a mean of 31.70 and the critical Z-values range from 154.99 to 177.07 with a mean of 169.71. Across grades, only four items exceeded these critical Z-values and exhibited less than optimal fit: two Grade 8 items (CR items 35 and 36), and two Grade 10 items (CR items 22 and 23). The estimated and observed item characteristic curves (ICCs) for Grade 8 item 35 are plotted in Figures C14-C17 (Levels 1-4), Grade 8 item 36 ICCs are plotted in Figures C18-C24 (Levels 1-7), Grade 10 item 22 ICCs are plotted in Figures C25-C31 (Levels 1-7), and Grade 10 item 23 ICCs are plotted in Figures 32-35 (Levels 1-4).

Social Studies

The item parameters and fit statistics for the Grades 4, 8 and 10 Social Studies assessments are shown in Tables C10-C12. The observed Z-values range from -0.53 to 287.93 with a mean of 24.39 and the critical Z-values range from 155.74 to 183.84 with a mean of 172.14. Across grades, only four items exceeded these critical Z-values and exhibited less than optimal fit: one Grade 8 item (CR item 40) and three Grade 10 items (MC items 11, 31 and 43). The estimated and observed item characteristic curves (ICCs)

Science

The item parameters and fit statistics for the Grades 4, 8 and 10 Science assessments are shown in Tables C13-C15. The observed Z-values range from 0.31 to 266.23 with a mean of 25.44 and the critical Z-values range from 155.98 to 184.23 with a mean of 172.44. Across grades, only three items exceeded these critical Z-values and exhibited less than optimal fit: Grade 4 CR item 63, Grade 8 CR item 67, and Grade 10 MC item 15. The estimated and observed item characteristic curves (ICCs) for Grade 4 item 63 are plotted in Figures C43-C45 (Levels 1-3), the ICCs for Grade 8 item 67 are plotted in Figures C46-C49 (Levels 1-4) and the ICCs for Grade 10 item 15 are plotted in Figure C50.

4-4 DIF

An item flagged for differential item functioning (DIF) is more difficult for a particular group of students than would be expected based on their total test scores, compared to the performance of the other group. The groups compared in the DIF analyses were female and male students, and African–American, Hispanic, and white students. Male and white were reference groups.

The statistical procedures used by CTB to identify items thought to exhibit substantial DIF are the same procedures used by the Educational Testing Service (ETS) and the National Assessment of Educational Progress (NAEP). For MC items, the Mantel-Haenszel (χ^2_{MH})

statistic was used to evaluate potential DIF items. In this procedure, the "C" - level DIF items are flagged, where a "C" item indicates a large amount of DIF and has an absolute value of the Mantel-Haenszel (Δ_{MH}) that is significantly greater than zero (at the .05 level) and $|\Delta_{MH}|$ exceeds 1.5. Also, the "B" - level DIF items are flagged, where a "B" item indicates DIF and has an absolute value of the Mantel-Haenszel (Δ_{MH}) that is significantly greater than zero (at the .05 level) and $-1.5 \le \Delta_{MH} \le -1$ or $1 \le \Delta_{MH} \le 1.5$ (Zwick, Donoghue, & Grima, 1993).

For the CR items, an effect size (ES) statistic based on Mantel χ^2 was used. ES is obtained by dividing the standardized mean difference (SMD) statistics by the standard deviation of the item. A detailed description of these procedures can be found in Zwick, et al., (1993).

Tentative flagging criteria followed the same rules as are used in NAEP:

BB: If the Mantel statistic is significant ($p < .05$) and the $|ES|$ is between 0.17 and 0.25

CC: If the Mantel statistic is significant ($p < .05$) and the $|ES| \ge 0.25$

Tables 67 through 71 shows items flagged based on the above criteria. Positive values in the "DIF" column mean that the item favors the focal group, while negative values imply that the item disadvantages the focal group.

Part 5: Construct Validity

5-1 Factor analysis

Construct validity—what test scores mean and what kind of inferences they support—is the central concept underlying the 2004 WKCE assessment validation process. Evidence for construct validity is comprehensive that integrates evidence from both content- and criterion-related validity. For example, to demonstrate comprehensiveness, 2004 WKCE assessment must contain items that represent essential instructional objectives. To establish meaningfulness, the tests must be correlated highly with independent measures of achievement in similar content areas. Tests designed to measure similar skills should correlate more highly than tests designed to measure distinctly different skills. Achievement tests are typically designed to measure the student proficiency on a single continuum (i.e., unidimensional construct). Although a well-designed achievement test might encompass several sub-content areas, the test as a whole should coherently assess a single construct, e.g., mathematics achievement. For a test to be analyzable using a unidimensional Item Response Theory (IRT) models, the test should be essentially unidimensional. Factor analysis is a statistical technique commonly used to identify the latent constructs underlying test items. Table 72 displays a summary of factor analysis results indicating the presence of a single construct underlying the test. Previous research shows that the examination of first two eigenvalues can be useful in determining the existence of a dominant factor. The ratios of the first two Eigenvalues range from 5.10 to 13.85. That is, the variance of the first factor is approximately 5 to 14 times larger than the variance of the second largest factor. In general, the first factor accounting for over 90% of the estimated total common variance strongly suggests the presence of a single dominant factor underlying test items. For all contents and grades, the first fact accounting for estimated total common variance is over 90%.

5-2 Correlation among Content Standards

To establish meaningfulness of a test form for one content, the test should have appropriate correlation coefficients among content standards. If the correlation coefficient is very high between two content standards, that indicates that the two content standards measure the same trait, while the low correlation coefficients indicates two contents standards measure a little different traits. In general, the size of correlation coefficient is influenced by the length of test, the number of item, or score points.

Table 73 shows the correlations between content standards for Reading and Language Arts. In many cases, because items for Reading and Language Arts measure inter-mingled in the test, the correlations for two contents were put together. Across grades, the correlations for standards A and B are highest (0.807, 0.838, & 0.656). The lowest correlation is 0.452 of standards D and F for grade 4, 0.518 of standards E and F for grade 8, and 0.486 of standards E and F for grade 10. Note that the table values are symmetrical.

Table 74 presents the correlations between content standards for Mathematics. Across grades, the correlations for standards A and E are highest (0.659, 0.679, & 0.672). The lowest correlation is 0.310 of standards C and D for grade 4, 0.520 of standards A and D for grade 8, and 0.538 of standards A and C for grade 10.

Table 75 provides the correlations between content standards for Social Studies. For grades 4 and 8, the correlations for standards A and B are highest (0.619 and 0.653), and for grade 10 the correlation for standards B and C (0.690). The lowest correlation is 0.464 of standards C and E for grade 4, 0.459 of standards C and E for grade 8, and 0.555 of standards A and E for grade 10.

Table 76 shows the correlations between content standards for Science. For grades4, the correlation for standards A and F is the highest (0.510), for grade 8 the correlation for standards F and G (0.653), and for grade 10 the correlation for standards G and H (0.510). The lowest correlation is 0.378 of standards D and E for grade 4, 0.496 of standards B and C for grade 8, and 0.295 of standards C and D for grade 10.

Part 7: Rater Agreement

The 2004 WKCE test design framework includes two types of items, multiple choice (MC) items and constructed response (CR) items including short and extended CR items. Although CR items greatly enhance the construct and instructional validity of WKCE, reliability of hand-scoring items should be closely examined and documented. Through the ongoing process of training and research analyses, evidence of reliability of hand-scoring is continuously gathered. Many training and monitoring techniques are used to ensure scoring reliability and accuracy. Scoring guides are carefully developed and refined; scorers are trained, calibrated, and monitored throughout the scoring process; and rater reliability indices are generated and examined. Reliability for CR items is typically examined by calculating indices of inter-rater agreement: the reliability with which human raters assign scores to student responses. For this analysis, a certain percentage of student responses are submitted to a second reader for scoring.

Evidence supporting inter-rater reliability of WKCE assessments is presented in terms of raw score means, raw score standard deviations, and percentages of exact and adjacent agreement between raters. “Perfect agreement” is defined as scores that are exactly the same. “Adjacent agreement” is defined as scores differing by 1 raw score point. In addition, Cohen’s kappa is provided as a measure of agreement between the raters. Cohen’s kappa (Cohen, 1960) is commonly used to summarize the agreement between raters (Brennan & Prediger, 1981):

$$\kappa = \frac{\sum P_{ii} - \sum P_{i\cdot} P_{\cdot i}}{1 - \sum P_{i\cdot} P_{\cdot i}},$$

where $\sum P_{ii}$ is the observed proportion of agreement and $\sum P_{i\cdot} P_{\cdot i}$ is the chance proportion of agreement.

The following condition codes (Codes in the output table) were used for short CR items:
A: Student took the subject area, but the item was left blank or erased
B: Illegible
C: Another language
Blank: Student did not take the subject area test (no score)

The following condition codes were used for extended Writing CR items:
A: No response; the student either left the WKCE writing prompt blank, erased their response, or did not take the test
B: Illegible
C: Another language
F: Invalidated score (invalidation)
Blank: no status code and indicates a valid score

Tables 78 through 88 show the rater reliability indices for all 2004 CR items by content area.

Table 78 presents the summary statistics for inter rater reliability for Grade 4 Reading. The responses of 3,104 students for 7 CR items were scored by two groups of raters. For item 33

with a maximum score of 6, perfect agreement was achieved for 84 percent of the cases. This indicates that two raters gave exactly the same scores for 84 percents of the students. Adjacent agreement was attained for 11 percent of the cases, indicating that the two raters assigned scores differing by one point for 11 percents of the students. Four percent of the students received condition codes and one percent of the students received discrepant scores. Crobach's alpha (intraclass correlation) is 0.99, and kappa is 0.97. The frequency distribution shows the distribution of scores assigned by the raters for the 3,104 students. The sum of this frequency distribution is 6,208 because two raters scored each student. The score ranges from 0 to 6.

Reading

Grade 4

Table 78 presents the summary statistics for inter rater reliability for Grade 4 Reading. The responses of 3,104 students for 7 CR items were scored by two groups of raters. The percentages for perfect agreement range from 68 to 94, for adjacent agreement from 1 to 28, for discrepant agreement from 0 to 3, and for Codes from 3 to 6. The intraclass correlation ranges from 0.90 to 0.99, and kappa ranges from 0.79 to 0.97. Item 65 with a maximum score of 4 shows the lowest percentage of perfect agreement (68%), and item 66A with a maximum score of 2 presents the lowest kappa (0.79).

Grade 8

Table 79 presents the summary statistics for inter rater reliability for Grade 8 Reading. The responses of 3,549 students for 10 CR items were scored by two groups of raters. The percentages for perfect agreement range from 65 to 93, for adjacent agreement from 3 to 25, for discrepant agreement from 0 to 9, and for Codes from 4 to 14. The intraclass correlation ranges from 0.85 to 0.99, and kappa ranges from 0.71 to 0.98. Item 36A with a maximum score of 2 shows the lowest percentage of perfect agreement (65%), and item 34 with a maximum score of 2 presents the lowest kappa (0.71).

Mathematics

Grade 4

Table 80 presents the summary statistics for inter rater reliability for Grade 4 Mathematics. The responses of 3,104 students for 11 CR items were scored by two groups of raters. The percentages for perfect agreement range from 74 to 93, for adjacent agreement from 4 to 17, for discrepant agreement from 0 to 1, and for Codes from 3 to 8. The intraclass correlation ranges from 0.94 to 0.98, and kappa ranges from 0.89 to 0.97. Item 43 with a maximum score of 3 shows the lowest percentage of perfect agreement (74%), and item 39 with a maximum score of 2 presents the lowest kappa (0.89).

Grade 8

Table 81 presents the summary statistics for inter rater reliability for Grade 8 Mathematics. The responses of 3,549 students for 10 CR items were scored by two groups of raters. The percentages for perfect agreement range from 76 to 96, for adjacent agreement from 1 to 19, for discrepant agreement from 0 to 2, and for Codes from 3 to 7. The intraclass correlation ranges from 0.92 to 1.00, and kappa ranges from 0.83 to 0.99. Item 38 with a maximum score of 2 shows the lowest percentage of perfect agreement (76%), and item 39 with a maximum score of 2 presents the lowest kappa (0.83).

Social Studies

Grade 4

Table 82 presents the summary statistics for inter rater reliability for Grade 4 Social Studies. The responses of 3,104 students for 10 CR items were scored by two groups of raters. The percentages for perfect agreement range from 74 to 94, for adjacent agreement from 2 to 20, for discrepant agreement from 0 to 2, and for Codes from 3 to 6. The intraclass correlation ranges from 0.80 to 0.98, and kappa ranges from 0.59 to 0.97. Item 30 with a maximum score of 2 shows the lowest percentage of perfect agreement (74%), and item 33 with a maximum score of 1 presents the lowest kappa (0.59).

Grade 8

Table 83 presents the summary statistics for inter rater reliability for Grade 8 Social Studies. The responses of 3,549 students for 10 CR items were scored by two groups of raters. The percentages for perfect agreement range from 51 to 90, for adjacent agreement from 7 to 38, for discrepant agreement from 0 to 9, and for Codes from 3 to 5. The intraclass correlation ranges from 0.78 to 0.97, and kappa ranges from 0.60 to 0.93. Item 27 with a maximum score of 3 shows the lowest percentage of perfect agreement (51%), and item 31 with a maximum score of 2 presents the lowest kappa (0.60).

Science

Grade 4

Table 84 presents the summary statistics for inter rater reliability for Grade 4 Science. The responses of 3,104 students for 12 CR items were scored by two groups of raters. The percentages for perfect agreement range from 82 to 96, for adjacent agreement from 1 to 15, for discrepant agreement from 0 to 1, and for Codes from 3 to 6. The intraclass correlation ranges from 0.87 to 0.99, and kappa ranges from 0.73 to 0.98. Item 27 with a maximum score of 2 shows the lowest percentage of perfect agreement (82%), and item 35 with a maximum score of 1 presents the lowest kappa (0.73).

Grade 8

Table 85 presents the summary statistics for inter rater reliability for Grade 8 Science. The responses of 3,549 students for 10 CR items were scored by two groups of raters. The percentages for perfect agreement range from 83 to 95, for adjacent agreement from 1 to 13, for discrepant agreement from 0 to 1, and for Codes from 2 to 6. The intraclass correlation ranges from 0.88 to 0.99, and kappa ranges from 0.75 to 0.98. Item 27 with a maximum score of 2 shows the lowest percentage of perfect agreement (83%), and item 34 with a maximum score of 1 presents the lowest kappa (0.75).

Writing

Grade 4

Table 86 presents the summary statistics for inter rater reliability for Grade 4 Writing. The responses of 61,310 students for 2 CR items were scored by two groups of raters. The percentages for perfect agreement range from 65 to 92, for adjacent agreement from 3 to 29, for discrepant agreement from 2 to 3, and for Codes both items had 3 percent. The intraclass correlation ranges from 0.85 to 0.89, and kappa ranges from 0.70 to 0.78. Item 1A with a

maximum score of 6 shows the lowest percentage of perfect agreement (65%), and the lowest kappa (0.70).

Grade 8

Table 87 presents the summary statistics for inter rater reliability for Grade 8 Writing. The responses of 71,583 students for 2 CR items were scored by two groups of raters. The percentages for perfect agreement range from 55 to 84, for adjacent agreement from 13 to 38, for discrepant agreement from 0 to 4, and for Codes both items had 3 percent. The intraclass correlation is 0.88 for both items, and kappa ranges from 0.75 to 0.77. Item 1A with a maximum score of 6 shows the lowest percentage of perfect agreement (55%), and item 1B with a maximum score of 3 presents the lowest kappa (0.75).

Grade 10

Table 88 presents the summary statistics for inter rater reliability for Grade 10 Writing. The responses of 71,685 students for 2 CR items were scored by two groups of raters. The percentages for perfect agreement range from 64 to 82, for adjacent agreement from 14 to 30, for discrepant agreement from 0 to 2, and for Codes both items had 4 percent. The intraclass correlation ranges from 0.88 to 0.89, and kappa ranges from 0.76 to 0.78. Item 49A with a maximum score of 6 shows the lowest percentage of perfect agreement (64%), and item 49B with a maximum score of 3 presents the lowest kappa (0.76).

Part 8: Classification Consistency and Classification Accuracy

One of the cornerstones of the federal NCLB Act (2002) is the measurement of Adequate Yearly Progress (AYP) of states with respect to the percentage of students at or above the academic performance standard established by states. Because of heavy emphasis on moving all students to or above the "Proficient" category by year 2014, a psychometric property of particular interest is how consistently and accurately assessment instruments can classify students into performance categories.

Conceptually, classification consistency is defined as the extent to which the classifications of students agree on the basis of two independent administrations of the test, or one administration of two parallel test forms. However, it is difficult to obtain data from repeated administrations of the same form because of cost, time, and student's memory for the test of the first administration. Also, it is difficult to construct two parallel forms. Therefore, a common practice is to estimate classification consistency from one administration of a test. When a method to estimate decision consistency is applied, a contingency table of (H+1) $\times$ (H+1) can be constructed, where H is the number of cut scores. For example, with three cut scores, a 4 $\times$4 contingency table can be built as follows (see Table a).

Table a
Contingency Table with 3 Cut Scores

	Level 1	Level 2	Level 3	Level 4	Sum
Level 1	P_{11}	P_{21}	P_{31}	P_{41}	$P_{.1}$
Level 2	P_{12}	P_{22}	P_{32}	P_{42}	$P_{.2}$
Level 3	P_{13}	P_{23}	P_{33}	P_{43}	$P_{.3}$
Level 4	P_{14}	P_{24}	P_{34}	P_{44}	$P_{.4}$
Sum	$P_{1.}$	$P_{2.}$	$P_{3.}$	$P_{4.}$	1.0

It is common to report two indices of classification consistency, the classification agreement P and coefficient kappa. Hambleton and Novick (1973) proposed P as a measure of classification consistency, where P is defined as sum of diagonal values of the contingency table:

$$P = P_{11} + P_{22} + P_{33} + P_{44.}$$

To reflect statistical chance agreement, Swaminathan, Hambleton, and Algina (1974) suggest using Cohen's kappa (1960):

$$\text{kappa} = \frac{P - P_c}{1 - P_c},$$

where P_c is the chance probability of a consistent classification under the two complete random assignment. This probability P_c is the sum of the probabilities obtained by multiplying the

marginal probability of the first administration and the corresponding marginal probability of the second administration:

$$P_c = (P_{1.} \times P_{.1}) + (P_{2.} \times P_{.2}) + (P_{3.} \times P_{.3}) + (P_{4.} \times P_{.4}).$$

Classification accuracy is defined as the extent to which the actual classifications of test takers agree with those that would be made on the basis of their true scores (Livingston & Lewis, 1995). That is, classification consistency refers to the agreement between two observed scores, while classification accuracy refers to the agreement between the observed score and the true score. It is common to estimate decision accuracy by assuming the psychometric model to find true scores corresponding to observed scores.

Kolen and Kim's method for pattern scoring

When item response theory (IRT) is applied to score examinees' responses, two types of scoring are available: number-correct scoring and pattern scoring. CSAP is an example of a program that has applied pattern scoring. Many methods of estimating the consistency and accuracy of classification based on number-correct scoring have been suggested. However, there have been relatively few studies dealing with pattern scoring based on IRT. Kolen and Kim (2004) suggested a simple procedure for pattern scoring (KKM) based on IRT and simulation of item responses. KKM requires a simulation of item responses as follows:

Step 1: Obtain item parameters (**I**) and ability distribution weight ($\hat{g}(\theta)$) at each quadrature point.
Step 2: Compute two ability estimates at each quadrature point. At a given quadrature point θ_j, generate two sets of item responses using the item parameters from a test form, assuming that the same test form was administered twice to an examinee with the true ability θ_j.

$\theta_j \nearrow$ (1,1,0,0,…: Item response from the first administration, or Form 1) $\longrightarrow \hat{\theta}_{j1}$

$\theta_j \searrow$ (0,1,1,0,…: Item response from the second administration, or Form 2) $\longrightarrow \hat{\theta}_{j2}$

If two parallel (or alternative) forms, e.g., Form 1 and Form 2, are available, the two response patterns can be generated based on the item parameters from the two forms.
Step 3: Construct a classification matrix at each quadrature point. Determine the joint event for the cells in Table b using the two ability estimates obtained from Step 2.

Table b
Classification Table for One Cut Point (C_1)[3]

	First administration or Form 1		
	$\hat{\theta}_{ji} \geq C_1$	$\hat{\theta}_{j1} < C_1$	
$\hat{\theta}_{j2} \geq C_1$			Second administration, or Form 2
$\hat{\theta}_{j2} < C_1$			

Step 4: Repeat Steps 2 and 3 *R* times and get average values over *R* replications. *R* should be a large number, e.g., 500, to obtain stable results.
Step 5: Multiply distribution weight ($\hat{g}(\theta)$) by average values in Step 4 for each quadrature point, and sum across all quadrature points. From this a final contingency table and classification consistency indices, such as kappa, can be computed.

Because examinees' abilities are estimated at each quadrature point, this quadrature point can be considered the true score. Therefore, classification accuracy is computed using both examinees' estimated abilities (observed scores) and quadrature point (true score).

As can be seen in Table 89 for classification consistency and accuracy for Reading Grade 4, there are three tables. The first table shows summary information, such as number of items, raw score, Cronbach's alpha, mean, standard deviation (SD), LOSS and HOSS for scale scores, three raw score cutoffs and scale score cutoffs. The three raw score cutoffs corresponding to the three scale score cutoffs were estimated using the inverse of TCC.

The second table is a contingency table with all three cut scores. This table was prepared based on the KKM procedure. The rows represent the first administration of an assessment, and the columns represent the second administration of the same assessment to the same students. As mentioned above in the procedure by Kolen and Kim, the score distributions for the first administration and the second administration are estimated using simulation. So, the value in each cell represents the probability of belonging to certain levels of the first administration and the second administration. For example, 0.0405 represents the probability of belonging to "Minimum" in the both first and second administrations. The 0.0188 represents the probability of belonging to "Proficient" in the first administration and "Minimum" in the second administration. 'Sum' is obtained simply by adding the four row values or the four column values. The "Observed Score Dist" row shows the distribution of real data belonging to each performance level. In general, it is expected that the sum values and the distribution of observed scores from real data are similar.

The third table shows indices for classification consistency and classification accuracy. Each index was described above. Because there are three cuts for CSAP, four performance levels exist. The values in "All cuts" were obtained by applying all three cuts together. From Table 89

[3] This table is constructed for each quadrature point and replication. One, and only one, cell will have a value of 1 and zeros elsewhere.

for Reading grade 4, classification agreement (P) is 0.7536, chance probability is 0.3476, kappa is 0.6223, and classification accuracy is 0.8160, when all three cuts were used for computation. The values for cut 1 were obtained by applying only the first cut score, 585. Therefore, there are two levels whenever only one cut is applied. It is clear that the values for P, decision accuracy with all three cuts are smaller than those with only one cut. This explanation is the same tables 90-103.

Table 1
Test Design for 2004 WKCE operational testing

Content	Grade	TerraNova items				Total points
		N of MC items	MC Score Points	N of CR items	CR Score points	
Reading	4	41	41	3	8	49
	8	40	40	5	11	51
	10	27	27	0	0	27
Mathematics	4	42	42	11	27	69
	8	44	44	10	23	67
	10	49	49	0	0	49
Language Arts	4	31	31	4	19	50
	8	32	32	5	19	51
	10	21	21	2	9	30
Social Studies	4	30	30	10	21	51
	8	36	36	10	19	55
	10	50	50	0	0	50
Science	4	55	55	12	16	71
	8	60	60	10	16	76
	10	50	50	0	0	50

Table 2
Content Standard for Reading

Grade	Content Standard	No. of Items		Total Score Points
		MC	CR	
4	A	30	1	34
	D	5	2	9
	E	6	0	6
8	A	34	4	42
	E	6	1	9
10	A	21	0	21
	E	6	0	6

Table 3
Content Standard for Mathematics

Grade	Content Standard	No. of Items		Total Score Points
		MC	CR	
4	A	1	3	7
	B	16	3	23
	C	5	0	5
	D	3	1	5
	E	9	3	19
	F	8	1	10
8	A	8	2	12
	B	13	2	17
	C	4	2	8
	D	3	1	5
	E	8	2	15
	F	8	1	10
10	A	9	0	9
	B	6	0	6
	C	9	0	9
	D	9	0	9
	E	9	0	9
	F	7	0	7

Table 4
Content Standard for Language Arts

Grade	Content Standard	No. of Items		Total Score Points
		MC	CR	
4	B	25	4	42
	F	6	0	6
8	B	24	5	43
	D	1	0	1
	F	7	0	7
10	B	9	2	18
	D	6	0	6
	F	6	0	6

Table 5
Content Standard for Social Studies

Grade	Content Standard	No. of Items		Total Score Points
		MC	CR	
4	A	9	4	17
	B	5	4	13
	C	3	1	5
	D	6	1	9
	E	7	0	7
8	A	11	3	16
	B	8	4	15
	C	6	2	11
	D	6	1	8
	E	5	0	5
10	A	10	0	10
	B	12	0	12
	C	12	0	12
	D	8	0	8
	E	8	0	8

Table 6
Content Standard for Science

Grade	Content Standard	No. of Items		Total Score Points
		MC	CR	
4	A	2	2	5
	B	10	0	10
	C	8	2	10
	D	4	2	8
	E	11	1	13
	F	7	3	10
	G	7	0	7
	H	6	2	8
8	A	2	1	3
	B	10	0	10
	C	10	2	13
	D	11	2	13
	E	4	3	9
	F	12	1	15
	G	8	1	10
	H	3	0	3
10	A	6	0	6
	B	6	0	6
	C	6	0	6
	D	6	0	6
	E	7	0	7
	F	7	0	7
	G	6	0	6
	H	6	0	6

Table 7
Raw Score Descriptive Statistics based on Census Data

Content	Grade	N Count	Mean	Mean P-Value	SD	Skewness	Kurtosis	Min	Max	Alpha	SEM
Reading	4	58148	35.36	0.72	8.58	-0.75	-0.00	0	49	0.90	2.74
	8	66426	35.93	0.70	9.48	-0.79	0.04	0	51	0.90	2.93
	10	69220	21.43	0.79	4.53	-1.21	1.34	0	27	0.85	1.78
Mathematics	4	58316	42.26	0.61	11.95	-0.25	-0.60	1	69	0.90	3.83
	8	66349	41.97	0.63	12.47	-0.34	-0.55	0	67	0.91	3.74
	10	69173	35.62	0.73	8.78	-0.75	-0.08	1	49	0.91	2.69
Language Arts	4	58148	30.07	0.63	8.41	-0.41	-0.43	0	48	0.85	3.31
	8	66426	31.92	0.63	9.18	-0.37	-0.50	0	51	0.86	3.46
	10	69220	20.38	0.68	4.39	-0.79	0.64	0	30	0.80	1.96
Social Studies	4	58479	36.85	0.72	7.71	-0.84	0.60	1	51	0.85	2.95
	8	66345	37.28	0.68	9.09	-0.70	0.10	1	55	0.87	3.25
	10	69077	35.75	0.72	8.83	-0.83	0.07	0	50	0.90	2.80
Science	4	58503	46.50	0.65	9.54	-0.53	0.14	0	70	0.87	3.49
	8	66425	50.45	0.66	11.73	-0.67	0.12	0	76	0.90	3.67
	10	69105	33.16	0.66	7.82	-0.55	-0.03	0	50	0.86	2.93

Table 8
Raw Score Descriptive Statistics by Gender

Content	Grade	Male					Female				
		N Count	Mean	Mean P-Value	SD	Alpha	N Count	Mean	Mean P-Value	SD	Alpha
Reading	4	29726	34.29	0.70	8.81	0.90	28415	36.49	0.74	8.18	0.89
	8	34232	34.43	0.68	9.74	0.91	32188	37.52	0.74	8.93	0.90
	10	35288	20.97	0.78	4.81	0.86	33924	21.90	0.81	4.17	0.83
Mathematics	4	29865	42.82	0.62	12.11	0.90	28444	41.68	0.60	11.75	0.89
	8	34209	41.99	0.63	12.87	0.92	32134	41.95	0.63	12.04	0.91
	10	35258	35.63	0.73	9.09	0.91	33906	35.61	0.73	8.45	0.90
Language Arts	4	29726	28.95	0.60	8.45	0.84	28415	31.25	0.65	8.19	0.84
	8	34232	30.62	0.60	9.37	0.86	32188	33.31	0.65	8.76	0.85
	10	35288	19.62	0.65	4.58	0.81	33924	21.16	0.71	4.03	0.78
Social Studies	4	29966	36.87	0.72	7.79	0.86	28506	36.82	0.72	7.64	0.85
	8	34188	37.26	0.68	9.36	0.88	32151	37.30	0.68	8.80	0.86
	10	35199	35.80	0.72	9.29	0.91	33870	35.71	0.71	8.33	0.89
Science	4	29980	47.14	0.66	9.59	0.87	28516	45.83	0.65	9.43	0.86
	8	34242	51.04	0.67	12.10	0.91	32177	49.82	0.66	11.29	0.89
	10	35215	33.80	0.68	8.13	0.87	33882	32.49	0.65	7.43	0.84

Table 9
Raw Score Descriptive Statistics for Reading and Mathematics by Ethnicity

Content	Ethnicity	Grade	N Count	Mean	Mean P-Value	SD	Alpha
Reading	White	4	45045	36.77	0.75	7.95	0.89
		8	53143	37.55	0.74	8.58	0.89
		10	57394	22.02	0.82	4.11	0.82
	AA	4	6502	29.21	0.60	9.07	0.89
		8	6649	27.02	0.53	9.93	0.90
		10	5712	17.53	0.65	5.44	0.86
	H	4	3764	31.04	0.63	8.43	0.88
		8	3298	30.91	0.61	9.82	0.90
		10	2852	19.03	0.70	5.22	0.86
	Others	4	2822	32.98	0.67	8.46	0.89
		8	3318	32.71	0.64	9.53	0.90
		10	3228	19.96	0.74	4.72	0.83
Mathematics	White	4	45183	44.18	0.64	11.29	0.89
		8	53129	44.12	0.66	11.55	0.90
		10	57386	37.05	0.76	7.96	0.89
	AA	4	6540	32.42	0.47	11.34	0.88
		8	6627	29.18	0.44	11.40	0.89
		10	5674	25.64	0.52	8.72	0.88
	H	4	3770	36.90	0.53	10.80	0.88
		8	3271	35.71	0.53	11.40	0.89
		10	2849	29.88	0.61	8.71	0.88
	Others	4	2808	41.58	0.60	11.68	0.89
		8	3304	39.28	0.59	11.77	0.90
		10	3229	32.78	0.67	8.70	0.89

Table 10
Raw Score Descriptive Statistics for Language Arts and Social Studies by Ethnicity

Content	Ethnicity	Grade	N Count	Mean	Mean P-Value	SD	Alpha
Language Arts	White	4	45045	31.34	0.65	7.98	0.84
		8	53143	33.41	0.66	8.58	0.84
		10	57394	20.98	0.70	4.03	0.78
	AA	4	6502	24.38	0.51	8.43	0.83
		8	6649	24.06	0.47	9.00	0.85
		10	5712	16.57	0.55	4.86	0.79
	H	4	3764	26.13	0.54	7.94	0.82
		8	3298	27.00	0.53	8.76	0.84
		10	2852	17.80	0.59	4.83	0.80
	Others	4	2822	28.29	0.59	8.23	0.83
		8	3318	28.71	0.56	8.57	0.84
		10	3228	18.66	0.62	4.39	0.78
Social Studies	White	4	45307	38.23	0.75	6.85	0.83
		8	53183	38.93	0.71	8.10	0.85
		10	57393	37.06	0.74	8.03	0.88
	AA	4	6551	30.00	0.59	8.85	0.86
		8	6582	27.78	0.51	9.74	0.87
		10	5605	26.74	0.53	9.63	0.89
	H	4	3782	33.33	0.65	7.80	0.84
		8	3262	32.44	0.59	9.29	0.86
		10	2825	30.70	0.61	9.51	0.90
	Others	4	2824	35.23	0.69	7.61	0.84
		8	3300	34.47	0.63	8.70	0.85
		10	3221	32.72	0.65	8.80	0.89

Table 11
Raw Score Descriptive Statistics for Science and Writing by Ethnicity

Content	Ethnicity	Grade	N Count	Mean	Mean P-Value	SD	Alpha
Science	White	4	45317	48.48	0.68	8.42	0.83
		8	53208	52.89	0.70	10.18	0.87
		10	57382	34.44	0.69	7.09	0.83
	AA	4	6557	37.34	0.53	9.94	0.86
		8	6628	36.92	0.49	12.17	0.90
		10	5631	24.41	0.49	7.73	0.83
	H	4	3790	40.82	0.57	9.42	0.85
		8	3268	42.91	0.56	11.87	0.89
		10	2836	28.17	0.56	7.86	0.84
	Others	4	2824	43.71	0.62	9.37	0.85
		8	3303	45.74	0.60	11.03	0.88
		10	3222	29.99	0.60	7.81	0.84

Table 12
Raw Score Descriptive Statistics by Socioeconomic Status

Content	Grade	Economically Disadvantaged					Not Disadvantaged				
		N Count	Mean	Mean P-Value	SD	Alpha	N Count	Mean	Mean P-Value	SD	Alpha
Reading	4	18901	31.25	0.64	8.85	0.89	39247	37.35	0.76	7.70	0.88
	8	18451	30.45	0.60	10.05	0.90	47975	38.03	0.75	8.35	0.88
	10	14932	19.05	0.71	5.18	0.85	54288	22.08	0.82	4.10	0.83
Mathematics	4	18991	36.60	0.53	11.49	0.89	39325	45.00	0.65	11.19	0.89
	8	18392	34.69	0.52	12.07	0.90	47957	44.76	0.67	11.46	0.90
	10	14899	30.05	0.61	9.20	0.90	54274	37.15	0.76	8.01	0.89
Language Arts	4	18901	26.26	0.55	8.30	0.83	39247	31.91	0.66	7.82	0.83
	8	18451	26.74	0.53	9.04	0.85	47975	33.92	0.67	8.42	0.84
	10	14932	17.84	0.60	4.63	0.79	54288	21.07	0.70	4.05	0.78
Social Studies	4	19078	33.09	0.65	8.17	0.85	39401	38.66	0.76	6.77	0.83
	8	18356	31.81	0.58	9.57	0.87	47989	39.37	0.72	7.97	0.84
	10	14840	30.42	0.61	9.54	0.90	54237	37.22	0.74	8.04	0.88
Science	4	19096	41.51	0.59	9.79	0.86	39407	48.92	0.69	8.41	0.84
	8	18406	43.00	0.57	12.31	0.90	48019	53.30	0.70	10.15	0.88
	10	14873	28.33	0.57	8.16	0.86	54232	34.48	0.69	7.18	0.84

Table 13
Raw Score Descriptive Statistics by Disability

Content	Grade	Disabled					Not Disabled				
		N Count	Mean	Mean P-Value	SD	Alpha	N Count	Mean	Mean P-Value	SD	Alpha
Reading	4	7108	27.42	0.56	9.55	0.90	51040	36.47	0.74	7.82	0.88
	8	8855	24.96	0.49	9.67	0.89	57571	37.61	0.74	8.25	0.88
	10	8426	16.31	0.60	5.33	0.84	60794	22.13	0.82	3.91	0.81
Mathematics	4	7324	35.00	0.51	12.04	0.90	50992	43.31	0.63	11.57	0.89
	8	8847	29.03	0.43	11.42	0.89	57502	43.96	0.66	11.39	0.90
	10	8398	25.39	0.52	8.67	0.87	60775	37.03	0.76	7.81	0.89
Language Arts	4	7108	22.54	0.47	8.58	0.83	51040	31.12	0.65	7.83	0.83
	8	8855	21.91	0.43	8.06	0.82	57571	33.46	0.66	8.33	0.84
	10	8426	15.27	0.51	4.41	0.74	60794	21.08	0.70	3.89	0.76
Social Studies	4	7478	32.15	0.63	8.74	0.87	51001	37.53	0.74	7.30	0.84
	8	8885	28.34	0.52	9.52	0.87	57460	38.66	0.70	8.20	0.85
	10	8426	26.69	0.53	9.46	0.89	60651	37.01	0.74	7.96	0.88
Science	4	7492	40.80	0.57	10.39	0.88	51011	47.34	0.67	9.11	0.86
	8	8918	39.62	0.52	12.44	0.90	57507	52.13	0.69	10.68	0.89
	10	8441	25.62	0.51	8.14	0.85	60664	34.21	0.68	7.17	0.84

Table 14
Raw Score Descriptive Statistics by English Language Proficiency

Content	Grade	Proficient					Not Proficient				
		N Count	Mean	Mean P-Value	SD	Alpha	N Count	Mean	Mean P-Value	SD	Alpha
Reading	4	55314	35.68	0.73	8.49	0.90	2834	29.24	0.60	7.90	0.86
	8	64478	36.19	0.71	9.37	0.90	1948	27.26	0.53	9.13	0.88
	10	67764	21.52	0.80	4.47	0.84	1456	16.92	0.63	4.86	0.81
Mathematics	4	55505	42.51	0.62	11.96	0.90	2811	37.47	0.54	10.64	0.87
	8	64434	42.18	0.63	12.46	0.91	1915	34.70	0.52	10.61	0.87
	10	67719	35.78	0.73	8.73	0.91	1454	28.00	0.57	8.03	0.85
Language Arts	4	55314	30.35	0.63	8.36	0.84	2834	24.72	0.51	7.50	0.80
	8	64478	32.16	0.63	9.12	0.86	1948	24.16	0.47	7.49	0.80
	10	67764	20.47	0.68	4.34	0.80	1456	15.97	0.53	4.17	0.71
Social Studies	4	55658	37.06	0.73	7.66	0.85	2821	32.55	0.64	7.61	0.83
	8	64440	37.49	0.68	9.03	0.87	1905	30.32	0.55	8.40	0.83
	10	67636	35.93	0.72	8.76	0.90	1441	27.70	0.55	8.36	0.86
Science	4	55678	46.88	0.66	9.41	0.86	2825	39.08	0.55	8.94	0.83
	8	64516	50.78	0.67	11.60	0.90	1909	39.11	0.51	10.56	0.86
	10	67661	33.33	0.67	7.75	0.86	1444	25.29	0.51	7.02	0.79

Table 15
Scale Score Descriptive Statistics based on Census Data

Content	Grade	N Count	Mean	SD	Skewness	Kurtosis	Min	Max
Reading	4	58148	645.92	36.49	-0.28	2.47	433	780
	8	66426	680.38	36.26	-0.48	2.46	507	820
	10	69220	712.80	42.62	0.52	2.94	529	838
Mathematics	4	58316	645.93	33.57	-0.27	1.45	403	770
	8	66349	689.30	40.17	-0.34	1.83	502	872
	10	69173	719.50	45.15	-0.34	2.45	530	892
Language Arts	4	58148	633.00	32.97	-0.52	2.84	465	757
	8	66426	704.25	33.67	-0.10	1.48	523	819
	10	69220	743.65	32.26	-0.21	2.01	535	835
Social Studies	4	58479	636.90	25.64	-0.28	3.18	460	763
	8	66345	698.71	26.50	-0.81	3.26	523	803
	10	69077	725.32	25.86	-0.44	4.37	548	821
Science	4	58503	646.40	32.76	-0.95	2.99	421	799
	8	66425	686.95	31.25	-0.89	3.95	487	857
	10	69105	710.08	37.27	-1.63	7.57	501	893

Table 16
Scale Score Descriptive Statistics by Gender

Content	Grade	Male					Female				
		N Count	Mean	SD	Min	Max	N Count	Mean	SD	Min	Max
Reading	4	29,726	641.29	36.57	433	780	28,415	650.78	35.74	433	780
	8	34,232	683.29	36.33	507	820	32,188	695.69	35.08	507	820
	10	35,288	715.65	43.13	529	838	33,924	723.50	41.70	529	838
Mathematics	4	29,865	634.72	34.41	403	770	28,444	631.20	32.56	403	770
	8	34,209	704.48	42.17	502	872	32,134	704.00	37.91	502	872
	10	35,258	743.63	47.91	530	892	33,906	743.69	42.09	530	892
Language Arts	4	29,726	641.53	33.11	465	757	28,415	650.51	32.18	465	757
	8	34,232	675.49	34.15	523	819	32,188	685.58	32.36	523	819
	10	35,288	707.36	32.81	535	835	33,924	718.46	30.67	535	835
Social Studies	4	29,966	646.41	26.14	460	763	28,506	646.40	25.11	460	763
	8	34,188	687.08	27.75	523	803	32,151	686.81	25.10	523	803
	10	35,199	710.48	27.89	548	821	33,870	709.66	23.56	548	821
Science	4	29,980	638.77	33.08	421	799	28,516	634.93	32.28	421	799
	8	34,242	700.31	33.11	487	857	32,177	697.00	29.04	487	857
	10	35,215	728.12	39.93	501	893	33,882	722.42	34.04	501	893

Table 17
Scale Score Descriptive Statistics for Reading and Mathematics by Ethnicity

Content	Ethnicity	Grade	N Count	Mean	SD	Min	Max
Reading	White	4	45045	651.46	34.85	433	780
		8	53143	695.11	33.59	507	820
		10	57394	724.22	41.36	529	838
	AA	4	6502	621.48	36.73	433	780
		8	6649	657.68	37.64	507	820
		10	5712	688.67	40.75	529	838
	H	4	3764	628.70	32.65	433	780
		8	3298	671.07	35.29	507	820
		10	2852	699.98	41.26	529	838
	Others	4	2822	636.97	33.79	433	780
		8	3318	677.73	34.12	507	820
		10	3228	707.47	38.93	529	838
Mathematics	White	4	45183	638.21	31.61	403	770
		8	53129	710.94	36.99	502	872
		10	57386	750.43	41.79	530	892
	AA	4	6540	606.14	33.85	403	770
		8	6627	663.71	40.71	502	824
		10	5674	696.46	46.00	530	892
	H	4	3770	618.44	29.67	403	731
		8	3271	685.41	36.04	502	872
		10	2849	716.27	41.81	530	863
	Others	4	2808	631.48	32.62	479	770
		8	3304	696.65	36.91	502	872
		10	3229	730.53	42.33	530	892

Table 18
Scale Score Descriptive Statistics for Language Arts and Social Studies by Ethnicity

Content	Ethnicity	Grade	N Count	Mean	SD	Min	Max
Language Arts	White	4	45045	650.82	31.12	465	757
		8	53143	685.47	31.88	523	819
		10	57394	716.98	30.47	535	835
	AA	4	6502	623.85	34.30	465	757
		8	6649	653.42	33.58	523	803
		10	5712	686.98	33.32	535	835
	H	4	3764	630.68	31.87	465	751
		8	3298	663.66	31.31	523	804
		10	2852	694.55	33.25	535	816
	Others	4	2822	638.94	31.62	465	757
		8	3318	669.52	30.38	523	819
		10	3228	700.40	30.23	535	835
Social Studies	White	4	45307	650.76	23.63	460	763
		8	53183	691.65	23.44	523	803
		10	57393	713.59	24.04	548	821
	AA	4	6551	625.23	27.66	460	763
		8	6582	659.74	30.80	523	768
		10	5605	685.90	28.48	548	821
	H	4	3782	634.81	23.62	460	722
		8	3262	673.21	26.71	523	770
		10	2825	696.23	25.60	548	790
	Others	4	2824	641.17	24.12	460	763
		8	3300	678.98	24.13	572	803
		10	3221	701.77	24.03	548	821

Table 19
Scale Score Descriptive Statistics for Science by Ethnicity

Content	Ethnicity	Grade	N Count	Mean	SD	Min	Max
Science	White	4	45317	643.80	27.97	421	799
		8	53208	704.96	26.94	487	857
		10	57382	731.23	32.20	501	893
	AA	4	6557	604.52	37.76	421	731
		8	6628	663.95	36.45	487	857
		10	5631	683.79	48.99	501	796
	H	4	3790	617.35	33.63	421	763
		8	3268	679.47	30.67	487	788
		10	2836	703.43	41.24	501	805
	Others	4	2824	627.67	32.20	421	739
		8	3303	686.82	27.93	487	857
		10	3222	712.13	37.25	501	850

Table 20
Scale Score Descriptive Statistics by Socioeconomic Status

Content	Grade	Economically Disadvantaged					Not Disadvantaged				
		N Count	Mean	SD	Min	Max	N Count	Mean	SD	Min	Max
Reading	4	18901	629.28	35.34	433	780	39247	653.94	34.25	433	780
	8	18451	669.44	36.89	507	820	47975	696.94	32.97	507	820
	10	14932	699.97	40.26	529	838	54288	724.87	41.67	529	838
Mathematics	4	18991	617.40	32.30	403	770	39325	640.54	31.51	403	770
	8	18392	681.40	39.55	502	872	47957	713.01	36.81	502	872
	10	14899	716.84	44.93	530	892	54274	751.01	42.34	530	892
Language Arts	4	18901	631.06	32.77	465	757	39247	653.07	30.59	465	757
	8	18451	662.36	32.43	523	819	47975	687.31	31.51	523	819
	10	14932	695.30	31.31	535	835	54288	717.61	30.82	535	835
Social Studies	4	19078	634.30	25.13	460	763	39401	652.26	23.76	460	763
	8	18356	671.36	28.21	523	803	47989	692.91	23.19	523	803
	10	14840	695.60	26.35	548	821	54237	714.04	24.27	548	821
Science	4	19096	619.68	34.89	421	750	39407	645.24	28.11	421	799
	8	18406	679.61	33.23	487	788	48019	706.02	27.09	487	857
	10	14873	703.34	43.70	501	835	54232	731.35	32.82	501	893

Table 21
Scale Score Descriptive Statistics by Disability

Content	Grade	Disabled					Not Disabled				
		N Count	Mean	SD	Min	Max	N Count	Mean	SD	Min	Max
Reading	4	7108	613.47	41.57	433	780	51040	650.45	33.30	433	780
	8	8855	649.90	37.62	507	786	57571	695.36	32.00	507	820
	10	8426	681.99	38.60	529	838	60794	724.70	40.49	529	838
Mathematics	4	7324	611.62	35.82	403	770	50992	636.07	32.08	403	770
	8	8847	662.89	41.28	502	872	57502	710.61	36.00	502	872
	10	8398	694.42	45.87	530	892	60775	750.45	40.60	530	892
Language Arts	4	7108	616.10	37.75	465	757	51040	650.07	29.98	465	757
	8	8855	644.83	30.96	523	792	57571	685.85	30.61	523	819
	10	8426	678.48	29.18	535	835	60794	717.56	29.68	535	835
Social Studies	4	7478	631.67	27.36	460	763	51001	648.56	24.65	460	763
	8	8885	661.43	29.67	523	759	57460	690.89	23.64	523	803
	10	8426	686.22	27.25	548	821	60651	713.39	23.84	548	821
Science	4	7492	616.84	38.47	421	722	51011	639.84	30.76	421	799
	8	8918	670.39	36.60	487	852	57507	703.10	27.87	487	857
	10	8441	689.77	49.00	501	850	60664	730.27	32.37	501	893

Table 22
Scale Score Descriptive Statistics by English Language Proficiency

Content	Grade	Proficient					Not Proficient				
		N Count	Mean	SD	Min	Max	N Count	Mean	SD	Min	Max
Reading	4	55314	647.141	36.34	433	780	2834	622.194	30.83	433	737
	8	64478	690.22	35.97	507	820	1948	658.77	32.39	507	820
	10	67764	720.22	42.51	529	838	1456	685.69	32.71	529	838
Mathematics	4	55505	633.68	33.64	403	770	2811	619.58	29.09	403	732
	8	64434	704.90	40.20	502	872	1915	682.33	32.21	502	815
	10	67719	744.40	45.00	530	892	1454	708.78	38.18	530	892
Language Arts	4	55314	646.98	32.72	465	757	2834	625.28	30.80	465	724
	8	64478	681.18	33.54	523	819	1948	653.90	26.56	523	761
	10	67764	713.46	32.04	535	835	1456	681.95	26.80	535	786
Social Studies	4	55658	647.11	25.58	460	763	2821	632.44	22.87	460	723
	8	64440	687.53	26.35	523	803	1905	667.20	23.81	523	758
	10	67636	710.53	25.75	548	821	1441	688.90	22.02	548	790
Science	4	55678	638.19	32.25	421	799	2825	611.48	32.45	421	710
	8	64516	699.55	30.97	487	857	1909	670.06	26.86	487	768
	10	67661	726.08	36.80	501	893	1444	689.82	41.41	501	842

Table 23
Summary Statistics for Reading Content Standards Raw and SPI Scores

Grade	N	Content Standard	No. of Items		Total Score Points	Mean	Mean P-Value	SD	SPI	
			MC	CR					Mean	SD
4	58,148	A	30	1	34	25.30	0.74	6.11	74.74	17.68
		D	5	2	9	6.55	0.73	1.94	73.34	17.58
		E	6	0	6	3.52	0.59	1.49	55.71	18.53
8	66,427	A	34	4	42	30.12	0.72	8.03	71.67	18.77
		E	6	1	9	5.81	0.65	1.94	65.65	18.43
10	69,220	A	21	0	21	16.16	0.77	3.73	77.20	17.05
		E	6	0	6	5.27	0.88	1.11	87.63	15.56

Table 24
Summary Statistics for Mathematics Content Standards Raw and SPI Scores

Grade	N	Content Standard	No. of Items		Total Score Points	Mean	Mean P-Value	SD	SPI	
			MC	CR					Mean	SD
4	58,316	A	1	3	7	3.41	0.49	1.64	46.09	18.76
		B	16	3	23	14.74	0.64	4.74	65.64	19.04
		C	5	0	5	4.48	0.90	0.79	85.58	11.53
		D	3	1	5	2.81	0.56	1.40	54.53	21.71
		E	9	3	19	11.32	0.60	3.50	56.94	16.60
		F	8	1	10	5.51	0.55	2.51	56.73	21.52
8	66,350	A	8	2	12	7.81	0.65	2.61	64.18	18.63
		B	13	2	17	10.85	0.64	3.79	65.40	20.38
		C	4	2	8	5.45	0.68	1.98	67.10	18.97
		D	3	1	5	2.83	0.57	1.28	55.92	18.99
		E	8	2	15	9.28	0.62	2.89	60.05	17.86
		F	8	1	10	5.76	0.58	2.38	58.94	20.19
10	69,173	A	9	0	9	7.53	0.84	1.61	82.67	15.53
		B	6	0	6	4.17	0.69	1.68	71.24	22.55
		C	9	0	9	5.60	0.62	1.97	64.43	19.13
		D	9	0	9	5.83	0.65	1.98	65.74	17.69
		E	9	0	9	6.99	0.78	2.00	75.76	18.28
		F	7	0	7	5.50	0.79	1.52	74.42	17.12

Table 25
Summary Statistics for Language Arts Content Standards Raw and SPI Scores

Grade	N	Content Standard	No. of Items		Total Score Points	Mean	Mean P-Value	SD	SPI	
			MC	CR					Mean	SD
4	58,148	B	25	4	42	27.13	0.65	7.58	64.97	17.75
		F	6	0	6	2.94	0.49	1.37	47.89	16.17
8	66,427	B	24	5	43	26.64	0.62	8.11	62.17	18.70
		D	1	0	1					
		F	7	0	7	4.38	0.63	1.56	60.75	15.78
10	69,220	B	9	2	18	12.43	0.69	2.25	68.75	11.98
		D	6	0	6	4.25	0.71	1.51	70.87	20.29
		F	6	0	6	3.70	0.62	1.51	60.11	17.18

Table 26
Summary Statistics for Social Studies Content Standards Raw and SPI Scores

Grade	N	Content Standard	No. of Items		Total Score Points	Mean	Mean P-Value	SD	SPI	
			MC	CR					Mean	SD
4	58,479	A	9	4	17	12.27	0.72	2.89	71.80	14.79
		B	5	4	13	8.86	0.68	2.51	68.73	16.76
		C	3	1	5	3.17	0.63	1.20	61.21	17.33
		D	6	1	9	7.13	0.79	1.51	80.18	13.21
		E	7	0	7	5.42	0.77	1.45	77.47	16.46
8	66,346	A	11	3	16	11.99	0.75	2.96	73.17	16.65
		B	8	4	15	9.78	0.65	3.00	66.37	17.97
		C	6	2	11	6.91	0.63	2.25	65.85	16.62
		D	6	1	8	5.31	0.66	1.69	67.91	17.52
		E	5	0	5	3.29	0.66	1.24	60.49	18.98
10	69,077	A	10	0	10	7.47	0.75	1.94	74.96	13.98
		B	12	0	12	8.60	0.72	2.56	72.04	18.38
		C	12	0	12	7.67	0.64	2.55	65.72	19.30
		D	8	0	8	6.50	0.81	1.72	79.84	19.24
		E	8	0	8	5.51	0.69	1.78	68.71	18.24

Table 27
Summary Statistics for Science Content Standards Raw and SPI Scores

Grade	N	Content Standard	No. of Items		Total Score Points	Mean	Mean P-Value	SD	SPI	
			MC	CR					Mean	SD
4	58,503	A	2	2	5	2.83	0.57	1.40	59.61	20.28
		B	10	0	10	5.56	0.56	1.67	55.18	13.12
		C	8	2	10	7.96	0.80	1.57	80.17	11.85
		D	4	2	8	5.51	0.69	1.71	69.27	14.72
		E	11	1	13	7.62	0.59	2.04	58.04	11.33
		F	7	3	10	6.96	0.70	2.03	68.42	16.28
		G	7	0	7	4.18	0.60	1.53	59.18	17.05
		H	6	2	8	5.89	0.74	1.40	70.25	13.20
8	66,426	A	2	1	3					
		B	10	0	10	5.59	0.56	1.95	56.73	13.51
		C	10	2	13	10.26	0.79	1.95	77.37	11.92
		D	11	2	13	6.72	0.52	2.50	53.15	15.81
		E	4	3	9	5.48	0.61	2.26	62.48	20.04
		F	12	1	15	11.56	0.77	2.84	76.56	17.10
		G	8	1	10	6.47	0.65	2.22	63.68	18.15
		H	3	0	3					
10	69,105	A	6	0	6	3.75	0.62	1.45	65.29	16.56
		B	6	0	6	4.39	0.73	1.15	72.60	14.18
		C	6	0	6	4.28	0.71	1.37	67.96	13.97
		D	6	0	6	4.08	0.68	1.21	65.52	13.35
		E	7	0	7	5.02	0.72	1.50	71.81	16.60
		F	7	0	7	3.71	0.53	1.66	56.14	17.63
		G	6	0	6	4.18	0.70	1.34	70.58	17.40
		H	6	0	6	3.76	0.63	1.43	62.38	17.88

Table 28
Cronbach Alpha Reliability Coefficients for Content Standards

Content Area	Grade	Content Standard								
		A Alpha	B Alpha	C Alpha	D Alpha	E Alpha	F Alpha	G Alpha	H Alpha	Total Alpha
Reading	4	0.87			0.57	0.54				0.90
Reading	8	0.89				0.57				0.90
Reading	10	0.81				0.62				0.85
Mathematics	4	0.41	0.79	0.32	0.49	0.61	0.69			0.90
Mathematics	8	0.61	0.77	0.57	0.41	0.58	0.66			0.91
Mathematics	10	0.59	0.61	0.63	0.55	0.62	0.68			0.91
Language Arts	4		0.83				0.41			0.85
Language Arts	8		0.84				0.44			0.86
Language Arts	10		0.55		0.58		0.50			0.80
Social Studies	4	0.64	0.58	0.35	0.49	0.53				0.85
Social Studies	8	0.72	0.61	0.50	0.56	0.47				0.87
Social Studies	10	0.57	0.70	0.67	0.69	0.60				0.90
Science	4	0.51	0.37	0.52	0.38	0.41	0.62	0.49	0.48	0.87
Science	8	0.18	0.51	0.57	0.60	0.59	0.68	0.63	0.32	0.90
Science	10	0.46	0.34	0.44	0.27	0.50	0.52	0.50	0.51	0.86

Table 29
Reliability for Total group and Subgroups

Content	Grade	Total	Gender		Ethnicity				ELP		Disability		SES	
			Female	Male	White	African-American	Hispanic	Others	Proficient	Not Proficient	Disabled	Not Disabled	Economically Disadvantaged	Not Disadvantaged
Reading	4	0.90	0.89	0.90	0.89	0.89	0.88	0.89	0.90	0.86	0.90	0.88	0.89	0.88
	8	0.90	0.90	0.91	0.89	0.90	0.90	0.90	0.90	0.88	0.89	0.88	0.90	0.88
	10	0.85	0.83	0.86	0.82	0.86	0.86	0.83	0.84	0.81	0.84	0.81	0.85	0.83
Math	4	0.90	0.89	0.90	0.89	0.88	0.88	0.89	0.90	0.87	0.90	0.89	0.89	0.89
	8	0.91	0.91	0.92	0.90	0.89	0.89	0.90	0.91	0.87	0.89	0.90	0.90	0.90
	10	0.91	0.90	0.91	0.89	0.88	0.88	0.89	0.91	0.85	0.87	0.89	0.90	0.89
Language Arts	4	0.85	0.84	0.84	0.84	0.83	0.82	0.83	0.84	0.80	0.83	0.83	0.83	0.83
	8	0.86	0.85	0.86	0.84	0.85	0.84	0.84	0.86	0.80	0.82	0.84	0.85	0.84
	10	0.80	0.78	0.81	0.78	0.79	0.80	0.78	0.80	0.71	0.74	0.76	0.79	0.78
Social Studies	4	0.85	0.85	0.86	0.83	0.86	0.84	0.84	0.85	0.83	0.87	0.84	0.85	0.83
	8	0.87	0.86	0.88	0.85	0.87	0.86	0.85	0.87	0.83	0.87	0.85	0.87	0.84
	10	0.90	0.89	0.91	0.88	0.89	0.90	0.89	0.90	0.86	0.89	0.88	0.90	0.88
Science	4	0.87	0.86	0.87	0.83	0.86	0.85	0.85	0.86	0.83	0.88	0.86	0.86	0.84
	8	0.90	0.89	0.91	0.87	0.90	0.89	0.88	0.90	0.86	0.90	0.89	0.90	0.88
	10	0.86	0.84	0.87	0.83	0.83	0.84	0.84	0.86	0.79	0.85	0.84	0.86	0.84

Table 30
Eight–Year Mean Scale Score Comparison 1997–2004 of WKCE State Data

		Reading	Language Arts	Mathematics	Science	Social Studies
Grade 4	**1997 Fall**	646.4	642.8	624.4	638.3	645.8
	1998 Fall	645.9	644.6	626.1	634.5	635.9
	1999 Spring	653.7	651.6	644.0	654.7	655.0
	2000 Spring	652.8	651.2	645.3	654.5	655.2
	2001 Spring	654.0	650.1	635.7	645.6	651.3
	2002 Spring	654.7	654.3	639.0	644.5	653.7
	2002 Fall	646.0	645.9	631.6	635.7	645.2
	2003 Fall	646.6	647.7	632.3	639.8	647.8
	2004 Fall	645.9	645.9	633.0	636.9	646.4
Grade 8	**1997 Fall**	687.6	678.0	696.0	691.9	688.4
	1998 Fall	685.2	679.4	697.9	698.2	685.3
	1999 Spring	690.4	690.4	709.9	703.8	695.8
	2000 Spring	690.7	690.1	710.4	704.7	694.2
	2001 Spring	694.2	682.7	708.3	702.8	693.4
	2002 Spring	689.9	683.2	709.6	699.1	692.3
	2002 Fall	686.9	677.2	704.9	699.1	684.2
	2003 Fall	681.7	682.9	697.5	694.7	689.4
	2004 Fall	689.3	680.4	704.2	698.7	687.0
Grade 10	**1997 Fall**	700.2	695.8	725.2	709.0	704.7
	1998 Fall	708.9	701.6	729.2	712.2	706.4
	1999 Spring	707.9	707.3	733.3	719.3	712.7
	2000 Spring	707.4	707.8	733.9	720.6	711.9
	2001 Spring	714.6	704.8	742.5	724.8	712.6
	2002 Spring	704.9	704.0	736.9	718.2	705.7
	2002 Fall	718.3	715.8	742.5	725.4	710.0
	2003 Fall	712.7	709.5	741.4	724.8	707.6
	2004 Fall	719.5	712.8	743.6	725.3	710.1

Table 31
Performance Level Cut scores for all contents

Content	Grade 4			Grade 8			Grade 10		
	B	P	A	B	P	A	B	P	A
Reading	585 (13)	616 (9)	653 (10)	633 (10)	654 (9)	698 (10)	676 (9)	694 (10)	711 (12)
Mathematics	602 (10)	614 (9)	649 (9)	659 (12)	682 (10)	730 (10)	702 (12)	723 (11)	769 (12)
Language Arts	592 (13)	621 (10)	658 (10)	644 (10)	668 (9)	702 (10)	672 (12)	696 (13)	740 (15)
Social Studies	592 (9)	611 (8)	639 (8)	639 (9)	662 (8)	693 (8)	689 (6)	695 (6)	714 (7)
Science	579 (13)	614 (10)	663 (10)	660 (9)	682 (8)	717 (9)	697 (12)	710 (11)	740 (10)

* B: Basic; P: Proficient; A: Advanced
Value in parenthesis represents standard error for each cut score.

Table 32
Percentage of Students in Each Performance Level by Sub-Group
(Reading)

		No. of Examinees		Gender		Ethnicity				ELP		Disability		SES	
Grade	**Proficiency Level***	**N**	**%**	**Female**	**Male**	**White**	**African-American**	**Hispanic**	**Others**	**Proficient**	**Not Proficient**	**Disabled**	**Not Disabled**	**Economically Disadvantaged**	**Not Disadvantaged**
4	M	2638	4.54	3.17	5.84	3.04	13.01	7.52	4.82	4.34	8.47	19.89	2.40	8.99	2.39
	B	7225	12.43	10.29	14.47	9.29	25.96	22.40	18.00	11.73	25.97	27.25	10.36	21.00	8.29
	P	23398	40.24	38.88	41.54	38.56	43.46	49.23	47.55	39.55	53.74	39.00	40.41	46.76	37.10
	A	24887	42.80	47.65	38.16	49.10	17.56	20.86	29.62	44.39	11.82	13.86	46.83	23.24	52.22
Total N		**58148**	**100.00**	**28415**	**29726**	**45045**	**6502**	**3764**	**2822**	**55314**	**2834**	**7108**	**51040**	**18901**	**39247**
8	M	3779	5.69	3.93	7.35	3.35	20.18	11.98	7.90	5.31	18.33	26.85	2.43	13.31	2.76
	B	5754	8.66	6.76	10.45	6.11	22.03	16.43	15.07	8.21	23.61	24.90	6.16	16.43	5.67
	P	28945	43.57	39.80	47.12	42.42	46.23	50.30	49.97	43.41	48.97	40.64	44.03	49.74	41.20
	A	27948	42.07	49.51	35.08	48.12	11.55	21.29	27.06	43.07	9.09	7.60	47.38	20.52	50.36
Total N		**66426**	**100.00**	**32188**	**34232**	**53143**	**6649**	**3298**	**3318**	**64478**	**1948**	**8855**	**57571**	**18451**	**47975**
10	M	6476	9.36	7.06	11.56	6.54	29.04	20.09	14.96	8.88	31.66	37.84	5.41	20.13	6.39
	B	9972	14.41	13.56	15.22	12.17	26.73	24.02	23.85	13.97	34.82	28.22	12.49	23.51	11.90
	P	13746	19.86	19.25	20.43	19.58	21.32	20.30	21.96	19.91	17.31	18.00	20.12	22.17	19.22
	A	39026	56.38	60.13	52.78	61.71	22.90	35.59	39.22	57.24	16.21	15.94	61.98	34.18	62.49
Total N		**69220**	**100.00**	**33924**	**35288**	**57394**	**5712**	**2852**	**3228**	**67764**	**1456**	**8426**	**60794**	**14932**	**54288**

- M: Minimum B: Basic P: Proficient A: Advanced

Table 33
Percentage of Students in Each Performance Level by Sub-Group
(Mathematics)

		No. of Examinees		Gender		Ethnicity				ELP		Disability		SES	
Grade	**Proficiency Level***	**N**	**%**	**Female**	**Male**	**White**	**African-American**	**Hispanic**	**Others**	**Proficient**	**Not Proficient**	**Disabled**	**Not Disabled**	**Economically Disadvantaged**	**Not Disadvantaged**
4	M	9532	16.35	17.16	15.57	11.71	42.20	26.79	16.70	15.91	24.94	37.33	13.33	28.87	10.30
	B	6061	10.39	11.01	9.81	8.99	16.07	15.70	12.61	10.11	16.01	14.23	9.84	15.16	8.09
	P	24100	41.33	42.60	40.12	42.29	33.10	43.42	42.17	41.17	44.50	34.95	42.24	40.17	41.88
	A	18623	31.93	29.23	34.51	37.02	8.62	14.08	28.53	32.82	14.55	13.49	34.58	15.80	39.73
Total N		**58316**	**100.00**	**28444**	**29865**	**45183**	**6540**	**3770**	**2808**	**55505**	**2811**	**7324**	**50992**	**18991**	**39325**
8	M	7722	11.64	10.81	12.41	7.12	43.32	19.90	12.56	11.40	19.79	42.91	6.83	25.02	6.51
	B	9199	13.86	14.10	13.64	11.48	24.31	24.64	20.67	13.46	27.52	24.69	12.20	22.53	10.54
	P	32927	49.63	51.62	47.76	52.39	28.44	46.62	50.45	49.72	46.63	28.86	52.82	43.54	51.96
	A	16501	24.87	23.46	26.19	29.01	3.92	8.84	16.31	25.43	6.06	3.55	28.15	8.91	30.99
Total N		**66349**	**100.00**	**32134**	**34209**	**53129**	**6627**	**3271**	**3304**	**64434**	**1915**	**8847**	**57502**	**18392**	**47957**
10	M	10056	14.54	13.45	15.57	9.83	49.63	31.70	21.21	13.99	40.23	52.93	9.23	31.96	9.75
	B	8757	12.66	13.30	12.05	10.76	22.98	22.11	20.04	12.38	25.79	20.36	11.60	20.05	10.63
	P	32499	46.98	48.60	45.43	49.86	24.34	38.50	43.08	47.36	29.44	23.87	50.18	38.93	49.19
	A	17861	25.82	24.66	26.95	29.55	3.05	7.69	15.67	26.28	4.54	2.83	29.00	9.06	30.42
Total N		**69173**	**100.00**	**33906**	**35258**	**57387**	**5674**	**2849**	**3229**	**67719**	**1454**	**8398**	**60775**	**14899**	**54274**

- **M: Minimum B: Basic P: Proficient A: Advanced**

Table 34
Percentage of Students in Each Performance Level by Sub-Group
(Language Arts)

		No. of Examinees		Gender		Ethnicity				ELP		Disability		SES	
Grade	**Proficiency Level***	**N**	**%**	**Female**	**Male**	**White**	**African-American**	**Hispanic**	**Others**	**Proficient**	**Not Proficient**	**Disabled**	**Not Disabled**	**Economically Disadvantaged**	**Not Disadvantaged**
4	M	2628	4.52	3.24	5.74	2.93	13.40	8.08	4.64	4.29	8.96	20.05	2.36	8.94	2.39
	B	8620	14.82	12.42	17.13	11.53	29.67	23.72	21.37	14.09	29.22	31.95	12.44	24.03	10.39
	P	25936	44.60	42.88	46.26	44.03	43.13	51.14	48.41	44.29	50.81	37.49	45.59	48.22	42.86
	A	20964	36.05	41.46	30.88	41.51	13.81	17.06	25.58	37.34	11.01	10.51	39.61	18.81	44.36
Total N		**58148**	**100.00**	**28415**	**29726**	**45045**	**6502**	**3764**	**2822**	**55314**	**2834**	**7108**	**51040**	**18901**	**39247**
8	M	7966	11.99	8.47	15.30	8.19	35.06	21.92	16.79	11.48	29.11	45.96	6.77	25.04	6.97
	B	14873	22.39	19.88	24.74	19.69	32.73	34.75	32.61	21.74	43.79	34.25	20.57	31.86	18.75
	P	26793	40.34	41.79	38.97	42.73	26.30	32.99	37.43	40.84	23.72	16.91	43.94	32.96	43.17
	A	16794	25.28	29.86	20.98	29.39	5.91	10.34	13.17	25.94	3.39	2.88	28.73	10.13	31.11
Total N		**66426**	**100.00**	**32188**	**34232**	**53143**	**6649**	**3298**	**3318**	**64478**	**1948**	**8855**	**57571**	**18451**	**47975**
10	M	6174	8.92	5.44	12.26	6.01	28.10	22.65	14.37	8.42	31.94	37.66	4.94	20.12	5.84
	B	13477	19.47	16.22	22.59	16.94	32.69	28.02	33.46	19.00	41.55	38.25	16.87	30.61	16.41
	P	36556	52.81	55.66	50.07	55.67	35.24	42.29	42.29	53.42	24.59	22.32	57.04	42.34	55.69
	A	13013	18.80	22.68	15.07	21.37	3.97	7.05	9.88	19.16	1.92	1.77	21.16	6.93	22.06
Total N		**69220**	**100.00**	**33924**	**35288**	**57394**	**5712**	**2852**	**3228**	**67764**	**1456**	**8426**	**60794**	**14932**	**54288**

- M: Minimum B: Basic P: Proficient A: Advanced

Table 35
Percentage of Students in Each Performance Level by Sub-Group
(Social Studies)

		No. of Examinees		Gender		Ethnicity				ELP		Disability		SES	
Grade	**Proficiency Level***	**N**	**%**	**Female**	**Male**	**White**	**African-American**	**Hispanic**	**Others**	**Proficient**	**Not Proficient**	**Disabled**	**Not Disabled**	**Economically Disadvantaged**	**Not Disadvantaged**
4	M	1091	1.87	1.71	2.01	0.72	8.93	3.57	1.45	1.77	3.69	6.23	1.23	4.15	0.76
	B	3089	5.28	5.26	5.30	3.18	16.52	9.07	7.79	5.03	10.28	11.98	4.30	10.36	2.82
	P	16684	28.53	28.37	28.69	24.82	42.80	42.04	36.93	27.63	46.37	40.40	26.79	40.61	22.68
	A	37615	64.32	64.66	64.00	71.27	31.75	45.32	53.82	65.57	39.67	41.39	67.68	44.88	73.74
Total N		**58478**	**100.00**	**28506**	**29966**	**45307**	**6551**	**3782**	**2824**	**55658**	**2821**	**7478**	**51001**	**19078**	**987**
8	M	2672	4.03	3.41	4.61	1.88	19.36	8.00	4.12	3.88	9.13	17.29	1.98	10.36	1.61
	B	7493	11.29	11.32	11.27	7.69	30.98	22.01	19.45	10.77	29.03	30.26	8.36	22.43	7.03
	P	26519	39.97	41.51	38.53	39.35	37.51	47.39	47.58	39.69	49.55	40.21	39.93	45.21	37.97
	A	29661	44.71	43.77	45.59	51.08	12.15	22.59	28.85	45.67	12.28	12.23	49.73	22.00	53.39
Total N		**66345**	**100.00**	**32151**	**34188**	**53183**	**6582**	**3262**	**3300**	**64440**	**1905**	**8885**	**57460**	**18356**	**47989**
10	M	11731	16.98	15.47	18.43	12.24	50.17	35.43	27.35	16.30	48.79	53.20	11.95	35.49	11.92
	B	4855	7.03	7.58	6.50	6.20	11.40	10.37	11.30	6.89	13.60	11.12	6.46	10.99	5.94
	P	21706	31.42	34.20	28.75	31.82	26.90	30.97	32.57	31.51	27.34	23.75	32.49	31.81	31.32
	A	30785	44.57	42.74	46.33	49.74	11.53	23.22	28.78	45.30	10.27	11.93	49.10	21.72	50.82
Total N		**69077**	**100.00**	**33870**	**35199**	**57393**	**5605**	**2825**	**3221**	**67636**	**1441**	**8426**	**60651**	**14840**	**54237**

- M: Minimum B: Basic P: Proficient A: Advanced

Table 36
Percentage of Students in Each Performance Level by Sub-Group
(Science)

		No. of Examinees		Gender		Ethnicity				ELP		Disability		SES	
Grade	**Proficiency Level***	**N**	**%**	**Female**	**Male**	**White**	**African-American**	**Hispanic**	**Others**	**Proficient**	**Not Proficient**	**Disabled**	**Not Disabled**	**Economically Disadvantaged**	**Not Disadvantaged**
4	M	2814	4.81	5.19	4.44	1.92	20.97	10.63	5.84	4.42	12.50	13.31	3.56	10.85	1.88
	B	9292	15.88	17.14	14.69	11.02	36.60	31.37	25.00	14.83	36.71	28.10	14.09	28.04	9.99
	P	34000	58.12	59.01	57.27	61.72	37.99	51.24	56.37	58.66	47.47	49.99	59.31	52.50	60.84
	A	12397	21.19	18.66	23.60	25.35	4.44	6.75	12.78	22.10	3.33	8.61	23.04	8.60	27.29
Total N		**58503**	**100.00**	**28516**	**29980**	**45317**	**6557**	**3790**	**2824**	**55678**	**2825**	**7492**	**51011**	**19096**	**39407**
8	M	6083	9.16	8.87	9.43	4.29	39.21	22.80	13.84	8.51	31.17	31.16	5.75	22.28	4.13
	B	10480	15.78	17.09	14.54	12.41	30.48	26.87	29.46	15.17	36.46	29.76	13.61	26.89	11.52
	P	31454	47.35	50.20	44.68	50.62	26.06	41.00	43.69	47.89	29.07	32.33	49.68	40.56	49.96
	A	18408	27.71	23.84	31.35	32.68	4.25	9.33	13.02	28.43	3.30	6.75	30.96	10.26	34.40
Total N		**66425**	**100**	**32177**	**34242**	**53208**	**6628**	**3268**	**3303**	**64516**	**1909**	**8918**	**57507**	**18406**	**48019**
10	M	11546	16.71	17.74	15.71	11.05	56.30	37.13	30.14	15.89	54.92	50.21	12.05	36.51	11.28
	B	7414	10.73	12.45	9.07	9.73	15.40	15.94	15.77	10.61	16.34	14.90	10.15	15.07	9.54
	P	24926	36.07	39.17	33.09	37.86	22.22	31.42	32.50	36.34	23.20	24.96	37.62	31.47	37.33
	A	25219	36.49	30.64	42.13	41.36	6.09	15.51	21.60	37.15	5.54	9.93	40.19	16.95	41.85
Total N		**69105**	**100.00**	**33882**	**35215**	**57382**	**5631**	**2836**	**3222**	**67661**	**1444**	**8441**	**60664**	**14873**	**54232**

- M: Minimum B: Basic P: Proficient A: Advanced

Table 37
Item Analysis Grade 4 Reading

PEID Fields				Item Statistic Fields			% Spe C	Statistics of Each Option / Score Level								
Item Seq	Item No	Part	Type	P Val	Max	Corr	NR Omit	P Opt0	P Opt1	P Opt2	P Opt3	P Opt4	pbis1	pbis2	pbis3	pbis4
1	1		MC	0.84	1	0.43	0.13		7.39	*83.66	4.35	4.47	-0.24	0.43	-0.26	-0.21
2	2		MC	0.98	1	0.21	0.12		*98.02	1.19	0.19	0.49	0.21	-0.12	-0.10	-0.15
3	3		MC	0.83	1	0.41	0.19		6.79	*83.25	5.64	4.13	-0.21	0.41	-0.26	-0.20
4	4		MC	0.86	1	0.44	0.57		9.96	1.49	1.62	*86.35	-0.34	-0.17	-0.19	0.44
5	5		MC	0.82	1	0.48	0.23		7.50	4.18	*81.82	6.27	-0.27	-0.30	0.48	-0.22
6	6		MC	0.77	1	0.39	0.48		*77.01	9.77	3.93	8.82	0.39	-0.23	-0.20	-0.20
7	7		MC	0.96	1	0.31	0.35		0.89	2.03	0.73	*95.99	-0.14	-0.21	-0.19	0.31
8	14		MC	0.65	1	0.46	0.60		*64.96	17.56	5.38	11.50	0.46	-0.27	-0.24	-0.20
9	15		MC	0.34	1	0.42	0.92		21.68	21.85	21.60	*33.96	-0.03	-0.25	-0.21	0.42
10	16		MC	0.70	1	0.42	0.70		4.49	*70.32	9.01	15.48	-0.21	0.42	-0.28	-0.18
11	17		MC	0.49	1	0.28	0.63		*48.87	11.85	21.84	16.81	0.28	-0.24	-0.10	-0.07
12	18		MC	0.78	1	0.45	0.83		6.87	2.91	11.64	*77.74	-0.27	-0.23	-0.25	0.45
13	26		MC	0.74	1	0.49	2.57		12.68	3.66	6.67	*74.42	-0.28	-0.27	-0.25	0.49
14	27		MC	0.80	1	0.41	2.72		10.43	*79.73	4.19	2.93	-0.19	0.41	-0.29	-0.24
15	28		MC	0.88	1	0.44	3.04		*88.03	2.17	2.36	4.40	0.44	-0.25	-0.29	-0.21
16	29		MC	0.81	1	0.52	3.93		3.84	*81.13	4.54	6.57	-0.24	0.52	-0.29	-0.33
17	30		MC	0.89	1	0.44	3.51		1.63	2.98	2.58	*89.30	-0.23	-0.24	-0.28	0.44
18	31		MC	0.58	1	0.49	4.06		*58.13	7.09	13.23	17.49	0.49	-0.23	-0.32	-0.18
19	32		MC	0.82	1	0.41	3.92		6.91	2.98	*82.30	3.90	-0.19	-0.24	0.41	-0.27
20	36		MC	0.78	1	0.49	0.25		9.05	8.92	4.19	*77.58	-0.25	-0.28	-0.24	0.49
21	37		MC	0.88	1	0.39	0.26		*87.98	6.35	1.58	3.84	0.39	-0.27	-0.20	-0.19
22	38		MC	0.86	1	0.44	0.44		2.72	4.02	*86.07	6.75	-0.20	-0.26	0.44	-0.26
23	39		MC	0.81	1	0.46	0.31		5.10	*80.54	9.82	4.23	-0.19	0.46	-0.29	-0.26
24	40		MC	0.57	1	0.43	0.69		21.95	9.30	11.37	*56.69	-0.20	-0.27	-0.15	0.43
25	41		MC	0.63	1	0.47	0.78		*62.98	14.45	6.67	15.11	0.47	-0.20	-0.18	-0.31
26	42		MC	0.83	1	0.35	0.62		5.03	9.98	*82.64	1.74	-0.28	-0.15	0.35	-0.20

PEID Fields				Item Statistic Fields			% Spe C	Statistics of Each Option / Score Level								
Item Seq	Item No	Part	Type	P Val	Max	Corr	NR Omit	P Opt0	P Opt1	P Opt2	P Opt3	P Opt4	pbis1	pbis2	pbis3	pbis4
27	50		MC	0.72	1	0.60	1.98		4.04	12.70	9.04	*72.24	-0.21	-0.35	-0.36	0.60
28	51		MC	0.80	1	0.32	2.94		*79.81	9.68	5.82	1.75	0.32	-0.25	-0.12	-0.14
29	52		MC	0.59	1	0.30	1.11		8.70	19.04	*58.92	12.23	-0.25	-0.09	0.30	-0.12
30	53		MC	0.81	1	0.54	1.30		6.85	*80.55	4.06	7.25	-0.26	0.54	-0.33	-0.30
31	54		MC	0.42	1	0.37	1.60		18.54	11.31	*42.42	26.13	-0.13	-0.17	0.37	-0.18
32	55		MC	0.81	1	0.44	1.47		*80.55	5.06	6.95	5.96	0.44	-0.29	-0.21	-0.21
33	56		MC	0.70	1	0.58	1.66		4.70	17.22	6.46	*69.96	-0.33	-0.35	-0.24	0.58
34	57		MC	0.65	1	0.52	1.97		6.31	21.92	*65.04	4.77	-0.23	-0.32	0.52	-0.25
35	58		MC	0.63	1	0.51	2.59		24.60	5.30	4.09	*63.42	-0.32	-0.25	-0.23	0.51
36	73		MC	0.63	1	0.45	0.94		17.47	13.77	5.31	*62.51	-0.10	-0.35	-0.26	0.45
37	74		MC	0.27	1	0.19	1.48		29.46	*27.33	23.43	18.29	-0.11	0.19	0.06	-0.16
38	75		MC	0.47	1	0.40	1.38		10.35	26.58	*47.37	14.32	-0.23	-0.18	0.40	-0.15
39	76		MC	0.90	1	0.30	1.43		*89.69	1.42	5.56	1.90	0.30	-0.22	-0.14	-0.19
40	77		MC	0.74	1	0.54	1.69		7.42	7.98	8.44	*74.46	-0.20	-0.34	-0.30	0.54
41	78		MC	0.50	1	0.45	2.24		16.48	16.12	*50.24	14.92	-0.25	-0.20	0.45	-0.16
42	34		CR	0.93	2	0.36	0.00	3.34	6.33	90.34			.	.	.	.
43	35		CR	0.50	2	0.47	0.00	41.99	16.19	41.82			.	.	.	.
44	65		CR	0.74	4	0.63	0.00	1.84	4.27	19.27	45.53	29.08	.	.	.	.

Min P_Val	Max P_Val	Range P_Val	Mean P_Val	Min Corr	Max Corr	Range Corr	Mean Corr	Min NR_Omit	Max NR_Omit	Range NR_Omit	Mean NR_Omit
0.27	0.98	0.71	0.72	0.19	0.63	0.45	0.43	0.00	4.06	4.06	1.33

Table 38
Item Analysis Grade 8 Reading

PEID Fields				Item Statistic Fields			% Spe C	Statistics of Each Option / Score Level								
Item Seq	Item No	Part	Type	P Val	Max	Corr	NR Omit	P Opt0	P Opt1	P Opt2	P Opt3	P Opt4	pbis1	pbis2	pbis3	pbis4
1	1		MC	0.94	1	0.34	0.10		0.91	4.24	*94.29	0.46	-0.21	-0.25	0.34	-0.13
2	2		MC	0.82	1	0.48	0.22		6.41	9.18	2.03	*82.16	-0.21	-0.34	-0.23	0.48
3	3		MC	0.79	1	0.39	0.37		5.31	*78.52	12.34	3.47	-0.24	0.39	-0.19	-0.24
4	4		MC	0.82	1	0.47	0.39		*82.09	3.62	6.36	7.54	0.47	-0.29	-0.20	-0.29
5	5		MC	0.80	1	0.52	0.44		4.70	1.81	13.10	*79.94	-0.26	-0.24	-0.35	0.52
6	6		MC	0.57	1	0.34	0.56		27.29	11.35	*57.45	3.34	-0.17	-0.16	0.34	-0.22
7	16		MC	0.77	1	0.40	0.43		13.47	6.49	*77.33	2.28	-0.24	-0.22	0.40	-0.19
8	17		MC	0.80	1	0.43	0.46		*80.18	4.37	9.76	5.23	0.43	-0.26	-0.18	-0.27
9	18		MC	0.91	1	0.41	0.51		*90.97	1.03	4.63	2.85	0.41	-0.18	-0.27	-0.24
10	19		MC	0.60	1	0.45	1.11		10.34	6.97	21.86	*59.71	-0.23	-0.29	-0.18	0.45
11	20		MC	0.84	1	0.49	1.15		*84.07	4.39	4.37	6.01	0.49	-0.28	-0.31	-0.22
12	21		MC	0.71	1	0.32	0.56		19.00	5.63	*70.59	4.22	-0.12	-0.27	0.32	-0.19
13	23		MC	0.83	1	0.41	0.67		7.17	3.28	*82.63	6.26	-0.33	-0.31	0.41	-0.05
14	24		MC	0.90	1	0.46	0.71		*89.81	2.88	2.16	4.44	0.46	-0.28	-0.24	-0.26
15	25		MC	0.88	1	0.51	0.78		1.99	2.31	6.49	*88.43	-0.21	-0.24	-0.38	0.51
16	26		MC	0.95	1	0.39	0.80		*95.31	0.98	0.97	1.94	0.39	-0.21	-0.18	-0.27
17	30		MC	0.85	1	0.41	1.82		3.22	5.80	3.84	*85.32	-0.25	-0.23	-0.21	0.41
18	31		MC	0.80	1	0.50	2.08		4.79	*79.55	5.64	7.94	-0.28	0.50	-0.25	-0.28
19	32		MC	0.89	1	0.35	2.23		1.50	2.92	*89.15	4.20	-0.20	-0.22	0.35	-0.18
20	37		MC	0.45	1	0.47	0.34		26.22	24.23	*45.01	4.20	-0.26	-0.20	0.47	-0.16
21	38		MC	0.68	1	0.42	0.39		12.38	13.82	5.28	*68.13	-0.17	-0.23	-0.25	0.42
22	39		MC	0.43	1	0.32	0.82		*43.21	21.07	24.76	10.14	0.32	0.02	-0.24	-0.21
23	40		MC	0.63	1	0.47	0.56		16.95	3.50	16.19	*62.80	-0.28	-0.23	-0.21	0.47
24	41		MC	0.79	1	0.53	0.70		10.60	*79.17	5.42	4.11	-0.31	0.53	-0.28	-0.27
25	42		MC	0.70	1	0.49	1.19		*69.79	7.86	11.80	9.37	0.49	-0.26	-0.26	-0.23
26	43		MC	0.70	1	0.46	1.62		*69.52	6.40	19.68	2.78	0.46	-0.33	-0.24	-0.19

PEID Fields				Item Statistic Fields			% Spe C	Statistics of Each Option / Score Level								
Item Seq	Item No	Part	Type	P Val	Max	Corr	NR Omit	P Opt0	P Opt1	P Opt2	P Opt3	P Opt4	pbis1	pbis2	pbis3	pbis4
27	48		MC	0.74	1	0.30	0.45		1.27	23.49	*74.34	0.45	-0.11	-0.26	0.30	-0.11
28	49		MC	0.91	1	0.45	0.45		2.09	*91.09	1.87	4.49	-0.26	0.45	-0.22	-0.28
29	50		MC	0.81	1	0.45	0.89		12.68	2.71	2.35	*81.38	-0.34	-0.17	-0.21	0.45
30	57		MC	0.68	1	0.47	1.10		11.05	*67.92	10.37	9.57	-0.28	0.47	-0.27	-0.16
31	58		MC	0.77	1	0.45	1.04		5.69	12.16	*77.04	4.07	-0.28	-0.23	0.45	-0.24
32	59		MC	0.71	1	0.45	1.12		12.57	7.98	*71.07	7.25	-0.26	-0.28	0.45	-0.16
33	60		MC	0.46	1	0.32	1.88		15.04	*45.95	10.92	26.21	-0.10	0.32	-0.18	-0.15
34	61		MC	0.46	1	0.37	2.14		22.76	4.53	*46.40	24.16	-0.26	-0.31	0.37	-0.02
35	76		MC	0.83	1	0.45	0.70		8.96	1.20	6.22	*82.92	-0.28	-0.21	-0.27	0.45
36	77		MC	0.90	1	0.45	0.74		1.71	4.75	2.59	*90.21	-0.25	-0.27	-0.24	0.45
37	78		MC	0.76	1	0.48	0.88		*75.72	5.25	4.87	13.28	0.48	-0.30	-0.29	-0.22
38	79		MC	0.47	1	0.28	0.92		25.86	18.53	*46.77	7.91	-0.13	-0.09	0.28	-0.16
39	80		MC	0.76	1	0.43	1.01		9.43	*75.65	6.51	7.41	-0.22	0.43	-0.28	-0.18
40	81		MC	0.60	1	0.35	1.11		6.43	*60.12	24.18	8.15	-0.16	0.35	-0.14	-0.25
41	34		CR	0.53	2	0.50	0.00	40.99	11.85	47.16			.	.	.	.
42	35		CR	0.50	3	0.56	0.00	9.52	51.02	19.79	19.68		.	.	.	.
43	66		CR	0.69	2	0.64	0.00	10.75	40.84	48.41			.	.	.	.
44	67		CR	0.54	2	0.65	0.00	30.37	31.76	37.87			.	.	.	.
45	68		CR	0.60	2	0.66	0.00	27.77	24.51	47.72			.	.	.	.

Min P_Val	Max P_Val	Range P_Val	Mean P_Val	Min Corr	Max Corr	Range Corr	Mean Corr	Min NR_Omit	Max NR_Omit	Range NR_Omit	Mean NR_Omit
0.43	0.95	0.52	0.72	0.28	0.66	0.38	0.44	0.00	2.23	2.23	0.79

Table 39
Item Analysis Grade 10 Reading

PEID Fields				Item Statistic Fields			% Spe C	Statistics of Each Option / Score Level							
Item Seq	Item No	Part	Type	P Val	Max	Corr	NR Omit	P Opt1	P Opt2	P Opt3	P Opt4	pbis1	pbis2	pbis3	pbis4
1	1		MC	0.68	1	0.45	0.30	21.44	4.34	6.13	*67.79	-0.21	-0.29	-0.27	0.45
2	2		MC	0.95	1	0.46	0.11	0.91	2.52	*94.65	1.80	-0.22	-0.33	0.46	-0.23
3	3		MC	0.49	1	0.49	0.21	5.40	11.41	34.26	*48.72	-0.30	-0.10	-0.30	0.49
4	4		MC	0.76	1	0.50	0.26	11.71	6.59	*75.77	5.67	-0.26	-0.24	0.50	-0.31
5	5		MC	0.96	1	0.42	0.21	2.67	0.76	*95.76	0.61	-0.31	-0.23	0.42	-0.17
6	6		MC	0.68	1	0.58	0.27	4.63	23.13	*68.18	3.78	-0.26	-0.40	0.58	-0.24
7	7		MC	0.93	1	0.41	0.12	1.91	2.35	2.49	*93.13	-0.20	-0.24	-0.24	0.41
8	8		MC	0.82	1	0.52	0.16	5.50	*81.79	4.32	8.23	-0.28	0.52	-0.21	-0.34
9	9		MC	0.90	1	0.41	0.14	2.06	3.98	3.66	*90.14	-0.30	-0.24	-0.16	0.41
10	10		MC	0.86	1	0.35	0.17	2.07	3.35	*85.83	8.59	-0.26	-0.23	0.35	-0.16
11	11		MC	0.94	1	0.41	0.15	0.91	*94.30	3.22	1.42	-0.19	0.41	-0.28	-0.22
12	12		MC	0.89	1	0.41	0.17	2.92	2.56	*88.88	5.46	-0.25	-0.20	0.41	-0.24
13	13		MC	0.85	1	0.49	0.29	*84.98	5.46	4.26	5.02	0.49	-0.31	-0.25	-0.24
14	14		MC	0.96	1	0.33	0.18	0.89	*95.99	2.10	0.84	-0.19	0.33	-0.19	-0.20
15	15		MC	0.86	1	0.41	0.20	*85.73	1.81	6.94	5.31	0.41	-0.27	-0.18	-0.27
16	29		MC	0.97	1	0.34	0.26	*96.57	0.66	0.75	1.76	0.34	-0.18	-0.17	-0.23
17	30		MC	0.92	1	0.39	0.30	2.64	1.20	*92.50	3.37	-0.27	-0.19	0.39	-0.21
18	31		MC	0.93	1	0.48	0.29	*92.63	2.43	2.18	2.46	0.48	-0.27	-0.27	-0.28
19	32		MC	0.70	1	0.52	0.43	6.45	*70.28	6.35	16.49	-0.24	0.52	-0.37	-0.24
20	33		MC	0.75	1	0.51	0.36	3.61	11.99	9.27	*74.77	-0.31	-0.24	-0.28	0.51
21	34		MC	0.55	1	0.31	0.66	4.03	*55.38	16.61	23.31	-0.28	0.31	-0.01	-0.22
22	35		MC	0.63	1	0.55	0.44	*62.53	6.24	13.30	17.49	0.55	-0.25	-0.24	-0.32
23	36		MC	0.54	1	0.53	0.67	*53.89	14.17	26.68	4.59	0.53	-0.22	-0.31	-0.24
24	37		MC	0.47	1	0.43	0.72	11.34	12.35	*47.33	28.27	-0.29	-0.03	0.43	-0.26
25	38		MC	0.93	1	0.49	0.31	1.43	*93.04	3.22	1.99	-0.22	0.49	-0.36	-0.23
26	39		MC	0.75	1	0.44	0.38	*75.36	5.21	10.05	9.01	0.44	-0.28	-0.19	-0.25
27	40		MC	0.77	1	0.57	0.32	7.82	7.65	7.53	*76.68	-0.35	-0.24	-0.30	0.57

Min P_Val	Max P_Val	Range P_Val	Mean P_Val	Min Corr	Max Corr	Range Corr	Mean Corr	Min NR_Omit	Max NR_Omit	Range NR_Omit	Mean NR_Omit
0.47	0.97	0.50	0.79	0.31	0.58	0.27	0.45	0.11	0.72	0.61	0.30

Table 40
Item Analysis Grade 4 Mathematics

PEID Fields				Item Statistic Fields			% Spe C	Statistics of Each Option / Score Level										
Item Seq	Item No	Part	Type	P Val	Max	Corr	NR Omit	P Opt0	P Opt1	P Opt2	P Opt3	P Opt4	P Opt5	pbis1	pbis2	pbis3	pbis4	Pbis5
1	1		MC	0.87	1	0.24	0.34		1.74	*86.53	6.04	0.71	4.64	-0.10	0.24	-0.14	-0.11	-0.12
2	2		MC	0.64	1	0.44	0.96		2.06	9.32	9.26	*63.68	14.72	-0.19	-0.27	-0.19	0.44	-0.15
3	3		MC	0.65	1	0.37	0.78		6.18	3.88	*65.11	13.94	10.12	-0.12	-0.11	0.37	-0.29	-0.09
4	4		MC	0.62	1	0.37	1.37		10.97	*61.87	3.57	4.55	17.67	-0.32	0.37	-0.13	-0.10	-0.09
5	5		MC	0.81	1	0.47	0.76		2.43	11.44	*80.89	2.38	2.10	-0.16	-0.39	0.47	-0.11	-0.09
6	6		MC	0.47	1	0.54	2.74		*47.05	8.89	9.63	21.38	10.30	0.54	-0.06	-0.17	-0.43	-0.08
7	7		MC	0.42	1	0.42	4.10		9.20	*42.11	6.11	7.24	31.24	-0.15	0.42	-0.15	-0.20	-0.16
8	8		MC	0.77	1	0.41	5.52		8.78	5.62	*76.51	3.57		-0.27	-0.20	0.41	-0.18	.
9	9		MC	0.80	1	0.39	7.86		1.02	3.55	7.76	*79.81		-0.17	-0.24	-0.24	0.39	.
10	10		MC	0.62	1	0.50	9.92		19.67	*61.56	5.23	3.61		-0.39	0.50	-0.23	-0.09	.
11	11		MC	0.61	1	0.32	11.84		4.44	9.01	14.21	*60.50		-0.26	-0.19	-0.09	0.32	.
12	12		MC	0.56	1	0.34	13.65		24.34	2.84	3.15	*56.02		-0.26	-0.12	-0.11	0.34	.
13	13		MC	0.92	1	0.27	0.35		5.16	*91.91	1.89	0.68		-0.21	0.27	-0.13	-0.09	.
14	14		MC	0.86	1	0.22	0.56		*86.18	3.14	9.33	0.79		0.22	-0.14	-0.14	-0.10	.
15	15		MC	0.61	1	0.40	1.86		13.98	10.96	12.04	*61.16		-0.13	-0.22	-0.24	0.40	.
16	16		MC	0.88	1	0.14	0.35		*87.75	0.72	10.32	0.86		0.14	-0.10	-0.10	-0.07	.
17	17		MC	0.81	1	0.34	0.55		*80.96	9.88	4.02	4.59		0.34	-0.18	-0.20	-0.18	.
18	18		MC	0.48	1	0.49	0.44		2.67	*47.75	25.42	23.72		-0.10	0.49	-0.11	-0.43	.
19	19		MC	0.64	1	0.48	0.53		13.98	7.29	13.77	*64.43		-0.34	-0.20	-0.18	0.48	.
20	20		MC	0.64	1	0.52	0.60		15.02	*64.06	12.72	7.60		-0.14	0.52	-0.40	-0.25	.
21	21		MC	0.78	1	0.34	0.72		14.16	2.80	4.07	*78.25		-0.20	-0.19	-0.20	0.34	.
22	22		MC	0.81	1	0.37	0.49		5.55	*81.10	8.05	4.80		-0.20	0.37	-0.20	-0.20	.
23	23		MC	0.66	1	0.42	1.12		4.96	22.92	5.22	*65.78		-0.22	-0.25	-0.21	0.42	.
24	24		MC	0.92	1	0.20	0.49		*91.93	4.22	2.90	0.46		0.20	-0.12	-0.14	-0.08	.
25	25		MC	0.87	1	0.38	0.53		2.00	7.77	2.46	*87.24		-0.17	-0.29	-0.16	0.38	.
26	26		MC	0.94	1	0.20	0.53		2.12	2.21	*93.80	1.34		-0.12	-0.12	0.20	-0.11	.
27	27		MC	0.84	1	0.43	0.68		6.32	5.28	*84.34	3.38		-0.28	-0.25	0.43	-0.17	.
28	28		MC	0.73	1	0.45	1.06		2.91	12.80	*72.67	10.55		-0.25	-0.26	0.45	-0.22	.
29	29		MC	0.80	1	0.50	0.70		4.61	3.04	11.72	*79.93		-0.21	-0.16	-0.39	0.50	.
30	30		MC	0.86	1	0.28	0.70		*86.32	6.59	4.31	2.08		0.28	-0.18	-0.16	-0.11	.

PEID Fields				Item Statistic Fields			% Spe C	Statistics of Each Option / Score Level										
Item Seq	Item No	Part	Type	P Val	Max	Corr	NR Omit	P Opt0	P Opt1	P Opt2	P Opt3	P Opt4	P Opt5	pbis1	pbis2	pbis3	pbis4	Pbis5
31	31		MC	0.89	1	0.35	0.68		2.12	4.14	4.47	*88.60		-0.15	-0.20	-0.23	0.35	.
32	32		MC	0.53	1	0.32	0.76		7.88	31.31	*52.51	7.55		-0.23	-0.15	0.32	-0.12	.
33	44		MC	0.62	1	0.41	0.57		5.85	8.52	*61.72	23.34		-0.24	-0.29	0.41	-0.14	.
34	45		MC	0.54	1	0.10	0.53		*54.48	35.38	5.92	3.69		0.10	0.03	-0.15	-0.14	.
35	46		MC	0.34	1	0.43	0.75		22.25	19.38	24.02	*33.61		-0.32	-0.10	-0.07	0.43	.
36	47		MC	0.44	1	0.18	1.08		11.45	16.39	27.13	*43.94		-0.02	-0.06	-0.14	0.18	.
37	48		MC	0.54	1	0.41	0.62		13.53	9.35	*54.46	22.04		-0.29	-0.15	0.41	-0.14	.
38	49		MC	0.54	1	0.36	0.75		19.23	*54.16	9.25	16.61		-0.08	0.36	-0.23	-0.21	.
39	50		MC	0.40	1	0.15	0.72		*40.34	29.97	19.93	9.05		0.15	0.04	-0.03	-0.28	.
40	51		MC	0.70	1	0.50	0.87		8.07	13.01	7.58	*70.46		-0.30	-0.28	-0.19	0.50	.
41	52		MC	0.45	1	0.31	1.12		1.40	4.37	47.88	*45.24		-0.08	-0.10	-0.25	0.31	.
42	53		MC	0.51	1	0.45	1.25		8.89	33.45	*50.57	5.83		-0.26	-0.27	0.45	-0.12	.
43	33		CR	0.66	2	0.44	0.00	22.20	22.89	54.91				.	.	.	.	.
44	34		CR	0.29	2	0.39	0.00	52.63	37.39	9.98				.	.	.	.	.
45	35		CR	0.50	3	0.64	0.00	23.14	32.55	15.04	29.27			.	.	.	.	.
46	36		CR	0.49	3	0.58	0.00	18.31	32.26	32.60	16.82			.	.	.	.	.
47	37		CR	0.58	2	0.52	0.00	19.27	45.04	35.68				.	.	.	.	.
48	38		CR	0.38	2	0.60	0.00	50.22	24.51	25.27				.	.	.	.	.
49	39		CR	0.45	2	0.45	0.00	32.13	45.39	22.49				.	.	.	.	.
50	40		CR	0.35	2	0.53	0.00	51.33	26.45	22.23				.	.	.	.	.
51	41		CR	0.72	4	0.44	0.00	4.19	6.93	18.05	37.07	33.76		.	.	.	.	.
52	42		CR	0.57	2	0.47	0.00	29.82	25.47	44.71				.	.	.	.	.
53	43		CR	0.48	3	0.61	0.00	30.60	21.63	21.24	26.54			.	.	.	.	.

Min P_Val	Max P_Val	Range P_Val	Mean P_Val	Min Corr	Max Corr	Range Corr	Mean Corr	Min NR_Omit	Max NR_Omit	Range NR_Omit	Mean NR_Omit
0.29	0.94	0.65	0.64	0.10	0.64	0.54	0.39	0.00	13.65	13.65	1.54

Table 41
Item Analysis Grade 8 Mathematics

PEID Fields				Item Statistic Fields			% Spe C	Statistics of Each Option / Score Level										
Item Seq	Item No	Part	Type	P Val	Max	Corr	NR Omit	P Opt0	P Opt1	P Opt2	P Opt3	P Opt4	P Opt5	pbis1	pbis2	pbis3	pbis4	Pbis5
1	1		MC	0.82	1	0.27	0.17		0.28	*82.16	5.21	6.18	5.99	-0.09	0.27	-0.23	-0.06	-0.14
2	2		MC	0.52	1	0.42	0.28		*52.15	17.48	7.56	19.62	2.91	0.42	-0.33	-0.10	-0.08	-0.15
3	3		MC	0.37	1	0.40	0.60		1.76	*36.74	29.52	11.95	19.42	-0.07	0.40	-0.16	-0.18	-0.14
4	4		MC	0.83	1	0.33	0.32		*83.09	2.67	2.17	1.68	10.06	0.33	-0.19	-0.17	-0.13	-0.17
5	5		MC	0.83	1	0.43	0.38		4.37	4.30	5.18	2.75	*83.02	-0.18	-0.22	-0.18	-0.23	0.43
6	6		MC	0.58	1	0.41	0.59		2.71	17.99	*57.80	20.90		-0.10	-0.22	0.41	-0.25	.
7	7		MC	0.66	1	0.38	0.70		5.72	18.65	*66.35	8.57		-0.23	-0.10	0.38	-0.32	.
8	8		MC	0.88	1	0.19	0.64		8.44	*87.53	2.12	1.27		-0.09	0.19	-0.18	-0.07	.
9	9		MC	0.72	1	0.30	0.49		15.43	2.29	9.94	*71.85		-0.13	-0.10	-0.25	0.30	.
10	10		MC	0.91	1	0.26	0.16		*91.35	4.56	2.91	1.02		0.26	-0.12	-0.21	-0.12	.
11	11		MC	0.94	1	0.25	0.19		0.17	0.51	4.67	*94.45		-0.06	-0.07	-0.23	0.25	.
12	12		MC	0.85	1	0.47	0.33		8.39	3.80	*84.85	2.63		-0.36	-0.18	0.47	-0.21	.
13	13		MC	0.92	1	0.28	0.23		0.77	5.29	1.34	*92.37		-0.14	-0.19	-0.17	0.28	.
14	14		MC	0.84	1	0.29	0.25		5.86	4.95	5.04	*83.90		-0.26	-0.12	-0.09	0.29	.
15	15		MC	0.67	1	0.40	0.99		11.95	*67.10	15.18	4.77		-0.10	0.40	-0.29	-0.23	.
16	16		MC	0.93	1	0.37	0.25		2.51	2.40	*92.83	2.01		-0.25	-0.24	0.37	-0.13	.
17	17		MC	0.78	1	0.43	0.35		*77.88	4.12	13.37	4.28		0.43	-0.23	-0.24	-0.25	.
18	18		MC	0.69	1	0.51	0.26		26.70	1.81	2.01	*69.23		-0.43	-0.17	-0.14	0.51	.
19	19		MC	0.64	1	0.43	0.51		*63.94	16.70	17.29	1.56		0.43	-0.34	-0.16	-0.15	.
20	20		MC	0.41	1	0.39	0.90		16.84	28.47	*40.96	12.83		-0.25	-0.05	0.39	-0.22	.
21	21		MC	0.73	1	0.40	0.65		11.89	9.81	*73.20	4.45		-0.27	-0.22	0.40	-0.12	.
22	22		MC	0.71	1	0.43	0.69		*70.81	14.03	11.46	3.00		0.43	-0.28	-0.21	-0.18	.
23	23		MC	0.76	1	0.53	0.70		7.76	9.34	*75.61	6.59		-0.24	-0.32	0.53	-0.27	.
24	24		MC	0.60	1	0.45	0.59		19.49	8.82	11.04	*60.06		-0.32	-0.17	-0.15	0.45	.
25	25		MC	0.71	1	0.51	2.99		5.26	*70.91	14.26	6.58		-0.18	0.51	-0.31	-0.29	.
26	26		MC	0.51	1	0.37	3.59		10.88	*50.95	22.39	12.18		-0.12	0.37	-0.23	-0.14	.
27	27		MC	0.42	1	0.36	0.99		30.74	23.13	*41.52	3.63		-0.03	-0.31	0.36	-0.17	.
28	28		MC	0.64	1	0.38	1.04		8.17	11.72	*63.97	15.10		-0.24	-0.23	0.38	-0.12	.
29	29		MC	0.59	1	0.34	1.50		*59.49	23.18	6.66	9.17		0.34	-0.16	-0.19	-0.17	.

PEID Fields				Item Statistic Fields			% Spe C	Statistics of Each Option / Score Level										
Item Seq	Item No	Part	Type	P Val	Max	Corr	NR Omit	P Opt0	P Opt1	P Opt2	P Opt3	P Opt4	P Opt5	pbis1	pbis2	pbis3	pbis4	Pbis5
30	30		MC	0.44	1	0.40	1.75		25.06	8.40	21.00	*43.79		-0.17	-0.20	-0.17	0.40	.
31	31		MC	0.40	1	0.23	1.64		37.72	*40.35	12.52	7.77		0.07	0.23	-0.29	-0.18	.
32	42		MC	0.76	1	0.44	0.44		13.21	3.13	*75.82	7.40		-0.32	-0.20	0.44	-0.16	.
33	43		MC	0.71	1	0.44	0.50		8.61	*71.17	5.29	14.43		-0.23	0.44	-0.18	-0.27	.
34	44		MC	0.84	1	0.37	0.58		9.44	1.72	*83.89	4.37		-0.24	-0.19	0.37	-0.19	.
35	45		MC	0.44	1	0.22	1.08		15.06	18.11	21.53	*44.23		-0.04	0.00	-0.23	0.22	.
36	46		MC	0.54	1	0.52	0.90		11.84	17.80	15.45	*54.01		-0.26	-0.21	-0.25	0.52	.
37	47		MC	0.55	1	0.51	1.13		12.15	*55.25	7.17	24.30		-0.38	0.51	-0.22	-0.16	.
38	48		MC	0.42	1	0.39	0.61		5.12	19.79	32.68	*41.79		-0.19	-0.30	-0.07	0.39	.
39	49		MC	0.68	1	0.45	0.66		*67.78	11.72	14.67	5.17		0.45	-0.27	-0.24	-0.17	.
40	50		MC	0.26	1	0.20	0.53		2.16	*26.40	54.12	16.79		-0.09	0.20	0.00	-0.21	.
41	51		MC	0.42	1	0.25	0.61		25.57	*41.96	25.12	6.74		-0.10	0.25	-0.10	-0.15	.
42	52		MC	0.36	1	0.30	0.80		*35.50	26.81	28.95	7.94		0.30	-0.17	-0.08	-0.13	.
43	53		MC	0.71	1	0.43	0.57		18.30	*71.28	3.16	6.69		-0.32	0.43	-0.17	-0.16	.
44	54		MC	0.66	1	0.50	0.65		13.04	*66.33	11.67	8.32		-0.27	0.50	-0.26	-0.21	.
45	32		CR	0.73	2	0.58	0.00	13.62	27.74	58.64				.	.	.	.	.
46	33		CR	0.73	2	0.50	0.00	18.69	15.66	65.65				.	.	.	.	.
47	34		CR	0.78	4	0.54	0.00	4.26	6.62	13.44	24.86	50.82		.	.	.	.	.
48	35		CR	0.61	2	0.62	0.00	29.40	18.83	51.77				.	.	.	.	.
49	36		CR	0.64	2	0.63	0.00	26.83	17.95	55.22				.	.	.	.	.
50	37		CR	0.56	2	0.45	0.00	37.47	13.14	49.38				.	.	.	.	.
51	38		CR	0.45	2	0.58	0.00	42.39	26.00	31.60				.	.	.	.	.
52	39		CR	0.42	2	0.55	0.00	38.73	38.11	23.16				.	.	.	.	.
53	40		CR	0.38	2	0.63	0.00	46.76	29.54	23.70				.	.	.	.	.
54	41		CR	0.38	3	0.63	0.00	35.06	35.75	8.73	20.46			.	.	.	.	.

Min P_Val	Max P_Val	Range P_Val	Mean P_Val	Min Corr	Max Corr	Range Corr	Mean Corr	Min NR_Omit	Max NR_Omit	Range NR_Omit	Mean NR_Omit
0.26	0.94	0.68	0.64	0.19	0.63	0.44	0.41	0.00	3.59	3.59	0.63

Table 42
Item Analysis Grade 10 Mathematics

PEID Fields				Item Statistic Fields			% Spe C	Statistics of Each Option / Score Level							
Item Seq	Item No	Part	Type	P Val	Max	Corr	NR Omit	P Opt1	P Opt2	P Opt3	P Opt4	pbis1	pbis2	pbis3	pbis4
1	1		MC	0.83	1	0.38	0.20	2.68	4.39	*82.69	10.04	-0.15	-0.15	0.38	-0.30
2	2		MC	0.58	1	0.32	0.55	22.20	*57.94	12.11	7.20	-0.07	0.32	-0.27	-0.14
3	3		MC	0.95	1	0.39	0.14	*95.18	0.97	1.01	2.70	0.39	-0.20	-0.21	-0.25
4	4		MC	0.89	1	0.38	0.16	7.28	1.33	2.25	*88.99	-0.21	-0.23	-0.25	0.38
5	5		MC	0.97	1	0.20	0.23	1.06	0.79	0.43	*97.49	-0.16	-0.07	-0.11	0.20
6	6		MC	0.78	1	0.48	0.23	11.51	5.21	*78.31	4.75	-0.26	-0.23	0.48	-0.30
7	7		MC	0.92	1	0.41	0.14	0.87	2.66	*91.90	4.42	-0.19	-0.23	0.41	-0.28
8	8		MC	0.92	1	0.44	0.18	4.01	*91.60	1.53	2.68	-0.32	0.44	-0.22	-0.19
9	9		MC	0.88	1	0.40	0.20	2.47	6.73	*87.98	2.63	-0.20	-0.27	0.40	-0.18
10	10		MC	0.95	1	0.31	0.18	0.66	*94.63	1.91	2.63	-0.16	0.31	-0.20	-0.18
11	11		MC	0.89	1	0.37	0.27	1.62	2.92	5.81	*89.38	-0.22	-0.22	-0.20	0.37
12	12		MC	0.82	1	0.31	0.33	9.58	6.15	*82.29	1.64	-0.24	-0.16	0.31	-0.06
13	13		MC	0.72	1	0.45	0.34	5.52	19.30	*72.09	2.74	-0.25	-0.27	0.45	-0.22
14	14		MC	0.88	1	0.44	0.29	*88.43	5.25	2.94	3.09	0.44	-0.23	-0.28	-0.23
15	15		MC	0.81	1	0.40	0.33	*81.14	4.00	8.37	6.16	0.40	-0.26	-0.16	-0.24
16	16		MC	0.71	1	0.37	0.34	*70.77	19.44	6.67	2.78	0.37	-0.19	-0.27	-0.17
17	17		MC	0.75	1	0.40	0.32	7.84	*75.12	12.54	4.17	-0.21	0.40	-0.23	-0.20
18	18		MC	0.72	1	0.51	0.47	9.87	8.15	9.75	*71.75	-0.40	-0.24	-0.14	0.51
19	19		MC	0.73	1	0.56	0.47	*73.49	14.63	8.94	2.46	0.56	-0.40	-0.28	-0.17
20	20		MC	0.83	1	0.47	0.41	4.92	4.63	*83.50	6.55	-0.21	-0.28	0.47	-0.27
21	21		MC	0.77	1	0.58	0.39	1.36	14.40	*76.86	6.99	-0.16	-0.49	0.58	-0.21
22	22		MC	0.56	1	0.43	0.52	8.16	*55.96	21.45	13.91	-0.11	0.43	-0.25	-0.23
23	23		MC	0.62	1	0.43	0.51	5.19	15.20	*61.76	17.35	-0.21	-0.28	0.43	-0.15
24	24		MC	0.71	1	0.42	0.49	11.59	*70.98	15.45	1.48	-0.22	0.42	-0.30	-0.10
25	25		MC	0.13	1	0.15	21.71	8.99	39.20	17.56	*12.54	-0.16	0.09	-0.11	0.15
26	26		MC	0.98	1	0.19	0.80	*97.78	0.70	0.32	0.40	0.19	-0.12	-0.12	-0.10
27	27		MC	0.74	1	0.53	0.46	4.50	14.67	6.49	*73.88	-0.19	-0.31	-0.35	0.53
28	28		MC	0.82	1	0.56	0.41	3.46	6.31	7.66	*82.16	-0.23	-0.35	-0.32	0.56
29	29		MC	0.82	1	0.51	0.60	3.09	9.95	*81.61	4.75	-0.23	-0.35	0.51	-0.24
30	30		MC	0.69	1	0.56	0.56	9.25	12.00	*69.29	8.90	-0.26	-0.35	0.56	-0.23

PEID Fields				Item Statistic Fields			% Spe C	Statistics of Each Option / Score Level							
Item Seq	Item No	Part	Type	P Val	Max	Corr	NR Omit	P Opt1	P Opt2	P Opt3	P Opt4	pbis1	pbis2	pbis3	pbis4
31	31		MC	0.81	1	0.50	0.44	*80.81	11.78	4.19	2.78	0.50	-0.31	-0.28	-0.22
32	32		MC	0.75	1	0.39	0.64	6.67	*75.49	10.25	6.94	-0.27	0.39	-0.22	-0.13
33	33		MC	0.67	1	0.58	0.49	27.73	2.00	3.03	*66.75	-0.44	-0.23	-0.27	0.58
34	34		MC	0.73	1	0.48	0.56	8.00	*73.50	7.02	10.93	-0.17	0.48	-0.22	-0.34
35	35		MC	0.48	1	0.32	1.23	8.14	15.51	*47.73	27.38	-0.21	-0.19	0.32	-0.08
36	36		MC	0.54	1	0.44	0.92	9.22	*54.40	15.05	20.41	-0.27	0.44	-0.15	-0.21
37	37		MC	0.49	1	0.34	0.68	32.08	*49.45	15.61	2.19	-0.37	0.34	0.02	-0.04
38	38		MC	0.47	1	0.43	0.85	11.61	16.03	*47.06	24.46	-0.32	-0.18	0.43	-0.10
39	39		MC	0.63	1	0.40	1.01	3.63	*63.13	25.88	6.34	-0.18	0.40	-0.24	-0.22
40	40		MC	0.76	1	0.38	0.65	4.47	9.31	*75.52	10.05	-0.23	-0.29	0.38	-0.10
41	41		MC	0.57	1	0.33	1.26	10.88	11.91	19.30	*56.65	-0.25	-0.15	-0.09	0.33
42	42		MC	0.77	1	0.53	0.80	*77.07	8.95	8.19	4.99	0.53	-0.29	-0.32	-0.23
43	43		MC	0.65	1	0.65	0.71	9.59	18.07	6.17	*65.46	-0.29	-0.45	-0.20	0.65
44	44		MC	0.34	1	0.30	0.92	9.59	*34.36	11.34	43.79	-0.23	0.30	-0.19	-0.04
45	45		MC	0.56	1	0.43	1.06	9.87	*56.40	24.05	8.63	-0.04	0.43	-0.33	-0.21
46	46		MC	0.73	1	0.39	0.86	3.87	17.98	*73.16	4.13	-0.25	-0.20	0.39	-0.22
47	47		MC	0.44	1	0.39	0.94	*44.19	30.17	16.10	8.59	0.39	-0.27	-0.12	-0.09
48	48		MC	0.68	1	0.51	0.96	*67.83	9.04	11.85	10.33	0.51	-0.30	-0.26	-0.22
49	49		MC	0.56	1	0.33	1.28	18.43	*55.93	19.22	5.15	-0.11	0.33	-0.28	-0.04
50	50		MC	0.72	1	0.46	1.01	2.13	7.12	17.85	*71.89	-0.21	-0.30	-0.24	0.46

Min P_Val	Max P_Val	Range P_Val	Mean P_Val	Min Corr	Max Corr	Range Corr	Mean Corr	Min NR_Omit	Max NR_Omit	Range NR_Omit	Mean NR_Omit
0.13	0.98	0.85	0.71	0.15	0.65	0.51	0.42	0.14	21.71	21.57	0.99

Table 43
Item Analysis Grade 4 Language Arts

PEID Fields				Item Statistic Fields			% Spe C	Statistics of Each Option / Score Level										
Item Seq	Item No	Part	Type	P Val	Max	Corr	NR Omit	P Opt0	P Opt1	P Opt2	P Opt3	P Opt4	P Opt5	P Opt6	pbis1	pbis2	pbis3	pbis4
1	8		MC	0.80	1	0.32	0.33		*79.91	5.13	1.95	12.68			0.32	-0.17	-0.14	-0.22
2	9		MC	0.88	1	0.39	0.99		6.31	2.26	*87.79	2.65			-0.25	-0.22	0.39	-0.18
3	10		MC	0.75	1	0.44	0.34		13.36	*75.09	4.63	6.57			-0.29	0.44	-0.23	-0.16
4	11		MC	0.55	1	0.49	3.45		8.46	22.31	10.35	*55.43			-0.27	-0.25	-0.19	0.49
5	12		MC	0.56	1	0.37	0.38		29.20	*55.71	9.08	5.63			-0.25	0.37	-0.16	-0.11
6	13		MC	0.54	1	0.38	0.36		14.06	13.48	*53.86	18.24			-0.11	-0.23	0.38	-0.19
7	19		MC	0.35	1	0.30	0.85		11.51	41.14	*34.64	11.87			-0.20	-0.09	0.30	-0.11
8	20		MC	0.79	1	0.37	1.24		9.54	*78.92	4.96	5.34			-0.14	0.37	-0.20	-0.28
9	21		MC	0.72	1	0.48	1.29		6.55	7.82	*72.11	12.24			-0.29	-0.32	0.48	-0.17
10	22		MC	0.71	1	0.46	1.87		*71.28	8.35	7.28	11.21			0.46	-0.29	-0.28	-0.16
11	23		MC	0.42	1	0.38	7.53		29.60	8.84	*42.21	11.82			-0.11	-0.17	0.38	-0.26
12	24		MC	0.44	1	0.27	1.62		2.47	1.50	50.39	*44.02			-0.19	-0.16	-0.17	0.27
13	25		MC	0.90	1	0.37	1.78		0.90	*89.83	2.68	4.82			-0.15	0.37	-0.22	-0.24
14	43		MC	0.84	1	0.46	0.38		*83.62	8.36	3.40	4.23			0.46	-0.30	-0.22	-0.21
15	44		MC	0.75	1	0.48	1.45		9.30	*75.22	5.48	8.54			-0.28	0.48	-0.27	-0.21
16	45		MC	0.59	1	0.35	0.40		*59.22	6.52	21.40	12.46			0.35	-0.21	-0.20	-0.11
17	46		MC	0.69	1	0.47	1.18		9.17	14.31	*68.67	6.66			-0.23	-0.29	0.47	-0.19
18	47		MC	0.78	1	0.41	1.20		14.80	*78.23	3.38	2.39			-0.27	0.41	-0.24	-0.20
19	48		MC	0.85	1	0.42	0.72		5.90	4.42	4.07	*84.89			-0.26	-0.18	-0.24	0.42
20	49		MC	0.84	1	0.40	0.82		5.47	*84.12	2.67	6.92			-0.30	0.40	-0.16	-0.19
21	59		MC	0.66	1	0.43	1.92		9.07	11.09	*66.35	11.57			-0.20	-0.27	0.43	-0.18
22	60		MC	0.81	1	0.43	2.27		6.74	*80.77	5.23	4.99			-0.20	0.43	-0.25	-0.26
23	61		MC	0.63	1	0.45	3.15		8.25	8.76	*63.17	16.67			-0.31	-0.33	0.45	-0.08
24	62		MC	0.52	1	0.40	5.96		*52.26	6.49	24.09	11.20			0.40	-0.27	-0.18	-0.15
25	63		MC	0.56	1	0.52	3.01		14.88	*55.91	12.17	14.03			-0.23	0.52	-0.25	-0.25
26	67		MC	0.71	1	0.51	0.53		14.10	6.33	7.88	*71.17			-0.28	-0.31	-0.22	0.51
27	68		MC	0.31	1	0.17	0.68		26.90	*30.97	8.25	33.19			-0.16	0.17	-0.18	0.08
28	69		MC	0.38	1	0.38	0.91		17.92	21.60	*37.63	21.94			-0.23	-0.13	0.38	-0.09
29	70		MC	0.25	1	0.30	0.70		28.19	*25.44	5.94	39.73			-0.16	0.30	-0.16	-0.05

PEID Fields				Item Statistic Fields			% Spe C	Statistics of Each Option / Score Level										
Item Seq	Item No	Part	Type	P Val	Max	Corr	NR Omit	P Opt0	P Opt1	P Opt2	P Opt3	P Opt4	P Opt5	P Opt6	pbis1	pbis2	pbis3	pbis4
30	71		MC	0.82	1	0.43	0.71		9.68	5.26	*81.94	2.42			-0.30	-0.20	0.43	-0.18
31	72		MC	0.47	1	0.19	4.28		11.17	28.47	*46.96	9.12			-0.10	0.02	0.19	-0.24
32	33		CR	0.46	6	0.76	0.00	9.87	17.31	19.13	18.44	16.17	11.43	7.66	.	.	.	.
33	64		CR	0.62	6	0.73	0.00	5.75	6.04	10.65	17.75	26.84	14.69	18.27	.	.	.	.
34	66	A	CR	0.83	2	0.39	0.00	9.85	13.82	76.34					.	.	.	.
35	66	B	CR	0.68	3	0.34	0.00	2.43	0.60	87.73	9.24				.	.	.	.

Min P_Val	Max P_Val	Range P_Val	Mean P_Val	Min Corr	Max Corr	Range Corr	Mean Corr	Min NR_Omit	Max NR_Omit	Range NR_Omit	Mean NR_Omit
0.25	0.90	0.65	0.64	0.17	0.76	0.59	0.41	0.00	7.53	7.53	1.49

Table 44
Item Analysis Grade 8 Language Arts

PEID Fields				Item Statistic Fields			% Spe C	Statistics of Each Option / Score Level										
Item Seq	Item No	Part	Type	P Val	Max	Corr	NR Omit	P Opt0	P Opt1	P Opt2	P Opt3	P Opt4	P Opt5	P Opt6	pbis1	pbis2	pbis3	pbis4
1	7		MC	0.74	1	0.32	0.32		*73.79	1.72	15.57	8.59			0.32	-0.18	-0.17	-0.21
2	8		MC	0.77	1	0.38	0.62		0.58	*77.24	20.50	1.06			-0.09	0.38	-0.35	-0.11
3	9		MC	0.94	1	0.34	0.32		1.97	1.88	*94.35	1.48			-0.19	-0.21	0.34	-0.18
4	10		MC	0.85	1	0.43	0.34		2.60	*85.41	1.68	9.96			-0.24	0.43	-0.21	-0.29
5	11		MC	0.84	1	0.45	0.48		1.34	4.18	10.19	*83.81			-0.18	-0.27	-0.29	0.45
6	12		MC	0.88	1	0.34	0.41		5.59	1.30	4.64	*88.06			-0.20	-0.17	-0.20	0.34
7	13		MC	0.79	1	0.44	0.28		5.22	3.01	12.45	*79.04			-0.16	-0.27	-0.30	0.44
8	14		MC	0.91	1	0.28	0.27		*91.04	6.10	1.87	0.72			0.28	-0.19	-0.18	-0.11
9	15		MC	0.64	1	0.49	2.17		8.01	12.81	12.91	*64.10			-0.24	-0.32	-0.17	0.49
10	22		MC	0.68	1	0.55	0.78		15.08	13.27	*68.32	2.55			-0.30	-0.34	0.55	-0.20
11	27		MC	0.55	1	0.40	1.01		6.38	13.18	*54.99	24.43			-0.11	-0.31	0.40	-0.15
12	28		MC	0.49	1	0.43	1.20		21.28	*49.05	11.10	17.38			-0.23	0.43	-0.28	-0.08
13	29		MC	0.61	1	0.37	1.35		5.99	11.13	20.25	*61.28			-0.14	-0.19	-0.21	0.37
14	44		MC	0.64	1	0.44	0.41		*63.72	6.56	17.12	12.19			0.44	-0.24	-0.23	-0.20
15	45		MC	0.90	1	0.38	0.53		4.61	2.37	2.46	*90.04			-0.25	-0.18	-0.22	0.38
16	46		MC	0.88	1	0.39	0.63		2.20	*88.17	3.33	5.67			-0.20	0.39	-0.22	-0.23
17	47		MC	0.63	1	0.53	0.60		7.42	12.23	17.07	*62.69			-0.23	-0.29	-0.27	0.53
18	51		MC	0.64	1	0.31	1.20		4.26	*63.98	3.67	26.89			-0.24	0.31	-0.24	-0.13
19	52		MC	0.53	1	0.53	0.63		16.31	12.04	17.77	*53.24			-0.22	-0.30	-0.22	0.53
20	53		MC	0.67	1	0.50	0.63		12.99	10.48	*66.60	9.29			-0.30	-0.24	0.50	-0.21
21	54		MC	0.38	1	0.33	1.15		10.11	30.13	20.20	*38.40			-0.19	-0.06	-0.18	0.33
22	55		MC	0.87	1	0.38	0.54		2.05	*86.57	3.90	6.94			-0.18	0.38	-0.24	-0.22
23	56		MC	0.59	1	0.46	0.59		11.46	22.06	7.20	*58.69			-0.18	-0.24	-0.26	0.46
24	62		MC	0.70	1	0.48	1.19		*69.76	9.93	12.90	6.22			0.48	-0.23	-0.25	-0.26
25	63		MC	0.44	1	0.30	1.34		35.47	7.18	*44.02	11.98			0.00	-0.33	0.30	-0.20
26	64		MC	0.31	1	0.31	1.28		*30.60	23.14	36.05	8.92			0.31	-0.11	-0.08	-0.19
27	70		MC	0.49	1	-0.01	0.56		3.07	*49.01	3.95	43.41			-0.19	-0.01	-0.12	0.13
28	71		MC	0.73	1	0.41	0.58		*72.97	13.14	3.19	10.12			0.41	-0.22	-0.23	-0.22
29	72		MC	0.72	1	0.46	0.66		9.20	6.01	11.94	*72.18			-0.23	-0.26	-0.23	0.46

PEID Fields				Item Statistic Fields			% Spe C	Statistics of Each Option / Score Level										
Item Seq	Item No	Part	Type	P Val	Max	Corr	NR Omit	P Opt0	P Opt1	P Opt2	P Opt3	P Opt4	P Opt5	P Opt6	pbis1	pbis2	pbis3	pbis4
30	73		MC	0.70	1	0.40	0.69		5.65	19.84	3.90	*69.92			-0.20	-0.25	-0.18	0.40
31	74		MC	0.61	1	0.34	0.79		*61.26	18.97	15.24	3.74			0.34	-0.14	-0.21	-0.17
32	75		MC	0.35	1	0.33	3.00		41.81	11.96	*34.93	8.29			-0.10	-0.16	0.33	-0.18
33	33		CR	0.49	6	0.80	0.00	13.59	12.92	15.18	17.21	16.66	13.99	10.45	.	.	.	.
34	36	A	CR	0.65	2	0.50	0.00	27.01	16.12	56.86					.	.	.	.
35	36	B	CR	0.62	3	0.34	0.00	11.74	1.21	74.95	12.10				.	.	.	.
36	65		CR	0.43	6	0.77	0.00	14.2	13.26	17.52	22.43	21.31	9.26	2.02	.	.	.	.
37	69		CR	0.87	2	0.42	0.00	5.32	15.03	79.65					.	.	.	.

Min P_Val	Max P_Val	Range P_Val	Mean P_Val	Min Corr	Max Corr	Range Corr	Mean Corr	Min NR_Omit	Max NR_Omit	Range NR_Omit	Mean NR_Omit
0.31	0.94	0.63	0.66	-0.01	0.80	0.81	0.41	0.00	3.00	3.00	0.72

Table 45
Item Analysis Grade 10 Language Arts

PEID Fields				Item Statistic Fields			% Spe C	Statistics of Each Option / Score Level										
Item Seq	Item No	Part	Type	P Val	Max	Corr	NR Omit	P Opt0	P Opt1	P Opt2	P Opt3	P Opt4	P Opt5	P Opt6	pbis1	pbis2	pbis3	pbis4
1	16		MC	0.66	1	0.39	0.23		20.58	5.11	*65.74	8.35			-0.26	-0.17	0.39	-0.15
2	17		MC	0.48	1	0.31	1.08		43.74	3.53	*48.49	3.16			-0.18	-0.18	0.31	-0.16
3	18		MC	0.89	1	0.42	0.17		0.99	5.18	*89.30	4.36			-0.22	-0.27	0.42	-0.23
4	19		MC	0.95	1	0.38	1.03		2.78	*94.68	0.69	0.83			-0.29	0.38	-0.17	-0.19
5	20		MC	0.88	1	0.25	0.25		3.67	0.55	*87.51	8.03			-0.17	-0.17	0.25	-0.14
6	21		MC	0.96	1	0.33	0.47		*95.71	0.57	2.13	1.13			0.33	-0.18	-0.22	-0.18
7	22		MC	0.55	1	0.43	0.21		*54.87	14.26	12.06	18.59			0.43	-0.26	-0.20	-0.15
8	23		MC	0.91	1	0.41	0.20		1.15	4.33	*90.61	3.72			-0.21	-0.28	0.41	-0.21
9	24		MC	0.86	1	0.45	0.20		*86.07	3.23	3.05	7.46			0.45	-0.30	-0.27	-0.22
10	25		MC	0.67	1	0.49	0.23		*67.50	14.72	6.11	11.44			0.49	-0.23	-0.26	-0.27
11	26		MC	0.58	1	0.50	0.87		*57.88	24.24	12.48	4.53			0.50	-0.33	-0.14	-0.28
12	27		MC	0.89	1	0.31	0.26		*89.22	1.07	2.54	6.90			0.31	-0.23	-0.26	-0.12
13	28		MC	0.62	1	0.44	0.54		8.75	*61.92	23.98	4.81			-0.17	0.44	-0.26	-0.25
14	41		MC	0.77	1	0.50	0.39		4.95	6.09	*77.36	11.20			-0.28	-0.25	0.50	-0.28
15	42		MC	0.77	1	0.39	0.39		5.40	14.66	*76.84	2.71			-0.32	-0.15	0.39	-0.23
16	43		MC	0.48	1	0.46	0.41		*48.46	28.89	11.03	11.21			0.46	-0.24	-0.22	-0.17
17	44		MC	0.53	1	0.44	0.42		15.27	17.74	13.57	*53.00			-0.19	-0.18	-0.24	0.44
18	45		MC	0.66	1	0.43	0.48		13.11	15.60	*66.09	4.73			-0.18	-0.26	0.43	-0.21
19	46		MC	0.70	1	0.43	0.47		*69.58	8.20	14.19	7.56			0.43	-0.29	-0.19	-0.20
20	47		MC	0.80	1	0.48	0.53		6.75	8.63	*79.65	4.44			-0.23	-0.28	0.48	-0.27
21	48		MC	0.72	1	0.39	1.09		16.04	*71.88	4.26	6.74			-0.16	0.39	-0.25	-0.25
22	49	A	CR	0.45	6	0.63	0.00	0.62	3.82	29.79	54.77	9.36	0.60	0.01	.	.	.	.
23	49	B	CR	0.69	3	0.52	0.00	0.53	2.66	84.43	11.36				.	.	.	.

Min P_Val	Max P_Val	Range P_Val	Mean P_Val	Min Corr	Max Corr	Range Corr	Mean Corr	Min NR_Omit	Max NR_Omit	Range NR_Omit	Mean NR_Omit
0.45	0.96	0.51	0.72	0.25	0.63	0.38	0.43	0.00	1.09	1.09	0.43

Table 46
Item Analysis Grade 4 Social Studies

PEID Fields				Item Statistic Fields			% Spe C	Statistics of Each Option / Score Level								
Item Seq	Item No	Part	Type	P Val	Max	Corr	NR Omit	P Opt0	P Opt1	P Opt2	P Opt3	P Opt4	pbis1	pbis2	pbis3	pbis4
1	1		MC	0.90	1	0.37	0.11		1.29	*89.83	5.08	3.70	-0.18	0.37	-0.20	-0.25
2	2		MC	0.94	1	0.24	0.67		4.33	0.45	*93.73	0.81	-0.18	-0.14	0.24	-0.12
3	3		MC	0.95	1	0.34	0.15		*94.87	1.77	2.28	0.92	0.34	-0.20	-0.19	-0.19
4	4		MC	0.91	1	0.42	0.19		*91.31	2.87	2.81	2.81	0.42	-0.20	-0.23	-0.28
5	5		MC	0.78	1	0.44	0.38		6.29	4.73	10.73	*77.87	-0.23	-0.21	-0.26	0.44
6	6		MC	0.84	1	0.35	1.04		*84.00	4.07	8.60	2.29	0.35	-0.23	-0.17	-0.22
7	7		MC	0.99	1	0.16	0.23		0.19	0.19	0.31	*99.08	-0.11	-0.10	-0.08	0.16
8	8		MC	0.94	1	0.37	0.50		0.43	3.66	*94.26	1.15	-0.12	-0.29	0.37	-0.18
9	9		MC	0.70	1	0.48	0.91		6.58	15.20	*70.02	7.29	-0.23	-0.24	0.48	-0.28
10	10		MC	0.94	1	0.35	0.29		1.34	2.42	*93.59	2.35	-0.18	-0.25	0.35	-0.16
11	11		MC	0.94	1	0.35	0.37		*94.05	1.75	1.64	2.18	0.35	-0.20	-0.20	-0.20
12	12		MC	0.58	1	0.47	0.71		*58.27	10.66	7.09	23.27	0.47	-0.20	-0.25	-0.25
13	13		MC	0.84	1	0.24	0.28		12.70	1.53	*84.29	1.20	-0.12	-0.21	0.24	-0.19
14	14		MC	0.72	1	0.40	0.69		13.42	*72.40	7.78	5.72	-0.19	0.40	-0.26	-0.18
15	15		MC	0.59	1	0.32	0.60		8.12	13.81	18.23	*59.24	-0.15	-0.15	-0.15	0.32
16	16		MC	0.65	1	0.40	0.72		15.01	5.03	*64.72	14.52	-0.29	-0.19	0.40	-0.14
17	17		MC	0.67	1	0.36	0.69		1.23	*66.68	17.97	13.43	-0.21	0.36	-0.17	-0.24
18	18		MC	0.48	1	0.28	0.81		*47.91	28.27	17.48	5.54	0.28	-0.19	-0.11	-0.06
19	19		MC	0.77	1	0.46	0.52		7.94	4.20	9.90	*77.43	-0.30	-0.20	-0.23	0.46
20	20		MC	0.65	1	0.40	1.13		*65.24	11.05	5.78	16.80	0.40	-0.15	-0.21	-0.24
21	21		MC	0.50	1	0.26	0.93		19.82	*50.00	19.83	9.42	-0.12	0.26	-0.07	-0.17
22	22		MC	0.47	1	0.20	1.46		18.41	*46.50	10.90	22.72	-0.03	0.20	-0.21	-0.05
23	23		MC	0.79	1	0.38	1.17		*78.59	3.89	13.32	3.03	0.38	-0.20	-0.20	-0.28
24	24		MC	0.70	1	0.34	1.56		13.80	*70.42	11.33	2.89	-0.11	0.34	-0.24	-0.24
25	25		MC	0.35	1	0.33	1.62		29.88	9.07	*35.15	24.28	-0.11	-0.14	0.33	-0.16
26	36		MC	0.55	1	0.30	0.41		32.17	8.97	*55.19	3.27	-0.05	-0.32	0.30	-0.18
27	37		MC	0.79	1	0.32	0.30		14.72	*79.00	1.34	4.64	-0.20	0.32	-0.16	-0.20
28	38		MC	0.75	1	0.42	0.25		13.09	*74.92	3.78	7.97	-0.22	0.42	-0.23	-0.24
29	39		MC	0.94	1	0.38	0.45		2.25	*93.75	1.76	1.79	-0.22	0.38	-0.20	-0.23
30	40		MC	0.77	1	0.50	0.36		*76.82	7.92	10.02	4.88	0.50	-0.25	-0.30	-0.23

PEID Fields				Item Statistic Fields			% Spe C	Statistics of Each Option / Score Level								
Item Seq	Item No	Part	Type	P Val	Max	Corr	NR Omit	P Opt0	P Opt1	P Opt2	P Opt3	P Opt4	pbis1	pbis2	pbis3	pbis4
31	26		CR	0.89	2	0.38	0.00	2.08	18.18	79.74			.	.	.	.
32	27		CR	0.55	1	0.41	0.00	45.27	54.73				.	.	.	.
33	28		CR	0.50	1	0.43	0.00	49.63	50.37				.	.	.	.
34	29		CR	0.91	3	0.46	0.00	3.48	3.43	9.46	83.64		.	.	.	.
35	30		CR	0.61	2	0.55	0.00	25.78	26.46	47.77			.	.	.	.
36	31		CR	0.70	3	0.56	0.00	8.63	16.34	32.12	42.90		.	.	.	.
37	32		CR	0.64	3	0.55	0.00	9.23	13.27	53.94	23.56		.	.	.	.
38	33		CR	0.43	1	0.41	0.00	56.51	43.49				.	.	.	.
39	34		CR	0.73	3	0.61	0.00	5.88	14.77	32.92	46.43		.	.	.	.
40	35		CR	0.51	2	0.53	0.00	25.65	45.79	28.56			.	.	.	.

Min P_Val	Max P_Val	Range P_Val	Mean P_Val	Min Corr	Max Corr	Range Corr	Mean Corr	Min NR_Omit	Max NR_Omit	Range NR_Omit	Mean NR_Omit
0.35	0.99	0.64	0.72	0.16	0.61	0.45	0.39	0.00	1.62	1.62	0.49

Table 47
Item Analysis Grade 8 Social Studies

PEID Fields				Item Statistic Fields			% Spe C	Statistics of Each Option / Score Level								
Item Seq	Item No	Part	Type	P Val	Max	Corr	NR Omit	P Opt0	P Opt1	P Opt2	P Opt3	P Opt4	pbis1	pbis2	pbis3	pbis4
1	1		MC	0.85	1	0.32	0.28		3.43	3.02	8.42	*84.86	-0.24	-0.18	-0.15	0.32
2	2		MC	0.91	1	0.41	0.36		2.90	*91.31	3.42	2.02	-0.21	0.41	-0.24	-0.23
3	3		MC	0.86	1	0.34	0.62		5.18	4.93	3.19	*86.08	-0.18	-0.19	-0.20	0.34
4	4		MC	0.93	1	0.38	0.14		0.47	0.43	5.49	*93.47	-0.13	-0.14	-0.32	0.38
5	5		MC	0.94	1	0.34	0.25		0.78	*93.92	4.26	0.79	-0.14	0.34	-0.26	-0.17
6	6		MC	0.97	1	0.30	0.17		0.77	1.15	*97.24	0.66	-0.16	-0.19	0.30	-0.16
7	7		MC	0.61	1	0.43	0.52		6.61	11.44	*61.25	20.19	-0.18	-0.23	0.43	-0.23
8	8		MC	0.85	1	0.49	1.97		3.16	6.39	*84.90	3.57	-0.22	-0.34	0.49	-0.23
9	9		MC	0.89	1	0.45	0.24		*88.84	3.43	4.96	2.54	0.45	-0.25	-0.27	-0.23
10	10		MC	0.85	1	0.40	0.27		1.64	8.34	4.32	*85.43	-0.22	-0.22	-0.24	0.40
11	11		MC	0.60	1	0.41	0.29		13.38	16.61	9.68	*60.04	-0.20	-0.07	-0.35	0.41
12	12		MC	0.74	1	0.42	0.39		7.26	7.37	*73.67	11.31	-0.20	-0.22	0.42	-0.24
13	13		MC	0.80	1	0.38	0.32		6.61	7.01	5.62	*80.44	-0.27	-0.19	-0.16	0.38
14	14		MC	0.66	1	0.43	0.31		7.33	*65.64	9.96	16.76	-0.23	0.43	-0.23	-0.20
15	15		MC	0.41	1	0.18	0.60		*40.95	31.23	18.00	9.22	0.18	-0.02	-0.12	-0.12
16	16		MC	0.93	1	0.40	0.25		*93.07	3.31	1.47	1.90	0.40	-0.26	-0.23	-0.19
17	17		MC	0.51	1	0.37	0.64		11.22	*50.80	23.46	13.88	-0.21	0.37	-0.21	-0.08
18	18		MC	0.81	1	0.45	0.33		8.02	3.63	7.14	*80.88	-0.27	-0.22	-0.24	0.45
19	19		MC	0.75	1	0.42	0.60		5.85	*74.65	14.63	4.27	-0.26	0.42	-0.20	-0.25
20	20		MC	0.81	1	0.41	0.37		10.38	*81.46	2.78	5.01	-0.19	0.41	-0.21	-0.30
21	21		MC	0.63	1	0.41	0.62		*63.10	7.50	14.99	13.79	0.41	-0.24	-0.21	-0.17
22	22		MC	0.85	1	0.40	0.97		2.08	10.33	1.91	*84.70	-0.21	-0.27	-0.21	0.40
23	23		MC	0.51	1	0.33	0.52		9.58	*51.07	34.23	4.58	-0.15	0.33	-0.20	-0.14
24	24		MC	0.39	1	0.27	0.59		23.25	*38.69	21.54	15.94	-0.02	0.27	-0.24	-0.08
25	25		MC	0.46	1	0.26	0.56		12.92	34.17	*45.71	6.64	-0.04	-0.11	0.26	-0.26
26	36		MC	0.87	1	0.29	0.29		*86.71	5.49	2.77	4.75	0.29	-0.13	-0.17	-0.20
27	37		MC	0.54	1	0.18	0.35		7.94	*53.68	31.76	6.27	-0.10	0.18	-0.12	-0.04
28	38		MC	0.34	1	0.25	0.38		8.96	*34.24	41.10	15.32	-0.22	0.25	0.06	-0.23
29	39		MC	0.75	1	0.42	0.40		*74.89	9.09	9.27	6.35	0.42	-0.18	-0.23	-0.27
30	40		MC	0.54	1	0.29	0.64		13.89	15.69	15.55	*54.23	-0.09	-0.20	-0.10	0.29

PEID Fields				Item Statistic Fields			% Spe C	Statistics of Each Option / Score Level								
Item Seq	Item No	Part	Type	P Val	Max	Corr	NR Omit	P Opt0	P Opt1	P Opt2	P Opt3	P Opt4	pbis1	pbis2	pbis3	pbis4
31	41		MC	0.35	1	0.17	0.70		12.43	*35.09	35.75	16.03	-0.20	0.17	-0.02	-0.02
32	42		MC	0.74	1	0.42	0.32		5.42	*73.66	13.87	6.73	-0.17	0.42	-0.26	-0.24
33	43		MC	0.89	1	0.40	0.31		*88.88	3.94	3.02	3.85	0.40	-0.26	-0.21	-0.19
34	44		MC	0.71	1	0.47	0.42		7.47	9.88	11.62	*70.60	-0.15	-0.28	-0.29	0.47
35	45		MC	0.75	1	0.44	0.58		*75.06	13.87	7.11	3.38	0.44	-0.25	-0.25	-0.22
36	46		MC	0.61	1	0.41	0.44		*60.81	7.71	23.97	7.07	0.41	-0.27	-0.19	-0.18
37	26		CR	0.73	2	0.52	0.00	13.61	27.63	58.76			.	.	.	.
38	27		CR	0.59	3	0.56	0.00	13.71	24.25	32.66	29.38		.	.	.	.
39	28		CR	0.85	1	0.42	0.00	14.86	85.14				.	.	.	.
40	29		CR	0.69	3	0.58	0.00	21.08	6.38	17.03	55.50		.	.	.	.
41	30		CR	0.75	2	0.45	0.00	9.04	31.36	59.59			.	.	.	.
42	31		CR	0.61	2	0.47	0.00	25.17	27.38	47.44			.	.	.	.
43	32		CR	0.32	2	0.51	0.00	52.46	31.18	16.36			.	.	.	.
44	33		CR	0.57	1	0.44	0.00	42.72	57.28				.	.	.	.
45	34		CR	0.38	1	0.47	0.00	62.01	37.99				.	.	.	.
46	35		CR	0.60	2	0.59	0.00	22.87	33.25	43.87			.	.	.	.

Min P_Val	Max P_Val	Range P_Val	Mean P_Val	Min Corr	Max Corr	Range Corr	Mean Corr	Min NR_Omit	Max NR_Omit	Range NR_Omit	Mean NR_Omit
0.32	0.97	0.65	0.69	0.17	0.59	0.41	0.39	0.00	1.97	1.97	0.37

Table 48
Item Analysis Grade 10 Social Studies

PEID Fields				Item Statistic Fields			% Spe C	Statistics of Each Option / Score Level							
Item Seq	Item No	Part	Type	P Val	Max	Corr	NR Omit	P Opt1	P Opt2	P Opt3	P Opt4	pbis1	pbis2	pbis3	pbis4
1	1		MC	0.86	1	0.26	0.09	3.86	8.29	*86.05	1.71	-0.18	-0.14	0.26	-0.13
2	2		MC	0.82	1	0.36	0.13	9.57	2.31	*82.44	5.54	-0.22	-0.21	0.36	-0.17
3	3		MC	0.56	1	0.41	1.69	*55.97	17.52	19.01	5.82	0.41	-0.17	-0.20	-0.27
4	4		MC	0.82	1	0.38	0.12	*81.91	3.63	10.46	3.88	0.38	-0.25	-0.23	-0.16
5	5		MC	0.88	1	0.41	0.13	3.16	4.57	*87.91	4.22	-0.25	-0.25	0.41	-0.20
6	6		MC	0.86	1	0.33	0.15	3.93	*85.70	1.81	8.41	-0.16	0.33	-0.23	-0.20
7	7		MC	0.87	1	0.47	0.20	4.38	*86.91	6.95	1.56	-0.25	0.47	-0.32	-0.21
8	8		MC	0.90	1	0.47	0.18	2.48	*89.83	3.28	4.21	-0.25	0.47	-0.29	-0.25
9	9		MC	0.83	1	0.47	0.22	5.16	3.45	8.01	*83.16	-0.25	-0.27	-0.26	0.47
10	10		MC	0.70	1	0.18	0.16	20.84	*69.92	4.81	4.26	-0.04	0.18	-0.22	-0.11
11	11		MC	0.71	1	0.37	1.22	16.97	4.55	*71.05	6.21	-0.17	-0.30	0.37	-0.16
12	12		MC	0.43	1	0.47	0.22	4.05	14.95	38.24	*42.53	-0.18	-0.27	-0.21	0.47
13	13		MC	0.32	1	0.32	0.50	6.62	*32.12	15.09	45.68	-0.17	0.32	-0.20	-0.07
14	14		MC	0.75	1	0.47	0.41	*75.41	14.51	3.67	6.01	0.47	-0.30	-0.23	-0.22
15	15		MC	0.88	1	0.53	0.26	2.96	4.55	*87.98	4.24	-0.28	-0.32	0.53	-0.28
16	16		MC	0.66	1	0.44	0.32	7.25	*65.98	19.07	7.38	-0.28	0.44	-0.19	-0.24
17	17		MC	0.78	1	0.47	0.27	*78.31	12.69	5.47	3.24	0.47	-0.27	-0.26	-0.25
18	18		MC	0.84	1	0.51	1.27	*84.04	5.18	7.35	2.16	0.51	-0.29	-0.31	-0.24
19	19		MC	0.81	1	0.41	0.56	11.29	2.18	4.47	*81.50	-0.27	-0.24	-0.19	0.41
20	20		MC	0.85	1	0.43	0.27	1.82	10.00	*84.53	3.38	-0.23	-0.33	0.43	-0.14
21	21		MC	0.85	1	0.46	0.67	3.99	*84.92	5.90	4.52	-0.29	0.46	-0.22	-0.25
22	22		MC	0.74	1	0.47	0.99	12.30	6.48	*73.99	6.25	-0.18	-0.35	0.47	-0.22
23	23		MC	0.72	1	0.40	1.37	4.05	*71.65	14.00	8.93	-0.28	0.40	-0.19	-0.20
24	24		MC	0.81	1	0.53	0.27	5.37	8.19	*81.36	4.81	-0.29	-0.36	0.53	-0.19
25	25		MC	0.86	1	0.51	0.27	9.52	*86.49	2.07	1.65	-0.39	0.51	-0.25	-0.17
26	26		MC	0.73	1	0.48	0.36	11.66	*72.87	7.13	7.98	-0.30	0.48	-0.27	-0.17
27	27		MC	0.71	1	0.40	0.38	*70.90	20.99	3.88	3.85	0.40	-0.20	-0.24	-0.26
28	28		MC	0.57	1	0.50	0.61	10.57	*56.57	21.76	10.49	-0.20	0.50	-0.25	-0.27
29	29		MC	0.79	1	0.30	0.25	4.09	*78.75	2.27	14.64	-0.25	0.30	-0.26	-0.09
30	30		MC	0.76	1	0.41	1.16	1.67	18.01	*75.61	3.54	-0.22	-0.28	0.41	-0.19

PEID Fields				Item Statistic Fields			% Spe C	Statistics of Each Option / Score Level							
Item Seq	Item No	Part	Type	P Val	Max	Corr	NR Omit	P Opt1	P Opt2	P Opt3	P Opt4	pbis1	pbis2	pbis3	pbis4
31	31		MC	0.70	1	0.38	0.40	18.33	5.19	6.31	*69.76	-0.06	-0.34	-0.33	0.38
32	32		MC	0.48	1	0.20	0.38	35.75	7.40	*48.44	8.04	0.13	-0.36	0.20	-0.24
33	33		MC	0.65	1	0.50	0.39	7.05	16.18	11.68	*64.71	-0.26	-0.23	-0.27	0.50
34	34		MC	0.69	1	0.39	0.34	16.23	9.12	*68.99	5.33	-0.17	-0.23	0.39	-0.23
35	35		MC	0.74	1	0.46	0.38	8.27	*74.47	5.06	11.81	-0.29	0.46	-0.28	-0.19
36	36		MC	0.59	1	0.43	0.35	12.03	8.24	20.58	*58.80	-0.23	-0.29	-0.15	0.43
37	37		MC	0.54	1	0.42	0.50	*54.07	13.38	19.77	12.28	0.42	-0.26	-0.13	-0.21
38	38		MC	0.66	1	0.45	0.68	7.86	9.83	16.12	*65.51	-0.19	-0.21	-0.28	0.45
39	39		MC	0.81	1	0.45	0.62	*81.46	5.82	7.46	4.63	0.45	-0.28	-0.23	-0.22
40	40		MC	0.91	1	0.38	0.37	1.84	*91.21	3.17	3.42	-0.27	0.38	-0.21	-0.18
41	41		MC	0.71	1	0.39	0.41	14.16	10.90	3.48	*71.05	-0.13	-0.30	-0.22	0.39
42	42		MC	0.72	1	0.44	0.35	*71.62	15.76	9.87	2.40	0.44	-0.22	-0.28	-0.23
43	43		MC	0.60	1	0.25	0.45	24.92	5.56	*60.04	9.02	0.06	-0.32	0.25	-0.26
44	44		MC	0.60	1	0.47	1.89	*60.50	13.27	10.54	13.80	0.47	-0.23	-0.31	-0.16
45	45		MC	0.71	1	0.48	0.37	11.33	*71.21	8.42	8.67	-0.23	0.48	-0.30	-0.21
46	46		MC	0.49	1	0.25	0.48	14.90	13.90	*48.89	21.82	-0.31	-0.10	0.25	0.05
47	47		MC	0.81	1	0.49	0.33	*81.42	5.00	8.52	4.73	0.49	-0.29	-0.27	-0.25
48	48		MC	0.67	1	0.41	0.36	14.76	6.27	*66.59	12.02	-0.23	-0.22	0.41	-0.18
49	49		MC	0.61	1	0.50	0.54	9.00	*60.99	14.56	14.91	-0.28	0.50	-0.29	-0.17
50	50		MC	0.39	1	0.32	0.54	*39.43	10.10	34.53	15.41	0.32	-0.10	-0.16	-0.14

Min P_Val	Max P_Val	Range P_Val	Mean P_Val	Min Corr	Max Corr	Range Corr	Mean Corr	Min NR_Omit	Max NR_Omit	Range NR_Omit	Mean NR_Omit
0.32	0.91	0.59	0.72	0.18	0.53	0.35	0.41	0.09	1.89	1.80	0.50

Table 49
Item Analysis Grade 4 Science

PEID Fields				Item Statistic Fields			% Spe C	Statistics of Each Option / Score Level								
Item Seq	Item No	Part	Type	P Val	Max	Corr	NR Omit	P Opt0	P Opt1	P Opt2	P Opt3	P Opt4	pbis1	pbis2	pbis3	pbis4
1	1		MC	0.90	1	0.21	0.56		2.26	4.62	*89.98	2.57	-0.13	-0.10	0.21	-0.13
2	2		MC	0.87	1	0.25	0.25		4.73	2.98	*86.86	5.17	-0.13	-0.12	0.25	-0.16
3	3		MC	0.94	1	0.29	0.21		2.06	0.57	3.39	*93.76	-0.15	-0.12	-0.21	0.29
4	4		MC	0.90	1	0.35	0.17		4.53	*89.65	4.03	1.62	-0.21	0.35	-0.22	-0.15
5	5		MC	0.96	1	0.28	0.38		1.96	0.93	0.91	*95.81	-0.17	-0.14	-0.18	0.28
6	6		MC	0.73	1	0.44	0.95		6.74	*72.63	7.91	11.78	-0.16	0.44	-0.28	-0.25
7	7		MC	0.93	1	0.33	0.41		1.38	2.67	*92.63	2.90	-0.17	-0.20	0.33	-0.19
8	8		MC	0.80	1	0.26	0.33		15.38	*80.49	0.38	3.42	-0.19	0.26	-0.08	-0.17
9	9		MC	0.88	1	0.25	0.35		3.22	4.32	*87.65	4.46	-0.10	-0.11	0.25	-0.21
10	10		MC	0.61	1	0.31	0.42		2.00	3.00	*61.34	33.24	-0.09	-0.07	0.31	-0.27
11	11		MC	0.82	1	0.30	0.50		*82.07	3.11	11.38	2.93	0.30	-0.18	-0.16	-0.17
12	12		MC	0.75	1	0.37	0.88		14.21	*74.61	5.38	4.92	-0.21	0.37	-0.20	-0.20
13	13		MC	0.72	1	0.25	0.38		3.69	*72.14	20.60	3.19	-0.18	0.25	-0.15	-0.08
14	14		MC	0.80	1	0.49	0.33		7.85	10.64	1.56	*79.63	-0.28	-0.32	-0.15	0.48
15	15		MC	0.71	1	0.40	1.26		14.68	*71.37	10.92	1.78	-0.20	0.40	-0.26	-0.21
16	16		MC	0.74	1	0.21	2.78		4.24	*74.22	4.35	14.41	-0.05	0.21	-0.25	-0.08
17	17		MC	0.51	1	0.41	4.34		14.19	11.72	18.57	*51.18	-0.21	-0.19	-0.17	0.41
18	18		MC	0.70	1	0.33	0.41		12.04	*70.27	8.46	8.82	-0.24	0.33	-0.15	-0.11
19	19		MC	0.75	1	0.40	0.90		13.44	4.87	5.31	*75.49	-0.26	-0.21	-0.16	0.40
20	20		MC	0.70	1	0.25	0.32		6.39	*69.61	10.23	13.46	-0.09	0.25	-0.16	-0.13
21	21		MC	0.64	1	0.30	0.44		13.50	*64.08	13.47	8.51	-0.11	0.30	-0.21	-0.12
22	22		MC	0.60	1	0.35	4.13		9.26	14.09	12.47	*60.05	-0.09	-0.16	-0.26	0.35
23	23		MC	0.72	1	0.27	0.49		2.70	23.25	1.27	*72.29	-0.13	-0.19	-0.15	0.27
24	24		MC	0.56	1	0.43	0.50		19.29	11.61	*56.14	12.46	-0.25	-0.22	0.43	-0.12
25	25		MC	0.44	1	0.36	0.60		15.88	14.95	*44.41	24.16	-0.25	-0.15	0.36	-0.08
26	38		MC	0.94	1	0.28	0.14		1.15	3.43	*94.40	0.88	-0.18	-0.17	0.28	-0.16
27	39		MC	0.72	1	0.49	0.25		14.36	*72.14	6.19	7.07	-0.27	0.49	-0.21	-0.28
28	40		MC	0.36	1	0.33	0.55		*36.29	38.68	13.06	11.43	0.33	-0.12	-0.15	-0.16
29	41		MC	0.27	1	0.22	0.99		*26.83	25.70	19.81	26.66	0.22	-0.09	-0.07	-0.07
30	42		MC	0.33	1	0.15	0.32		23.67	*33.12	18.35	24.55	-0.05	0.15	-0.03	-0.08

PEID Fields				Item Statistic Fields			% Spe C	Statistics of Each Option / Score Level								
Item Seq	Item No	Part	Type	P Val	Max	Corr	NR Omit	P Opt0	P Opt1	P Opt2	P Opt3	P Opt4	pbis1	pbis2	pbis3	pbis4
31	43		MC	0.50	1	0.33	0.45		17.19	*49.75	12.17	20.44	-0.08	0.33	-0.14	-0.21
32	44		MC	0.47	1	0.24	1.38		*47.30	14.21	21.88	15.23	0.24	-0.16	-0.10	-0.06
33	45		MC	0.22	1	0.11	0.50		*22.05	30.96	24.33	22.16	0.11	-0.03	-0.02	-0.05
34	46		MC	0.53	1	0.34	0.51		27.26	*53.22	6.02	12.99	-0.15	0.34	-0.21	-0.17
35	47		MC	0.62	1	0.39	0.93		12.38	15.98	9.15	*61.57	-0.19	-0.22	-0.17	0.39
36	48		MC	0.68	1	0.29	1.37		21.05	3.54	*68.26	5.78	-0.12	-0.18	0.29	-0.22
37	49		MC	0.29	1	0.17	1.52		50.85	10.80	7.42	*29.41	0.08	-0.15	-0.28	0.17
38	50		MC	0.99	1	0.12	0.32		0.65	*98.57	0.26	0.19	-0.05	0.12	-0.08	-0.09
39	51		MC	0.79	1	0.39	0.55		*78.51	6.31	10.03	4.61	0.39	-0.21	-0.21	-0.20
40	52		MC	0.39	1	0.30	1.92		18.50	23.40	*38.89	17.29	-0.06	-0.22	0.30	-0.08
41	53		MC	0.39	1	0.20	0.62		13.93	28.39	*38.53	18.53	-0.17	-0.07	0.20	-0.01
42	54		MC	0.54	1	0.32	1.20		29.82	*54.21	10.74	4.03	-0.23	0.32	-0.07	-0.17
43	55		MC	0.89	1	0.17	0.50		3.22	*88.72	2.59	4.97	-0.09	0.17	-0.07	-0.11
44	56		MC	0.44	1	0.29	0.54		8.72	*44.10	31.58	15.06	-0.21	0.29	-0.05	-0.18
45	57		MC	0.29	1	0.20	1.05		18.84	23.60	*29.26	27.26	-0.09	-0.14	0.20	0.00
46	58		MC	0.88	1	0.41	1.63		3.45	4.12	3.03	*87.77	-0.23	-0.20	-0.26	0.41
47	59		MC	0.38	1	0.24	2.06		35.34	*37.60	11.84	13.15	-0.04	0.24	-0.12	-0.18
48	60		MC	0.88	1	0.33	0.49		5.33	*87.67	1.70	4.81	-0.13	0.33	-0.16	-0.26
49	61		MC	0.74	1	0.42	0.59		4.40	*73.55	13.95	7.51	-0.24	0.42	-0.18	-0.27
50	62		MC	0.80	1	0.32	0.80		*80.30	4.25	4.85	9.81	0.32	-0.25	-0.19	-0.12
51	63		MC	0.18	1	0.15	0.70		*18.25	48.17	16.00	16.89	0.15	0.08	-0.13	-0.13
52	64		MC	0.85	1	0.50	1.88		*85.27	3.59	5.46	3.80	0.50	-0.27	-0.28	-0.27
53	65		MC	0.81	1	0.23	0.32		*80.66	9.29	5.97	3.76	0.23	-0.14	-0.09	-0.15
54	66		MC	0.77	1	0.40	0.44		*77.07	9.57	6.52	6.41	0.40	-0.18	-0.24	-0.23
55	67		MC	0.89	1	0.39	0.62		4.44	*88.92	3.08	2.95	-0.21	0.39	-0.21	-0.22
56	26		CR	0.88	1	0.27	0.00	11.51	88.49				.	.	.	.
57	27		CR	0.80	2	0.35	0.00	6.62	27.65	65.73			.	.	.	.
58	28		CR	0.86	1	0.44	0.00	13.76	86.24				.	.	.	.
59	29		CR	0.78	1	0.37	0.00	21.70	78.30				.	.	.	.
60	30		CR	0.67	2	0.13	0.00	8.45	48.40	43.15			.	.	.	.
61	31		CR	0.64	1	0.48	0.00	35.70	64.30				.	.	.	.
62	32		CR	0.56	2	0.54	0.00	20.59	46.82	32.58			.	.	.	.
63	33		CR	0.56	2	0.49	0.00	34.92	18.16	46.92			.	.	.	.

PEID Fields				Item Statistic Fields			% Spe C	Statistics of Each Option / Score Level								
Item Seq	Item No	Part	Type	P Val	Max	Corr	NR Omit	P Opt0	P Opt1	P Opt2	P Opt3	P Opt4	pbis1	pbis2	pbis3	pbis4
64	34		CR	0.41	1	0.46	0.00	58.78	41.22				.	.	.	.
65	35		CR	0.44	1	0.51	0.00	56.02	43.98				.	.	.	.
66	36		CR	0.55	1	0.36	0.00	45.41	54.59				.	.	.	.
67	37		CR	0.25	1	0.28	0.00	75.28	24.72				.	.	.	.

Min P_Val	Max P_Val	Range P_Val	Mean P_Val	Min Corr	Max Corr	Range Corr	Mean Corr	Min NR_Omit	Max NR_Omit	Range NR_Omit	Mean NR_Omit
0.18	0.99	0.81	0.66	0.11	0.54	0.43	0.32	0.00	4.34	4.34	0.71

Table 50
Item Analysis Grade 8 Science

PEID Fields				Item Statistic Fields			% Spe C	Statistics of Each Option / Score Level								
Item Seq	Item No	Part	Type	P Val	Max	Corr	NR Omit	P Opt0	P Opt1	P Opt2	P Opt3	P Opt4	pbis1	pbis2	pbis3	pbis4
1	1		MC	0.93	1	0.22	0.38		4.71	1.38	0.77	*92.76	-0.13	-0.15	-0.11	0.22
2	2		MC	0.85	1	0.44	0.26		7.40	*85.13	4.98	2.23	-0.26	0.44	-0.29	-0.18
3	3		MC	0.89	1	0.28	1.55		*89.08	2.91	3.84	2.63	0.28	-0.14	-0.21	-0.12
4	4		MC	0.96	1	0.23	0.14		*95.56	1.04	0.76	2.50	0.23	-0.18	-0.12	-0.12
5	5		MC	0.71	1	0.30	0.27		*71.22	4.83	4.24	19.44	0.30	-0.19	-0.23	-0.13
6	6		MC	0.81	1	0.35	0.45		3.50	4.49	10.94	*80.61	-0.17	-0.11	-0.27	0.35
7	7		MC	0.81	1	0.33	0.25		*81.18	3.78	11.81	2.97	0.33	-0.16	-0.17	-0.26
8	8		MC	0.49	1	0.27	1.58		6.74	*49.09	36.50	6.10	-0.21	0.27	-0.07	-0.20
9	9		MC	0.78	1	0.53	0.48		11.41	4.08	*78.16	5.87	-0.36	-0.27	0.53	-0.21
10	10		MC	0.69	1	0.44	0.29		6.48	16.01	7.97	*69.26	-0.21	-0.24	-0.25	0.44
11	11		MC	0.96	1	0.26	1.27		0.75	0.96	0.94	*96.08	-0.13	-0.16	-0.16	0.26
12	12		MC	0.63	1	0.48	0.40		*63.25	7.67	21.08	7.60	0.48	-0.25	-0.24	-0.26
13	13		MC	0.74	1	0.49	0.43		14.75	1.73	9.03	*74.07	-0.30	-0.19	-0.28	0.49
14	14		MC	0.68	1	0.36	0.53		1.40	3.14	26.57	*68.36	-0.21	-0.32	-0.19	0.36
15	15		MC	0.73	1	0.40	0.53		15.79	*73.33	4.16	6.19	-0.27	0.40	-0.16	-0.18
16	16		MC	0.92	1	0.24	0.28		5.64	*91.57	0.87	1.63	-0.14	0.24	-0.16	-0.14
17	17		MC	0.56	1	0.28	0.30		*56.47	18.78	8.17	16.28	0.28	-0.16	-0.15	-0.10
18	18		MC	0.58	1	0.32	0.29		4.48	25.25	*57.98	12.00	-0.17	-0.12	0.32	-0.21
19	19		MC	0.67	1	0.37	1.21		12.45	10.78	*67.42	8.15	-0.13	-0.24	0.37	-0.18
20	20		MC	0.48	1	0.28	0.38		13.62	12.31	*48.50	25.20	-0.13	-0.22	0.28	-0.05
21	21		MC	0.62	1	0.35	0.47		10.98	*62.43	13.53	12.59	-0.14	0.35	-0.24	-0.12
22	22		MC	0.44	1	0.40	0.71		12.20	30.41	12.77	*43.91	-0.19	-0.13	-0.23	0.40
23	23		MC	0.59	1	0.43	0.55		9.93	*59.06	13.31	17.15	-0.03	0.43	-0.19	-0.36
24	24		MC	0.62	1	0.19	0.21		3.80	17.30	*62.17	16.52	-0.24	-0.13	0.19	0.01
25	25		MC	0.46	1	0.34	0.52		*46.32	14.72	5.67	32.77	0.34	-0.16	-0.10	-0.18
26	36		MC	0.90	1	0.45	0.24		1.77	*90.07	3.99	3.93	-0.19	0.45	-0.26	-0.29
27	37		MC	0.97	1	0.28	0.21		0.55	0.81	*96.59	1.84	-0.16	-0.17	0.28	-0.17
28	38		MC	0.61	1	0.33	0.39		22.92	5.89	*60.62	10.18	-0.14	-0.24	0.33	-0.16
29	39		MC	0.62	1	0.42	0.36		*61.93	8.50	17.43	11.78	0.42	-0.20	-0.21	-0.21
30	40		MC	0.48	1	0.19	0.35		15.78	17.29	*47.93	18.64	-0.22	-0.03	0.19	-0.01

PEID Fields				Item Statistic Fields			% Spe C	Statistics of Each Option / Score Level								
Item Seq	Item No	Part	Type	P Val	Max	Corr	NR Omit	P Opt0	P Opt1	P Opt2	P Opt3	P Opt4	pbis1	pbis2	pbis3	pbis4
31	41		MC	0.23	1	0.14	0.74		9.37	22.75	44.62	*22.51	-0.13	-0.18	0.11	0.14
32	42		MC	0.73	1	0.54	0.62		*72.58	4.57	8.10	14.13	0.54	-0.26	-0.24	-0.35
33	43		MC	0.67	1	0.40	0.96		*67.29	11.03	15.64	5.08	0.40	-0.24	-0.18	-0.19
34	44		MC	0.49	1	0.32	0.38		1.40	48.56	*49.31	0.36	-0.16	-0.27	0.32	-0.11
35	45		MC	0.83	1	0.43	0.37		4.04	*82.68	6.09	6.82	-0.18	0.42	-0.25	-0.26
36	46		MC	0.43	1	0.24	1.53		13.19	21.94	20.64	*42.70	-0.05	-0.12	-0.13	0.24
37	47		MC	0.82	1	0.40	0.45		10.70	4.87	*81.90	2.08	-0.19	-0.30	0.40	-0.21
38	48		MC	0.57	1	0.42	0.50		8.64	19.57	14.25	*57.04	-0.28	-0.17	-0.18	0.42
39	49		MC	0.75	1	0.42	0.77		8.66	3.62	11.84	*75.11	-0.16	-0.18	-0.31	0.42
40	50		MC	0.67	1	0.40	0.56		13.97	12.37	6.32	*66.79	-0.13	-0.25	-0.23	0.40
41	51		MC	0.69	1	0.42	0.73		*69.35	7.79	10.54	11.60	0.42	-0.22	-0.17	-0.26
42	52		MC	0.55	1	0.41	0.36		9.52	5.35	29.97	*54.80	-0.24	-0.32	-0.14	0.41
43	53		MC	0.85	1	0.31	0.34		*84.95	3.46	3.72	7.53	0.31	-0.23	-0.31	-0.04
44	54		MC	0.52	1	0.29	1.32		*51.63	18.97	22.76	5.33	0.29	-0.22	0.01	-0.28
45	55		MC	0.65	1	0.40	0.42		11.91	16.08	6.78	*64.81	-0.07	-0.35	-0.15	0.40
46	56		MC	0.18	1	0.14	0.63		*17.65	8.46	47.61	25.65	0.14	-0.24	0.07	-0.04
47	57		MC	0.70	1	0.34	0.51		8.49	7.41	*70.47	13.12	-0.22	-0.23	0.34	-0.10
48	58		MC	0.33	1	0.24	0.67		16.99	*33.15	10.51	38.69	0.04	0.24	-0.17	-0.16
49	59		MC	0.64	1	0.35	0.42		3.30	*64.37	11.30	20.61	-0.15	0.35	-0.24	-0.16
50	60		MC	0.29	1	0.11	0.63		18.79	18.90	*29.33	32.35	-0.07	-0.05	0.11	0.00
51	61		MC	0.35	1	0.38	0.77		*34.69	21.55	17.75	25.23	0.38	-0.15	-0.30	-0.02
52	62		MC	0.80	1	0.47	0.86		5.58	6.20	*80.09	7.28	-0.25	-0.22	0.47	-0.29
53	63		MC	0.74	1	0.27	0.40		7.36	*74.49	14.90	2.85	-0.13	0.27	-0.14	-0.21
54	64		MC	0.85	1	0.40	0.36		2.75	*84.81	2.45	9.63	-0.24	0.40	-0.26	-0.21
55	65		MC	0.89	1	0.45	0.38		*89.48	2.80	3.96	3.38	0.45	-0.24	-0.25	-0.26
56	66		MC	0.70	1	0.49	0.39		10.70	8.84	*70.13	9.94	-0.29	-0.22	0.49	-0.23
57	67		MC	0.82	1	0.37	0.37		9.51	4.41	3.91	*81.79	-0.15	-0.21	-0.27	0.37
58	68		MC	0.90	1	0.48	0.45		2.22	*90.12	5.12	2.08	-0.23	0.48	-0.33	-0.24
59	69		MC	0.80	1	0.52	0.38		*80.08	7.33	8.11	4.09	0.52	-0.28	-0.30	-0.26
60	70		MC	0.91	1	0.43	0.38		4.93	*90.51	2.33	1.85	-0.30	0.43	-0.23	-0.20
61	26		CR	0.96	2	0.26	0.00	2.03	2.95	95.02			.	.	.	.
62	27		CR	0.51	2	0.43	0.00	35.96	25.55	38.49			.	.	.	.
63	28		CR	0.49	1	0.33	0.00	50.55	49.45				.	.	.	.

PEID Fields				Item Statistic Fields			% Spe C	Statistics of Each Option / Score Level								
Item Seq	Item No	Part	Type	P Val	Max	Corr	NR Omit	P Opt0	P Opt1	P Opt2	P Opt3	P Opt4	pbis1	pbis2	pbis3	pbis4
64	29		CR	0.60	1	0.45	0.00	39.72	60.28				.	.	.	.
65	30		CR	0.51	1	0.35	0.00	49.11	50.89				.	.	.	.
66	31		CR	0.35	1	0.40	0.00	65.28	34.72				.	.	.	.
67	32		CR	0.81	3	0.44	0.00	4.39	18.98	6.59	70.04		.	.	.	.
68	33		CR	0.56	2	0.60	0.00	31.66	25.53	42.81			.	.	.	.
69	34		CR	0.56	1	0.35	0.00	43.89	56.11				.	.	.	.
70	35		CR	0.45	2	0.47	0.00	33.12	44.16	22.73			.	.	.	.

Min P_Val	Max P_Val	Range P_Val	Mean P_Val	Min Corr	Max Corr	Range Corr	Mean Corr	Min NR_Omit	Max NR_Omit	Range NR_Omit	Mean NR_Omit
0.18	0.97	0.79	0.66	0.11	0.60	0.49	0.36	0.00	1.58	1.58	0.47

Table 51
Item Analysis Grade 10 Science

PEID Fields				Item Statistic Fields			% Spe C	Statistics of Each Option / Score Level							
Item Seq	Item No	Part	Type	P Val	Max	Corr	NR Omit	P Opt1	P Opt2	P Opt3	P Opt4	pbis1	pbis2	pbis3	pbis4
1	1		MC	0.86	1	0.20	0.11	6.33	3.96	*86.00	3.60	-0.12	-0.11	0.20	-0.10
2	2		MC	0.90	1	0.39	0.11	*90.23	3.67	3.00	2.99	0.39	-0.26	-0.17	-0.21
3	3		MC	0.90	1	0.40	0.11	*90.01	2.79	0.76	6.33	0.40	-0.28	-0.17	-0.24
4	4		MC	0.81	1	0.44	0.23	*80.57	9.91	7.46	1.83	0.44	-0.35	-0.19	-0.14
5	5		MC	0.87	1	0.24	0.23	1.34	*86.98	6.75	4.70	-0.18	0.24	-0.07	-0.19
6	6		MC	0.85	1	0.36	0.32	10.72	2.60	*84.79	1.58	-0.21	-0.24	0.36	-0.20
7	7		MC	0.83	1	0.40	0.12	4.38	6.37	*82.99	6.15	-0.14	-0.23	0.40	-0.27
8	8		MC	0.89	1	0.43	0.09	1.65	7.20	2.07	*89.00	-0.16	-0.33	-0.18	0.43
9	9		MC	0.78	1	0.38	0.22	*78.30	5.27	12.25	3.97	0.38	-0.17	-0.29	-0.12
10	10		MC	0.75	1	0.39	0.20	1.34	*75.15	1.64	21.67	-0.14	0.39	-0.17	-0.32
11	11		MC	0.76	1	0.44	0.27	*75.92	17.03	4.03	2.76	0.44	-0.29	-0.22	-0.22
12	12		MC	0.79	1	0.17	0.34	1.56	2.75	16.49	*78.87	-0.17	-0.24	-0.03	0.17
13	13		MC	0.81	1	0.41	0.38	10.18	*81.49	4.35	3.60	-0.21	0.41	-0.23	-0.25
14	14		MC	0.81	1	0.33	0.34	9.64	*81.42	3.18	5.43	-0.18	0.33	-0.20	-0.17
15	15		MC	0.80	1	0.31	0.19	*80.13	14.75	3.50	1.43	0.31	-0.19	-0.20	-0.15
16	16		MC	0.82	1	0.39	0.28	3.57	8.05	*82.15	5.96	-0.24	-0.15	0.39	-0.27
17	17		MC	0.76	1	0.40	0.22	*76.36	11.40	9.94	2.09	0.40	-0.28	-0.22	-0.12
18	18		MC	0.67	1	0.34	0.31	*66.93	15.56	2.73	14.47	0.34	-0.12	-0.23	-0.22
19	19		MC	0.81	1	0.37	0.26	10.65	5.87	*81.00	2.22	-0.15	-0.27	0.37	-0.22
20	20		MC	0.90	1	0.41	0.40	*89.99	3.94	4.10	1.57	0.41	-0.24	-0.24	-0.20
21	21		MC	0.70	1	0.27	0.21	*70.29	12.99	6.16	10.35	0.27	-0.15	-0.09	-0.18
22	22		MC	0.77	1	0.37	0.23	8.22	*76.73	7.54	7.28	-0.14	0.37	-0.27	-0.18
23	23		MC	0.75	1	0.34	0.30	*75.25	1.97	15.22	7.27	0.34	-0.24	-0.22	-0.13
24	24		MC	0.74	1	0.51	0.59	*74.48	12.89	8.80	3.25	0.51	-0.30	-0.29	-0.22
25	25		MC	0.68	1	0.47	0.25	*68.20	12.18	9.17	10.21	0.47	-0.23	-0.22	-0.27
26	26		MC	0.77	1	0.37	0.37	4.53	3.80	*76.66	14.63	-0.20	-0.27	0.36	-0.17
27	27		MC	0.69	1	0.44	0.54	*69.49	6.08	17.03	6.86	0.44	-0.31	-0.18	-0.24
28	28		MC	0.75	1	0.48	0.25	13.97	*74.73	4.93	6.12	-0.31	0.48	-0.24	-0.20
29	29		MC	0.73	1	0.50	0.42	5.96	*73.04	11.57	9.02	-0.24	0.50	-0.27	-0.27
30	30		MC	0.66	1	0.35	0.39	*65.86	9.44	11.26	13.05	0.35	-0.16	-0.10	-0.26

PEID Fields				Item Statistic Fields			% Spe C	Statistics of Each Option / Score Level							
Item Seq	Item No	Part	Type	P Val	Max	Corr	NR Omit	P Opt1	P Opt2	P Opt3	P Opt4	pbis1	pbis2	pbis3	pbis4
31	31		MC	0.60	1	0.25	0.29	4.12	*60.26	13.78	21.55	-0.23	0.25	-0.09	-0.11
32	32		MC	0.57	1	0.36	2.00	6.52	27.59	*57.41	6.48	-0.20	-0.16	0.36	-0.23
33	33		MC	0.66	1	0.44	0.28	6.50	10.96	*66.38	15.88	-0.17	-0.26	0.44	-0.23
34	34		MC	0.62	1	0.44	0.45	*61.71	3.67	8.62	25.56	0.44	-0.24	-0.31	-0.18
35	35		MC	0.48	1	0.49	0.46	13.37	15.83	22.50	*47.84	-0.20	-0.30	-0.16	0.49
36	36		MC	0.48	1	0.23	0.29	34.50	4.97	*47.51	12.73	0.03	-0.13	0.23	-0.30
37	37		MC	0.46	1	0.41	0.32	15.38	19.40	19.29	*45.61	-0.12	-0.17	-0.23	0.41
38	38		MC	0.43	1	0.33	0.51	16.54	19.85	*43.00	20.10	-0.14	-0.10	0.33	-0.19
39	39		MC	0.48	1	0.48	0.62	*47.65	13.39	24.34	14.00	0.48	-0.33	-0.17	-0.15
40	40		MC	0.55	1	0.40	0.32	*54.70	11.48	14.80	18.69	0.40	-0.16	-0.17	-0.21
41	41		MC	0.42	1	0.30	0.41	40.85	*41.96	7.24	9.54	-0.15	0.30	-0.07	-0.19
42	42		MC	0.38	1	0.38	0.51	*37.67	13.96	22.66	25.20	0.38	-0.22	-0.06	-0.20
43	43		MC	0.55	1	0.35	0.44	21.71	9.19	13.22	*55.43	-0.13	-0.19	-0.19	0.35
44	44		MC	0.29	1	0.24	0.68	*29.24	18.99	14.73	36.36	0.24	-0.24	-0.06	0.02
45	45		MC	0.41	1	0.27	0.54	16.07	37.33	*40.51	5.55	-0.11	-0.09	0.27	-0.21
46	46		MC	0.49	1	0.29	0.47	*49.09	6.05	13.42	30.96	0.29	-0.07	-0.15	-0.16
47	47		MC	0.47	1	0.23	0.57	11.23	*47.46	22.55	18.19	-0.11	0.23	-0.11	-0.09
48	48		MC	0.30	1	0.22	0.35	47.11	15.68	*30.28	6.57	0.01	-0.19	0.22	-0.16
49	49		MC	0.59	1	0.29	0.45	14.53	15.22	11.09	*58.71	-0.09	-0.13	-0.20	0.29
50	50		MC	0.30	1	0.16	0.49	25.28	*30.31	29.84	14.07	-0.01	0.16	-0.05	-0.14

Min P_Val	Max P_Val	Range P_Val	Mean P_Val	Min Corr	Max Corr	Range Corr	Mean Corr	Min NR_Omit	Max NR_Omit	Range NR_Omit	Mean NR_Omit
0.29	0.90	0.61	0.66	0.16	0.51	0.35	0.36	0.09	2.00	1.91	0.37

Table 52
Scoring Table Grade 4 Reading

RS	SS	SEM	RS	SS	SEM
0	433	106	25	609	10
1	433	106	26	613	9
2	433	106	27	616	9
3	433	106	28	619	9
4	433	106	29	622	9
5	433	106	30	625	9
6	433	106	31	628	9
7	433	106	32	631	9
8	433	106	33	634	9
9	434	105	34	637	9
10	500	43	35	640	9
11	523	30	36	644	9
12	538	24	37	647	9
13	549	21	38	651	9
14	557	19	**39**	**655**	**10**
15	565	17	40	659	10
16	571	16	41	663	10
17	577	15	42	668	11
18	582	14	43	673	11
19	**587**	**13**	44	680	12
20	591	12	45	687	13
21	595	11	46	696	15
22	599	11	47	708	18
23	603	10	48	727	24
24	606	10	49	780	74

* The score in bold red type denotes the scale score and standard error closest to the cut score.

Table 53
Scoring Table Grade 8 Reading

RS	SS	SEM	RS	SS	SEM
0	507	102	26	657	9
1	507	102	27	659	9
2	507	102	28	662	9
3	507	102	29	665	9
4	507	102	30	668	9
5	507	102	31	671	9
6	507	102	32	673	9
7	507	102	33	676	9
8	507	102	34	679	9
9	566	43	35	682	9
10	585	27	36	685	9
11	596	21	37	688	9
12	604	17	38	691	9
13	610	14	39	695	9
14	615	13	**40**	**698**	**10**
15	620	12	41	702	10
16	624	11	42	706	10
17	628	10	43	710	11
18	**632**	**10**	44	715	11
19	635	10	45	720	12
20	639	9	46	726	13
21	642	9	47	734	14
22	645	9	48	743	16
23	648	9	49	755	20
24	651	9	50	777	30
25	654	9	51	820	63

* The score in bold red type denoted the scale score and standard error closest to the cut score.

Table 54
Scoring Table Grade 10 Reading

RS	SS	SEM	RS	SS	SEM
0	529	122	14	670	9
1	529	122	**15**	**675**	**9**
2	529	122	16	679	9
3	529	122	17	684	10
4	529	122	18	689	10
5	529	122	19	694	10
6	598	53	20	700	11
7	623	29	21	706	11
8	636	19	**22**	**713**	**12**
9	644	15	23	720	13
10	651	12	24	729	14
11	656	11	25	741	17
12	661	10	26	760	24
13	666	9	27	838	102

* The score in bold red type denoted the scale score and standard error closest to the cut score.

Table 55
Scoring Table Grade 4 Mathematics

RS	SS	SEM	RS	SS	SEM
0	403	116	35	617	9
1	403	116	36	619	9
2	403	116	37	621	9
3	403	116	38	624	9
4	403	116	39	626	9
5	403	116	40	628	9
6	403	116	41	630	9
7	403	116	42	633	9
8	403	116	43	635	9
9	457	62	44	637	9
10	490	40	45	640	9
11	509	31	46	642	9
12	523	26	47	645	9
13	533	23	48	647	9
14	541	20	**49**	**650**	**9**
15	548	19	50	652	9
16	555	17	51	655	9
17	560	16	52	658	9
18	565	15	53	661	10
19	569	14	54	664	10
20	574	13	55	667	10
21	577	13	56	670	10
22	581	12	57	673	10
23	584	11	58	677	10
24	588	11	59	681	11
25	591	11	60	685	11
26	594	10	61	690	12
27	596	10	62	695	12
28	599	10	63	701	14
29	**602**	**10**	64	708	16
30	604	9	65	717	18
31	607	9	66	729	22
32	609	9	67	746	28
33	612	9	68	770	39
34	614	9	69	770	39

* The score in bold red type denoted the scale score and standard error closest to the cut score.

Table 56
Scoring Table Grade 8 Mathematics

RS	SS	SEM	RS	SS	SEM
0	502	91	34	683	10
1	502	91	35	686	10
2	502	91	36	688	10
3	502	91	37	691	10
4	502	91	38	694	10
5	502	91	39	696	9
6	502	91	40	699	9
7	502	91	41	701	9
8	502	91	42	704	9
9	502	91	43	706	9
10	526	67	44	709	9
11	561	40	45	711	9
12	580	30	46	714	9
13	593	25	47	716	9
14	602	22	48	719	9
15	610	19	49	722	9
16	617	18	50	725	10
17	623	16	51	728	10
18	629	15	**52**	**731**	**10**
19	634	15	53	734	10
20	638	14	54	737	10
21	642	14	55	741	11
22	646	13	56	744	11
23	650	13	57	748	11
24	654	12	58	753	12
25	657	12	59	757	13
26	**660**	**12**	60	763	14
27	664	11	61	769	15
28	667	11	62	776	16
29	670	11	63	785	18
30	672	11	64	796	21
31	675	10	65	813	27
32	678	10	66	842	41
33	681	10	67	872	61

* The score in bold red type denoted the scale score and standard error closest to the cut score.

Table 57
Scoring Table Grade 10 Mathematics

RS	SS	SEM	RS	SS	SEM
0	530	103	26	704	12
1	530	103	27	708	11
2	530	103	28	712	11
3	530	103	29	715	11
4	530	103	30	719	11
5	530	103	31	723	11
6	530	103	32	726	10
7	530	103	33	730	10
8	530	103	34	734	10
9	530	103	35	737	10
10	530	103	36	741	10
11	570	63	37	745	11
12	599	41	38	749	11
13	617	32	39	753	11
14	630	26	40	758	11
15	640	23	41	762	11
16	649	21	**42**	**768**	**12**
17	657	19	43	773	13
18	664	18	44	780	14
19	670	17	45	787	15
20	676	16	46	796	16
21	681	15	47	807	18
22	686	14	48	822	22
23	691	14	49	849	34
24	696	13	50	892	71
25	**700**	**12**			

* The score in bold red type denoted the scale score and standard error closest to the cut score.

Table 58
Scoring Table Grade 4 Language Arts

RS	SS	SEM	RS	SS	SEM
0	465	91	25	628	10
1	465	91	26	631	9
2	465	91	27	634	9
3	465	91	28	637	9
4	465	91	**29**	**640**	**9**
5	465	91	30	643	9
6	465	91	31	647	9
7	502	54	32	650	10
8	535	33	33	653	10
9	551	26	34	657	10
10	561	22	35	660	10
11	570	19	36	664	10
12	577	17	37	668	10
13	583	15	38	672	11
14	588	14	39	677	11
15	**593**	**13**	40	682	12
16	597	13	41	688	13
17	601	12	42	695	14
18	605	11	43	703	16
19	608	11	44	714	19
20	612	11	45	729	24
21	615	10	46	752	33
22	618	10	47	757	35
23	622	10	48	757	35
24	625	10			

* The score in bold red type denoted the scale score and standard error closest to the cut score.

Table 59
Scoring Table Grade 8 Language Arts

RS	SS	SEM	RS	SS	SEM
0	523	71	26	661	9
1	523	71	27	664	9
2	523	71	28	667	9
3	523	71	29	669	9
4	523	71	30	672	9
5	523	71	31	675	9
6	523	71	32	678	9
7	534	62	33	681	9
8	568	36	34	684	9
9	584	25	35	687	9
10	594	20	36	690	10
11	602	17	37	694	10
12	609	15	38	697	10
13	615	14	**39**	**701**	**10**
14	620	13	40	705	11
15	624	12	41	709	11
16	628	12	42	714	11
17	632	11	43	719	12
18	636	11	44	725	13
19	639	11	45	732	14
20	**643**	**10**	46	739	15
21	646	10	47	749	18
22	649	10	48	762	22
23	652	10	49	782	29
24	655	10	50	818	47
25	658	10	51	819	48

* The score in bold red type denoted the scale score and standard error closest to the cut score.

Table 60
Scoring Table Grade 10 Language Arts

RS	SS	SEM	RS	SS	SEM
0	535	101	16	682	12
1	535	101	17	688	12
2	535	101	18	695	13
3	535	101	19	701	13
4	535	101	20	708	13
5	597	39	21	715	13
6	617	23	22	722	14
7	628	17	23	730	14
8	636	15	**24**	**740**	**15**
9	643	13	25	751	17
10	649	13	26	764	20
11	655	12	27	780	23
12	660	12	28	802	28
13	666	12	29	835	38
14	**671**	**12**	30	835	38
15	677	12			

* The score in bold red type denoted the scale score and standard error closest to the cut score.

Table 61
Scoring Table Grade 4 Social Studies

RS	SS	SEM	RS	SS	SEM
0	460	97	26	615	8
1	460	97	27	617	8
2	460	97	28	620	8
3	460	97	29	622	8
4	460	97	30	625	8
5	460	97	31	627	8
6	460	97	32	630	8
7	513	44	33	633	8
8	537	27	34	635	8
9	550	20	**35**	**638**	**8**
10	558	17	36	641	8
11	565	14	37	644	8
12	570	13	38	647	8
13	575	12	39	650	9
14	579	11	40	653	9
15	583	10	41	657	9
16	586	10	42	660	9
17	590	9	43	664	10
18	**593**	**9**	44	669	10
19	596	9	45	674	11
20	599	9	46	680	12
21	601	9	47	687	14
22	604	8	48	696	16
23	607	8	49	708	20
24	609	8	50	731	30
25	612	8	51	763	54

* The score in bold red type denoted the scale score and standard error closest to the cut score.

Table 62
Scoring Table Grade 8 Social Studies

RS	SS	SEM	RS	SS	SEM
0	523	75	28	663	8
1	523	75	29	665	8
2	523	75	30	668	8
3	523	75	31	670	8
4	523	75	32	672	8
5	523	75	33	675	8
6	523	75	34	677	8
7	523	75	35	680	8
8	526	72	36	682	8
9	577	30	37	685	8
10	593	21	38	687	8
11	603	17	39	689	8
12	610	14	**40**	**692**	**8**
13	616	12	41	695	8
14	621	11	42	697	8
15	625	11	43	700	8
16	629	10	44	703	8
17	632	10	45	706	8
18	636	9	46	710	9
19	**639**	**9**	47	713	9
20	642	9	48	718	10
21	645	9	49	722	10
22	647	8	50	727	11
23	650	8	51	734	12
24	653	8	52	742	14
25	655	8	53	753	18
26	658	8	54	772	26
27	660	8	55	803	48

* The score in bold red type denoted the scale score and standard error closest to the cut score.

Table 63
Scoring Table Grade 10 Social Studies

RS	SS	SEM	RS	SS	SEM
0	548	106	26	686	6
1	548	106	**27**	**688**	**6**
2	548	106	28	690	6
3	548	106	29	692	6
4	548	106	30	694	6
5	548	106	31	696	6
6	548	106	32	698	6
7	548	106	33	700	6
8	548	106	34	702	6
9	548	106	35	704	6
10	591	63	36	707	6
11	619	35	37	709	6
12	633	25	38	711	7
13	643	19	**39**	**714**	**7**
14	650	15	40	717	7
15	655	13	41	720	7
16	660	11	42	723	8
17	663	10	43	727	8
18	667	9	44	731	9
19	670	8	45	736	10
20	672	8	46	742	11
21	675	7	47	750	14
22	677	7	48	763	19
23	680	7	49	788	33
24	682	7	50	821	62
25	684	6			

* The score in bold red type denoted the scale score and standard error closest to the cut score.

Table 64
Scoring Table Grade 4 Science

RS	SS	SEM	RS	SS	SEM
0	421	71	36	606	10
1	421	71	37	609	10
2	421	71	38	612	10
3	421	71	39	615	10
4	421	71	40	618	10
5	421	71	41	621	10
6	421	71	42	624	10
7	421	71	43	627	10
8	421	71	44	630	10
9	421	71	45	633	10
10	421	71	46	636	10
11	421	71	47	639	10
12	421	71	48	643	10
13	421	71	49	646	10
14	455	52	50	649	10
15	479	41	51	652	10
16	497	33	52	655	10
17	510	28	53	659	10
18	520	24	**54**	**662**	**10**
19	529	22	55	665	10
20	537	19	56	669	10
21	543	18	57	672	10
22	549	17	58	676	10
23	555	16	59	680	10
24	560	15	60	683	10
25	565	14	61	687	10
26	569	14	62	692	10
27	574	13	63	697	11
28	**578**	**13**	64	703	12
29	581	12	65	709	14
30	585	12	66	718	16
31	589	12	67	728	19
32	592	11	68	743	24
33	596	11	69	768	35
34	599	11	70	799	54
35	602	11	71	799	54

* The score in bold red type denoted the scale score and standard error closest to the cut score.

Table 65
Scoring Table Grade 8 Science

RS	SS	SEM	RS	SS	SEM
0	487	95	39	672	8
1	487	95	40	675	8
2	487	95	41	677	8
3	487	95	42	679	8
4	487	95	43	681	8
5	487	95	44	683	8
6	487	95	45	685	8
7	487	95	46	687	8
8	487	95	47	690	8
9	487	95	48	692	8
10	487	95	49	694	8
11	487	95	50	696	8
12	487	95	51	698	8
13	492	90	52	701	8
14	544	43	53	703	8
15	566	32	54	706	8
16	580	26	55	708	8
17	590	23	56	711	8
18	599	20	57	713	9
19	606	19	**58**	**716**	**9**
20	612	17	59	719	9
21	618	16	60	722	9
22	623	14	61	725	9
23	627	14	62	728	10
24	631	13	63	732	10
25	635	12	64	736	10
26	639	12	65	739	10
27	642	11	66	743	11
28	645	11	67	748	11
29	648	10	68	752	11
30	651	10	69	757	11
31	653	9	70	763	12
32	656	9	71	770	13
33	**659**	**9**	72	777	15
34	661	9	73	788	18
35	663	8	74	802	23
36	666	8	75	829	37
37	668	8	76	857	57
38	670	8			

* The score in bold red type denoted the scale score and standard error closest to the cut score.

Table 66
Scoring Table Grade 10 Science

RS	SS	SEM	RS	SS	SEM
0	501	157	**26**	**698**	**12**
1	501	157	27	702	11
2	501	157	28	706	11
3	501	157	29	710	11
4	501	157	30	714	11
5	501	157	31	718	11
6	501	157	32	722	11
7	501	157	33	725	10
8	501	157	34	729	10
9	501	157	35	733	10
10	501	157	36	737	10
11	501	157	**37**	**740**	**10**
12	574	84	38	744	10
13	607	51	39	748	10
14	625	34	40	753	10
15	637	26	41	757	11
16	646	22	42	762	11
17	654	19	43	767	11
18	660	17	44	773	12
19	666	15	45	780	13
20	672	14	46	787	14
21	677	14	47	796	16
22	681	13	48	810	20
23	686	13	49	834	33
24	690	12	50	893	86
25	694	12			

* The score in bold red type denoted the scale score and standard error closest to the cut score.

Table 67
Reading Items Flagged for DIF by Focal Group

Grade	Max Points	Item #	Type	Focal Group			
				Female	African-American	Hispanic-American	Other
4	2	34	CR		+(M)		+(M)
4	2	35	CR	+(M)			+(M)
4	4	65	CR		+(M)		+(M)
8	1	5	MC				-(M)
8	1	19	MC	-(M)			
8	1	49	MC				-(M)
8	1	76	MC				-(M)
8	1	77	MC				-(M)
8	2	34	CR	+(M)		+(M)	+(M)
8	3	35	CR	+(M)	+(M)	+(M)	+(M)
8	2	66	CR	+(M)			+(M)
8	2	67	CR	+(M)	+(M)	+(M)	+(M)
8	2	68	CR	+(M)	+(M)	+(M)	+(M)
10	1	29	MC		+(M)		+(M)

Note 1. M-Mantel, S-Standardized Mean Difference
Note 2. “+” or “-“ is used to indicate that the item is in favor of or against the focal group

Table 68
Math Items Flagged for DIF by Focal Group

Grade	Max Points	Item #	Type	Focal Group			
				Female	African-American	Hispanic-American	Other
4	1	31	MC		-(M)		
4	1	48	MC				-(M)
4	2	33	CR	+(M)	+(M)		+(M)
4	2	34	CR	+(M)			+(M)
4	3	35	CR	+(M)	+(M)		+(M)
4	3	36	CR	+(M)	+(M)		+(M)
4	2	37	CR	+(M)	+(M)		
4	2	38	CR	+(M)	+(M)		
4	2	39	CR	+(M)	+(M)		
4	2	40	CR	+(M)	+(M)		+(M)
4	4	41	CR	+(M)			
4	2	42	CR	+(M)	+(M)		+(M)
4	3	43	CR		+(M)		+(M)
8	1	24	MC	-(M)			
8	2	32	CR	+(M)	+(M)	+(M)	+(M)
8	2	33	CR	+(M)	+(M)		
8	4	34	CR	+(M)			+(M)
8	2	35	CR	+(M)	+(M)		
8	2	36	CR	+(M)	+(M)	+(M)	+(M)
8	2	37	CR	+(M)	+(M)	+(M)	+(M)
8	2	38	CR		+(M)	+(M)	
8	2	39	CR	+(M)	+(M)		
8	2	40	CR	+(M)		+(M)	
8	3	41	CR	+(M)			
10	1	8	MC	-(M)			

Note 1. M-Mantel, S-Standardized Mean Difference
Note 2. “+” or “-“ is used to indicate that the item is in favor of or against the focal group

Table 69
Language Items Flagged for DIF by Focal Group

Grade	Max Points	Item #	Type	Focal Group			
				Female	African-American	Hispanic-American	Other
4	1	43	MC		-(M)		-(M)
4	6	33	CR	+(M)	+(M)		+(M)
4	6	64	CR	+(M)	+(M)		
4	2	66A	CR	+(M)		+(M)	
4	3	66B	CR	+(M)			+(M)
8	6	33	CR				+(M)
8	2	36A	CR		+(M)		+(M)
8	3	36B	CR	+(M)	+(M)		
8	6	65	CR	+(M)	+(M)		+(M)
8	2	69	CR	+(M)	+(M)		+(M)
10	1	18	MC			-(M)	-(M)
10	1	19	MC			-(M)	-(M)
10	1	21	MC		-(M)	-(M)	-(M)
10	1	42	MC	-(M)			
10	6	49A	CR	+(M)	+(M)		+(M)
10	3	49B	CR	+(M)	+(M)	+(M)	+(M)

Note 1. M-Mantel, S-Standardized Mean Difference
Note 2. “+” or “-“ is used to indicate that the item is in favor of or against the focal group

Table 70
Social Studies Items Flagged for DIF by Focal Group

Grade	Max Points	Item #	Type	Focal Group			
				Female	African-American	Hispanic-American	Other
4	1	8	MC		-(M)		
4	2	26	CR	+(M)		+(M)	+(M)
4	1	27	CR	+(M)	+(M)		
4	1	28	CR	+(M)			
4	3	29	CR	+(M)	+(M)		+(M)
4	2	30	CR	+(M)	+(M)		+(M)
4	3	31	CR	+(M)	+(M)		
4	3	32	CR		+(M)	+(M)	
4	2	33	CR	+(M)	+(M)		
4	3	34	CR		+(M)	+(M)	
4	2	35	CR	+(M)	+(M)		+(M)
8	1	2	MC		-(M)	-(M)	
8	1	11	MC		+(M)		
8	1	22	MC		-(M)	-(M)	
8	1	43	MC		+(M)		
8	2	26	CR	+(M)	+(M)	+(M)	+(M)
8	3	27	CR	+(M)	+(M)	+(M)	
8	1	28	CR	+(M)			
8	3	29	CR	+(M)		+(M)	
8	2	31	CR	+(M)	+(M)		
8	2	32	CR	+(M)	+(M)	+(M)	+(M)
8	1	33	CR	+(M)	+(M)	+(M)	+(M)
8	1	34	CR	+(M)	+(M)	+(M)	+(M)
8	2	35	CR	+(M)	+(M)		
10	1	15	MC		+(M)		

Note 1. M-Mantel, S-Standardized Mean Difference
Note 2. “+” or “-“ is used to indicate that the item is in favor of or against the focal group

Table 71
Science Items Flagged for DIF by Focal Group

Grade	Max Points	Item #	Type	Focal Group			
				Female	African-American	Hispanic-American	Other
4	1	14	MC		-(M)	-(M)	-(M)
4	1	64	MC		-(M)		
4	1	26	CR	+(M)	+(M)		+(M)
4	2	27	CR	+(M)	+(M)	+(M)	+(M)
4	1	28	CR		+(M)	+(M)	
4	1	29	CR	+(M)	+(M)		+(M)
4	2	30	CR		+(M)		
4	1	31	CR	+(M)			+(M)
4	2	32	CR		+(M)	+(M)	+(M)
4	2	33	CR	+(M)	+(M)	+(M)	+(M)
4	1	34	CR		+(M)	+(M)	+(M)
4	1	35	CR	+(M)	+(M)	+(M)	+(M)
4	1	36	CR		+(M)		+(M)
4	1	37	CR	+(M)	+(M)		+(M)
8	1	3	MC				-(M)
8	1	11	MC				-(M)
8	1	37	MC		+(M)		
8	1	43	MC	+(M)			-(M)
8	1	64	MC			-(M)	-(M)
8	2	26	CR	+(M)		+(M)	
8	2	27	CR	+(M)	+(M)	+(M)	+(M)
8	1	28	CR	+(M)	+(M)	+(M)	
8	1	29	CR		+(M)	+(M)	+(M)
8	1	30	CR	+(M)	+(M)	+(M)	+(M)
8	1	31	CR	+(M)	+(M)		+(M)
8	3	32	CR	+(M)	+(M)		
8	2	33	CR	+(M)	+(M)		+(M)
8	1	34	CR	+(M)	+(M)		
8	2	35	CR		+(M)		
10	1	8	MC		-(M)		-(M)

Note 1. M-Mantel, S-Standardized Mean Difference
Note 2. “+” or “-“ is used to indicate that the item is in favor of or against the focal group

Table 72
Factor Analysis[4] Results

Content Area	Grade	Number of Items	First Eigenvalue	Second Eigenvalue	Ratio of First Two Eigenvalues	Proportion of Common Variance Explained by First Eigenvalue
Language Arts	4	35	7.62	0.55	13.85	1.00
	8	37	9.04	1.15	7.86	.94
	10	23	5.13	4.08	1.26	.95
Reading	4	44	10.85	1.56	6.96	.91
	8	45	11.77	1.24	9.49	.96
	10	27	6.42	1.26	5.10	.99
Mathematics	4	53	10.99	0.93	11.82	.93
	8	54	12.10	0.88	13.75	.99
	10	50	11.39	1.21	9.41	.97
Social Studies	4	40	6.97	0.83	8.40	1.00
	8	46	8.59	0.82	10.48	.99
	10	50	10.43	0.79	13.20	.98
Science	4	67	8.17	0.91	8.98	.98
	8	70	11.53	1.17	9.85	.96
	10	50	7.25	0.79	9.18	1.00

[4] A principal-axis common factor analysis with priors estimated as squared multiple correlations.

Table 73
Reading and Language Arts Content Standard Raw Score Correlation Matrix

Grade	N	Content Standard	A	B	D	E	F
		A	1	.807	.691	.603	.521
		B	.807	1	.682	.607	.544
4	58,148	D	.691	.682	1	.514	.452
		E	.603	.607	.514	1	.469
		F	.521	.544	.452	.469	1
		A	1	.838	NA	.696	.595
		B	.838	1	NA	.687	.577
8	66,427	D	NA	NA	NA	NA	NA
		E	.696	.687	NA	1	.518
		F	.595	.577	NA	.518	1
		A	1	.656	.632	.643	.581
		B	.656	1	.565	.567	.505
10	69,220	D	.632	.565	1	.521	.500
		E	.643	.567	.521	1	.486
		F	.581	.505	.500	.486	1

NA = Information not available due to insufficient number of items

Table 74
Mathematics Content Standard Raw Score Correlation Matrix

Grade	N	Content Standard	A	B	C	D	E	F
4	58,316	A	1	.545	.289	.455	.531	.510
		B	.545	1	.396	.605	.659	.734
		C	.289	.396	1	.310	.358	.342
		D	.455	.605	.310	1	.553	.579
		E	.531	.659	.358	.553	1	.634
		F	.510	.734	.342	.579	.634	1
8	66,350	A	1	.664	.608	.520	.638	.639
		B	.664	1	.651	.562	.679	.716
		C	.608	.651	1	.549	.621	.602
		D	.520	.562	.549	1	.538	.526
		E	.638	.679	.621	.538	1	.636
		F	.639	.716	.602	.526	.636	1
10	69,173	A	1	.630	.538	.570	.659	.630
		B	.630	1	.597	.597	.672	.641
		C	.538	.597	1	.591	.566	.552
		D	.570	.597	.591	1	.576	.562
		E	.659	.672	.566	.576	1	.653
		F	.630	.641	.552	.562	.653	1

Table 75
Social Studies Content Standard Raw Score Correlation Matrix

Grade	N	Content Standard	A	B	C	D	E
		A	1	.619	.513	.570	.552
		B	.619	1	.503	.575	.545
4	58,479	C	.513	.503	1	.472	.464
		D	.570	.575	.472	1	.526
		E	.552	.545	.464	.526	1
		A	1	.653	.577	.618	.495
		B	.653	1	.582	.603	.493
8	66,346	C	.577	.582	1	.541	.459
		D	.618	.603	.541	1	.468
		E	.495	.493	.459	.468	1
		A	1	.615	.581	.581	.555
		B	.615	1	.690	.656	.638
10	69,077	C	.581	.690	1	.635	.635
		D	.581	.656	.635	1	.601
		E	.555	.638	.635	.601	1

NA = Information not available due to insufficient number of items
** = Correlation is significant at the 0.01 level (2-tailed)

Table 76
Science Content Standard Raw Score Correlation Matrix

Grade	N	Content Standard	A	B	C	D	E	F	G	H
4	58,503	A	1	.386	.503	.459	.423	.510	.504	.461
		B	.386	1	.407	.336	.381	.420	.404	.374
		C	.503	.407	1	.438	.422	.500	.494	.510
		D	.459	.336	.438	1	.378	.468	.428	.405
		E	.423	.381	.422	.378	1	.475	.423	.383
		F	.510	.420	.500	.468	.475	1	.491	.455
		G	.504	.404	.494	.428	.423	.491	1	.456
		H	.461	.374	.510	.405	.383	.455	.456	1
8	66,426	A	NA	NA	NA	NA	NA	NA	NA	NA
		B	NA	1	.496	.499	.508	.555	.551	NA
		C	NA	.496	1	.516	.554	.605	.576	NA
		D	NA	.499	.516	1	.586	.569	.564	NA
		E	NA	.508	.554	.586	1	.613	.599	NA
		F	NA	.555	.605	.569	.613	1	.653	NA
		G	NA	.551	.576	.564	.599	.653	1	NA
		H	NA	NA	NA	NA	NA	NA	NA	NA
10	69,105	A	1	.395	.388	.331	.473	.498	.488	.482
		B	.395	1	.357	.309	.422	.397	.435	.405
		C	.388	.357	1	.295	.394	.387	.424	.431
		D	.331	.309	.295	1	.354	.332	.358	.333
		E	.473	.422	.394	.354	1	.473	.502	.481
		F	.498	.397	.387	.332	.473	1	.508	.506
		G	.488	.435	.424	.358	.502	.508	1	.510
		H	.482	.405	.431	.333	.481	.506	.510	1

NA = Information not available due to insufficient number of items

Table 78 Inter Rater Reliability Grade 4 Reading

		Percentage Absolute Difference								Frequency								
Item	Max Score	Perfect	Adjacent	Discrepant	Codes	Intraclass Correlation	Weighted Kappa	Mean	N	0	1	2	3	4	5	6	7	+7
33	6	0.84	0.11	0.01	0.04	0.99	0.97	2.69	3,104	781	1,067	1,145	1,097	981	668	469	0	0
34	2	0.94	0.01	0.01	0.05	0.98	0.96	1.83	3,104	342	403	5,463	0	0	0	0	0	0
35	2	0.77	0.14	0.03	0.06	0.93	0.86	0.98	3,104	2,693	951	2,564	0	0	0	0	0	0
64	6	0.81	0.13	0.01	0.04	0.98	0.97	3.61	3,104	500	377	621	1,094	1,659	856	1,101	0	0
65	4	0.68	0.28	0.01	0.03	0.93	0.85	2.88	3,104	293	218	1,191	2,738	1,768	0	0	0	0
66A	2	0.82	0.10	0.03	0.06	0.90	0.79	1.62	3,104	768	843	4,597	0	0	0	0	0	0
66B	3	0.85	0.09	0.00	0.06	0.93	0.85	1.97	3,104	353	27	5,256	572	0	0	0	0	0

Table 79 Inter Rater Reliability Grade 8 Reading

		Percentage Absolute Difference								Frequency								
Item	Max Score	Perfect	Adjacent	Discrepant	Codes	Intraclass Correlation	Weighted Kappa	Mean	N	0	1	2	3	4	5	6	7	+7
33	6	0.85	0.10	0.01	0.04	0.99	0.98	2.91	3,549	1,050	877	1,086	1,201	1,167	937	780	0	0
34	2	0.70	0.16	0.09	0.05	0.85	0.71	1.06	3,549	2,949	805	3,344	0	0	0	0	0	0
35	3	0.67	0.25	0.03	0.05	0.90	0.80	1.49	3,549	809	3,468	1,394	1,427	0	0	0	0	0
36A	2	0.65	0.18	0.03	0.14	0.91	0.82	1.25	3,549	2,097	1,100	3,901	0	0	0	0	0	0
36B	3	0.73	0.13	0.00	0.14	0.95	0.90	1.83	3,549	1,004	90	5,122	882	0	0	0	0	0
65	6	0.84	0.07	0.01	0.08	0.99	0.98	2.57	3,549	1,139	901	1,162	1,548	1,540	660	148	0	0
66	2	0.93	0.03	0.00	0.04	0.99	0.97	1.37	3,549	859	2,779	3,460	0	0	0	0	0	0
67	2	0.79	0.15	0.00	0.06	0.94	0.88	1.04	3,549	2,308	2,170	2,620	0	0	0	0	0	0
68	2	0.77	0.15	0.01	0.07	0.94	0.88	1.18	3,549	2,079	1,677	3,342	0	0	0	0	0	0
69	2	0.80	0.14	0.00	0.05	0.89	0.78	1.71	3,549	515	1,022	5,561	0	0	0	0	0	0

Table 80 Inter Rater Reliability Grade 4 Mathematics

		Percentage Absolute Difference								Frequency								
Item	Max Score	Perfect	Adjacent	Discrepant	Codes	Intraclass Correlation	Weighted Kappa	Mean	N	0	1	2	3	4	5	6	7	+7
33	2	0.90	0.07	0.00	0.03	0.97	0.94	1.28	3,104	1,526	1,426	3,256	0	0	0	0	0	0
34	2	0.88	0.07	0.01	0.04	0.95	0.90	0.56	3,104	3,345	2,235	628	0	0	0	0	0	0
35	3	0.88	0.08	0.00	0.03	0.98	0.96	1.44	3,104	1,556	2,042	906	1,704	0	0	0	0	0
36	3	0.90	0.06	0.00	0.04	0.98	0.97	1.44	3,104	1,251	1,992	1,979	986	0	0	0	0	0
37	2	0.93	0.04	0.00	0.04	0.98	0.96	1.13	3,104	1,303	2,786	2,119	0	0	0	0	0	0
38	2	0.83	0.11	0.00	0.05	0.96	0.91	0.73	3,104	3,229	1,448	1,531	0	0	0	0	0	0
39	2	0.85	0.12	0.00	0.03	0.94	0.89	0.85	3,104	2,203	2,727	1,278	0	0	0	0	0	0
40	2	0.81	0.12	0.00	0.06	0.95	0.90	0.69	3,104	3,264	1,615	1,329	0	0	0	0	0	0
41	4	0.83	0.11	0.01	0.04	0.97	0.94	2.84	3,104	404	395	1,109	2,203	2,097	0	0	0	0
42	2	0.86	0.07	0.01	0.06	0.97	0.94	1.10	3,104	2,044	1,506	2,658	0	0	0	0	0	0
43	3	0.74	0.17	0.01	0.08	0.96	0.92	1.39	3,104	2,091	1,249	1,258	1,610	0	0	0	0	0

Table 81 Inter Rater Reliability Grade 8 Mathematics

		Percentage Absolute Difference								Frequency								
Item	Max Score	Perfect	Adjacent	Discrepant	Codes	Intraclass Correlation	Weighted Kappa	Mean	N	0	1	2	3	4	5	6	7	+7
32	2	0.93	0.03	0.00	0.03	0.98	0.97	1.43	3,549	1,085	1,884	4,129	0	0	0	0	0	0
33	2	0.96	0.01	0.00	0.03	1.00	0.99	1.44	3,549	1,427	1,107	4,564	0	0	0	0	0	0
34	4	0.81	0.14	0.02	0.03	0.96	0.92	3.02	3,549	482	498	907	1,709	3,502	0	0	0	0
35	2	0.86	0.08	0.00	0.05	0.97	0.94	1.21	3,549	2,122	1,336	3,640	0	0	0	0	0	0
36	2	0.91	0.04	0.01	0.04	0.99	0.97	1.23	3,549	2,103	1,230	3,765	0	0	0	0	0	0
37	2	0.90	0.06	0.00	0.03	0.98	0.96	1.09	3,549	2,769	920	3,409	0	0	0	0	0	0
38	2	0.76	0.19	0.01	0.04	0.92	0.83	0.88	3,549	3,018	1,890	2,190	0	0	0	0	0	0
39	2	0.84	0.12	0.00	0.04	0.95	0.90	0.82	3,549	2,886	2,611	1,601	0	0	0	0	0	0
40	2	0.85	0.08	0.00	0.07	0.97	0.93	0.76	3,549	3,368	2,047	1,683	0	0	0	0	0	0
41	3	0.86	0.08	0.00	0.05	0.98	0.96	1.13	3,549	2,571	2,453	645	1,429	0	0	0	0	0

Table 82 Inter Rater Reliability Grade 4 Social Studies

		Percentage Absolute Difference								Frequency								
Item	Max Score	Perfect	Adjacent	Discrepant	Codes	Intraclass Correlation	Weighted Kappa	Mean	N	0	1	2	3	4	5	6	7	+7
26	2	0.94	0.04	0.00	0.03	0.96	0.93	1.75	3,104	265	1,054	4,889	0	0	0	0	0	0
27	1	0.86	0.05	0.02	0.06	0.95	0.89	0.54	3,104	2,838	3,370	0	0	0	0	0	0	0
28	1	0.90	0.02	0.02	0.06	0.98	0.97	0.48	3,104	3,232	2,976	0	0	0	0	0	0	0
29	3	0.86	0.09	0.02	0.03	0.93	0.86	2.69	3,104	333	181	562	5,132	0	0	0	0	0
30	2	0.74	0.19	0.02	0.05	0.91	0.81	1.18	3,104	1,727	1,656	2,825	0	0	0	0	0	0
31	3	0.77	0.17	0.02	0.04	0.94	0.87	2.03	3,104	662	1,029	1,994	2,523	0	0	0	0	0
32	3	0.85	0.12	0.00	0.03	0.96	0.91	1.87	3,104	656	858	3,352	1,342	0	0	0	0	0
33	1	0.75	0.20	0.00	0.04	0.80	0.59	0.43	3,104	3,559	2,649	0	0	0	0	0	0	0
34	3	0.78	0.17	0.01	0.03	0.94	0.88	2.15	3,104	517	873	2,004	2,814	0	0	0	0	0
35	2	0.88	0.07	0.00	0.04	0.96	0.93	1.00	3,104	1,736	2,713	1,759	0	0	0	0	0	0

Table 83 Inter Rater Reliability Grade 8 Social Studies

		Percentage Absolute Difference								Frequency								
Item	Max Score	Perfect	Adjacent	Discrepant	Codes	Intraclass Correlation	Weighted Kappa	Mean	N	0	1	2	3	4	5	6	7	+7
26	2	0.90	0.07	0.00	0.03	0.97	0.93	1.42	3,549	1,139	1,858	4,101	0	0	0	0	0	0
27	3	0.51	0.38	0.08	0.03	0.82	0.65	1.75	3,549	1,056	1,677	2,387	1,978	0	0	0	0	0
28	1	0.87	0.10	0.00	0.03	0.83	0.66	0.83	3,549	1,201	5,897	0	0	0	0	0	0	0
29	3	0.79	0.14	0.03	0.04	0.95	0.91	2.04	3,549	1,576	458	1,163	3,901	0	0	0	0	0
30	2	0.64	0.30	0.03	0.03	0.78	0.56	1.47	3,549	768	2,228	4,102	0	0	0	0	0	0
31	2	0.67	0.20	0.09	0.04	0.80	0.60	1.19	3,549	1,949	1,889	3,260	0	0	0	0	0	0
32	2	0.73	0.20	0.02	0.05	0.88	0.75	0.63	3,549	3,748	2,229	1,121	0	0	0	0	0	0
33	1	0.77	0.19	0.00	0.04	0.81	0.62	0.56	3,549	3,126	3,972	0	0	0	0	0	0	0
34	1	0.81	0.14	0.00	0.05	0.85	0.71	0.38	3,549	4,390	2,708	0	0	0	0	0	0	0
35	2	0.74	0.21	0.02	0.04	0.90	0.79	1.19	3,549	1,702	2,336	3,060	0	0	0	0	0	0

Table 84 Inter Rater Reliability Grade 4 Science

		Percentage Absolute Difference								Frequency								
Item	Max Score	Perfect	Adjacent	Discrepant	Codes	Intraclass Correlation	Weighted Kappa	Mean	N	0	1	2	3	4	5	6	7	+7
26	1	0.94	0.03	0.00	0.03	0.93	0.86	0.86	3,104	852	5,356	0	0	0	0	0	0	0
27	2	0.82	0.15	0.01	0.03	0.89	0.78	1.56	3,104	553	1,653	4,002	0	0	0	0	0	0
28	1	0.96	0.01	0.00	0.03	0.99	0.97	0.85	3,104	960	5,248	0	0	0	0	0	0	0
29	1	0.95	0.01	0.00	0.04	0.99	0.98	0.76	3,104	1,492	4,716	0	0	0	0	0	0	0
30	2	0.95	0.02	0.00	0.03	0.99	0.97	1.30	3,104	676	2,998	2,534	0	0	0	0	0	0
31	1	0.91	0.06	0.00	0.03	0.93	0.87	0.63	3,104	2,292	3,916	0	0	0	0	0	0	0
32	2	0.85	0.11	0.00	0.04	0.94	0.88	1.09	3,104	1,373	2,893	1,942	0	0	0	0	0	0
33	2	0.93	0.03	0.01	0.04	0.99	0.98	1.09	3,104	2,250	1,165	2,793	0	0	0	0	0	0
34	1	0.90	0.06	0.00	0.04	0.94	0.88	0.41	3,104	3,666	2,542	0	0	0	0	0	0	0
35	1	0.93	0.13	0.00	0.04	0.87	0.73	0.44	3,104	3,482	2,726	0	0	0	0	0	0	0
36	1	0.96	0.01	0.00	0.03	0.99	0.98	0.55	3,104	2,815	3,393	0	0	0	0	0	0	0
37	1	0.91	0.03	0.00	0.06	0.96	0.92	0.24	3,104	4,745	1,463	0	0	0	0	0	0	0

Table 85 Inter Rater Reliability Grade 8 Science

		Percentage Absolute Difference								Frequency								
Item	Max Score	Perfect	Adjacent	Discrepant	Codes	Intraclass Correlation	Weighted Kappa	Mean	N	0	1	2	3	4	5	6	7	+7
26	2	0.95	0.02	0.00	0.02	0.96	0.92	1.88	3,549	299	231	6,568	0	0	0	0	0	0
27	2	0.83	0.13	0.01	0.03	0.94	0.89	1.02	3,549	2,613	1,768	2,717	0	0	0	0	0	0
28	1	0.92	0.06	0.00	0.02	0.94	0.88	0.48	3,549	3,686	3,412	0	0	0	0	0	0	0
29	1	0.94	0.03	0.00	0.03	0.97	0.94	0.59	3,549	2,920	4,178	0	0	0	0	0	0	0
30	1	0.86	0.11	0.00	0.03	0.89	0.78	0.49	3,549	3,593	3,505	0	0	0	0	0	0	0
31	1	0.89	0.07	0.00	0.03	0.92	0.84	0.34	3,549	4,702	2,396	0	0	0	0	0	0	0
32	3	0.93	0.02	0.01	0.04	0.98	0.96	2.37	3,549	419	1,400	418	4,861	0	0	0	0	0
33	2	0.85	0.09	0.01	0.06	0.96	0.93	1.10	3,549	2,313	1,777	3,008	0	0	0	0	0	0
34	1	0.85	0.12	0.00	0.03	0.88	0.75	0.55	3,549	3,226	3,872	0	0	0	0	0	0	0
35	2	0.92	0.01	0.00	0.06	0.99	0.98	0.88	3,549	2,425	3,087	1,586	0	0	0	0	0	0

Table 86 Inter Rater Reliability Grade 4 Writing

		Percentage Absolute Difference																Frequency	
Item	Max Score	Perfect	Adjacent	Discrepant	Codes	Intraclass Correlation	Weighted Kappa	Mean	N	0	1	2	3	4	5	6	7	+7
1A	6	0.65	0.29	0.03	0.03	0.85	0.70	2.80	61,310	6,031	1,805	17,797	83,300	12,641	973	73	0	0
1B	3	0.92	0.03	0.02	0.03	0.89	0.78	1.90	61,310	6,033	1,455	113,891	1,241	0	0	0	0	0

Table 87 Inter Rater Reliability Grade 8 Writing

		Percentage Absolute Difference																Frequency	
Item	Max Score	Perfect	Adjacent	Discrepant	Codes	Intraclass Correlation	Weighted Kappa	Mean	N	0	1	2	3	4	5	6	7	+7
1A	6	0.55	0.38	0.04	0.03	0.88	0.77	3.07	71,583	6,199	3,223	20,833	67,200	36,112	8,438	1,161	0	0
1B	3	0.84	0.13	0.00	0.03	0.88	0.75	1.93	71,583	6,196	6,200	122,276	8,494	0	0	0	0	0

Table 88 Inter Rater Reliability Grade 10 Writing

		Percentage Absolute Difference																Frequency	
Item	Max Score	Perfect	Adjacent	Discrepant	Codes	Intraclass Correlation	Weighted Kappa	Mean	N	0	1	2	3	4	5	6	7	+7
49A	6	0.64	0.30	0.02	0.04	0.89	0.78	2.76	71,685	6,301	3,840	31,739	80,476	18,494	2,421	99	0	0
49B	3	0.82	0.14	0.00	0.04	0.88	0.76	1.99	71,685	6,299	3,852	118,017	15,202	0	0	0	0	0

Table 89
Decision Consistency and Decision Accuracy for Reading Grade 4

Summary Information

	Raw Score	Scale Score (SS)
Number of Items	44	
Raw Score	49	
Cronbach's alpha	0.90	
Mean	35.36	
SD	8.58	
SS LOSS	0	433
SS HOSS	49	780
Cut Score 1	19	585
Cut Score 2	27	616
Cut Score 3	39	653

Contingency Table with All Cut Scores

	Minimum	Basic Proficient	Proficient	Advanced	Sum
Minimum	0.04	0.02	0.00	0.00	0.06
Basic Proficient	0.02	0.08	0.03	0.00	0.13
Proficient	0.00	0.04	0.29	0.07	0.40
Advanced	0.00	0.00	0.07	0.35	0.42
Sum	0.06	0.14	0.39	0.42	1.00
Observed Score Dist.	0.05	0.12	0.40	0.43	1.00

Indexes for Decision Consistency and Decision Accuracy

	Cut 1	Cut 2	Cut 3	All cuts
Decision Consistency (p)	0.96	0.92	0.87	0.75
Probability of Chance	0.89	0.69	0.51	0.35
Kappa	0.65	0.76	0.73	0.62
Decision Accuracy	0.97	0.94	0.90	0.82

Table 90
Decision Consistency and Decision Accuracy for Reading Grade 8

Summary Information

	Raw Score	Scale Score (SS)
Number of Items	45	
Raw Score	51	
Cronbach's alpha	0.90	
Mean	35.93	
SD	9.48	
SS LOSS	0	507
SS HOSS	51	820
Cut Score 1	19	633
Cut Score 2	25	654
Cut Score 3	40	698

Contingency Table with All Cut Scores

	Minimum	Basic	Proficient	Advanced	Sum
Minimum	0.05	0.02	0.00	0.00	0.07
Basic	0.02	0.05	0.03	0.00	0.10
Proficient	0.00	0.03	0.35	0.07	0.45
Advanced	0.00	0.00	0.07	0.32	0.39
Sum	0.07	0.10	0.45	0.38	1.00
Observed Score Dist.	0.06	0.09	0.44	0.42	1.00

Indexes for Decision Consistency and Decision Accuracy

	Cut 1	Cut 2	Cut 3	All cuts
Decision Consistency (p)	0.97	0.93	0.87	0.77
Probability of Chance	0.87	0.72	0.52	0.36
Kappa	0.74	0.77	0.72	0.64
Decision Accuracy	0.97	0.95	0.90	0.83

Table 91
Decision Consistency and Decision Accuracy for Reading Grade 10

Summary Information

	Raw Score	Scale Score (SS)
Number of Items	27	
Raw Score	27	
Cronbach's alpha	0.85	
Mean	21.43	
SD	4.53	
SS LOSS	0	529
SS HOSS	27	838
Cut Score 1	16	676
Cut Score 2	19	694
Cut Score 3	22	711

Contingency Table with All Cut Scores

	Minimum	Basic	Proficient	Advanced	Sum
Minimum	0.07	0.03	0.00	0.00	0.10
Basic	0.02	0.07	0.04	0.01	0.14
Proficient	0.00	0.05	0.07	0.06	0.18
Advanced	0.00	0.01	0.07	0.50	0.58
Sum	0.10	0.15	0.18	0.57	1.00
Observed Score Dist.	0.09	0.14	0.20	0.56	1.00

Indexes for Decision Consistency and Decision Accuracy

	Cut 1	Cut 2	Cut 3	All cuts
Decision Consistency (p)	0.94	0.88	0.85	0.70
Probability of Chance	0.82	0.63	0.51	0.39
Kappa	0.67	0.68	0.69	0.51
Decision Accuracy	0.96	0.91	0.89	0.76

Table 92
Decision Consistency and Decision Accuracy for Mathematics Grade 4

Summary Information

	Raw Score	Scale Score (SS)
Number of Items	53	
Raw Score	69	
Cronbach's alpha	0.90	
Mean	42.26	
SD	11.95	
SS LOSS	0	403
SS HOSS	69	770
Cut Score 1	29	602
Cut Score 2	34	614
Cut Score 3	49	649

Contingency Table with All Cut Scores

	Minimum	**Basic**	**Proficient**	**Advanced**	**Sum**
Minimum	0.17	0.03	0.01	0.00	0.21
Basic	0.03	0.04	0.04	0.00	0.11
Proficient	0.02	0.04	0.29	0.05	0.40
Advanced	0.00	0.00	0.06	0.22	0.27
Sum	0.22	0.11	0.41	0.27	1.00
Observed Score Dist.	0.16	0.10	0.41	0.32	1.00

Indexes for Decision Consistency and Decision Accuracy

	Cut 1	**Cut 2**	**Cut 3**	**All cuts**
Decision Consistency (p)	0.90	0.89	0.89	0.71
Probability of Chance	0.66	0.56	0.61	0.29
Kappa	0.70	0.75	0.72	0.59
Decision Accuracy	0.92	0.92	0.92	0.76

Table 93
Decision Consistency and Decision Accuracy for Mathematics Grade 8

Summary Information

	Raw Score	Scale Score (SS)
Number of Items	54	
Raw Score	67	
Cronbach's alpha	0.91	
Mean	41.97	
SD	12.47	
SS LOSS	0	502
SS HOSS	67	872
Cut Score 1	26	659
Cut Score 2	34	682
Cut Score 3	52	730

Contingency Table with All Cut Scores

	Minimum	Basic	Proficient	Advanced	Sum
Minimum	0.11	0.02	0.00	0.00	0.15
Basic	0.03	0.07	0.04	0.00	0.15
Proficient	0.00	0.05	0.37	0.05	0.48
Advanced	0.00	0.00	0.05	0.18	0.23
Sum	0.15	0.15	0.47	0.23	1.00
Observed Score Dist.	0.11	0.14	0.50	0.25	1.00

Indexes for Decision Consistency and Decision Accuracy

	Cut 1	Cut 2	Cut 3	All cuts
Decision Consistency (p)	0.93	0.90	0.90	0.74
Probability of Chance	0.75	0.58	0.65	0.32
Kappa	0.73	0.76	0.72	0.62
Decision Accuracy	0.95	0.92	0.93	0.80

Table 94
Decision Consistency and Decision Accuracy for Mathematics Grade 10

Summary Information

	Raw Score	Scale Score (SS)
Number of Items	49	
Raw Score	49	
Cronbach's alpha	0.91	
Mean	35.62	
SD	8.78	
SS LOSS	0	530
SS HOSS	49	892
Cut Score 1	26	702
Cut Score 2	31	723
Cut Score 3	42	769

Contingency Table with All Cut Scores

	Minimum	Basic	Proficient	Advanced	Sum
Minimum	0.12	0.03	0.01	0.00	0.16
Basic	0.03	0.06	0.05	0.00	0.14
Proficient	0.00	0.04	0.35	0.06	0.46
Advanced	0.00	0.00	0.07	0.18	0.25
Sum	0.16	0.13	0.47	0.24	1.00
Observed Score Dist.	0.15	0.13	0.47	0.26	1.00

Indexes for Decision Consistency and Decision Accuracy

	Cut 1	Cut 2	Cut 3	All cuts
Decision Consistency (p)	0.93	0.90	0.87	0.71
Probability of Chance	0.73	0.59	0.63	0.32
Kappa	0.74	0.76	0.65	0.58
Decision Accuracy	0.95	0.93	0.92	0.80

Table 95
Decision Consistency and Decision Accuracy for Language Grade 4

Summary Information

	Raw Score	Scale Score (SS)
Number of Items	35	
Raw Score	48	
Cronbach's alpha	0.85	
Mean	30.07	
SD	8.41	
SS LOSS	0	465
SS HOSS	48	757
Cut Score 1	15	592
Cut Score 2	23	621
Cut Score 3	35	658

Contingency Table with All Cut Scores

	Minimum	Basic	Proficient	Advanced	Sum
Minimum	0.02	0.01	0.00	0.00	0.03
Basic	0.01	0.05	0.03	0.00	0.10
Proficient	0.00	0.03	0.21	0.06	0.30
Advanced	0.00	0.00	0.06	0.50	0.56
Sum	0.03	0.10	0.31	0.56	1.00
Observed Score Dist.	0.05	0.14	0.45	0.36	1.00

Indexes for Decision Consistency and Decision Accuracy

	Cut 1	Cut 2	Cut 3	All cuts
Decision Consistency (p)	0.97	0.93	0.88	0.78
Probability of Chance	0.93	0.77	0.51	0.42
Kappa	0.49	0.68	0.76	0.62
Decision Accuracy	0.97	0.94	0.91	0.82

Table 96
Decision Consistency and Decision Accuracy for Language Grade 8

Summary Information

	Raw Score	Scale Score (SS)
Number of Items	37	
Raw Score	51	
Cronbach's alpha	0.86	
Mean	31.92	
SD	9.18	
SS LOSS	0	523
SS HOSS	51	819
Cut Score 1	21	644
Cut Score 2	29	668
Cut Score 3	40	702

Contingency Table with All Cut Scores

	Minimum	Basic	Proficient	Advanced	Sum
Minimum	0.07	0.03	0.00	0.00	0.10
Basic	0.03	0.08	0.05	0.00	0.16
Proficient	0.00	0.05	0.18	0.05	0.29
Advanced	0.00	0.00	0.05	0.41	0.46
Sum	0.10	0.16	0.28	0.46	1.00
Observed Score Dist.	0.12	0.22	0.40	0.25	1.00

Indexes for Decision Consistency and Decision Accuracy

	Cut 1	Cut 2	Cut 3	All cuts
Decision Consistency (p)	0.94	0.90	0.89	0.74
Probability of Chance	0.83	0.62	0.50	0.33
Kappa	0.66	0.74	0.78	0.61
Decision Accuracy	0.95	0.92	0.92	0.79

Table 97
Decision Consistency and Decision Accuracy for Language Grade 10

Summary Information

	Raw Score	Scale Score (SS)
Number of Items	23	
Raw Score	30	
Cronbach's alpha	0.80	
Mean	20.38	
SD	4.39	
SS LOSS	0	535
SS HOSS	30	835
Cut Score 1	15	672
Cut Score 2	19	696
Cut Score 3	24	740

Contingency Table with All Cut Scores

	Minimum	**Basic**	**Proficient**	**Advanced**	**Sum**
Minimum	0.05	0.03	0.01	0.00	0.09
Basic	0.02	0.06	0.06	0.00	0.15
Proficient	0.01	0.06	0.20	0.08	0.35
Advanced	0.00	0.00	0.08	0.33	0.41
Sum	0.09	0.16	0.35	0.41	1.00
Observed Score Dist.	0.09	0.19	0.53	0.19	1.00

Indexes for Decision Consistency and Decision Accuracy

	Cut 1	**Cut 2**	**Cut 3**	**All cuts**
Decision Consistency (p)	0.93	0.85	0.84	0.64
Probability of Chance	0.84	0.63	0.51	0.32
Kappa	0.56	0.59	0.66	0.48
Decision Accuracy	0.95	0.88	0.85	0.70

Table 98
Decision Consistency and Decision Accuracy for Social Studies Grade 4

Summary Information

	Raw Score	Scale Score (SS)
Number of Items	40	
Raw Score	51	
Cronbach's alpha	0.85	
Mean	36.85	
SD	7.71	
SS LOSS	0	460
SS HOSS	51	763
Cut Score 1	18	592
Cut Score 2	25	611
Cut Score 3	36	639

Contingency Table with All Cut Scores

	Minimum	Basic	Proficient	Advanced	Sum
Minimum	0.02	0.01	0.00	0.00	0.03
Basic	0.01	0.04	0.03	0.00	0.08
Proficient	0.00	0.03	0.22	0.09	0.33
Advanced	0.00	0.00	0.08	0.48	0.56
Sum	0.03	0.08	0.33	0.56	1.00
Observed Score Dist.	0.02	0.05	0.29	0.64	1.00

Indexes for Decision Consistency and Decision Accuracy

	Cut 1	Cut 2	Cut 3	All cuts
Decision Consistency (p)	0.98	0.93	0.84	0.75
Probability of Chance	0.94	0.80	0.51	0.43
Kappa	0.60	0.67	0.67	0.56
Decision Accuracy	0.98	0.95	0.88	0.81

Table 99
Decision Consistency and Decision Accuracy for Social Studies Grade 8

Summary Information

	Raw Score	Scale Score (SS)
Number of Items	46	
Raw Score	55	
Cronbach's alpha	0.87	
Mean	37.28	
SD	9.09	
SS LOSS	0	523
SS HOSS	55	803
Cut Score 1	19	639
Cut Score 2	28	662
Cut Score 3	**41**	**693**

Contingency Table with All Cut Scores

	Minimum	Basic	Proficient	Advanced	Sum
Minimum	0.04	0.02	0.00	0.00	0.06
Basic	0.02	0.07	0.04	0.00	0.13
Proficient	0.00	0.04	0.29	0.08	0.41
Advanced	0.00	0.00	0.08	0.33	0.41
Sum	0.05	0.13	0.41	0.41	1.00
Observed Score Dist.	0.04	0.11	0.40	0.45	1.00

Indexes for Decision Consistency and Decision Accuracy

	Cut 1	Cut 2	Cut 3	All cuts
Decision Consistency (p)	0.96	0.92	0.85	0.74
Probability of Chance	0.90	0.70	0.52	0.35
Kappa	0.66	0.74	0.69	0.60
Decision Accuracy	0.98	0.94	0.90	0.82

Table 100
Decision Consistency and Decision Accuracy for Social Studies Grade 10

Summary Information

	Raw Score	Scale Score (SS)
Number of Items	50	
Raw Score	50	
Cronbach's alpha	0.90	
Mean	35.75	
SD	8.83	
SS LOSS	0	548
SS HOSS	50	821
Cut Score 1	28	689
Cut Score 2	31	695
Cut Score 3	39	714

Contingency Table with All Cut Scores

	Minimum	Basic	Proficient	Advanced	Sum
Minimum	0.14	0.02	0.01	0.00	0.18
Basic	0.02	0.02	0.03	0.00	0.07
Proficient	0.02	0.03	0.20	0.07	0.32
Advanced	0.00	0.00	0.06	0.36	0.43
Sum	0.18	0.07	0.31	0.44	1.00
Observed Score Dist.	0.17	0.07	0.31	0.45	

Indexes for Decision Consistency and Decision Accuracy

	Cut 1	Cut 2	Cut 3	All cuts
Decision Consistency (p)	0.93	0.91	0.84	0.73
Probability of Chance	0.70	0.62	0.51	0.32
Kappa	0.75	0.76	0.72	0.60
Decision Accuracy	0.95	0.93	0.91	0.80

Table 101
Decision Consistency and Decision Accuracy for Science Grade 4

Summary Information

	Raw Score	Scale Score (SS)
Number of Items	67	
Raw Score	71	
Cronbach's alpha	0.87	
Mean	46.50	
SD	9.54	
SS LOSS	0	421
SS HOSS	71	799
Cut Score 1	29	579
Cut Score 2	39	614
Cut Score 3	55	663

Contingency Table with All Cut Scores

	Minimum	**Basic**	**Proficient**	**Advanced**	**Sum**
Minimum	0.04	0.02	0.00	0.00	0.06
Basic	0.02	0.10	0.05	0.00	0.17
Proficient	0.00	0.05	0.45	0.06	0.56
Advanced	0.00	0.00	0.06	0.15	0.21
Sum	0.06	0.17	0.56	0.22	1.00
Observed Score Dist.	0.05	0.16	0.58	0.21	1.00

Indexes for Decision Consistency and Decision Accuracy

	Cut 1	**Cut 2**	**Cut 3**	**All cuts**
Decision Consistency (p)	0.97	0.90	0.88	0.75
Probability of Chance	0.89	0.645	0.66	0.39
Kappa	0.70	0.72	0.63	0.58
Decision Accuracy	0.98	0.93	0.91	0.82

Table 102
Decision Consistency and Decision Accuracy for Science Grade 8

Summary Information

	Raw Score	Scale Score (SS)
Number of Items	70	
Raw Score	76	
Cronbach's alpha	0.90	
Mean	50.45	
SD	11.75	
SS LOSS	0	487
SS HOSS	76	857
Cut Score 1	34	660
Cut Score 2	44	682
Cut Score 3	59	717

Contingency Table with All Cut Scores

	Minimum	Basic	Proficient	Advanced	Sum
Minimum	0.08	0.02	0.00	0.00	0.10
Basic	0.02	0.10	0.04	0.00	0.17
Proficient	0.00	0.05	0.35	0.06	0.46
Advanced	0.00	0.00	0.06	0.21	0.27
Sum	0.10	0.17	0.45	0.28	1.00
Observed Score Dist.	0.09	0.16	0.47	0.28	1.00

Indexes for Decision Consistency and Decision Accuracy

	Cut 1	Cut 2	Cut 3	All cuts
Decision Consistency (p)	0.96	0.91	0.88	0.75
Probability of Chance	0.82	0.61	0.60	0.32
Kappa	0.75	0.77	0.70	0.62
Decision Accuracy	0.97	0.93	0.92	0.81

Table 103
Decision Consistency and Decision Accuracy for Science Grade 10

Summary Information

	Raw Score	Scale Score (SS)
Number of Items	50	
Raw Score	50	
Cronbach's alpha	0.86	
Mean	33.16	
SD	7.82	
SS LOSS	0	501
SS HOSS	50	893
Cut Score 1	26	697
Cut Score 2	29	710
Cut Score 3	37	740

Contingency Table with All Cut Scores

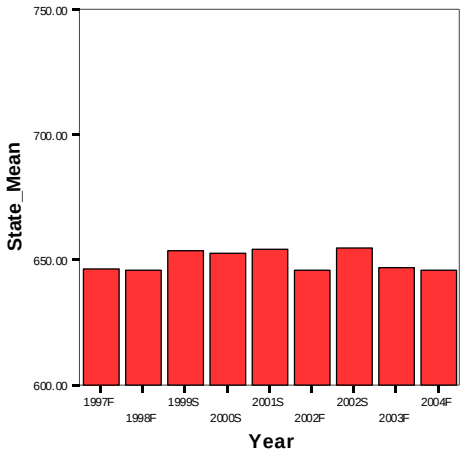
	Minimum	Basic	Proficient	Advanced	Sum
Minimum	0.13	0.03	0.02	0.00	0.18
Basic	0.03	0.03	0.04	0.00	0.10
Proficient	0.02	0.04	0.23	0.07	0.35
Advanced	0.00	0.00	0.06	0.30	0.37
Sum	0.18	0.10	0.34	0.37	1.00
Observed Score Dist.	0.17	0.11	0.36	0.36	1.00

Indexes for Decision Consistency and Decision Accuracy

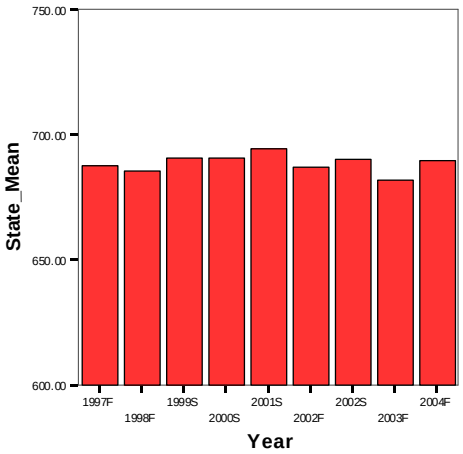
	Cut 1	Cut 2	Cut 3	All cuts
Decision Consistency (p)	0.91	0.89	0.86	0.70
Probability of Chance	0.70	0.60	0.53	0.30
Kappa	0.69	0.73	0.7	0.56
Decision Accuracy	0.93	0.92	0.90	0.78

Figure 1
State Means for Reading Grades 4, 8, and 10 from 1997 to 2004

Grade 4



Grade 8



Grade 10

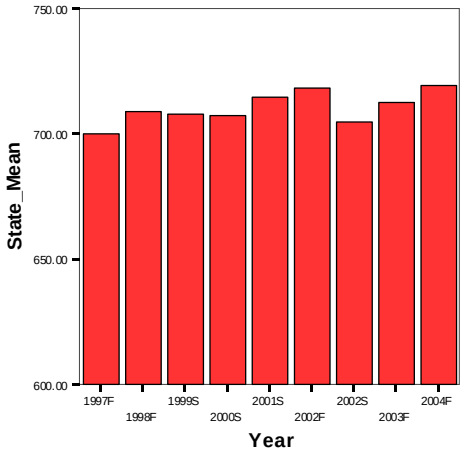
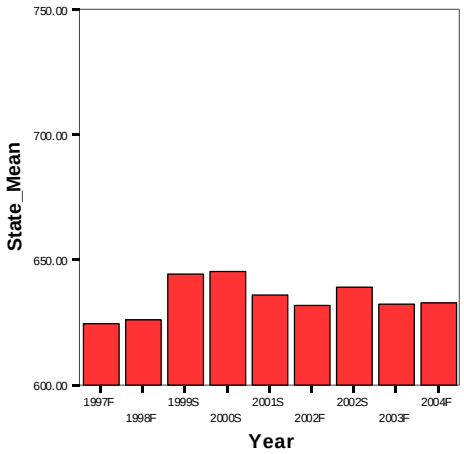
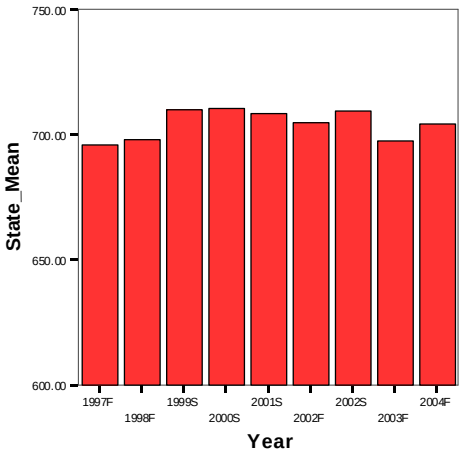


Figure 2
State Means for Mathematics Grades 4, 8, and 10 from 1997 to 2004

Grade 4



Grade 8



Grade 10

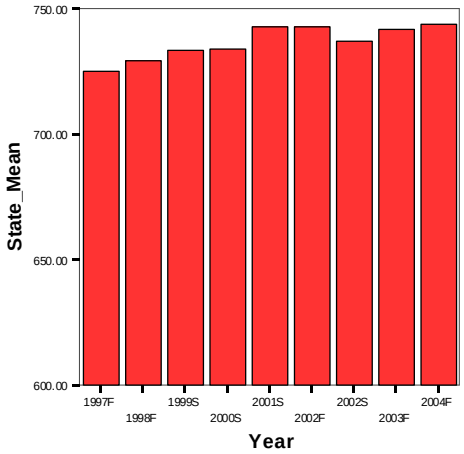
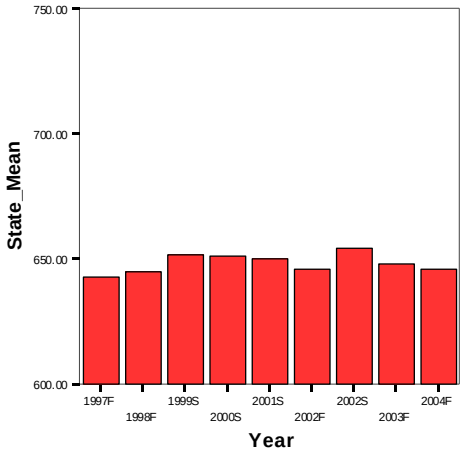
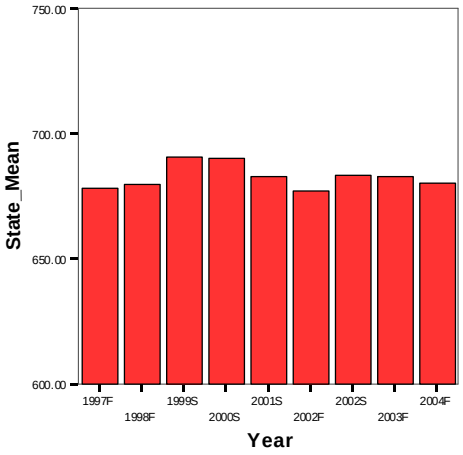


Figure 3
State Means for Language Arts Grade 4, 8, and 10 from 1997 to 2004

Grade 4



Grade 8



Grade 10

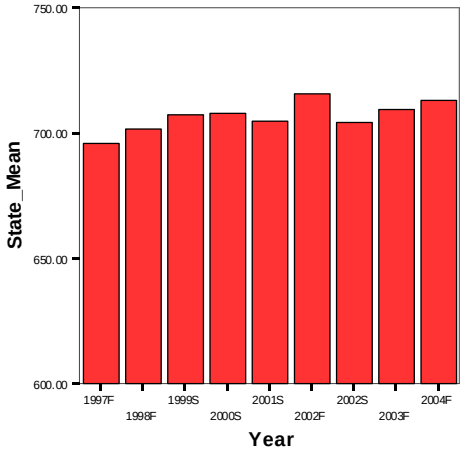
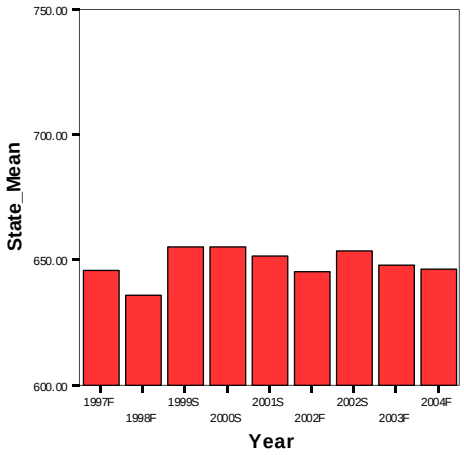
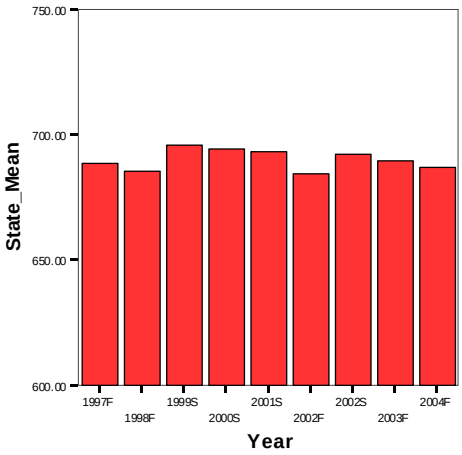


Figure 4
State Means for Social Studies Grade 4 from 1997 to 2004

Grade 4



Grade 8



Grade 10

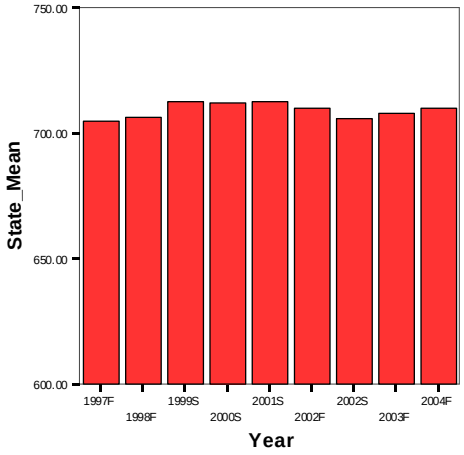
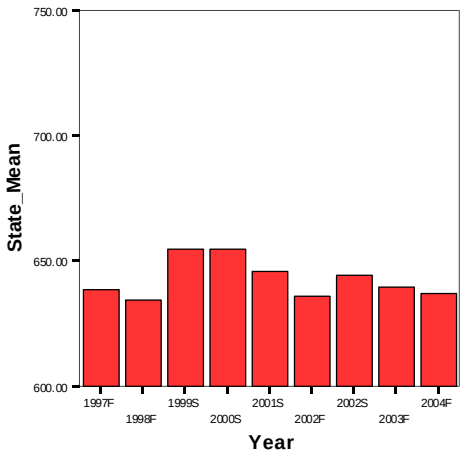
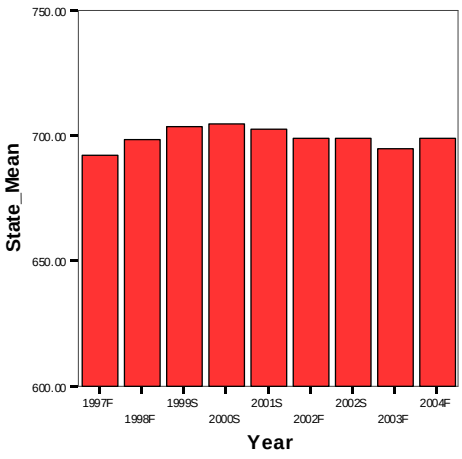


Figure 5
State Means for Science Grade 4 from 1997 to 2004

Grade 4



Grade 8



Grade 10

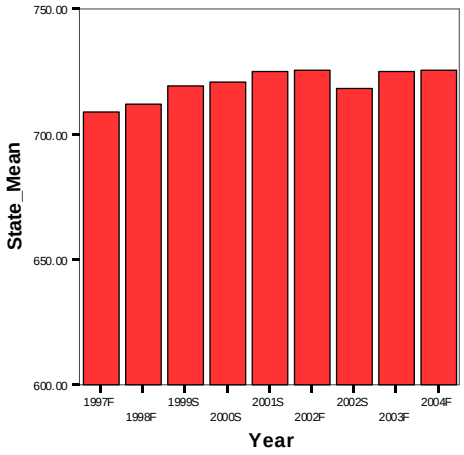


Figure 6
Test Characteristics Curves for Grades 4, 8, and 10 Reading

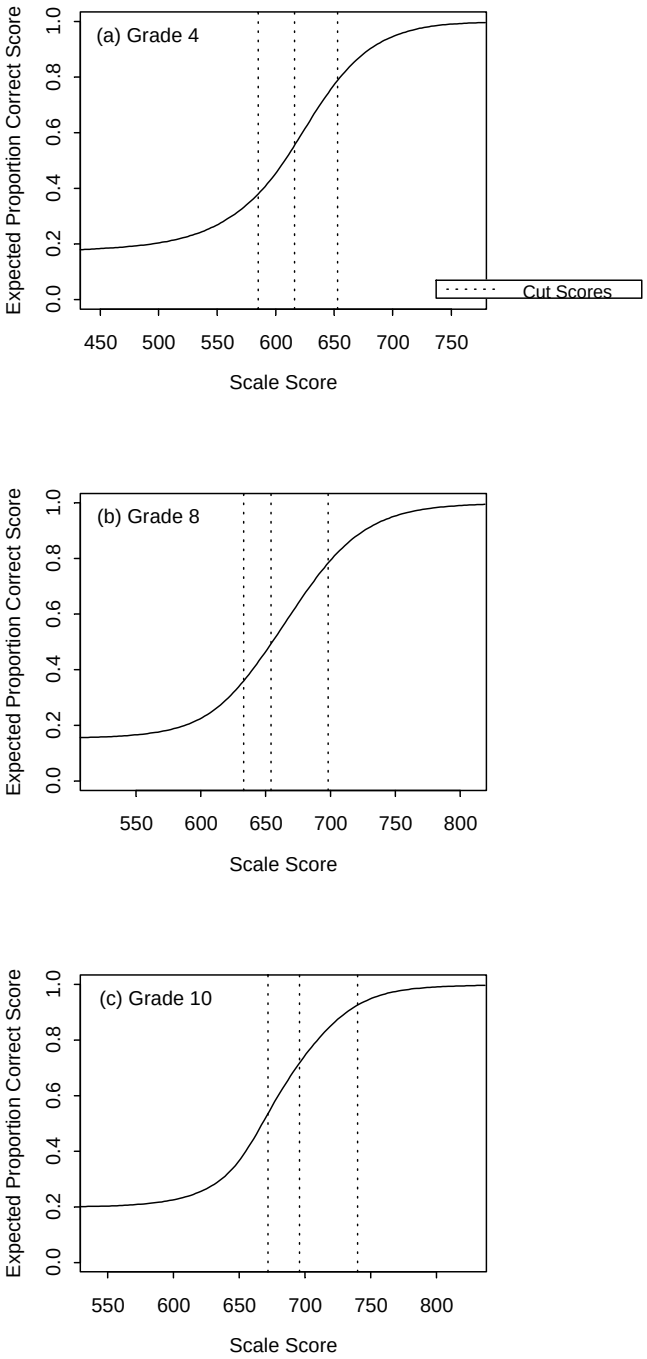


Figure 7
Test Characteristics Curves for Grades 4, 8, and 10 Mathematics

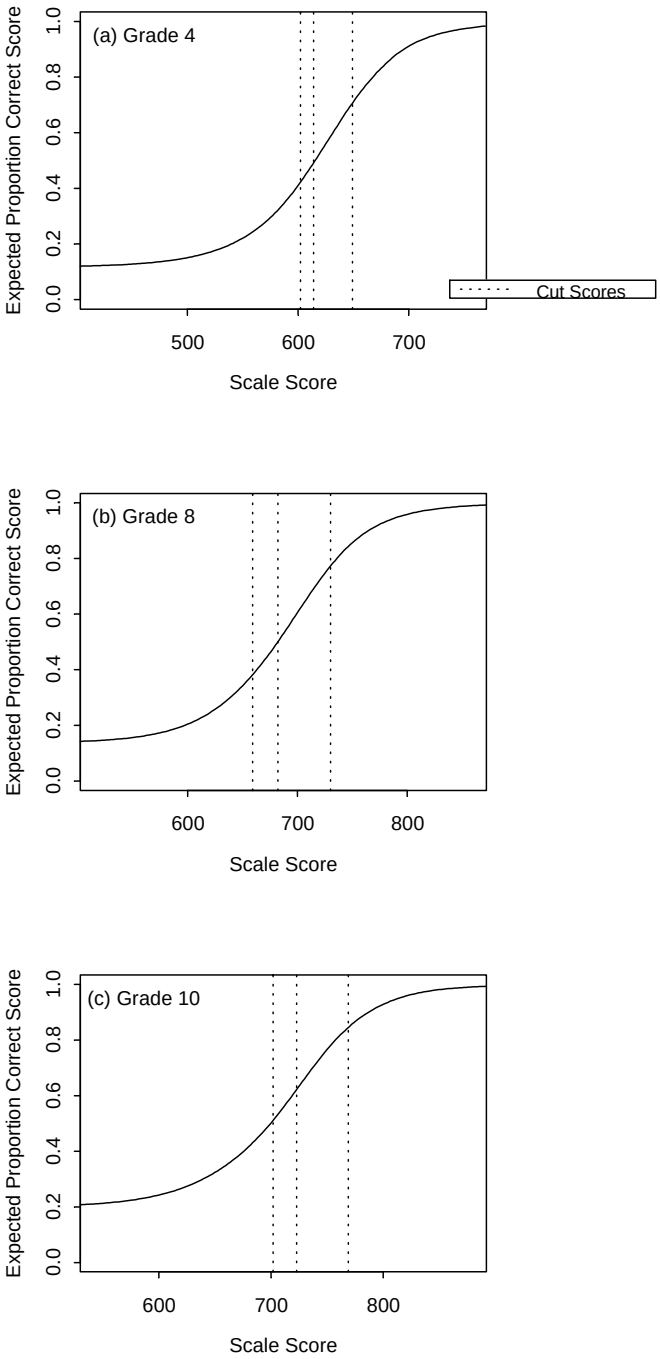


Figure 8
Test Characteristics Curves for Grades 4, 8, and 10 Language Arts

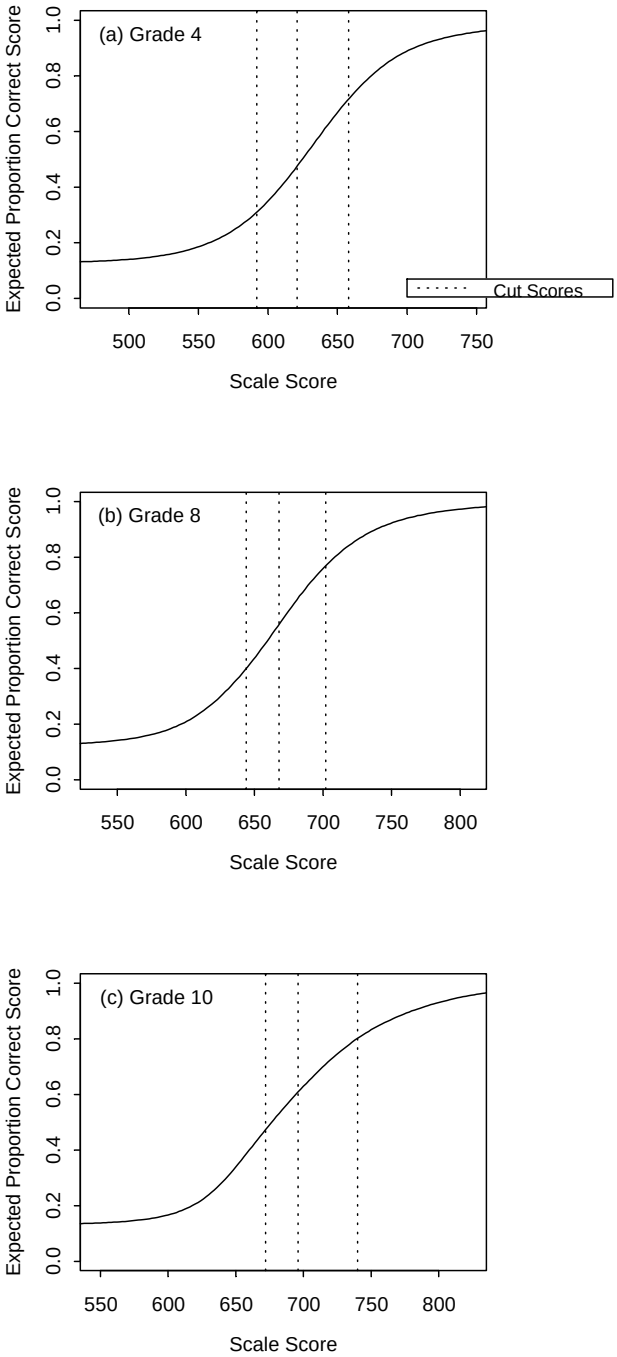


Figure 9
Test Characteristics Curves for Grades 4, 8, and 10 Social Studies

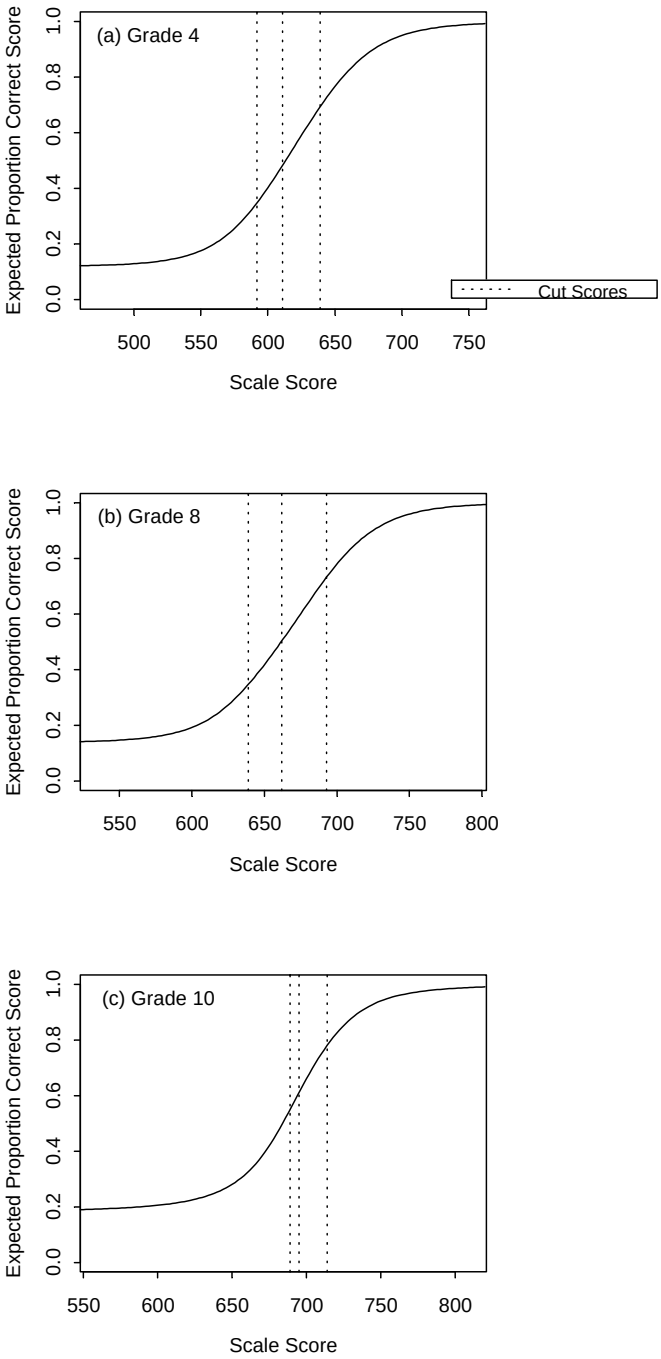


Figure 10
Test Characteristics Curves for Grades 4, 8, and 10 Science

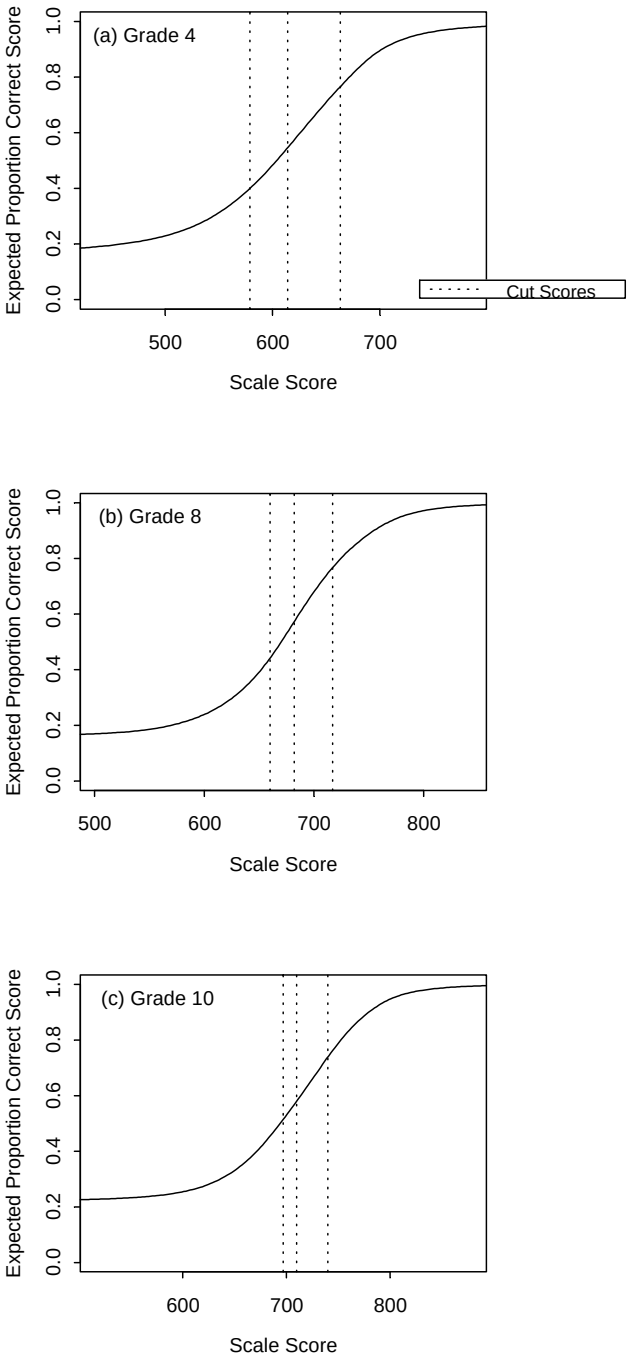


Figure 11
Standard Error of Measurement for Grades 4, 8, and 10 Reading

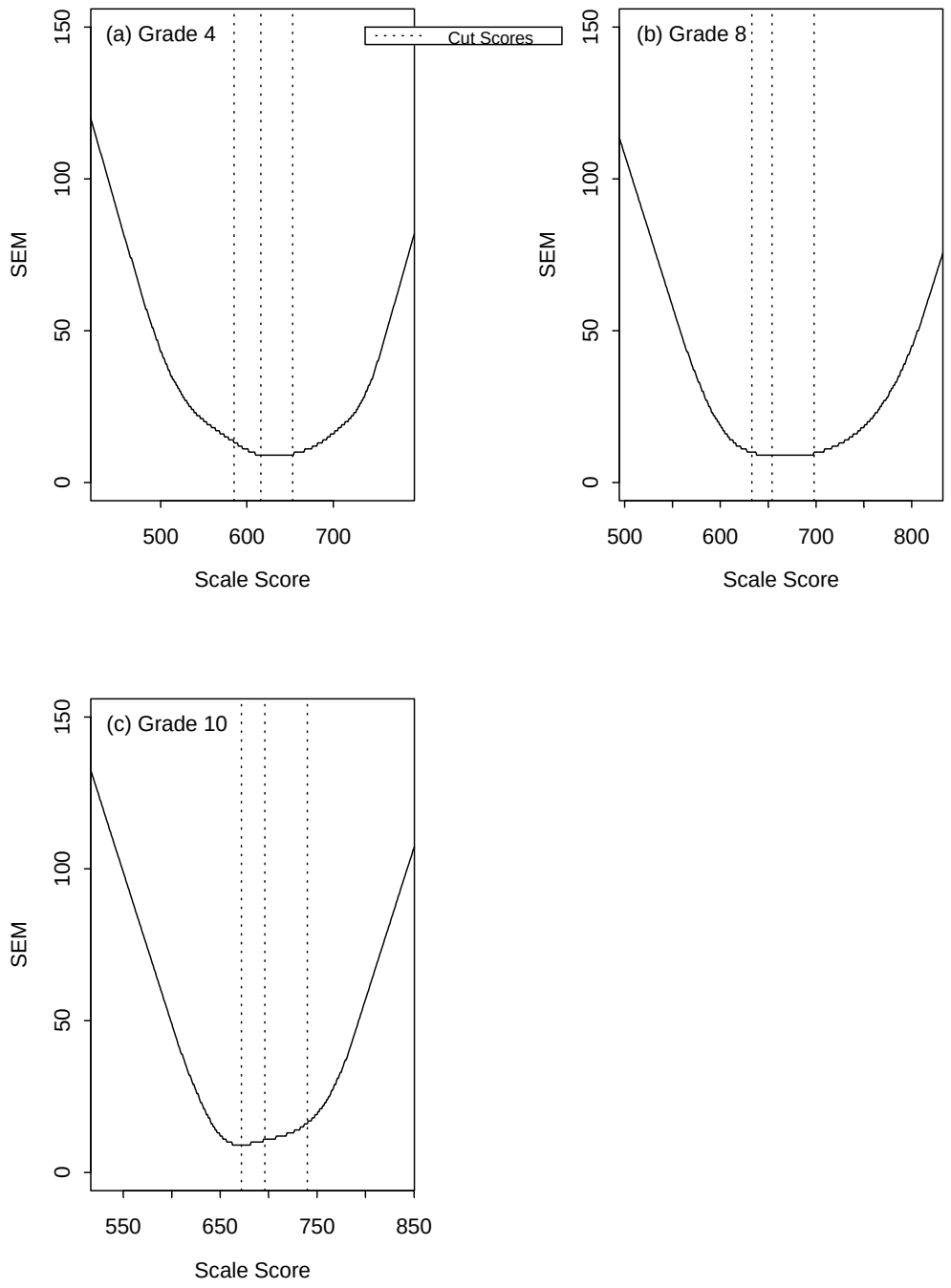


Figure 12
Standard Error of Measurement for Grades 4, 8, and 10 Mathematics

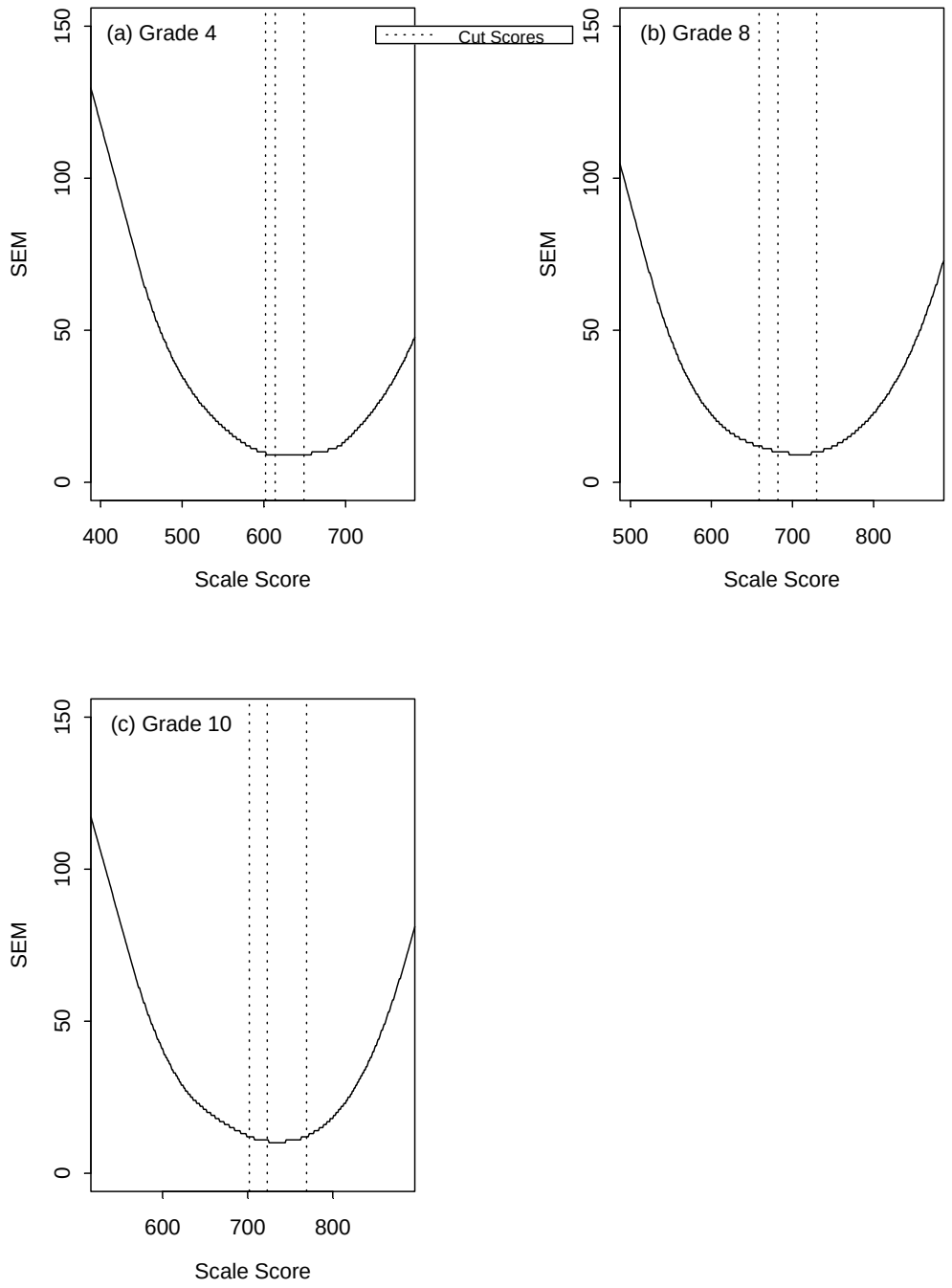


Figure 13
Standard Error of Measurement for Grades 4, 8, and 10 Language Arts

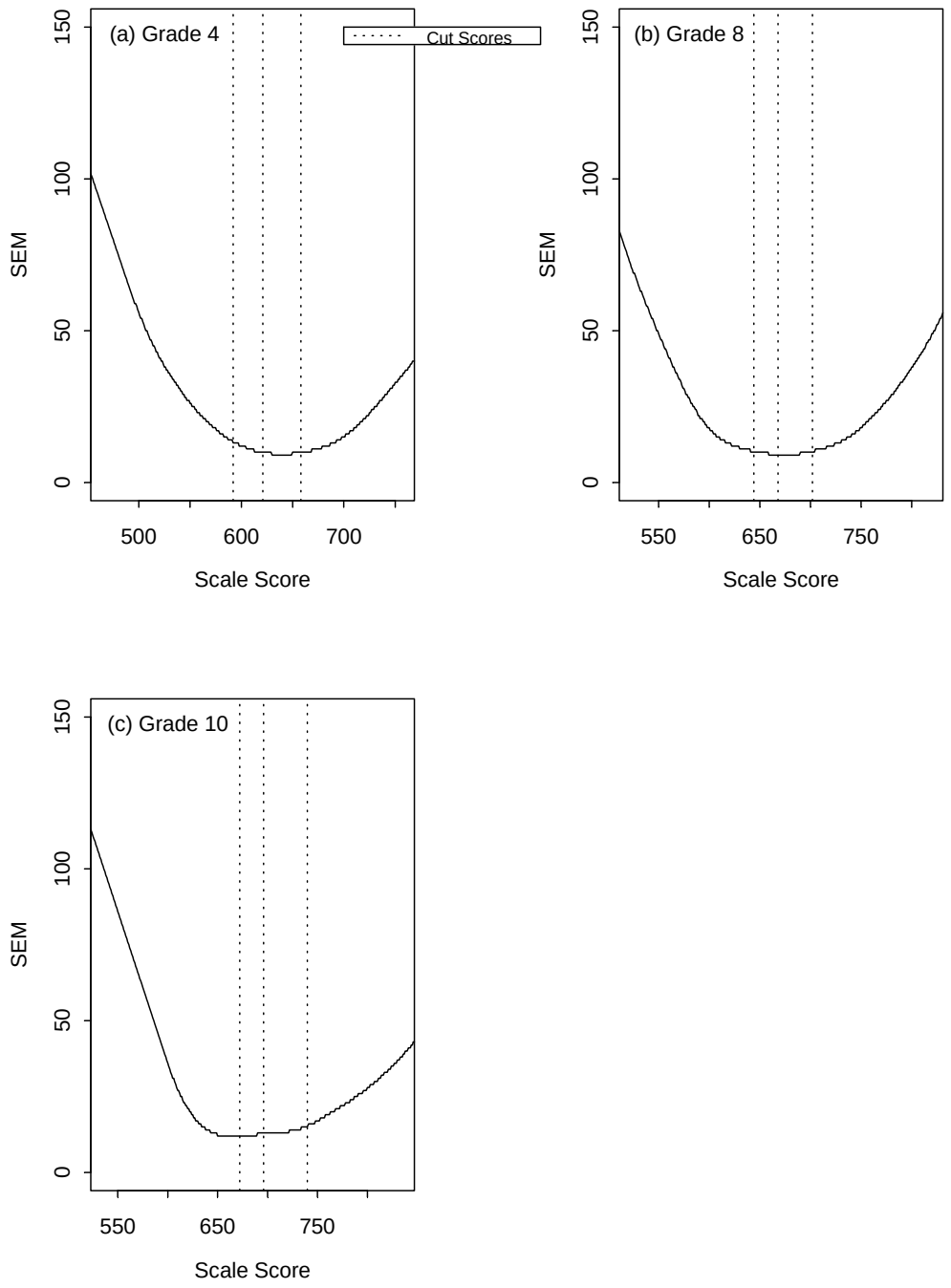


Figure 14
Standard Error of Measurement for Grades 4, 8, and 10 Social Studies

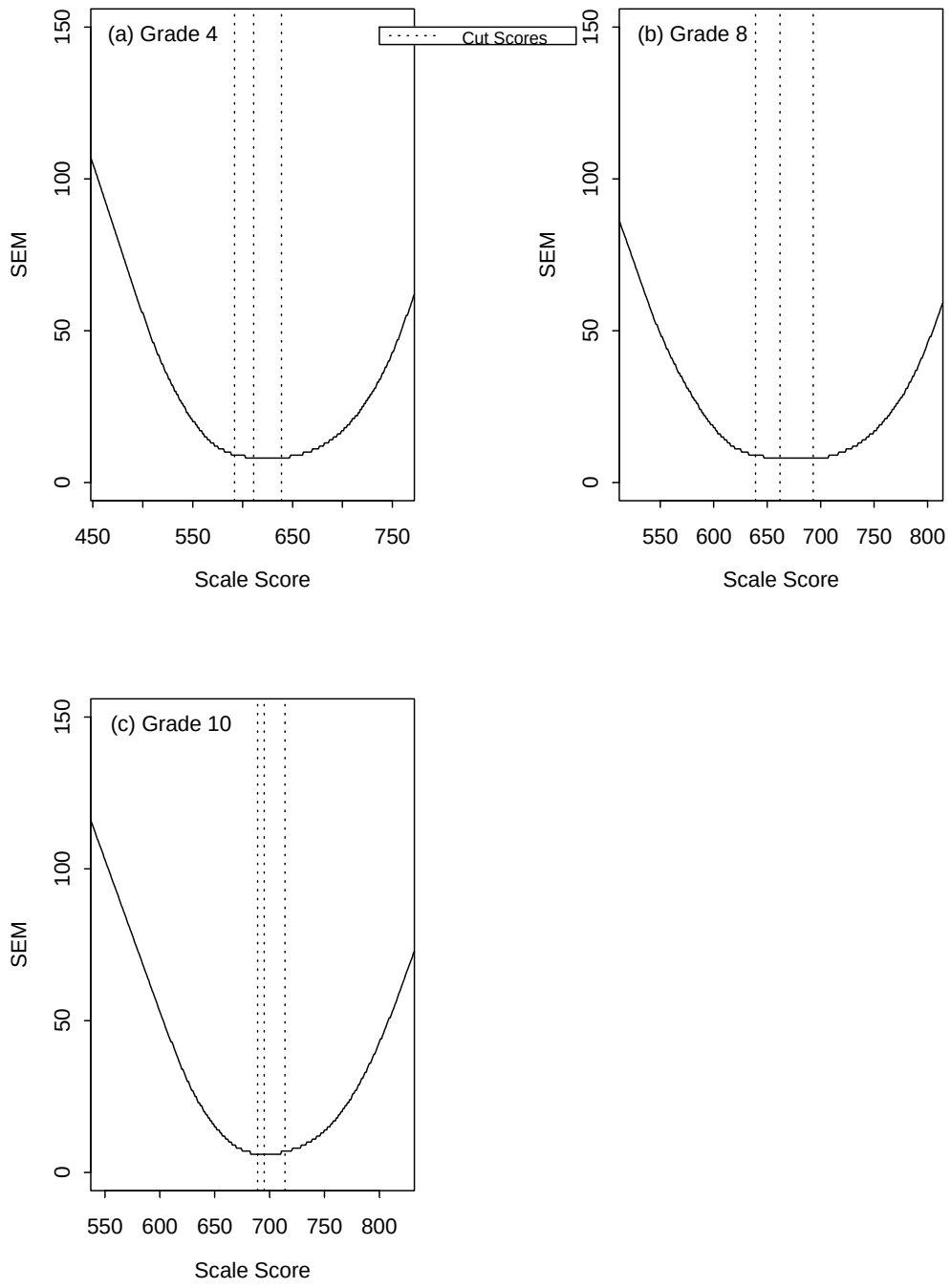


Figure 15
Standard Error of Measurement for Grades 4, 8, and 10 Science

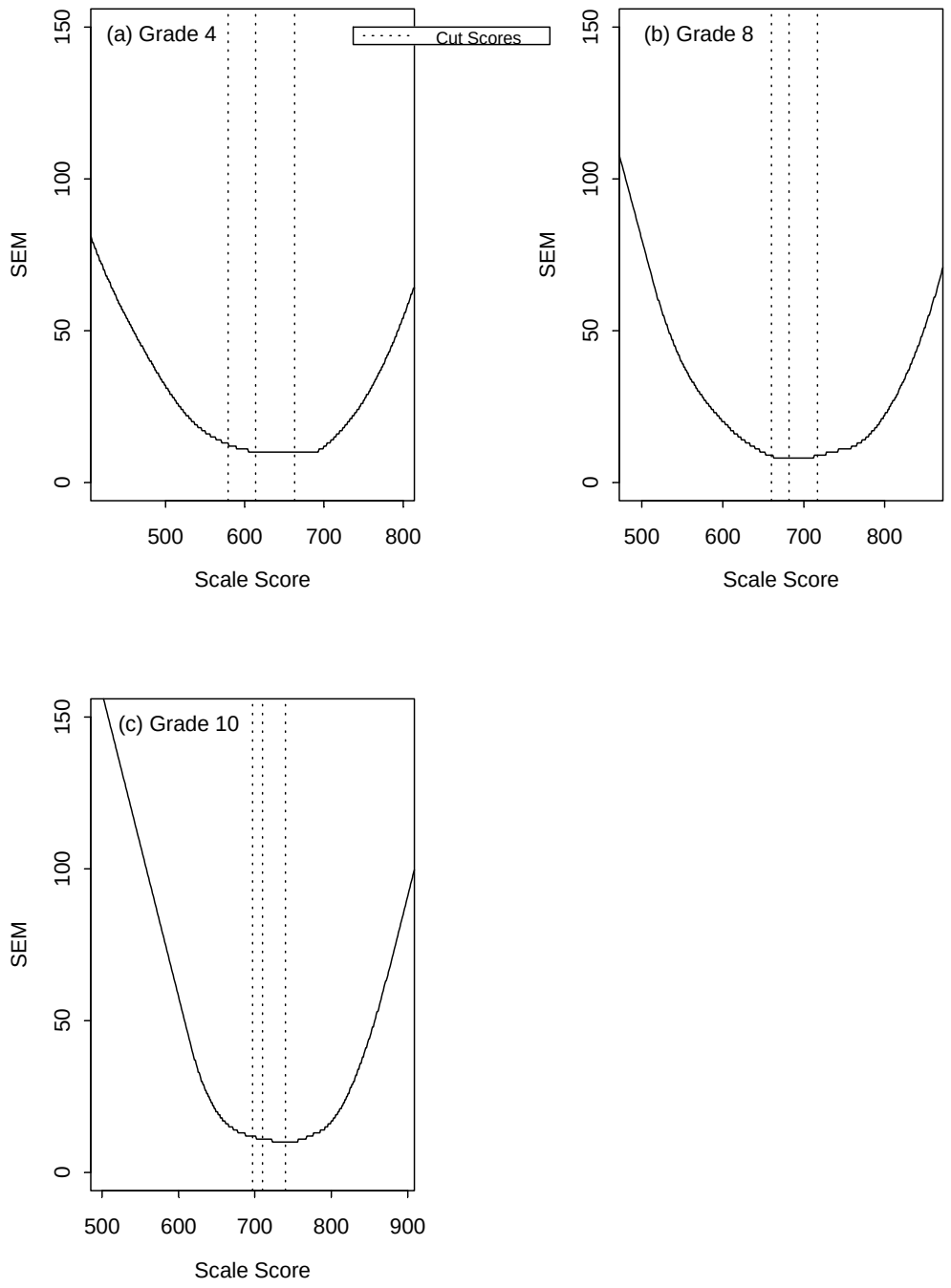


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Table A1
Raw Score Distribution for Grade 4 Reading

score	Frequency	Percent	Cumulative Percent	score	Frequency	Percent	Cumulative Percent
0	3	.0	.0	26	1219	2.1	16.4
1	5	.0	.0	27	1281	2.2	18.6
2	3	.0	.0	28	1362	2.3	21.0
3	1	.0	.0	29	1511	2.6	23.6
4	5	.0	.0	30	1586	2.7	26.3
5	11	.0	.0	31	1714	2.9	29.2
6	16	.0	.1	32	1919	3.3	32.5
7	18	.0	.1	33	2083	3.6	36.1
8	48	.1	.2	34	2169	3.7	39.8
9	61	.1	.3	35	2279	3.9	43.8
10	92	.2	.5	36	2431	4.2	47.9
11	128	.2	.7	37	2608	4.5	52.4
12	187	.3	1.0	38	2686	4.6	57.1
13	257	.4	1.4	39	2752	4.7	61.8
14	322	.6	2.0	40	2893	5.0	66.8
15	334	.6	2.6	41	2996	5.2	71.9
16	395	.7	3.2	42	2890	5.0	76.9
17	424	.7	4.0	43	2896	5.0	81.9
18	514	.9	4.9	44	2897	5.0	86.8
19	594	1.0	5.9	45	2591	4.5	91.3
20	609	1.0	6.9	46	2177	3.7	95.0
21	707	1.2	8.1	47	1615	2.8	97.8
22	757	1.3	9.4	48	913	1.6	99.4
23	860	1.5	10.9	49	354	.6	100.0
24	923	1.6	12.5	Total	58148	100.0	
25	1052	1.8	14.3				

Table A2
Raw Score Distribution for Grade 8 Reading

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
0	1	.0	.0	27	1315	2.0	19.1
1	8	.0	.0	28	1350	2.0	21.1
2	5	.0	.0	29	1502	2.3	23.4
3	14	.0	.0	30	1564	2.4	25.7
4	13	.0	.1	31	1762	2.7	28.4
5	35	.1	.1	32	1798	2.7	31.1
6	57	.1	.2	33	2054	3.1	34.2
7	70	.1	.3	34	2136	3.2	37.4
8	112	.2	.5	35	2357	3.5	40.9
9	168	.3	.7	36	2489	3.7	44.7
10	217	.3	1.1	37	2533	3.8	48.5
11	276	.4	1.5	38	2790	4.2	52.7
12	259	.4	1.9	39	2811	4.2	56.9
13	380	.6	2.4	40	3032	4.6	61.5
14	405	.6	3.0	41	3133	4.7	66.2
15	445	.7	3.7	42	3110	4.7	70.9
16	477	.7	4.4	43	3239	4.9	75.8
17	549	.8	5.3	44	3258	4.9	80.7
18	658	1.0	6.2	45	3076	4.6	85.3
19	674	1.0	7.3	46	2885	4.3	89.6
20	733	1.1	8.4	47	2452	3.7	93.3
21	817	1.2	9.6	48	2027	3.1	96.4
22	808	1.2	10.8	49	1325	2.0	98.4
23	921	1.4	12.2	50	827	1.2	99.6
24	1030	1.6	13.7	51	253	.4	100.0
25	1084	1.6	15.4	Total	66426	100.0	
26	1132	1.7	17.1				

Table A3
Raw Score Distribution for Grade 10 Reading

Score	Frequency	Percent	Cumulative Percent
0	4	.0	.0
1	11	.0	.0
2	18	.0	.0
3	48	.1	.1
4	77	.1	.2
5	153	.2	.4
6	252	.4	.8
7	283	.4	1.2
8	401	.6	1.8
9	455	.7	2.5
10	509	.7	3.2
11	643	.9	4.1
12	822	1.2	5.3
13	1060	1.5	6.8
14	1352	2.0	8.8
15	1657	2.4	11.2
16	1993	2.9	14.1
17	2434	3.5	17.6
18	2966	4.3	21.9
19	3599	5.2	27.1
20	4331	6.3	33.3
21	4984	7.2	40.5
22	5887	8.5	49.0
23	6860	9.9	58.9
24	8107	11.7	70.7
25	8756	12.6	83.3
26	7692	11.1	94.4
27	3866	5.6	100.0
Total	69220	100.0	

Raw Score Distribution for Reading Grades 4, 8, and 10

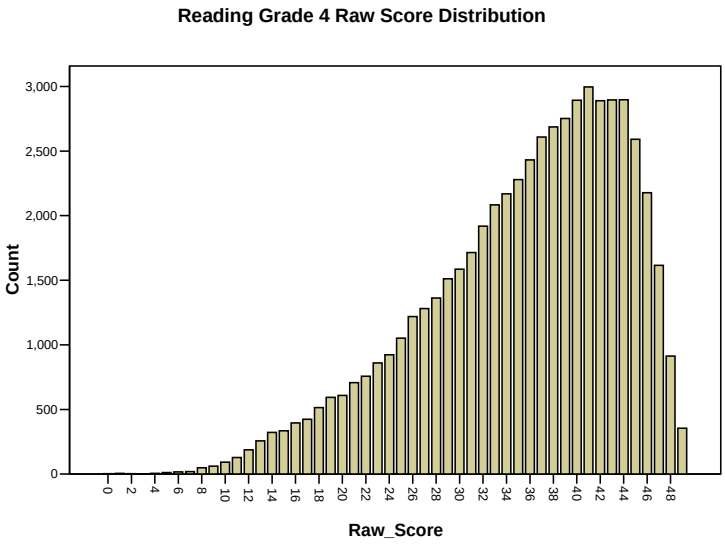

Figure A1
Raw Score Distribution for Grade 4 Reading

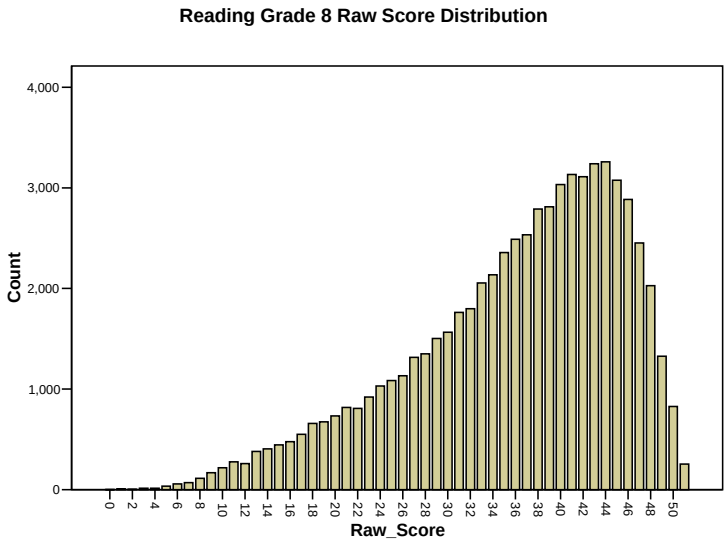

Figure A2
Raw Score Distribution for Grade 8 Reading

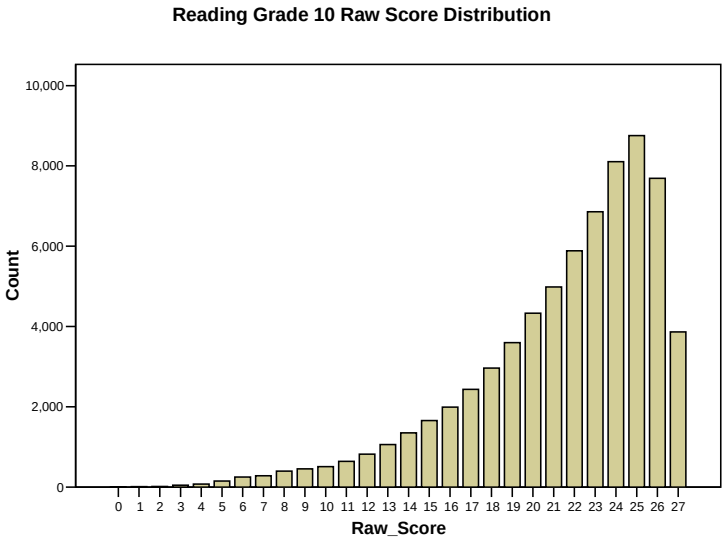

Figure A3
Raw Score Distribution for Grade 10 Reading

Table A4
Raw Score Distribution for Grade 4 Mathematics

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
1	4	.0	.0	36	1466	2.5	32.0
2	4	.0	.0	37	1499	2.6	34.6
3	3	.0	.0	38	1538	2.6	37.2
4	4	.0	.0	39	1555	2.7	39.9
5	4	.0	.0	40	1588	2.7	42.6
6	6	.0	.0	41	1669	2.9	45.5
7	6	.0	.1	42	1703	2.9	48.4
8	13	.0	.1	43	1694	2.9	51.3
9	27	.0	.1	44	1768	3.0	54.3
10	32	.1	.2	45	1724	3.0	57.3
11	65	.1	.3	46	1817	3.1	60.4
12	79	.1	.4	47	1746	3.0	63.4
13	110	.2	.6	48	1702	2.9	66.3
14	161	.3	.9	49	1620	2.8	69.1
15	171	.3	1.2	50	1716	2.9	72.0
16	227	.4	1.6	51	1697	2.9	74.9
17	273	.5	2.0	52	1599	2.7	77.7
18	331	.6	2.6	53	1546	2.7	80.3
19	401	.7	3.3	54	1454	2.5	82.8
20	441	.8	4.1	55	1438	2.5	85.3
21	505	.9	4.9	56	1320	2.3	87.6
22	587	1.0	5.9	57	1232	2.1	89.7
23	662	1.1	7.1	58	1195	2.0	91.7
24	732	1.3	8.3	59	1031	1.8	93.5
25	757	1.3	9.6	60	906	1.6	95.0
26	848	1.5	11.1	61	759	1.3	96.3
27	939	1.6	12.7	62	650	1.1	97.5
28	1012	1.7	14.4	63	542	.9	98.4
29	1074	1.8	16.3	64	363	.6	99.0
30	1183	2.0	18.3	65	285	.5	99.5
31	1207	2.1	20.4	66	154	.3	99.8
32	1283	2.2	22.6	67	94	.2	99.9
33	1289	2.2	24.8	68	38	.1	100.0
34	1377	2.4	27.1	69	5	.0	100.0
35	1386	2.4	29.5	Total	58316	100.0	

Table A5
Raw Score Distribution for Grade 8 Mathematics

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
0	4	.0	.0	35	1500	2.3	30.0
1	5	.0	.0	36	1606	2.4	32.4
2	8	.0	.0	37	1683	2.5	34.9
3	7	.0	.0	38	1739	2.6	37.5
4	5	.0	.0	39	1738	2.6	40.2
5	13	.0	.1	40	1863	2.8	43.0
6	12	.0	.1	41	1823	2.7	45.7
7	27	.0	.1	42	1840	2.8	48.5
8	37	.1	.2	43	1890	2.8	51.3
9	62	.1	.3	44	1978	3.0	54.3
10	84	.1	.4	45	1896	2.9	57.2
11	131	.2	.6	46	2020	3.0	60.2
12	198	.3	.9	47	1926	2.9	63.1
13	218	.3	1.2	48	1965	3.0	66.1
14	270	.4	1.6	49	1818	2.7	68.8
15	324	.5	2.1	50	1926	2.9	71.7
16	364	.5	2.7	51	1875	2.8	74.6
17	436	.7	3.3	52	1798	2.7	77.3
18	479	.7	4.0	53	1762	2.7	79.9
19	553	.8	4.9	54	1687	2.5	82.5
20	592	.9	5.8	55	1600	2.4	84.9
21	672	1.0	6.8	56	1581	2.4	87.3
22	707	1.1	7.8	57	1452	2.2	89.4
23	700	1.1	8.9	58	1290	1.9	91.4
24	832	1.3	10.2	59	1243	1.9	93.3
25	887	1.3	11.5	60	1089	1.6	94.9
26	940	1.4	12.9	61	903	1.4	96.3
27	979	1.5	14.4	62	796	1.2	97.5
28	1029	1.6	15.9	63	651	1.0	98.4
29	1140	1.7	17.7	64	487	.7	99.2
30	1230	1.9	19.5	65	315	.5	99.7
31	1284	1.9	21.4	66	168	.3	99.9
32	1267	1.9	23.4	67	60	.1	100.0
33	1394	2.1	25.5	Total	66349	100.0	
34	1491	2.2	27.7				

Table A6
Raw Score Distribution for Grade 10 Mathematics

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
1	11	.0	.0	26	1294	1.9	16.9
2	11	.0	.0	27	1360	2.0	18.8
3	2	.0	.0	28	1471	2.1	20.9
4	11	.0	.1	29	1649	2.4	23.3
5	12	.0	.1	30	1737	2.5	25.8
6	10	.0	.1	31	1898	2.7	28.6
7	20	.0	.1	32	2133	3.1	31.7
8	42	.1	.2	33	2272	3.3	35.0
9	70	.1	.3	34	2395	3.5	38.4
10	102	.1	.4	35	2506	3.6	42.0
11	145	.2	.6	36	2844	4.1	46.1
12	215	.3	.9	37	2920	4.2	50.4
13	278	.4	1.3	38	3314	4.8	55.2
14	363	.5	1.9	39	3261	4.7	59.9
15	424	.6	2.5	40	3505	5.1	64.9
16	545	.8	3.3	41	3481	5.0	70.0
17	585	.8	4.1	42	3424	4.9	74.9
18	682	1.0	5.1	43	3461	5.0	79.9
19	680	1.0	6.1	44	3244	4.7	84.6
20	813	1.2	7.3	45	3107	4.5	89.1
21	903	1.3	8.6	46	2992	4.3	93.4
22	959	1.4	10.0	47	2333	3.4	96.8
23	1071	1.5	11.5	48	1524	2.2	99.0
24	1160	1.7	13.2	49	684	1.0	100.0
25	1250	1.8	15.0	Total	69173	100.0	

Raw Score Distribution for Mathematics Grades 4, 8, and 10

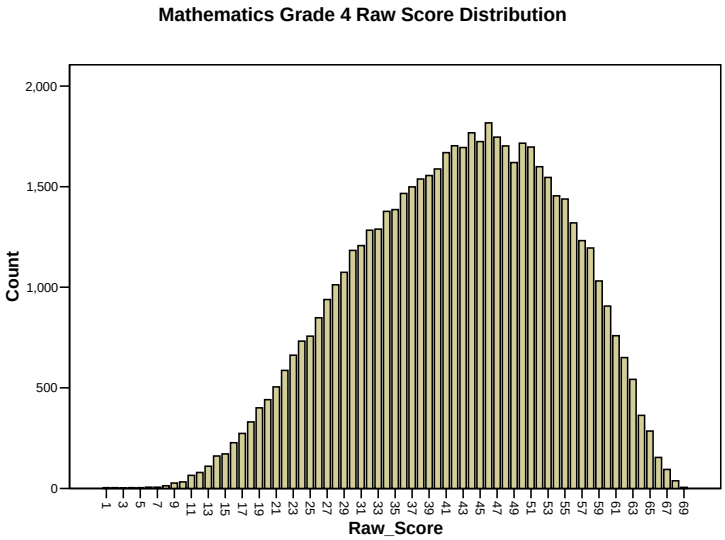

Figure A4
Raw Score Distribution for Grade 4 Mathematics

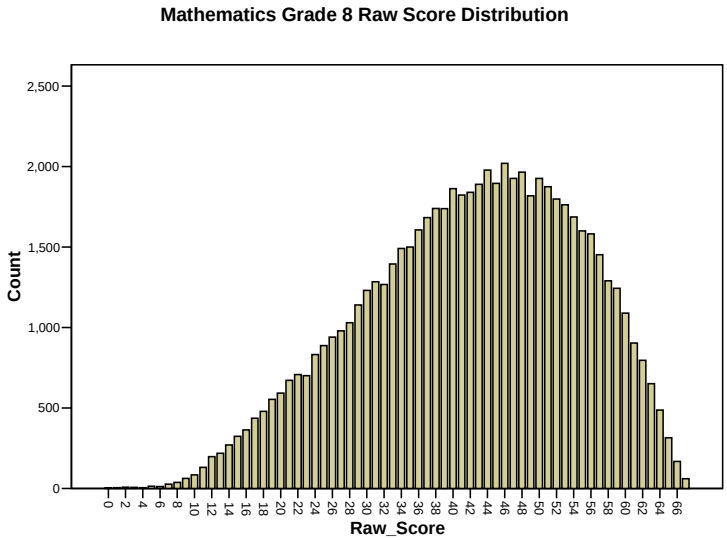

Figure A5
Raw Score Distribution for Grade 8 Mathematics

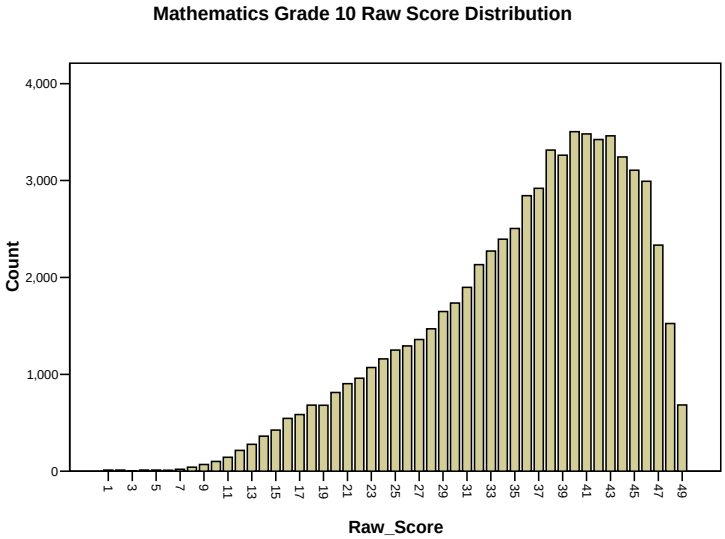

Figure A6
Raw Score Distribution for Grade 10 Mathematics

Table A7
Raw Score Distribution for Grade 4 Language Arts

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
0	10	.0	.0	25	1845	3.2	28.9
1	2	.0	.0	26	1962	3.4	32.2
2	7	.0	.0	27	2102	3.6	35.9
3	13	.0	.1	28	2222	3.8	39.7
4	17	.0	.1	29	2409	4.1	43.8
5	21	.0	.1	30	2413	4.1	48.0
6	44	.1	.2	31	2497	4.3	52.3
7	80	.1	.3	32	2631	4.5	56.8
8	116	.2	.5	33	2582	4.4	61.2
9	192	.3	.9	34	2660	4.6	65.8
10	254	.4	1.3	35	2649	4.6	70.4
11	359	.6	1.9	36	2568	4.4	74.8
12	399	.7	2.6	37	2471	4.2	79.0
13	489	.8	3.4	38	2404	4.1	83.2
14	643	1.1	4.6	39	2094	3.6	86.8
15	725	1.2	5.8	40	1897	3.3	90.0
16	833	1.4	7.2	41	1697	2.9	92.9
17	891	1.5	8.8	42	1377	2.4	95.3
18	1044	1.8	10.6	43	1079	1.9	97.2
19	1179	2.0	12.6	44	765	1.3	98.5
20	1283	2.2	14.8	45	445	.8	99.2
21	1409	2.4	17.2	46	310	.5	99.8
22	1506	2.6	19.8	47	109	.2	100.0
23	1637	2.8	22.6	48	18	.0	100.0
24	1789	3.1	25.7	Total	58148	100.0	

Table A8
Raw Score Distribution for Grade 8 Language Arts

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
0	7	.0	.0	27	2148	3.2	31.4
1	5	.0	.0	28	2223	3.3	34.8
2	6	.0	.0	29	2268	3.4	38.2
3	22	.0	.1	30	2377	3.6	41.8
4	34	.1	.1	31	2384	3.6	45.4
5	41	.1	.2	32	2480	3.7	49.1
6	44	.1	.2	33	2485	3.7	52.8
7	101	.2	.4	34	2598	3.9	56.7
8	148	.2	.6	35	2558	3.9	60.6
9	177	.3	.9	36	2682	4.0	64.6
10	214	.3	1.2	37	2662	4.0	68.6
11	276	.4	1.6	38	2605	3.9	72.6
12	375	.6	2.2	39	2563	3.9	76.4
13	480	.7	2.9	40	2477	3.7	80.1
14	547	.8	3.7	41	2309	3.5	83.6
15	680	1.0	4.8	42	2250	3.4	87.0
16	796	1.2	6.0	43	2040	3.1	90.1
17	931	1.4	7.4	44	1796	2.7	92.8
18	1026	1.5	8.9	45	1576	2.4	95.2
19	1204	1.8	10.7	46	1241	1.9	97.0
20	1245	1.9	12.6	47	934	1.4	98.4
21	1432	2.2	14.7	48	580	.9	99.3
22	1523	2.3	17.0	49	335	.5	99.8
23	1685	2.5	19.6	50	109	.2	100.0
24	1791	2.7	22.3	51	18	.0	100.0
25	1910	2.9	25.1	Total	66426	100.0	
26	2028	3.1	28.2				

Table A9
Raw Score Distribution for Grade 10 Language Arts

Score	Frequency	Percent	Cumulative Percent
0	27	.0	.0
1	5	.0	.0
2	15	.0	.1
3	38	.1	.1
4	67	.1	.2
5	99	.1	.4
6	138	.2	.6
7	196	.3	.8
8	339	.5	1.3
9	432	.6	2.0
10	598	.9	2.8
11	812	1.2	4.0
12	1111	1.6	5.6
13	1527	2.2	7.8
14	1868	2.7	10.5
15	2340	3.4	13.9
16	2886	4.2	18.1
17	3526	5.1	23.1
18	4230	6.1	29.3
19	4960	7.2	36.4
20	5770	8.3	44.8
21	6610	9.5	54.3
22	6834	9.9	64.2
23	7037	10.2	74.3
24	6298	9.1	83.4
25	5108	7.4	90.8
26	3288	4.8	95.6
27	1878	2.7	98.3
28	966	1.4	99.7
29	208	.3	100.0
30	9	.0	100.0
Total	69220	100.0	

Raw Score Distribution for Language Arts Grades 4, 8, and 10

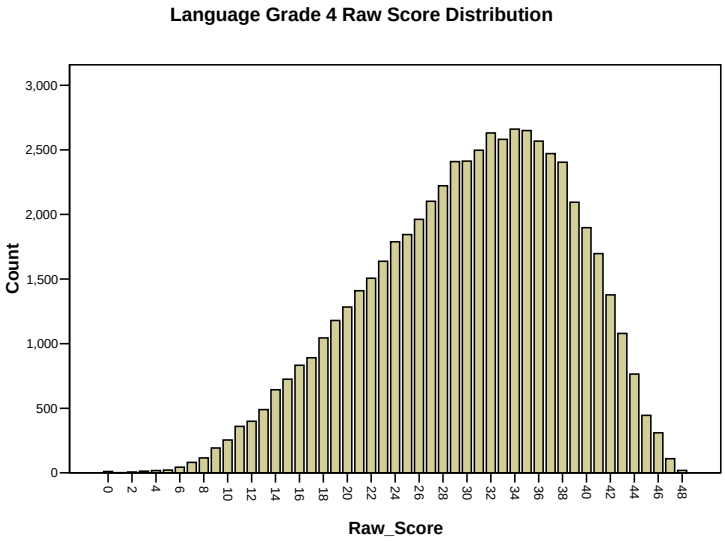

Figure A7
Raw Score Distribution for Grade 4 Language Arts

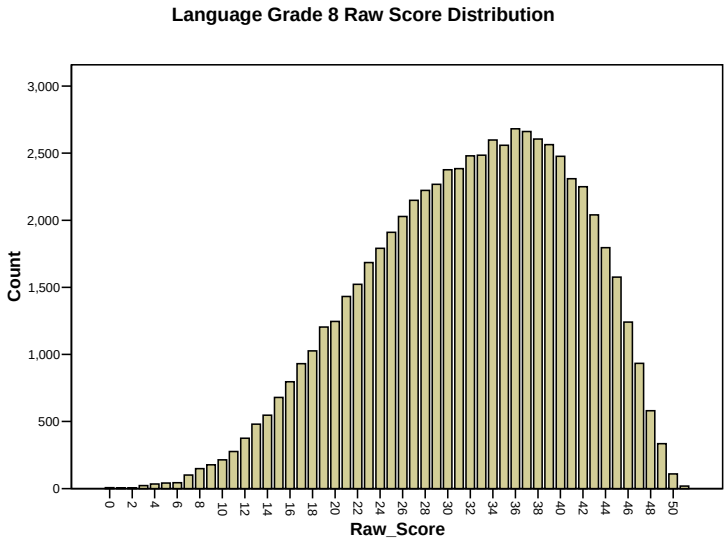

Figure A8
Raw Score Distribution for Grade 8 Language Arts

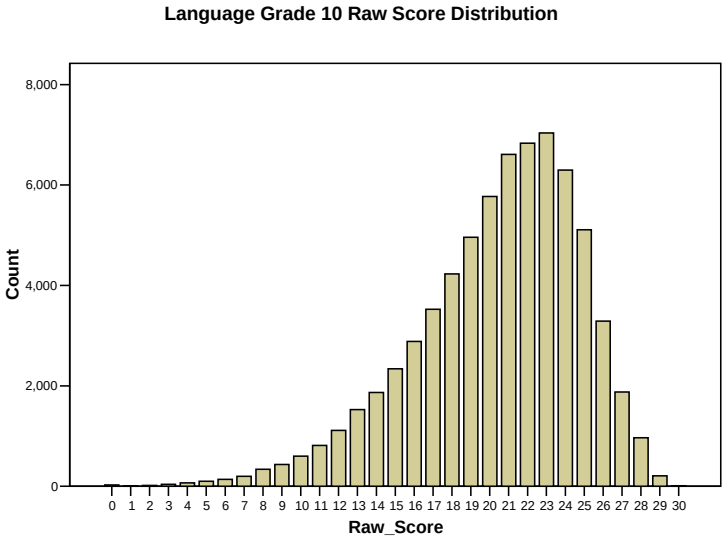

Figure A9
Raw Score Distribution for Grade 10 Language Arts

Table A10
Raw Score Distribution for Grade 4 Social Studies

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
1	6	.0	.0	28	1157	2.0	14.4
2	5	.0	.0	29	1371	2.3	16.7
4	2	.0	.0	30	1515	2.6	19.3
5	5	.0	.0	31	1651	2.8	22.1
6	16	.0	.1	32	1868	3.2	25.3
7	26	.0	.1	33	2022	3.5	28.8
8	37	.1	.2	34	2360	4.0	32.8
9	52	.1	.3	35	2560	4.4	37.2
10	52	.1	.3	36	2702	4.6	41.8
11	71	.1	.5	37	2850	4.9	46.7
12	81	.1	.6	38	3077	5.3	52.0
13	110	.2	.8	39	3158	5.4	57.4
14	117	.2	1.0	40	3368	5.8	63.1
15	162	.3	1.3	41	3371	5.8	68.9
16	191	.3	1.6	42	3397	5.8	74.7
17	228	.4	2.0	43	3069	5.2	79.9
18	292	.5	2.5	44	2865	4.9	84.8
19	351	.6	3.1	45	2634	4.5	89.3
20	375	.6	3.7	46	2166	3.7	93.0
21	477	.8	4.5	47	1735	3.0	96.0
22	500	.9	5.4	48	1197	2.0	98.1
23	568	1.0	6.4	49	711	1.2	99.3
24	716	1.2	7.6	50	348	.6	99.9
25	827	1.4	9.0	51	78	.1	100.0
26	925	1.6	10.6	Total	58479	100.0	
27	1057	1.8	12.4				

Table A11
Raw Score Distribution for Grade 8 Social Studies

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
1	5	.0	.0	29	1375	2.1	19.5
2	9	.0	.0	30	1532	2.3	21.8
3	3	.0	.0	31	1693	2.6	24.3
4	10	.0	.0	32	1861	2.8	27.1
5	10	.0	.1	33	2055	3.1	30.2
6	29	.0	.1	34	2143	3.2	33.4
7	50	.1	.2	35	2280	3.4	36.9
8	70	.1	.3	36	2496	3.8	40.6
9	73	.1	.4	37	2756	4.2	44.8
10	112	.2	.6	38	2816	4.2	49.0
11	127	.2	.8	39	2890	4.4	53.4
12	167	.3	1.0	40	3017	4.5	57.9
13	181	.3	1.3	41	3073	4.6	62.6
14	237	.4	1.6	42	3098	4.7	67.2
15	278	.4	2.1	43	3193	4.8	72.1
16	321	.5	2.5	44	2988	4.5	76.6
17	399	.6	3.1	45	2818	4.2	80.8
18	474	.7	3.9	46	2723	4.1	84.9
19	508	.8	4.6	47	2525	3.8	88.7
20	625	.9	5.6	48	2138	3.2	91.9
21	646	1.0	6.5	49	1810	2.7	94.7
22	710	1.1	7.6	50	1373	2.1	96.7
23	852	1.3	8.9	51	1021	1.5	98.3
24	878	1.3	10.2	52	641	1.0	99.2
25	1086	1.6	11.8	53	350	.5	99.8
26	1114	1.7	13.5	54	121	.2	100.0
27	1213	1.8	15.4	55	27	.0	100.0
28	1345	2.0	17.4	Total	66345	100.0	

Table A12
Raw Score Distribution for Grade 10 Social Studies

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
0	1	.0	.0	26	1240	1.8	16.4
1	7	.0	.0	27	1300	1.9	18.3
2	9	.0	.0	28	1425	2.1	20.3
3	10	.0	.0	29	1573	2.3	22.6
4	8	.0	.1	30	1702	2.5	25.1
5	11	.0	.1	31	1870	2.7	27.8
6	21	.0	.1	32	2010	2.9	30.7
7	35	.1	.1	33	2138	3.1	33.8
8	39	.1	.2	34	2346	3.4	37.2
9	72	.1	.3	35	2563	3.7	40.9
10	136	.2	.5	36	2700	3.9	44.8
11	187	.3	.8	37	2958	4.3	49.1
12	265	.4	1.2	38	3113	4.5	53.6
13	305	.4	1.6	39	3335	4.8	58.4
14	402	.6	2.2	40	3550	5.1	63.6
15	472	.7	2.9	41	3644	5.3	68.8
16	541	.8	3.6	42	3681	5.3	74.2
17	556	.8	4.5	43	3817	5.5	79.7
18	650	.9	5.4	44	3592	5.2	84.9
19	730	1.1	6.5	45	3415	4.9	89.8
20	781	1.1	7.6	46	2819	4.1	93.9
21	762	1.1	8.7	47	2141	3.1	97.0
22	870	1.3	9.9	48	1353	2.0	99.0
23	977	1.4	11.4	49	578	.8	99.8
24	1036	1.5	12.9	50	135	.2	100.0
25	1196	1.7	14.6	Total	69077	100.0	

Raw Score Distribution for Social Studies Grades 4, 8, and 10

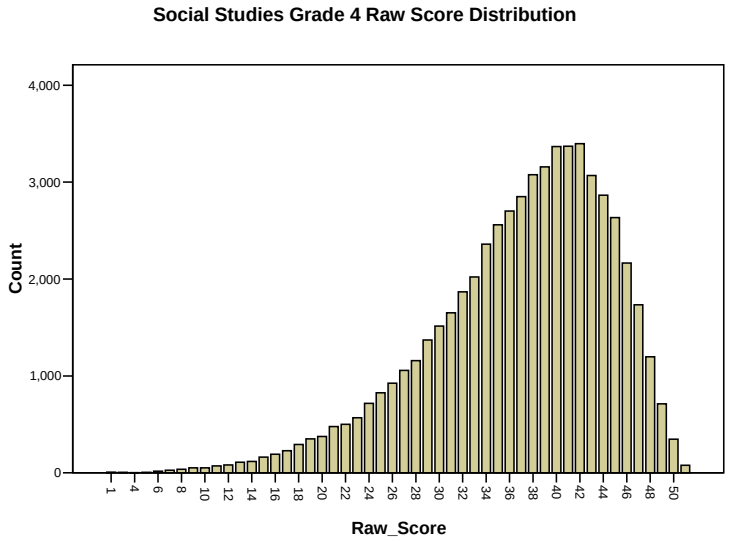

Figure A10
Raw Score Distribution for Grade 4 Social Studies

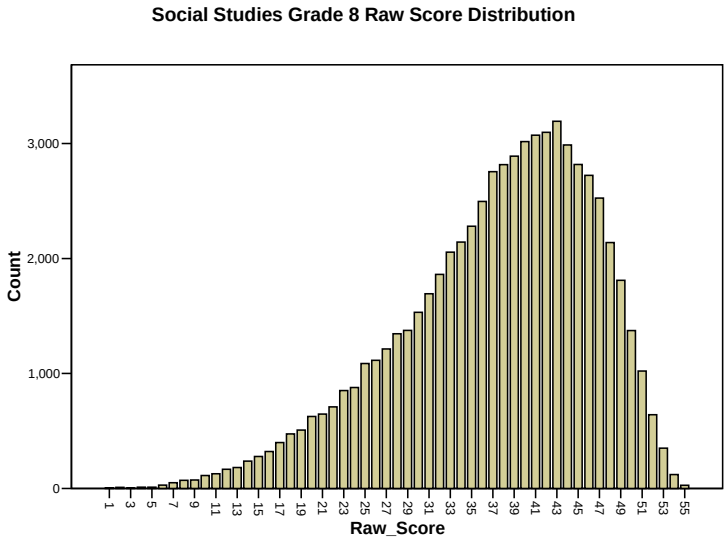

Figure A11
Raw Score Distribution for Grade 8 Social Studies

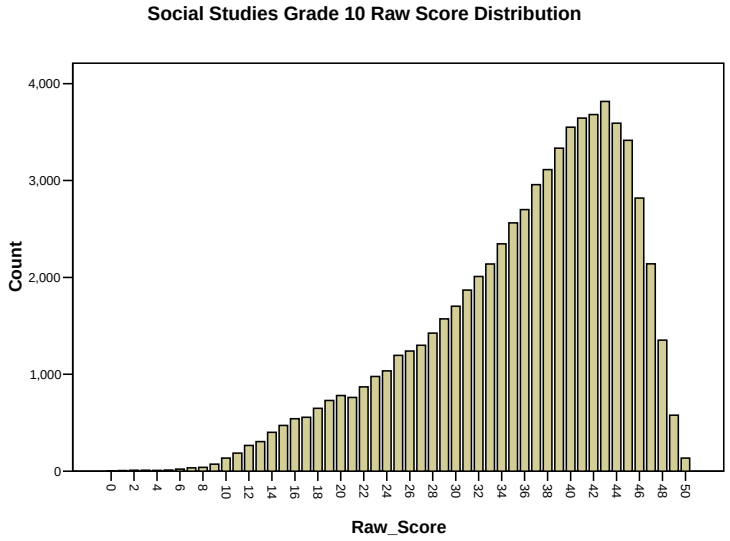

Figure A12
Raw Score Distribution for Grade 10 Social Studies

Table A13
Raw Score Distribution for Grade 4 Science

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
0	10	.0	.0	37	1236	2.1	17.5
1	3	.0	.0	38	1281	2.2	19.6
2	2	.0	.0	39	1424	2.4	22.1
3	1	.0	.0	40	1594	2.7	24.8
6	1	.0	.0	41	1756	3.0	27.8
7	1	.0	.0	42	1827	3.1	30.9
8	2	.0	.0	43	1948	3.3	34.3
9	6	.0	.0	44	2107	3.6	37.9
10	6	.0	.1	45	2245	3.8	41.7
11	8	.0	.1	46	2363	4.0	45.7
12	8	.0	.1	47	2448	4.2	49.9
13	11	.0	.1	48	2460	4.2	54.1
14	18	.0	.1	49	2504	4.3	58.4
15	28	.0	.2	50	2555	4.4	62.8
16	36	.1	.2	51	2568	4.4	67.2
17	61	.1	.3	52	2475	4.2	71.4
18	62	.1	.5	53	2317	4.0	75.4
19	93	.2	.6	54	2202	3.8	79.1
20	103	.2	.8	55	2000	3.4	82.5
21	127	.2	1.0	56	1842	3.1	85.7
22	166	.3	1.3	57	1681	2.9	88.6
23	210	.4	1.6	58	1516	2.6	91.2
24	256	.4	2.1	59	1255	2.1	93.3
25	251	.4	2.5	60	1033	1.8	95.1
26	351	.6	3.1	61	832	1.4	96.5
27	402	.7	3.8	62	702	1.2	97.7
28	479	.8	4.6	63	507	.9	98.6
29	510	.9	5.5	64	328	.6	99.1
30	538	.9	6.4	65	256	.4	99.5
31	614	1.0	7.5	66	146	.2	99.8
32	700	1.2	8.7	67	77	.1	99.9
33	837	1.4	10.1	68	31	.1	100.0
34	914	1.6	11.6	69	8	.0	100.0
35	1031	1.8	13.4	70	2	.0	100.0
36	1131	1.9	15.3	Total	58503	100.0	100.0

Table A14
Raw Score Distribution for Grade 8 Science

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
0	1	.0	.0	39	1105	1.7	17.7
1	3	.0	.0	40	1111	1.7	19.4
2	6	.0	.0	41	1190	1.8	21.1
3	2	.0	.0	42	1334	2.0	23.2
4	3	.0	.0	43	1424	2.1	25.3
5	1	.0	.0	44	1450	2.2	27.5
6	8	.0	.0	45	1612	2.4	29.9
7	6	.0	.0	46	1761	2.7	32.6
8	14	.0	.1	47	1881	2.8	35.4
9	15	.0	.1	48	1883	2.8	38.2
10	13	.0	.1	49	2031	3.1	41.3
11	20	.0	.1	50	2110	3.2	44.5
12	24	.0	.2	51	2208	3.3	47.8
13	37	.1	.2	52	2209	3.3	51.1
14	55	.1	.3	53	2329	3.5	54.6
15	71	.1	.4	54	2348	3.5	58.2
16	93	.1	.6	55	2325	3.5	61.7
17	103	.2	.7	56	2424	3.6	65.3
18	137	.2	.9	57	2400	3.6	68.9
19	165	.2	1.2	58	2362	3.6	72.5
20	171	.3	1.4	59	2360	3.6	76.0
21	223	.3	1.8	60	2158	3.2	79.3
22	239	.4	2.1	61	2155	3.2	82.5
23	277	.4	2.5	62	1991	3.0	85.5
24	315	.5	3.0	63	1877	2.8	88.3
25	297	.4	3.5	64	1637	2.5	90.8
26	340	.5	4.0	65	1394	2.1	92.9
27	436	.7	4.6	66	1232	1.9	94.8
28	481	.7	5.4	67	983	1.5	96.2
29	497	.7	6.1	68	794	1.2	97.4
30	536	.8	6.9	69	592	.9	98.3
31	560	.8	7.8	70	476	.7	99.0
32	573	.9	8.6	71	311	.5	99.5
33	683	1.0	9.6	72	174	.3	99.8
34	743	1.1	10.8	73	93	.1	99.9
35	796	1.2	12.0	74	44	.1	100.0
36	869	1.3	13.3	75	10	.0	100.0
37	876	1.3	14.6	76	5	.0	100.0
38	953	1.4	16.0	Total	66425	100.0	

Table A15
Raw Score Distribution for Grade 10 Science

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
0	1	.0	.0	26	1872	2.7	19.6
1	5	.0	.0	27	2112	3.1	22.6
2	4	.0	.0	28	2312	3.3	26.0
3	11	.0	.0	29	2485	3.6	29.6
4	8	.0	.0	30	2739	4.0	33.5
5	8	.0	.1	31	2964	4.3	37.8
6	13	.0	.1	32	3098	4.5	42.3
7	33	.0	.1	33	3296	4.8	47.1
8	47	.1	.2	34	3387	4.9	52.0
9	64	.1	.3	35	3552	5.1	57.1
10	99	.1	.4	36	3592	5.2	62.3
11	155	.2	.6	37	3593	5.2	67.5
12	215	.3	1.0	38	3568	5.2	72.7
13	238	.3	1.3	39	3384	4.9	77.6
14	364	.5	1.8	40	2991	4.3	81.9
15	431	.6	2.5	41	2872	4.2	86.1
16	475	.7	3.1	42	2490	3.6	89.7
17	528	.8	3.9	43	2166	3.1	92.8
18	618	.9	4.8	44	1725	2.5	95.3
19	768	1.1	5.9	45	1252	1.8	97.1
20	860	1.2	7.2	46	920	1.3	98.4
21	1075	1.6	8.7	47	647	.9	99.4
22	1211	1.8	10.5	48	310	.4	99.8
23	1288	1.9	12.3	49	105	.2	100.0
24	1481	2.1	14.5	50	19	.0	100.0
25	1654	2.4	16.9	Total	69105	100.0	

Raw Score Distribution for Science Grades 4, 8, and 10

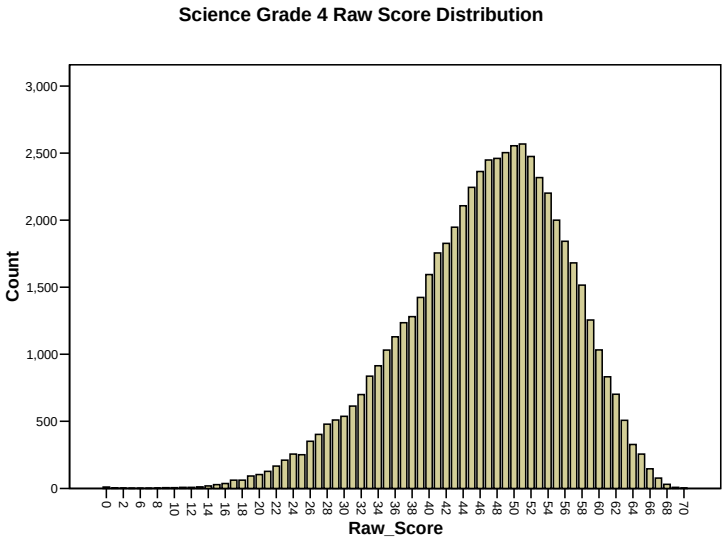

Figure A13
Raw Score Distribution for Science Grade 4

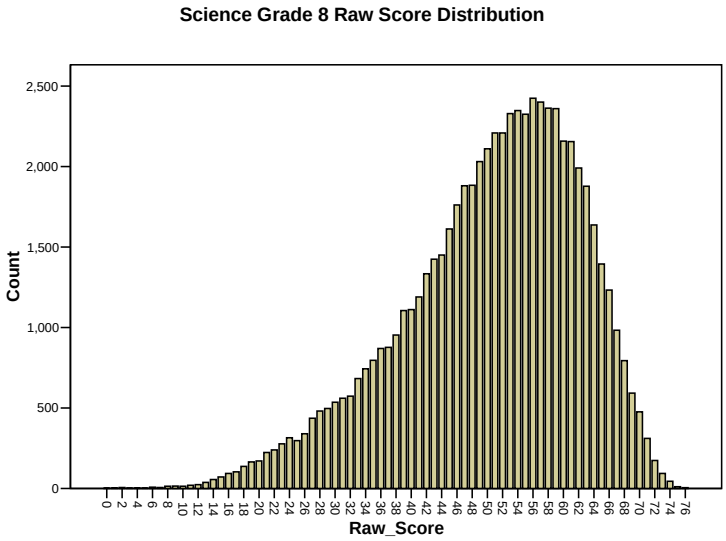

Figure A14
Raw Score Distribution for Science Grade 8

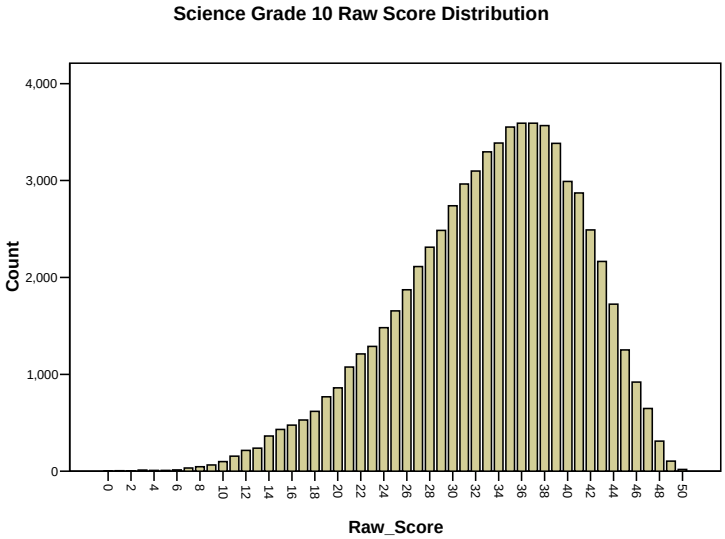

Figure A15
Raw Score Distribution for Science Grade 10

Table B1
Scale Score Distribution for Grade 4 Reading

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
433	60	.1	.1	519	5	.0	.3
448	1	.0	.1	520	7	.0	.3
450	1	.0	.1	521	5	.0	.4
453	2	.0	.1	522	11	.0	.4
454	1	.0	.1	523	9	.0	.4
464	2	.0	.1	524	8	.0	.4
465	1	.0	.1	525	7	.0	.4
471	1	.0	.1	526	18	.0	.4
474	1	.0	.1	527	10	.0	.5
475	3	.0	.1	528	12	.0	.5
476	1	.0	.1	529	11	.0	.5
477	2	.0	.1	530	18	.0	.5
478	2	.0	.1	531	13	.0	.6
479	2	.0	.1	532	13	.0	.6
480	2	.0	.1	533	12	.0	.6
482	2	.0	.1	534	14	.0	.6
483	1	.0	.1	535	12	.0	.6
484	3	.0	.2	536	15	.0	.7
486	2	.0	.2	537	14	.0	.7
487	2	.0	.2	538	11	.0	.7
489	2	.0	.2	539	12	.0	.7
490	2	.0	.2	540	16	.0	.8
491	1	.0	.2	541	13	.0	.8
492	2	.0	.2	542	15	.0	.8
493	3	.0	.2	543	22	.0	.8
494	3	.0	.2	544	18	.0	.9
495	1	.0	.2	545	25	.0	.9
496	1	.0	.2	546	21	.0	1.0
497	2	.0	.2	547	25	.0	1.0
498	2	.0	.2	548	24	.0	1.0
499	3	.0	.2	549	22	.0	1.1
500	3	.0	.2	550	22	.0	1.1
501	2	.0	.2	551	23	.0	1.2
502	1	.0	.2	552	25	.0	1.2
505	3	.0	.2	553	30	.1	1.2
506	3	.0	.2	554	38	.1	1.3
507	5	.0	.2	555	39	.1	1.4
508	6	.0	.2	556	33	.1	1.4
509	3	.0	.2	557	31	.1	1.5
510	2	.0	.2	558	40	.1	1.6
511	8	.0	.3	559	40	.1	1.6
512	3	.0	.3	560	31	.1	1.7
513	10	.0	.3	561	50	.1	1.8
514	6	.0	.3	562	46	.1	1.8
515	2	.0	.3	563	60	.1	1.9
516	2	.0	.3	564	45	.1	2.0
517	9	.0	.3	565	44	.1	2.1
518	5	.0	.3	566	48	.1	2.2

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
567	52	.1	2.3	617	421	.7	18.4
568	49	.1	2.4	618	431	.7	19.1
569	44	.1	2.4	619	474	.8	20.0
570	62	.1	2.5	620	520	.9	20.9
571	84	.1	2.7	621	500	.9	21.7
572	60	.1	2.8	622	551	.9	22.7
573	82	.1	2.9	623	492	.8	23.5
574	61	.1	3.0	624	484	.8	24.3
575	75	.1	3.2	625	570	1.0	25.3
576	76	.1	3.3	626	608	1.0	26.4
577	79	.1	3.4	627	598	1.0	27.4
578	81	.1	3.6	628	595	1.0	28.4
579	78	.1	3.7	629	608	1.0	29.5
580	84	.1	3.8	630	650	1.1	30.6
581	98	.2	4.0	631	617	1.1	31.6
582	97	.2	4.2	632	649	1.1	32.8
583	103	.2	4.4	633	656	1.1	33.9
584	103	.2	4.5	634	640	1.1	35.0
585	106	.2	4.7	635	670	1.2	36.1
586	114	.2	4.9	636	698	1.2	37.3
587	150	.3	5.2	637	669	1.2	38.5
588	130	.2	5.4	638	699	1.2	39.7
589	120	.2	5.6	639	675	1.2	40.9
590	144	.2	5.9	640	726	1.2	42.1
591	142	.2	6.1	641	774	1.3	43.4
592	188	.3	6.4	642	698	1.2	44.6
593	164	.3	6.7	643	717	1.2	45.9
594	192	.3	7.0	644	719	1.2	47.1
595	182	.3	7.3	645	697	1.2	48.3
596	162	.3	7.6	646	743	1.3	49.6
597	207	.4	8.0	647	760	1.3	50.9
598	209	.4	8.3	648	756	1.3	52.2
599	208	.4	8.7	649	742	1.3	53.5
600	200	.3	9.0	650	733	1.3	54.7
601	196	.3	9.4	651	689	1.2	55.9
602	241	.4	9.8	652	751	1.3	57.2
603	229	.4	10.2	653	737	1.3	58.5
604	257	.4	10.6	654	704	1.2	59.7
605	258	.4	11.1	655	721	1.2	60.9
606	292	.5	11.6	656	653	1.1	62.0
607	325	.6	12.1	657	719	1.2	63.3
608	266	.5	12.6	658	667	1.1	64.4
609	304	.5	13.1	659	691	1.2	65.6
610	349	.6	13.7	660	616	1.1	66.7
611	357	.6	14.3	661	652	1.1	67.8
612	377	.6	15.0	662	675	1.2	69.0
613	354	.6	15.6	663	657	1.1	70.1
614	409	.7	16.3	664	639	1.1	71.2
615	393	.7	17.0	665	654	1.1	72.3
616	418	.7	17.7	666	592	1.0	73.3

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
667	599	1.0	74.4	704	112	.2	95.8
668	556	1.0	75.3	705	152	.3	96.1
669	599	1.0	76.3	706	62	.1	96.2
670	614	1.1	77.4	707	108	.2	96.4
671	577	1.0	78.4	708	145	.2	96.6
672	498	.9	79.2	709	91	.2	96.8
673	526	.9	80.2	710	58	.1	96.9
674	473	.8	81.0	711	99	.2	97.1
675	476	.8	81.8	712	37	.1	97.1
676	454	.8	82.6	713	111	.2	97.3
677	455	.8	83.3	714	112	.2	97.5
678	425	.7	84.1	715	61	.1	97.6
679	417	.7	84.8	716	25	.0	97.6
680	450	.8	85.6	717	287	.5	98.1
681	390	.7	86.2	718	53	.1	98.2
682	390	.7	86.9	719	25	.0	98.3
683	373	.6	87.6	720	36	.1	98.3
684	325	.6	88.1	721	24	.0	98.4
685	355	.6	88.7	722	8	.0	98.4
686	327	.6	89.3	723	12	.0	98.4
687	315	.5	89.8	724	74	.1	98.5
688	278	.5	90.3	725	11	.0	98.6
689	222	.4	90.7	726	66	.1	98.7
690	266	.5	91.1	727	1	.0	98.7
691	275	.5	91.6	728	39	.1	98.7
692	299	.5	92.1	729	39	.1	98.8
693	271	.5	92.6	730	26	.0	98.9
694	184	.3	92.9	733	50	.1	98.9
695	164	.3	93.2	734	3	.0	98.9
696	138	.2	93.4	735	6	.0	99.0
697	189	.3	93.8	737	133	.2	99.2
698	323	.6	94.3	738	88	.2	99.3
699	127	.2	94.5	743	31	.1	99.4
700	175	.3	94.8	764	2	.0	99.4
701	127	.2	95.1	780	354	.6	100.0
702	169	.3	95.3				
703	168	.3	95.6	Total	58148	100.0	

Table B2
Scale Score Distribution for Grade 8 Reading

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
507	243	.4	.4	592	21	.0	.9
515	1	.0	.4	593	23	.0	.9
518	1	.0	.4	594	18	.0	.9
531	1	.0	.4	595	30	.0	1.0
540	1	.0	.4	596	27	.0	1.0
546	1	.0	.4	597	28	.0	1.1
548	1	.0	.4	598	23	.0	1.1
549	2	.0	.4	599	33	.0	1.1
550	1	.0	.4	600	42	.1	1.2
551	2	.0	.4	601	35	.1	1.3
553	3	.0	.4	602	36	.1	1.3
554	1	.0	.4	603	53	.1	1.4
555	2	.0	.4	604	42	.1	1.5
556	2	.0	.4	605	41	.1	1.5
557	3	.0	.4	606	51	.1	1.6
558	1	.0	.4	607	55	.1	1.7
560	3	.0	.4	608	57	.1	1.8
561	3	.0	.4	609	53	.1	1.8
562	4	.0	.4	610	68	.1	2.0
563	4	.0	.4	611	59	.1	2.0
564	2	.0	.4	612	72	.1	2.1
565	6	.0	.4	613	73	.1	2.3
566	4	.0	.4	614	79	.1	2.4
567	6	.0	.4	615	82	.1	2.5
568	4	.0	.5	616	96	.1	2.6
569	6	.0	.5	617	75	.1	2.8
570	3	.0	.5	618	93	.1	2.9
571	8	.0	.5	619	119	.2	3.1
572	8	.0	.5	620	100	.2	3.2
573	5	.0	.5	621	92	.1	3.4
574	6	.0	.5	622	120	.2	3.5
575	8	.0	.5	623	124	.2	3.7
576	11	.0	.5	624	116	.2	3.9
577	6	.0	.5	625	137	.2	4.1
578	9	.0	.6	626	112	.2	4.3
579	8	.0	.6	627	137	.2	4.5
580	14	.0	.6	628	156	.2	4.7
581	13	.0	.6	629	160	.2	5.0
582	12	.0	.6	630	162	.2	5.2
583	9	.0	.6	631	148	.2	5.4
584	18	.0	.7	632	171	.3	5.7
585	10	.0	.7	633	198	.3	6.0
586	17	.0	.7	634	218	.3	6.3
587	14	.0	.7	635	207	.3	6.6
588	19	.0	.8	636	204	.3	6.9
589	16	.0	.8	637	222	.3	7.3
590	19	.0	.8	638	210	.3	7.6
591	19	.0	.8	639	222	.3	7.9

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
640	258	.4	8.3	690	834	1.3	49.2
641	240	.4	8.7	691	826	1.2	50.5
642	279	.4	9.1	692	816	1.2	51.7
643	273	.4	9.5	693	805	1.2	52.9
644	275	.4	9.9	694	852	1.3	54.2
645	298	.4	10.4	695	823	1.2	55.4
646	304	.5	10.8	696	837	1.3	56.7
647	301	.5	11.3	697	830	1.2	57.9
648	309	.5	11.7	698	818	1.2	59.2
649	314	.5	12.2	699	824	1.2	60.4
650	341	.5	12.7	700	822	1.2	61.6
651	370	.6	13.3	701	827	1.2	62.9
652	330	.5	13.8	702	847	1.3	64.2
653	381	.6	14.4	703	770	1.2	65.3
654	365	.5	14.9	704	781	1.2	66.5
655	413	.6	15.5	705	792	1.2	67.7
656	407	.6	16.1	706	751	1.1	68.8
657	432	.7	16.8	707	710	1.1	69.9
658	401	.6	17.4	708	721	1.1	71.0
659	428	.6	18.0	709	745	1.1	72.1
660	445	.7	18.7	710	694	1.0	73.1
661	486	.7	19.4	711	693	1.0	74.2
662	455	.7	20.1	712	714	1.1	75.3
663	531	.8	20.9	713	679	1.0	76.3
664	534	.8	21.7	714	664	1.0	77.3
665	529	.8	22.5	715	656	1.0	78.3
666	547	.8	23.3	716	642	1.0	79.2
667	536	.8	24.2	717	611	.9	80.1
668	533	.8	25.0	718	635	1.0	81.1
669	596	.9	25.8	719	591	.9	82.0
670	600	.9	26.8	720	504	.8	82.8
671	646	1.0	27.7	721	571	.9	83.6
672	629	.9	28.7	722	538	.8	84.4
673	606	.9	29.6	723	510	.8	85.2
674	708	1.1	30.7	724	499	.8	85.9
675	649	1.0	31.6	725	488	.7	86.7
676	734	1.1	32.7	726	445	.7	87.3
677	745	1.1	33.9	727	426	.6	88.0
678	720	1.1	34.9	728	421	.6	88.6
679	735	1.1	36.0	729	434	.7	89.3
680	721	1.1	37.1	730	394	.6	89.9
681	742	1.1	38.2	731	380	.6	90.4
682	761	1.1	39.4	732	339	.5	90.9
683	799	1.2	40.6	733	306	.5	91.4
684	812	1.2	41.8	734	333	.5	91.9
685	791	1.2	43.0	735	295	.4	92.4
686	827	1.2	44.3	736	276	.4	92.8
687	837	1.3	45.5	737	281	.4	93.2
688	814	1.2	46.7	738	255	.4	93.6
689	808	1.2	48.0	739	250	.4	94.0

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
740	214	.3	94.3	762	82	.1	98.2
741	200	.3	94.6	763	26	.0	98.2
742	207	.3	94.9	764	84	.1	98.3
743	192	.3	95.2	765	176	.3	98.6
744	177	.3	95.4	766	44	.1	98.7
745	153	.2	95.7	767	2	.0	98.7
746	165	.2	95.9	768	25	.0	98.7
747	168	.3	96.2	769	88	.1	98.8
748	203	.3	96.5	770	68	.1	98.9
749	86	.1	96.6	771	50	.1	99.0
750	154	.2	96.8	772	12	.0	99.0
751	101	.2	97.0	774	21	.0	99.1
752	137	.2	97.2	775	86	.1	99.2
753	111	.2	97.4	776	9	.0	99.2
754	84	.1	97.5	780	6	.0	99.2
755	44	.1	97.6	781	74	.1	99.3
756	106	.2	97.7	782	36	.1	99.4
757	34	.1	97.8	786	96	.1	99.5
758	59	.1	97.9	789	15	.0	99.6
759	34	.1	97.9	791	40	.1	99.6
760	85	.1	98.0	820	253	.4	100.0
761	9	.0	98.1	Total	66426	100.0	

Table B3
Scale Score Distribution for Grade 10 Reading

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
529	256	.4	.4	596	10	.0	.7
532	1	.0	.4	597	11	.0	.7
536	1	.0	.4	598	7	.0	.7
541	1	.0	.4	599	5	.0	.7
550	3	.0	.4	600	6	.0	.7
551	10	.0	.4	601	9	.0	.7
552	4	.0	.4	602	7	.0	.7
553	3	.0	.4	603	9	.0	.7
554	4	.0	.4	604	4	.0	.7
555	1	.0	.4	605	11	.0	.8
556	1	.0	.4	606	7	.0	.8
557	1	.0	.4	607	10	.0	.8
559	2	.0	.4	608	11	.0	.8
560	1	.0	.4	609	3	.0	.8
561	1	.0	.4	610	8	.0	.8
563	2	.0	.4	611	8	.0	.8
564	1	.0	.4	612	6	.0	.8
565	1	.0	.4	613	14	.0	.9
566	2	.0	.4	614	3	.0	.9
567	2	.0	.4	615	11	.0	.9
568	2	.0	.4	616	6	.0	.9
569	8	.0	.4	617	7	.0	.9
570	9	.0	.5	618	19	.0	.9
571	7	.0	.5	619	14	.0	.9
572	5	.0	.5	620	8	.0	1.0
573	4	.0	.5	621	14	.0	1.0
574	7	.0	.5	622	17	.0	1.0
575	4	.0	.5	623	12	.0	1.0
576	7	.0	.5	624	19	.0	1.0
577	11	.0	.5	625	20	.0	1.1
578	6	.0	.5	626	16	.0	1.1
579	8	.0	.5	627	16	.0	1.1
580	8	.0	.6	628	14	.0	1.1
581	1	.0	.6	629	18	.0	1.2
582	5	.0	.6	630	15	.0	1.2
583	3	.0	.6	631	25	.0	1.2
584	4	.0	.6	632	26	.0	1.3
585	3	.0	.6	633	20	.0	1.3
586	5	.0	.6	634	11	.0	1.3
587	5	.0	.6	635	24	.0	1.3
588	1	.0	.6	636	17	.0	1.4
589	4	.0	.6	637	29	.0	1.4
590	6	.0	.6	638	33	.0	1.5
591	6	.0	.6	639	32	.0	1.5
592	8	.0	.6	640	38	.1	1.6
593	4	.0	.6	641	26	.0	1.6
594	3	.0	.6	642	33	.0	1.6
595	5	.0	.6	643	35	.1	1.7

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
644	45	.1	1.8	694	772	1.1	24.9
645	50	.1	1.8	695	724	1.0	25.9
646	55	.1	1.9	696	783	1.1	27.1
647	67	.1	2.0	697	761	1.1	28.2
648	56	.1	2.1	698	733	1.1	29.2
649	72	.1	2.2	699	784	1.1	30.3
650	70	.1	2.3	700	790	1.1	31.5
651	62	.1	2.4	701	874	1.3	32.7
652	80	.1	2.5	702	766	1.1	33.9
653	99	.1	2.6	703	766	1.1	35.0
654	85	.1	2.8	704	886	1.3	36.2
655	94	.1	2.9	705	835	1.2	37.4
656	109	.2	3.1	706	782	1.1	38.6
657	90	.1	3.2	707	860	1.2	39.8
658	122	.2	3.4	708	874	1.3	41.1
659	127	.2	3.5	709	831	1.2	42.3
660	133	.2	3.7	710	925	1.3	43.6
661	144	.2	3.9	711	747	1.1	44.7
662	156	.2	4.2	712	934	1.3	46.0
663	159	.2	4.4	713	799	1.2	47.2
664	194	.3	4.7	714	805	1.2	48.4
665	232	.3	5.0	715	773	1.1	49.5
666	236	.3	5.4	716	858	1.2	50.7
667	255	.4	5.7	717	820	1.2	51.9
668	225	.3	6.1	718	939	1.4	53.3
669	280	.4	6.5	719	783	1.1	54.4
670	302	.4	6.9	720	875	1.3	55.7
671	313	.5	7.3	721	736	1.1	56.7
672	294	.4	7.8	722	674	1.0	57.7
673	360	.5	8.3	723	845	1.2	58.9
674	350	.5	8.8	724	976	1.4	60.3
675	389	.6	9.4	725	712	1.0	61.4
676	386	.6	9.9	726	1132	1.6	63.0
677	406	.6	10.5	727	708	1.0	64.0
678	427	.6	11.1	728	706	1.0	65.0
679	477	.7	11.8	729	746	1.1	66.1
680	514	.7	12.5	730	621	.9	67.0
681	483	.7	13.2	731	581	.8	67.8
682	544	.8	14.0	732	559	.8	68.7
683	542	.8	14.8	733	924	1.3	70.0
684	570	.8	15.6	734	813	1.2	71.2
685	555	.8	16.4	735	723	1.0	72.2
686	589	.9	17.3	736	793	1.1	73.4
687	625	.9	18.2	737	288	.4	73.8
688	645	.9	19.1	738	1596	2.3	76.1
689	642	.9	20.1	739	268	.4	76.5
690	621	.9	21.0	740	586	.8	77.3
691	641	.9	21.9	741	484	.7	78.0
692	651	.9	22.8	742	428	.6	78.6
693	654	.9	23.8	743	166	.2	78.9

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
744	209	.3	79.2	755	1398	2.0	88.6
745	1142	1.6	80.8	756	250	.4	88.9
746	78	.1	80.9	757	560	.8	89.8
747	127	.2	81.1	758	690	1.0	90.8
748	1264	1.8	82.9	759	8	.0	90.8
749	324	.5	83.4	762	149	.2	91.0
750	371	.5	83.9	768	296	.4	91.4
751	1365	2.0	85.9	777	2083	3.0	94.4
752	349	.5	86.4	838	3866	5.6	100.0
754	99	.1	86.6	Total	69220	100.0	

Scale Score Distribution for Reading Grades 4, 8, and 10

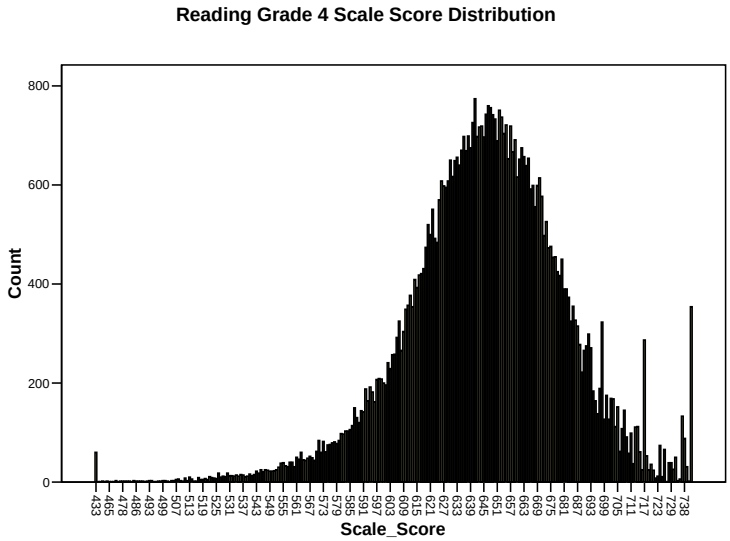

Figure B1
Scale Score Distribution Grade 4 Reading

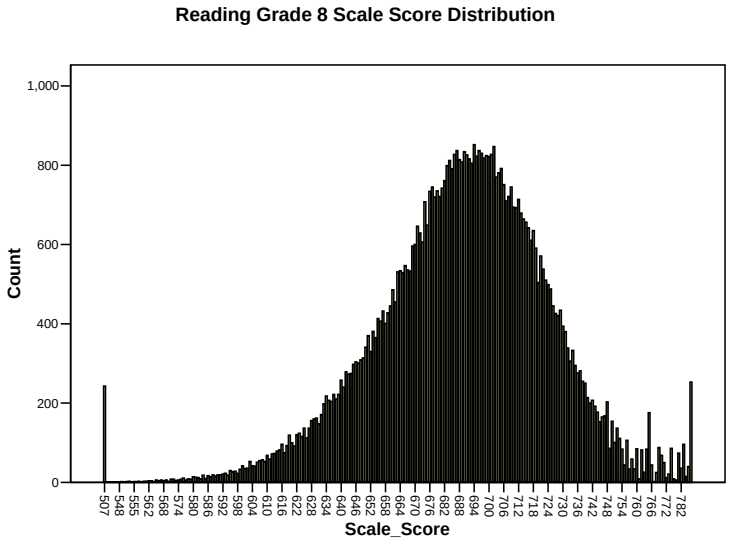

Figure B2
Scale Score Distribution Grade 8 Reading

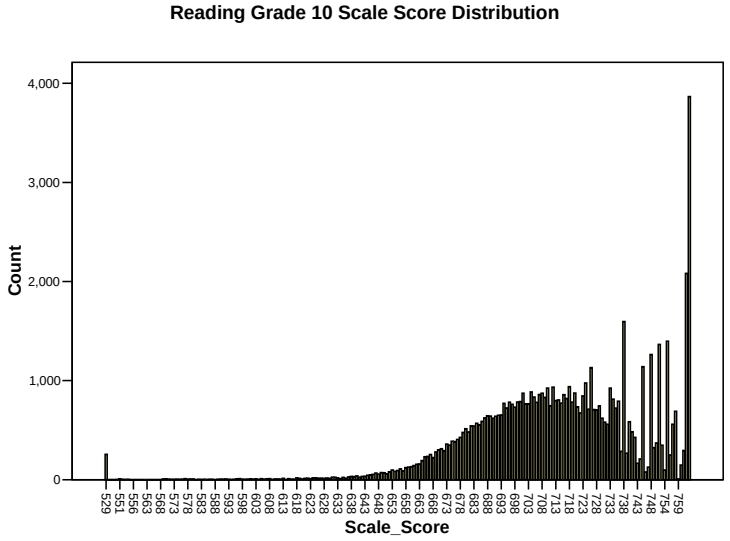

Figure B3
Scale Score Distribution Grade 10 Reading

Table B4
Scale Score Distribution for Grade 4 Mathematics

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
403	23	.0	.0	519	5	.0	.3
423	1	.0	.0	520	6	.0	.3
433	2	.0	.0	521	6	.0	.3
437	1	.0	.0	522	7	.0	.3
438	1	.0	.0	523	4	.0	.3
443	1	.0	.0	524	1	.0	.3
454	1	.0	.1	525	8	.0	.3
456	1	.0	.1	526	8	.0	.3
463	2	.0	.1	527	9	.0	.3
470	1	.0	.1	528	12	.0	.4
472	4	.0	.1	529	20	.0	.4
473	1	.0	.1	530	8	.0	.4
475	4	.0	.1	531	12	.0	.4
478	1	.0	.1	532	8	.0	.4
479	1	.0	.1	533	12	.0	.5
484	2	.0	.1	534	15	.0	.5
485	2	.0	.1	535	9	.0	.5
486	4	.0	.1	536	15	.0	.5
488	1	.0	.1	537	10	.0	.5
490	1	.0	.1	538	12	.0	.6
491	2	.0	.1	539	17	.0	.6
492	1	.0	.1	540	13	.0	.6
493	1	.0	.1	541	22	.0	.7
494	1	.0	.1	542	23	.0	.7
495	1	.0	.1	543	16	.0	.7
496	1	.0	.1	544	26	.0	.8
497	3	.0	.1	545	29	.0	.8
498	2	.0	.1	546	33	.1	.9
499	3	.0	.1	547	34	.1	.9
500	2	.0	.1	548	28	.0	1.0
501	5	.0	.1	549	29	.0	1.0
502	1	.0	.1	550	30	.1	1.1
503	4	.0	.1	551	33	.1	1.1
504	1	.0	.1	552	50	.1	1.2
505	2	.0	.1	553	28	.0	1.3
506	3	.0	.2	554	48	.1	1.4
507	2	.0	.2	555	38	.1	1.4
508	3	.0	.2	556	47	.1	1.5
509	4	.0	.2	557	43	.1	1.6
510	2	.0	.2	558	43	.1	1.6
511	5	.0	.2	559	39	.1	1.7
512	6	.0	.2	560	58	.1	1.8
513	4	.0	.2	561	57	.1	1.9
514	4	.0	.2	562	63	.1	2.0
515	4	.0	.2	563	85	.1	2.2
516	7	.0	.2	564	52	.1	2.3
517	7	.0	.2	565	83	.1	2.4
518	6	.0	.2	566	86	.1	2.5

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
567	93	.2	2.7	617	621	1.1	30.8
568	82	.1	2.8	618	678	1.2	32.0
569	85	.1	3.0	619	634	1.1	33.1
570	113	.2	3.2	620	631	1.1	34.2
571	112	.2	3.4	621	621	1.1	35.2
572	127	.2	3.6	622	637	1.1	36.3
573	117	.2	3.8	623	686	1.2	37.5
574	118	.2	4.0	624	666	1.1	38.7
575	113	.2	4.2	625	685	1.2	39.8
576	138	.2	4.4	626	763	1.3	41.1
577	141	.2	4.7	627	725	1.2	42.4
578	133	.2	4.9	628	716	1.2	43.6
579	188	.3	5.2	629	697	1.2	44.8
580	204	.3	5.6	630	753	1.3	46.1
581	195	.3	5.9	631	664	1.1	47.2
582	214	.4	6.3	632	703	1.2	48.4
583	205	.4	6.6	633	751	1.3	49.7
584	226	.4	7.0	634	749	1.3	51.0
585	210	.4	7.4	635	745	1.3	52.3
586	246	.4	7.8	636	770	1.3	53.6
587	210	.4	8.1	637	756	1.3	54.9
588	259	.4	8.6	638	691	1.2	56.1
589	261	.4	9.0	639	760	1.3	57.4
590	257	.4	9.5	640	686	1.2	58.6
591	294	.5	10.0	641	726	1.2	59.8
592	330	.6	10.6	642	695	1.2	61.0
593	298	.5	11.1	643	726	1.2	62.3
594	328	.6	11.6	644	696	1.2	63.4
595	381	.7	12.3	645	693	1.2	64.6
596	340	.6	12.9	646	684	1.2	65.8
597	368	.6	13.5	647	657	1.1	66.9
598	405	.7	14.2	648	659	1.1	68.1
599	409	.7	14.9	649	670	1.1	69.2
600	418	.7	15.6	650	623	1.1	70.3
601	432	.7	16.3	651	648	1.1	71.4
602	456	.8	17.1	652	620	1.1	72.5
603	471	.8	17.9	653	621	1.1	73.5
604	457	.8	18.7	654	596	1.0	74.5
605	460	.8	19.5	655	607	1.0	75.6
606	477	.8	20.3	656	540	.9	76.5
607	513	.9	21.2	657	522	.9	77.4
608	498	.9	22.1	658	537	.9	78.3
609	526	.9	23.0	659	487	.8	79.2
610	572	1.0	23.9	660	504	.9	80.0
611	516	.9	24.8	661	534	.9	80.9
612	577	1.0	25.8	662	465	.8	81.7
613	538	.9	26.7	663	470	.8	82.5
614	588	1.0	27.7	664	463	.8	83.3
615	586	1.0	28.8	665	425	.7	84.1
616	602	1.0	29.8	666	416	.7	84.8

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
667	395	.7	85.5	715	22	.0	99.4
668	421	.7	86.2	716	16	.0	99.4
669	352	.6	86.8	717	15	.0	99.4
670	356	.6	87.4	718	20	.0	99.5
671	367	.6	88.0	719	17	.0	99.5
672	376	.6	88.7	720	26	.0	99.5
673	338	.6	89.2	721	12	.0	99.6
674	347	.6	89.8	722	9	.0	99.6
675	344	.6	90.4	723	14	.0	99.6
676	305	.5	91.0	724	9	.0	99.6
677	308	.5	91.5	725	14	.0	99.6
678	267	.5	91.9	726	3	.0	99.6
679	312	.5	92.5	727	5	.0	99.7
680	254	.4	92.9	728	11	.0	99.7
681	246	.4	93.3	729	11	.0	99.7
682	221	.4	93.7	730	10	.0	99.7
683	232	.4	94.1	731	15	.0	99.7
684	224	.4	94.5	732	15	.0	99.8
685	239	.4	94.9	733	10	.0	99.8
686	193	.3	95.2	734	10	.0	99.8
687	201	.3	95.6	735	9	.0	99.8
688	176	.3	95.9	736	3	.0	99.8
689	165	.3	96.2	737	3	.0	99.8
690	142	.2	96.4	738	9	.0	99.8
691	130	.2	96.6	739	8	.0	99.8
692	140	.2	96.9	740	5	.0	99.9
693	135	.2	97.1	741	3	.0	99.9
694	118	.2	97.3	742	5	.0	99.9
695	108	.2	97.5	743	4	.0	99.9
696	119	.2	97.7	744	6	.0	99.9
697	88	.2	97.8	745	8	.0	99.9
698	81	.1	98.0	746	2	.0	99.9
699	76	.1	98.1	747	9	.0	99.9
700	64	.1	98.2	748	2	.0	99.9
701	65	.1	98.3	750	1	.0	99.9
702	61	.1	98.4	751	3	.0	99.9
703	66	.1	98.6	753	1	.0	99.9
704	54	.1	98.6	754	1	.0	99.9
705	58	.1	98.7	755	1	.0	99.9
706	52	.1	98.8	756	1	.0	99.9
707	48	.1	98.9	757	1	.0	99.9
708	48	.1	99.0	759	1	.0	99.9
709	31	.1	99.1	760	2	.0	99.9
710	43	.1	99.1	764	1	.0	99.9
711	30	.1	99.2	765	1	.0	99.9
712	32	.1	99.2	767	2	.0	100.0
713	22	.0	99.3	770	29	.0	100.0
714	40	.1	99.3	Total	58316	100.0	

Table B5
Scale Score Distribution for Grade 8 Mathematics

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
502	122	.2	.2	567	2	.0	.4
504	2	.0	.2	568	6	.0	.4
505	1	.0	.2	569	3	.0	.4
506	4	.0	.2	570	5	.0	.4
507	1	.0	.2	571	5	.0	.4
508	2	.0	.2	572	4	.0	.4
511	1	.0	.2	573	8	.0	.4
514	2	.0	.2	574	8	.0	.4
515	1	.0	.2	575	6	.0	.4
516	1	.0	.2	576	4	.0	.4
517	1	.0	.2	577	5	.0	.4
521	1	.0	.2	578	6	.0	.5
522	1	.0	.2	579	8	.0	.5
523	1	.0	.2	580	14	.0	.5
524	3	.0	.2	581	8	.0	.5
525	3	.0	.2	582	6	.0	.5
526	3	.0	.2	583	14	.0	.5
528	2	.0	.2	584	12	.0	.5
529	1	.0	.2	585	16	.0	.6
531	2	.0	.2	586	17	.0	.6
532	1	.0	.2	587	19	.0	.6
533	1	.0	.2	588	10	.0	.6
534	1	.0	.2	589	11	.0	.7
535	1	.0	.2	590	17	.0	.7
537	1	.0	.2	591	8	.0	.7
539	1	.0	.2	592	25	.0	.7
540	1	.0	.2	593	17	.0	.8
542	3	.0	.2	594	23	.0	.8
543	1	.0	.3	595	21	.0	.8
544	2	.0	.3	596	21	.0	.9
546	1	.0	.3	597	24	.0	.9
547	3	.0	.3	598	20	.0	.9
548	1	.0	.3	599	31	.0	1.0
549	1	.0	.3	600	24	.0	1.0
551	5	.0	.3	601	29	.0	1.0
552	1	.0	.3	602	32	.0	1.1
555	2	.0	.3	603	27	.0	1.1
556	1	.0	.3	604	28	.0	1.2
557	5	.0	.3	605	25	.0	1.2
558	3	.0	.3	606	40	.1	1.3
559	3	.0	.3	607	40	.1	1.3
560	9	.0	.3	608	32	.0	1.4
561	6	.0	.3	609	37	.1	1.4
562	8	.0	.3	610	43	.1	1.5
563	5	.0	.3	611	51	.1	1.6
564	9	.0	.3	612	47	.1	1.7
565	6	.0	.4	613	51	.1	1.7
566	2	.0	.4	614	49	.1	1.8

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
615	56	.1	1.9	665	320	.5	14.9
616	66	.1	2.0	666	330	.5	15.4
617	65	.1	2.1	667	360	.5	15.9
618	61	.1	2.2	668	411	.6	16.6
619	61	.1	2.3	669	393	.6	17.1
620	69	.1	2.4	670	377	.6	17.7
621	75	.1	2.5	671	433	.7	18.4
622	75	.1	2.6	672	394	.6	19.0
623	93	.1	2.7	673	442	.7	19.6
624	94	.1	2.9	674	430	.6	20.3
625	91	.1	3.0	675	472	.7	21.0
626	94	.1	3.2	676	440	.7	21.7
627	89	.1	3.3	677	470	.7	22.4
628	92	.1	3.4	678	532	.8	23.2
629	107	.2	3.6	679	493	.7	23.9
630	95	.1	3.7	680	522	.8	24.7
631	108	.2	3.9	681	538	.8	25.5
632	114	.2	4.1	682	530	.8	26.3
633	142	.2	4.3	683	557	.8	27.1
634	117	.2	4.5	684	562	.8	28.0
635	116	.2	4.6	685	578	.9	28.9
636	139	.2	4.8	686	621	.9	29.8
637	123	.2	5.0	687	597	.9	30.7
638	143	.2	5.2	688	650	1.0	31.7
639	146	.2	5.5	689	636	1.0	32.6
640	151	.2	5.7	690	619	.9	33.6
641	186	.3	6.0	691	607	.9	34.5
642	159	.2	6.2	692	703	1.1	35.5
643	153	.2	6.4	693	665	1.0	36.5
644	179	.3	6.7	694	707	1.1	37.6
645	208	.3	7.0	695	706	1.1	38.7
646	193	.3	7.3	696	699	1.1	39.7
647	198	.3	7.6	697	746	1.1	40.9
648	200	.3	7.9	698	687	1.0	41.9
649	210	.3	8.2	699	704	1.1	42.9
650	203	.3	8.5	700	746	1.1	44.1
651	220	.3	8.9	701	693	1.0	45.1
652	244	.4	9.2	702	716	1.1	46.2
653	243	.4	9.6	703	763	1.1	47.3
654	257	.4	10.0	704	732	1.1	48.4
655	296	.4	10.4	705	755	1.1	49.6
656	241	.4	10.8	706	749	1.1	50.7
657	267	.4	11.2	707	668	1.0	51.7
658	285	.4	11.6	708	695	1.0	52.8
659	266	.4	12.0	709	803	1.2	54.0
660	307	.5	12.5	710	746	1.1	55.1
661	291	.4	12.9	711	760	1.1	56.2
662	319	.5	13.4	712	769	1.2	57.4
663	353	.5	14.0	713	759	1.1	58.6
664	306	.5	14.4	714	772	1.2	59.7

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
715	756	1.1	60.9	765	151	.2	95.0
716	742	1.1	62.0	766	176	.3	95.2
717	750	1.1	63.1	767	164	.2	95.5
718	685	1.0	64.1	768	150	.2	95.7
719	678	1.0	65.2	769	142	.2	95.9
720	738	1.1	66.3	770	145	.2	96.1
721	694	1.0	67.3	771	124	.2	96.3
722	656	1.0	68.3	772	127	.2	96.5
723	703	1.1	69.4	773	99	.1	96.7
724	699	1.1	70.4	774	92	.1	96.8
725	650	1.0	71.4	775	103	.2	97.0
726	624	.9	72.3	776	102	.2	97.1
727	644	1.0	73.3	777	77	.1	97.2
728	589	.9	74.2	778	105	.2	97.4
729	619	.9	75.1	779	70	.1	97.5
730	569	.9	76.0	780	78	.1	97.6
731	586	.9	76.9	781	66	.1	97.7
732	518	.8	77.7	782	71	.1	97.8
733	525	.8	78.4	783	92	.1	98.0
734	540	.8	79.3	784	76	.1	98.1
735	562	.8	80.1	785	55	.1	98.2
736	487	.7	80.8	786	51	.1	98.2
737	508	.8	81.6	787	58	.1	98.3
738	512	.8	82.4	788	61	.1	98.4
739	484	.7	83.1	789	58	.1	98.5
740	436	.7	83.8	790	56	.1	98.6
741	459	.7	84.5	791	43	.1	98.6
742	424	.6	85.1	792	45	.1	98.7
743	400	.6	85.7	793	40	.1	98.8
744	395	.6	86.3	794	39	.1	98.8
745	435	.7	86.9	795	42	.1	98.9
746	382	.6	87.5	796	30	.0	98.9
747	361	.5	88.1	797	23	.0	99.0
748	363	.5	88.6	798	32	.0	99.0
749	353	.5	89.1	799	34	.1	99.1
750	303	.5	89.6	800	34	.1	99.1
751	346	.5	90.1	801	21	.0	99.2
752	304	.5	90.6	802	23	.0	99.2
753	275	.4	91.0	803	25	.0	99.2
754	237	.4	91.4	804	29	.0	99.3
755	257	.4	91.7	805	18	.0	99.3
756	261	.4	92.1	806	32	.0	99.4
757	258	.4	92.5	807	18	.0	99.4
758	224	.3	92.9	808	18	.0	99.4
759	232	.3	93.2	809	9	.0	99.4
760	211	.3	93.5	810	20	.0	99.5
761	210	.3	93.8	811	11	.0	99.5
762	209	.3	94.2	812	14	.0	99.5
763	195	.3	94.5	813	18	.0	99.5
764	192	.3	94.7	814	11	.0	99.5

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
815	13	.0	99.6	834	4	.0	99.7
816	3	.0	99.6	835	14	.0	99.8
817	10	.0	99.6	836	6	.0	99.8
818	15	.0	99.6	838	18	.0	99.8
819	7	.0	99.6	839	1	.0	99.8
820	11	.0	99.6	843	1	.0	99.8
821	8	.0	99.6	844	6	.0	99.8
822	6	.0	99.6	847	11	.0	99.8
823	8	.0	99.7	848	2	.0	99.8
824	9	.0	99.7	849	13	.0	99.9
825	2	.0	99.7	852	19	.0	99.9
826	4	.0	99.7	855	5	.0	99.9
828	16	.0	99.7	864	14	.0	99.9
829	20	.0	99.7	872	60	.1	100.0
830	2	.0	99.7	Total	66349	100.0	
831	2	.0	99.7				

Table B6
Scale Score Distribution for Grade 10 Mathematics

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
530	202	.3	.3	591	2	.0	.5
536	1	.0	.3	592	8	.0	.5
537	1	.0	.3	593	11	.0	.5
539	1	.0	.3	594	14	.0	.6
542	2	.0	.3	595	10	.0	.6
543	1	.0	.3	596	6	.0	.6
545	1	.0	.3	597	9	.0	.6
546	3	.0	.3	598	8	.0	.6
547	1	.0	.3	599	13	.0	.6
548	2	.0	.3	600	3	.0	.6
549	1	.0	.3	601	9	.0	.6
551	2	.0	.3	602	10	.0	.7
552	1	.0	.3	603	13	.0	.7
553	1	.0	.3	604	10	.0	.7
555	1	.0	.3	605	15	.0	.7
556	1	.0	.3	606	8	.0	.7
557	1	.0	.3	607	12	.0	.7
559	13	.0	.3	608	18	.0	.8
560	2	.0	.3	609	16	.0	.8
561	2	.0	.3	610	10	.0	.8
562	5	.0	.4	611	22	.0	.8
563	1	.0	.4	612	12	.0	.9
564	3	.0	.4	613	24	.0	.9
565	4	.0	.4	614	21	.0	.9
566	5	.0	.4	615	10	.0	.9
567	2	.0	.4	616	18	.0	1.0
568	6	.0	.4	617	20	.0	1.0
569	2	.0	.4	618	10	.0	1.0
570	3	.0	.4	619	20	.0	1.0
572	1	.0	.4	620	23	.0	1.1
573	7	.0	.4	621	24	.0	1.1
574	4	.0	.4	622	20	.0	1.1
575	4	.0	.4	623	24	.0	1.2
576	2	.0	.4	624	8	.0	1.2
577	3	.0	.4	625	23	.0	1.2
578	2	.0	.4	626	25	.0	1.2
579	6	.0	.4	627	24	.0	1.3
580	2	.0	.4	628	21	.0	1.3
581	10	.0	.5	629	30	.0	1.4
582	4	.0	.5	630	26	.0	1.4
583	4	.0	.5	631	30	.0	1.4
584	3	.0	.5	632	44	.1	1.5
585	4	.0	.5	633	27	.0	1.5
586	8	.0	.5	634	33	.0	1.6
587	5	.0	.5	635	40	.1	1.6
588	4	.0	.5	636	34	.0	1.7
589	6	.0	.5	637	42	.1	1.8
590	5	.0	.5	638	45	.1	1.8

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
639	41	.1	1.9	689	216	.3	9.8
640	47	.1	1.9	690	210	.3	10.1
641	41	.1	2.0	691	254	.4	10.5
642	44	.1	2.1	692	258	.4	10.9
643	50	.1	2.1	693	256	.4	11.2
644	48	.1	2.2	694	258	.4	11.6
645	61	.1	2.3	695	306	.4	12.0
646	48	.1	2.4	696	263	.4	12.4
647	46	.1	2.4	697	307	.4	12.9
648	61	.1	2.5	698	249	.4	13.2
649	66	.1	2.6	699	296	.4	13.7
650	60	.1	2.7	700	314	.5	14.1
651	56	.1	2.8	701	294	.4	14.5
652	63	.1	2.9	702	340	.5	15.0
653	70	.1	3.0	703	351	.5	15.5
654	72	.1	3.1	704	323	.5	16.0
655	62	.1	3.2	705	355	.5	16.5
656	75	.1	3.3	706	358	.5	17.0
657	69	.1	3.4	707	365	.5	17.6
658	81	.1	3.5	708	378	.5	18.1
659	79	.1	3.6	709	358	.5	18.6
660	83	.1	3.7	710	385	.6	19.2
661	78	.1	3.8	711	400	.6	19.8
662	94	.1	4.0	712	403	.6	20.3
663	103	.1	4.1	713	420	.6	21.0
664	110	.2	4.3	714	382	.6	21.5
665	92	.1	4.4	715	428	.6	22.1
666	98	.1	4.6	716	476	.7	22.8
667	125	.2	4.7	717	425	.6	23.4
668	119	.2	4.9	718	546	.8	24.2
669	112	.2	5.1	719	513	.7	25.0
670	105	.2	5.2	720	517	.7	25.7
671	116	.2	5.4	721	502	.7	26.4
672	148	.2	5.6	722	532	.8	27.2
673	114	.2	5.8	723	521	.8	28.0
674	156	.2	6.0	724	544	.8	28.7
675	159	.2	6.2	725	569	.8	29.6
676	137	.2	6.4	726	561	.8	30.4
677	145	.2	6.6	727	594	.9	31.2
678	157	.2	6.9	728	614	.9	32.1
679	163	.2	7.1	729	592	.9	33.0
680	159	.2	7.3	730	625	.9	33.9
681	188	.3	7.6	731	643	.9	34.8
682	170	.2	7.9	732	663	1.0	35.8
683	166	.2	8.1	733	690	1.0	36.8
684	168	.2	8.3	734	671	1.0	37.7
685	177	.3	8.6	735	651	.9	38.7
686	195	.3	8.9	736	721	1.0	39.7
687	222	.3	9.2	737	727	1.1	40.8
688	216	.3	9.5	738	719	1.0	41.8

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
739	718	1.0	42.8	789	359	.5	88.1
740	743	1.1	43.9	790	323	.5	88.6
741	731	1.1	45.0	791	310	.4	89.1
742	729	1.1	46.0	792	294	.4	89.5
743	792	1.1	47.2	793	290	.4	89.9
744	740	1.1	48.2	794	316	.5	90.4
745	809	1.2	49.4	795	303	.4	90.8
746	808	1.2	50.6	796	278	.4	91.2
747	780	1.1	51.7	797	266	.4	91.6
748	775	1.1	52.8	798	186	.3	91.8
749	854	1.2	54.1	799	265	.4	92.2
750	814	1.2	55.2	800	182	.3	92.5
751	798	1.2	56.4	801	293	.4	92.9
752	804	1.2	57.6	802	210	.3	93.2
753	803	1.2	58.7	803	126	.2	93.4
754	812	1.2	59.9	804	192	.3	93.7
755	754	1.1	61.0	805	175	.3	93.9
756	840	1.2	62.2	806	237	.3	94.3
757	791	1.1	63.3	807	116	.2	94.4
758	768	1.1	64.4	808	149	.2	94.7
759	747	1.1	65.5	809	158	.2	94.9
760	707	1.0	66.6	810	113	.2	95.1
761	707	1.0	67.6	811	149	.2	95.3
762	718	1.0	68.6	812	99	.1	95.4
763	669	1.0	69.6	813	124	.2	95.6
764	707	1.0	70.6	814	104	.2	95.7
765	647	.9	71.5	815	110	.2	95.9
766	608	.9	72.4	816	79	.1	96.0
767	601	.9	73.3	817	282	.4	96.4
768	620	.9	74.2	818	70	.1	96.5
769	589	.9	75.0	819	59	.1	96.6
770	607	.9	75.9	820	58	.1	96.7
771	550	.8	76.7	821	93	.1	96.8
772	570	.8	77.5	822	18	.0	96.8
773	553	.8	78.3	823	21	.0	96.9
774	528	.8	79.1	824	86	.1	97.0
775	529	.8	79.9	825	89	.1	97.1
776	505	.7	80.6	826	63	.1	97.2
777	480	.7	81.3	827	18	.0	97.3
778	469	.7	82.0	828	174	.3	97.5
779	478	.7	82.6	829	115	.2	97.7
780	414	.6	83.2	830	69	.1	97.8
781	461	.7	83.9	832	84	.1	97.9
782	409	.6	84.5	833	27	.0	97.9
783	376	.5	85.0	837	53	.1	98.0
784	364	.5	85.6	839	33	.0	98.1
785	373	.5	86.1	840	85	.1	98.2
786	367	.5	86.6	842	54	.1	98.3
787	361	.5	87.2	846	63	.1	98.3
788	313	.5	87.6	847	95	.1	98.5

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
850	36	.1	98.5	863	156	.2	99.0
853	47	.1	98.6	892	684	1.0	100.0
860	127	.2	98.8	Total	69173	100.0	

Scale Score Distribution for Mathematics Grades 4, 8, and 10

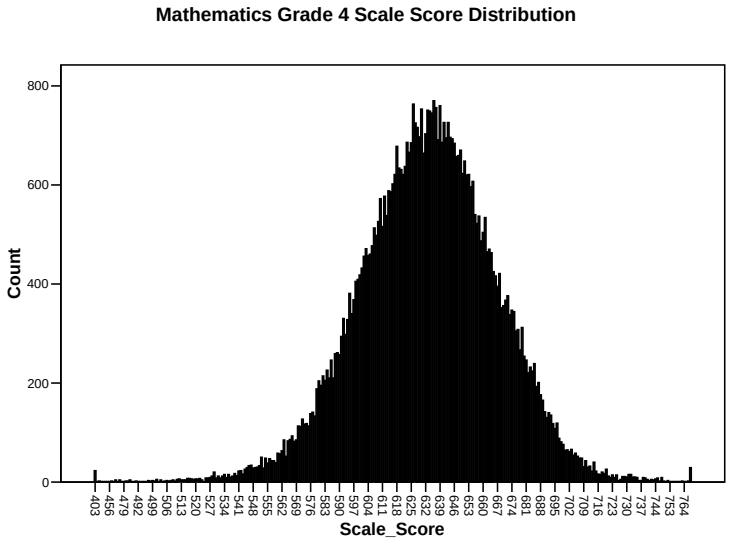

Figure B4
Scale Score Distribution for Grade 4 Mathematics

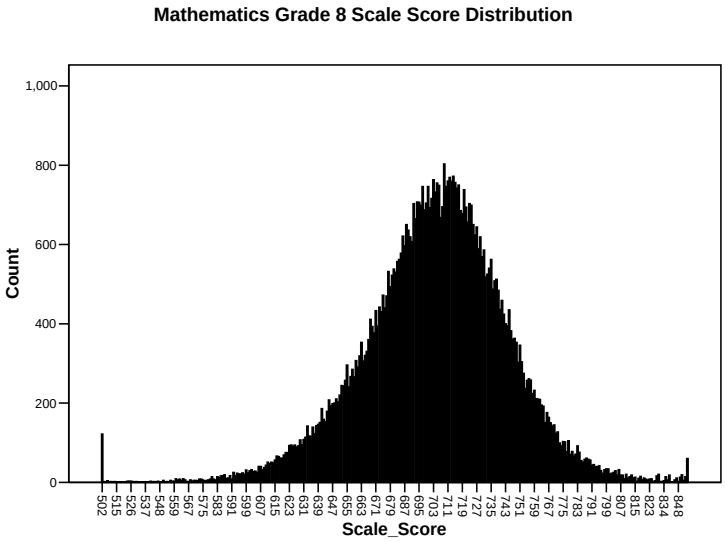

Figure B5
Scale Score Distribution for Grade 8 Mathematics

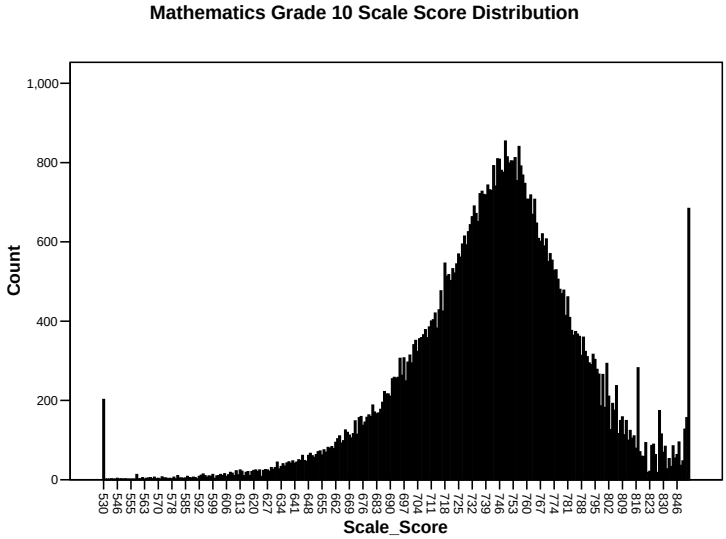

Figure B6
Scale Score Distribution for Grade 10 Mathematics

Table B7
Scale Score Distribution for Grade 4 Language Arts

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
465	175	.3	.3	557	28	.0	.9
507	1	.0	.3	558	17	.0	.9
508	1	.0	.3	559	36	.1	1.0
509	1	.0	.3	560	29	.0	1.0
510	1	.0	.3	561	26	.0	1.1
511	4	.0	.3	562	23	.0	1.1
513	4	.0	.3	563	22	.0	1.2
514	1	.0	.3	564	29	.0	1.2
515	2	.0	.3	565	37	.1	1.3
516	2	.0	.3	566	24	.0	1.3
517	1	.0	.3	567	34	.1	1.4
518	7	.0	.3	568	41	.1	1.4
519	1	.0	.3	569	37	.1	1.5
520	2	.0	.3	570	49	.1	1.6
521	1	.0	.4	571	53	.1	1.7
522	3	.0	.4	572	57	.1	1.8
524	2	.0	.4	573	39	.1	1.8
525	3	.0	.4	574	40	.1	1.9
526	5	.0	.4	575	45	.1	2.0
528	1	.0	.4	576	59	.1	2.1
529	1	.0	.4	577	75	.1	2.2
530	3	.0	.4	578	62	.1	2.3
531	4	.0	.4	579	87	.1	2.5
532	5	.0	.4	580	60	.1	2.6
533	4	.0	.4	581	66	.1	2.7
534	8	.0	.4	582	69	.1	2.8
535	2	.0	.4	583	82	.1	2.9
536	5	.0	.4	584	96	.2	3.1
537	5	.0	.4	585	91	.2	3.3
538	8	.0	.5	586	116	.2	3.5
539	9	.0	.5	587	95	.2	3.6
540	8	.0	.5	588	105	.2	3.8
541	10	.0	.5	589	135	.2	4.0
542	7	.0	.5	590	133	.2	4.3
543	7	.0	.5	591	142	.2	4.5
544	13	.0	.5	592	146	.3	4.8
545	12	.0	.6	593	173	.3	5.1
546	14	.0	.6	594	158	.3	5.3
547	10	.0	.6	595	164	.3	5.6
548	8	.0	.6	596	162	.3	5.9
549	6	.0	.6	597	186	.3	6.2
550	24	.0	.7	598	198	.3	6.6
551	8	.0	.7	599	205	.4	6.9
552	10	.0	.7	600	228	.4	7.3
553	18	.0	.7	601	209	.4	7.7
554	24	.0	.8	602	252	.4	8.1
555	13	.0	.8	603	255	.4	8.5
556	25	.0	.8	604	261	.4	9.0

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
605	278	.5	9.5	655	790	1.4	61.2
606	291	.5	10.0	656	802	1.4	62.6
607	296	.5	10.5	657	780	1.3	63.9
608	294	.5	11.0	658	761	1.3	65.3
609	326	.6	11.5	659	768	1.3	66.6
610	333	.6	12.1	660	716	1.2	67.8
611	343	.6	12.7	661	730	1.3	69.1
612	382	.7	13.4	662	715	1.2	70.3
613	388	.7	14.0	663	706	1.2	71.5
614	418	.7	14.7	664	688	1.2	72.7
615	446	.8	15.5	665	673	1.2	73.8
616	429	.7	16.2	666	620	1.1	74.9
617	412	.7	17.0	667	658	1.1	76.0
618	453	.8	17.7	668	610	1.0	77.1
619	450	.8	18.5	669	677	1.2	78.3
620	484	.8	19.3	670	552	.9	79.2
621	506	.9	20.2	671	607	1.0	80.3
622	541	.9	21.1	672	542	.9	81.2
623	535	.9	22.1	673	540	.9	82.1
624	551	.9	23.0	674	512	.9	83.0
625	569	1.0	24.0	675	479	.8	83.8
626	557	1.0	24.9	676	516	.9	84.7
627	608	1.0	26.0	677	477	.8	85.5
628	618	1.1	27.1	678	469	.8	86.3
629	656	1.1	28.2	679	419	.7	87.1
630	576	1.0	29.2	680	407	.7	87.8
631	623	1.1	30.2	681	385	.7	88.4
632	646	1.1	31.4	682	335	.6	89.0
633	685	1.2	32.5	683	372	.6	89.6
634	684	1.2	33.7	684	313	.5	90.2
635	659	1.1	34.8	685	313	.5	90.7
636	719	1.2	36.1	686	323	.6	91.3
637	757	1.3	37.4	687	318	.5	91.8
638	705	1.2	38.6	688	267	.5	92.3
639	743	1.3	39.9	689	253	.4	92.7
640	744	1.3	41.2	690	273	.5	93.2
641	790	1.4	42.5	691	226	.4	93.6
642	729	1.3	43.8	692	203	.3	93.9
643	776	1.3	45.1	693	201	.3	94.3
644	813	1.4	46.5	694	238	.4	94.7
645	784	1.3	47.8	695	164	.3	94.9
646	780	1.3	49.2	696	176	.3	95.3
647	808	1.4	50.6	697	170	.3	95.5
648	750	1.3	51.9	698	137	.2	95.8
649	780	1.3	53.2	699	150	.3	96.0
650	801	1.4	54.6	700	112	.2	96.2
651	765	1.3	55.9	701	120	.2	96.4
652	773	1.3	57.2	702	132	.2	96.7
653	767	1.3	58.6	703	120	.2	96.9
654	766	1.3	59.9	704	100	.2	97.0

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
705	90	.2	97.2	731	31	.1	99.3
706	109	.2	97.4	732	17	.0	99.3
707	102	.2	97.6	733	13	.0	99.3
708	85	.1	97.7	734	35	.1	99.4
709	61	.1	97.8	735	5	.0	99.4
710	73	.1	97.9	736	19	.0	99.4
711	66	.1	98.0	737	29	.0	99.5
712	51	.1	98.1	738	16	.0	99.5
713	59	.1	98.2	739	8	.0	99.5
714	72	.1	98.4	740	14	.0	99.5
715	49	.1	98.4	741	1	.0	99.5
716	33	.1	98.5	742	5	.0	99.5
717	55	.1	98.6	744	7	.0	99.6
718	31	.1	98.6	745	5	.0	99.6
719	41	.1	98.7	746	14	.0	99.6
720	50	.1	98.8	747	5	.0	99.6
721	16	.0	98.8	749	5	.0	99.6
722	63	.1	98.9	750	23	.0	99.6
723	15	.0	99.0	751	46	.1	99.7
724	49	.1	99.1	752	2	.0	99.7
725	17	.0	99.1	753	1	.0	99.7
726	19	.0	99.1	754	10	.0	99.7
727	13	.0	99.1	755	13	.0	99.8
728	14	.0	99.2	757	136	.2	100.0
729	11	.0	99.2	Total	58148	100.0	
730	17	.0	99.2				

Table B8
Scale Score Distribution for Grade 8 Language Arts

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
523	157	.2	.2	587	16	.0	.6
532	1	.0	.2	588	19	.0	.7
538	1	.0	.2	589	12	.0	.7
541	1	.0	.2	590	14	.0	.7
542	1	.0	.2	591	15	.0	.7
543	1	.0	.2	592	24	.0	.7
545	1	.0	.2	593	21	.0	.8
546	2	.0	.2	594	24	.0	.8
547	3	.0	.3	595	27	.0	.9
548	1	.0	.3	596	31	.0	.9
549	2	.0	.3	597	22	.0	.9
550	1	.0	.3	598	27	.0	1.0
551	3	.0	.3	599	25	.0	1.0
552	3	.0	.3	600	38	.1	1.1
553	4	.0	.3	601	47	.1	1.1
554	2	.0	.3	602	42	.1	1.2
555	2	.0	.3	603	38	.1	1.3
556	3	.0	.3	604	44	.1	1.3
557	4	.0	.3	605	56	.1	1.4
558	3	.0	.3	606	55	.1	1.5
559	4	.0	.3	607	54	.1	1.6
560	7	.0	.3	608	70	.1	1.7
561	1	.0	.3	609	66	.1	1.8
562	5	.0	.3	610	80	.1	1.9
563	4	.0	.3	611	80	.1	2.0
564	3	.0	.3	612	58	.1	2.1
565	6	.0	.3	613	69	.1	2.2
566	6	.0	.3	614	85	.1	2.3
567	3	.0	.4	615	84	.1	2.5
568	8	.0	.4	616	89	.1	2.6
569	6	.0	.4	617	95	.1	2.7
570	7	.0	.4	618	124	.2	2.9
571	5	.0	.4	619	101	.2	3.1
572	3	.0	.4	620	132	.2	3.3
573	9	.0	.4	621	126	.2	3.5
574	6	.0	.4	622	138	.2	3.7
575	11	.0	.4	623	143	.2	3.9
576	7	.0	.4	624	151	.2	4.1
577	9	.0	.5	625	167	.3	4.4
578	4	.0	.5	626	177	.3	4.6
579	6	.0	.5	627	181	.3	4.9
580	11	.0	.5	628	186	.3	5.2
581	10	.0	.5	629	196	.3	5.5
582	9	.0	.5	630	241	.4	5.9
583	13	.0	.5	631	214	.3	6.2
584	9	.0	.6	632	217	.3	6.5
585	16	.0	.6	633	262	.4	6.9
586	14	.0	.6	634	268	.4	7.3

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
635	272	.4	7.7	685	837	1.3	56.6
636	277	.4	8.1	686	816	1.2	57.8
637	322	.5	8.6	687	821	1.2	59.1
638	340	.5	9.1	688	785	1.2	60.2
639	350	.5	9.6	689	815	1.2	61.5
640	367	.6	10.2	690	786	1.2	62.6
641	374	.6	10.8	691	804	1.2	63.9
642	404	.6	11.4	692	791	1.2	65.0
643	411	.6	12.0	693	759	1.1	66.2
644	455	.7	12.7	694	789	1.2	67.4
645	382	.6	13.3	695	729	1.1	68.5
646	497	.7	14.0	696	729	1.1	69.6
647	495	.7	14.7	697	717	1.1	70.6
648	477	.7	15.5	698	714	1.1	71.7
649	501	.8	16.2	699	642	1.0	72.7
650	508	.8	17.0	700	677	1.0	73.7
651	575	.9	17.8	701	670	1.0	74.7
652	591	.9	18.7	702	646	1.0	75.7
653	564	.8	19.6	703	636	1.0	76.6
654	563	.8	20.4	704	631	.9	77.6
655	622	.9	21.4	705	619	.9	78.5
656	629	.9	22.3	706	565	.9	79.4
657	671	1.0	23.3	707	579	.9	80.3
658	684	1.0	24.4	708	629	.9	81.2
659	706	1.1	25.4	709	556	.8	82.0
660	731	1.1	26.5	710	517	.8	82.8
661	730	1.1	27.6	711	485	.7	83.5
662	676	1.0	28.6	712	483	.7	84.3
663	752	1.1	29.8	713	444	.7	84.9
664	739	1.1	30.9	714	531	.8	85.7
665	763	1.1	32.0	715	489	.7	86.5
666	773	1.2	33.2	716	432	.7	87.1
667	789	1.2	34.4	717	467	.7	87.8
668	792	1.2	35.6	718	398	.6	88.4
669	772	1.2	36.7	719	347	.5	89.0
670	810	1.2	38.0	720	347	.5	89.5
671	792	1.2	39.1	721	375	.6	90.0
672	858	1.3	40.4	722	343	.5	90.6
673	867	1.3	41.7	723	315	.5	91.0
674	815	1.2	43.0	724	313	.5	91.5
675	833	1.3	44.2	725	325	.5	92.0
676	798	1.2	45.4	726	291	.4	92.4
677	852	1.3	46.7	727	256	.4	92.8
678	866	1.3	48.0	728	272	.4	93.2
679	785	1.2	49.2	729	260	.4	93.6
680	829	1.2	50.4	730	260	.4	94.0
681	789	1.2	51.6	731	219	.3	94.3
682	783	1.2	52.8	732	172	.3	94.6
683	859	1.3	54.1	733	197	.3	94.9
684	812	1.2	55.3	734	216	.3	95.2

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
735	173	.3	95.5	769	11	.0	99.2
736	154	.2	95.7	770	5	.0	99.2
737	151	.2	95.9	771	39	.1	99.3
738	149	.2	96.2	772	34	.1	99.4
739	115	.2	96.3	773	6	.0	99.4
740	154	.2	96.6	774	5	.0	99.4
741	172	.3	96.8	775	9	.0	99.4
742	73	.1	96.9	776	80	.1	99.5
743	156	.2	97.2	777	44	.1	99.6
744	75	.1	97.3	778	4	.0	99.6
745	122	.2	97.5	780	2	.0	99.6
746	88	.1	97.6	781	10	.0	99.6
747	59	.1	97.7	782	13	.0	99.6
748	94	.1	97.8	783	43	.1	99.7
749	86	.1	98.0	786	1	.0	99.7
750	66	.1	98.1	787	7	.0	99.7
751	98	.1	98.2	788	2	.0	99.7
752	38	.1	98.3	789	5	.0	99.7
753	81	.1	98.4	792	3	.0	99.7
754	28	.0	98.4	794	12	.0	99.7
755	45	.1	98.5	795	39	.1	99.8
756	29	.0	98.5	796	1	.0	99.8
757	19	.0	98.6	797	2	.0	99.8
758	78	.1	98.7	798	1	.0	99.8
759	30	.0	98.7	799	1	.0	99.8
760	20	.0	98.8	802	1	.0	99.8
761	115	.2	98.9	803	6	.0	99.8
762	41	.1	99.0	804	31	.0	99.9
763	11	.0	99.0	805	7	.0	99.9
764	43	.1	99.1	806	23	.0	99.9
765	53	.1	99.2	815	1	.0	99.9
766	11	.0	99.2	818	3	.0	99.9
767	16	.0	99.2	819	64	.1	100.0
768	21	.0	99.2	Total	66426	100.0	

Table B9
Scale Score Distribution for Grade 10 Language Arts

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
535	127	.2	.2	611	5	.0	.3
538	2	.0	.2	612	4	.0	.3
546	1	.0	.2	613	3	.0	.3
547	1	.0	.2	614	4	.0	.3
548	1	.0	.2	615	7	.0	.3
552	1	.0	.2	616	5	.0	.3
553	1	.0	.2	617	11	.0	.4
554	3	.0	.2	618	16	.0	.4
555	1	.0	.2	619	9	.0	.4
558	2	.0	.2	620	13	.0	.4
559	1	.0	.2	621	13	.0	.4
560	1	.0	.2	622	9	.0	.4
562	1	.0	.2	623	21	.0	.5
563	1	.0	.2	624	19	.0	.5
565	1	.0	.2	625	10	.0	.5
566	1	.0	.2	626	12	.0	.5
568	2	.0	.2	627	19	.0	.6
571	1	.0	.2	628	20	.0	.6
572	1	.0	.2	629	26	.0	.6
573	2	.0	.2	630	17	.0	.7
574	1	.0	.2	631	29	.0	.7
576	1	.0	.2	632	25	.0	.7
579	1	.0	.2	633	34	.0	.8
580	3	.0	.2	634	46	.1	.8
582	2	.0	.2	635	33	.0	.9
583	2	.0	.2	636	35	.1	.9
586	1	.0	.2	637	45	.1	1.0
587	4	.0	.2	638	33	.0	1.1
588	1	.0	.2	639	50	.1	1.1
590	2	.0	.2	640	55	.1	1.2
591	1	.0	.2	641	60	.1	1.3
592	1	.0	.2	642	55	.1	1.4
594	3	.0	.3	643	69	.1	1.5
596	1	.0	.3	644	68	.1	1.6
597	1	.0	.3	645	72	.1	1.7
598	4	.0	.3	646	69	.1	1.8
599	1	.0	.3	647	92	.1	1.9
600	3	.0	.3	648	90	.1	2.0
601	3	.0	.3	649	90	.1	2.2
602	1	.0	.3	650	111	.2	2.3
603	1	.0	.3	651	125	.2	2.5
604	2	.0	.3	652	121	.2	2.7
605	2	.0	.3	653	142	.2	2.9
606	4	.0	.3	654	145	.2	3.1
607	1	.0	.3	655	135	.2	3.3
608	2	.0	.3	656	138	.2	3.5
609	3	.0	.3	657	187	.3	3.8
610	5	.0	.3	658	157	.2	4.0

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
659	161	.2	4.2	709	944	1.4	45.2
660	199	.3	4.5	710	909	1.3	46.5
661	202	.3	4.8	711	862	1.2	47.7
662	228	.3	5.1	712	888	1.3	49.0
663	233	.3	5.5	713	941	1.4	50.4
664	238	.3	5.8	714	899	1.3	51.7
665	250	.4	6.2	715	892	1.3	53.0
666	274	.4	6.6	716	864	1.2	54.2
667	295	.4	7.0	717	958	1.4	55.6
668	313	.5	7.4	718	876	1.3	56.9
669	308	.4	7.9	719	936	1.4	58.2
670	361	.5	8.4	720	925	1.3	59.5
671	349	.5	8.9	721	871	1.3	60.8
672	300	.4	9.4	722	920	1.3	62.1
673	388	.6	9.9	723	888	1.3	63.4
674	442	.6	10.6	724	802	1.2	64.6
675	421	.6	11.2	725	932	1.3	65.9
676	460	.7	11.8	726	774	1.1	67.0
677	475	.7	12.5	727	976	1.4	68.5
678	462	.7	13.2	728	777	1.1	69.6
679	477	.7	13.9	729	766	1.1	70.7
680	490	.7	14.6	730	807	1.2	71.8
681	548	.8	15.4	731	844	1.2	73.1
682	532	.8	16.1	732	785	1.1	74.2
683	543	.8	16.9	733	750	1.1	75.3
684	560	.8	17.7	734	606	.9	76.2
685	598	.9	18.6	735	929	1.3	77.5
686	568	.8	19.4	736	529	.8	78.3
687	672	1.0	20.4	737	811	1.2	79.4
688	598	.9	21.2	738	569	.8	80.3
689	676	1.0	22.2	739	651	.9	81.2
690	655	.9	23.2	740	772	1.1	82.3
691	695	1.0	24.2	741	399	.6	82.9
692	727	1.1	25.2	742	842	1.2	84.1
693	719	1.0	26.3	743	340	.5	84.6
694	743	1.1	27.3	744	394	.6	85.2
695	728	1.1	28.4	745	756	1.1	86.3
696	729	1.1	29.4	746	160	.2	86.5
697	771	1.1	30.6	747	534	.8	87.3
698	828	1.2	31.8	748	471	.7	87.9
699	793	1.1	32.9	749	641	.9	88.9
700	816	1.2	34.1	750	406	.6	89.5
701	821	1.2	35.3	751	470	.7	90.1
702	849	1.2	36.5	752	382	.6	90.7
703	794	1.1	37.6	753	96	.1	90.8
704	836	1.2	38.8	754	363	.5	91.4
705	829	1.2	40.0	755	298	.4	91.8
706	841	1.2	41.3	756	114	.2	91.9
707	882	1.3	42.5	757	841	1.2	93.2
708	886	1.3	43.8	758	158	.2	93.4

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
759	105	.2	93.5	786	86	.1	98.5
760	82	.1	93.7	787	6	.0	98.5
761	152	.2	93.9	788	9	.0	98.6
762	1400	2.0	95.9	789	13	.0	98.6
763	127	.2	96.1	790	4	.0	98.6
764	66	.1	96.2	791	200	.3	98.9
765	93	.1	96.3	792	5	.0	98.9
766	85	.1	96.4	793	33	.0	98.9
767	25	.0	96.5	794	6	.0	98.9
768	35	.1	96.5	795	29	.0	99.0
769	180	.3	96.8	797	22	.0	99.0
770	107	.2	96.9	799	11	.0	99.0
771	18	.0	97.0	801	1	.0	99.0
772	70	.1	97.1	802	437	.6	99.7
773	31	.0	97.1	804	1	.0	99.7
774	75	.1	97.2	805	2	.0	99.7
775	137	.2	97.4	806	1	.0	99.7
776	244	.4	97.8	807	9	.0	99.7
777	72	.1	97.9	809	20	.0	99.7
778	31	.0	97.9	813	2	.0	99.7
779	85	.1	98.0	816	55	.1	99.8
780	35	.1	98.1	820	1	.0	99.8
781	68	.1	98.2	823	1	.0	99.8
782	39	.1	98.2	826	2	.0	99.8
783	5	.0	98.3	830	1	.0	99.8
784	22	.0	98.3	835	142	.2	100.0
785	88	.1	98.4	Total	69220	100.0	

Scale Score Distribution for Language Arts Grades 4, 8, and 10

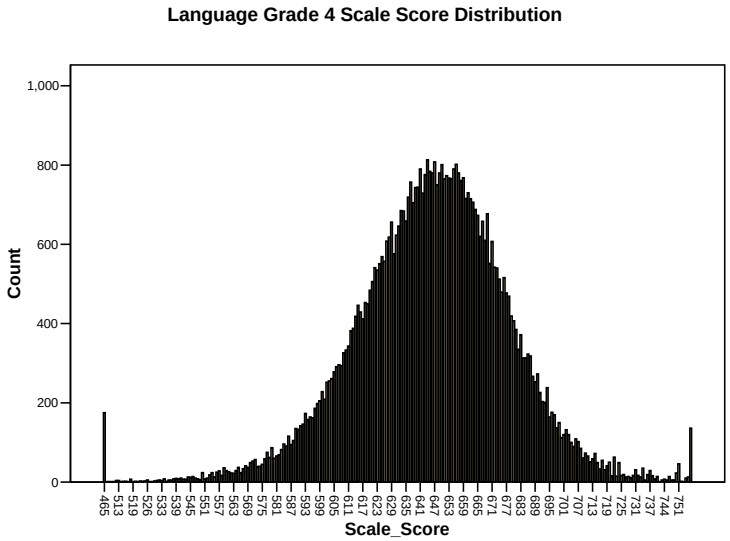

Figure B7
Scale Score Distribution Grade 4 Language Arts

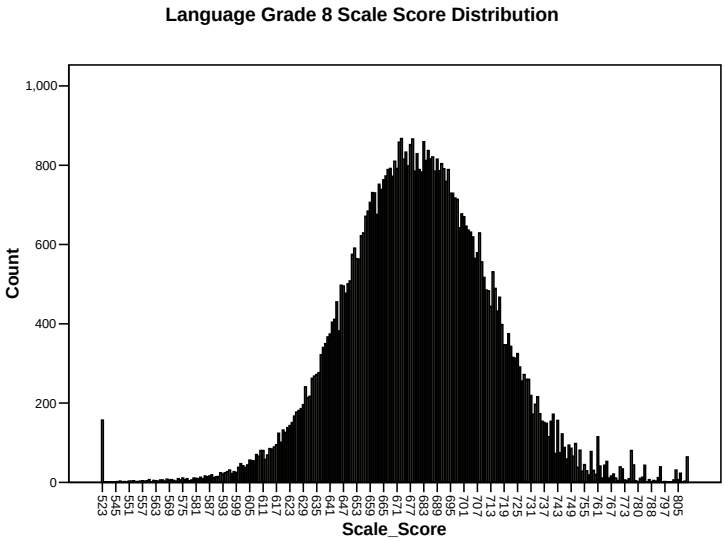

Figure B8
Scale Score Distribution Grade 8 Language Arts

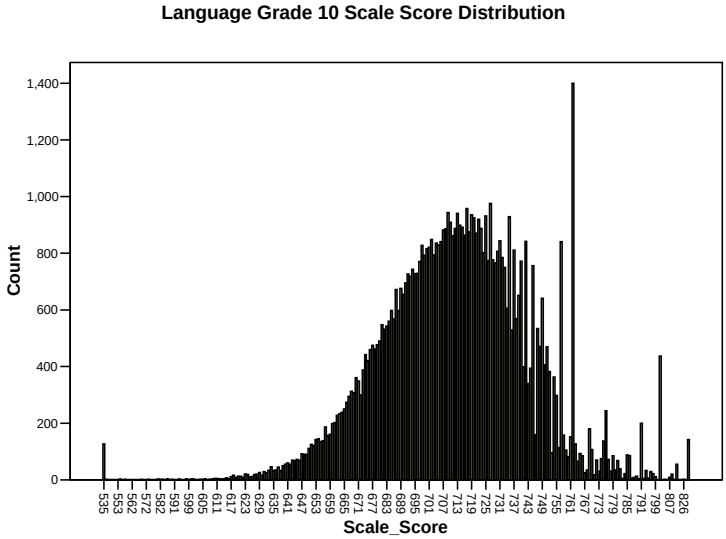

Figure B9
Scale Score Distribution Grade 10 Language Arts

Table B10
Scale Score Distribution for Grade 4 Social Studies

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
460	46	.1	.1	568	6	.0	.4
494	1	.0	.1	569	16	.0	.4
517	2	.0	.1	570	14	.0	.5
519	1	.0	.1	571	16	.0	.5
520	1	.0	.1	572	27	.0	.5
521	1	.0	.1	573	11	.0	.6
522	2	.0	.1	574	24	.0	.6
523	1	.0	.1	575	19	.0	.6
525	2	.0	.1	576	24	.0	.7
526	1	.0	.1	577	17	.0	.7
527	1	.0	.1	578	40	.1	.8
528	1	.0	.1	579	37	.1	.8
529	2	.0	.1	580	29	.0	.9
530	1	.0	.1	581	26	.0	.9
531	3	.0	.1	582	30	.1	1.0
532	1	.0	.1	583	35	.1	1.0
533	2	.0	.1	584	41	.1	1.1
535	4	.0	.1	585	44	.1	1.2
537	1	.0	.1	586	50	.1	1.3
538	2	.0	.1	587	60	.1	1.4
539	4	.0	.1	588	72	.1	1.5
540	2	.0	.1	589	71	.1	1.6
541	2	.0	.1	590	86	.1	1.8
542	2	.0	.1	591	63	.1	1.9
543	3	.0	.2	592	69	.1	2.0
544	3	.0	.2	593	99	.2	2.2
545	1	.0	.2	594	83	.1	2.3
547	2	.0	.2	595	100	.2	2.5
548	4	.0	.2	596	153	.3	2.7
549	3	.0	.2	597	116	.2	2.9
550	2	.0	.2	598	134	.2	3.2
551	4	.0	.2	599	155	.3	3.4
552	4	.0	.2	600	130	.2	3.6
553	1	.0	.2	601	160	.3	3.9
554	4	.0	.2	602	168	.3	4.2
555	4	.0	.2	603	163	.3	4.5
556	5	.0	.2	604	194	.3	4.8
557	3	.0	.2	605	197	.3	5.2
558	8	.0	.2	606	209	.4	5.5
559	12	.0	.3	607	209	.4	5.9
560	8	.0	.3	608	213	.4	6.2
561	9	.0	.3	609	254	.4	6.7
562	7	.0	.3	610	283	.5	7.1
563	5	.0	.3	611	307	.5	7.7
564	15	.0	.3	612	335	.6	8.2
565	16	.0	.4	613	289	.5	8.7
566	10	.0	.4	614	351	.6	9.3
567	14	.0	.4	615	346	.6	9.9

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
616	383	.7	10.6	666	694	1.2	80.8
617	423	.7	11.3	667	666	1.1	81.9
618	484	.8	12.1	668	678	1.2	83.1
619	447	.8	12.9	669	642	1.1	84.2
620	470	.8	13.7	670	581	1.0	85.2
621	458	.8	14.5	671	517	.9	86.0
622	533	.9	15.4	672	482	.8	86.9
623	556	1.0	16.4	673	552	.9	87.8
624	583	1.0	17.3	674	480	.8	88.6
625	603	1.0	18.4	675	480	.8	89.4
626	627	1.1	19.5	676	401	.7	90.1
627	595	1.0	20.5	677	399	.7	90.8
628	696	1.2	21.7	678	364	.6	91.4
629	702	1.2	22.9	679	346	.6	92.0
630	743	1.3	24.1	680	321	.5	92.6
631	770	1.3	25.4	681	269	.5	93.0
632	790	1.4	26.8	682	276	.5	93.5
633	813	1.4	28.2	683	275	.5	94.0
634	783	1.3	29.5	684	240	.4	94.4
635	875	1.5	31.0	685	247	.4	94.8
636	884	1.5	32.5	686	224	.4	95.2
637	932	1.6	34.1	687	178	.3	95.5
638	906	1.5	35.7	688	175	.3	95.8
639	963	1.6	37.3	689	161	.3	96.1
640	987	1.7	39.0	690	174	.3	96.4
641	929	1.6	40.6	691	151	.3	96.6
642	984	1.7	42.3	692	167	.3	96.9
643	1016	1.7	44.0	693	128	.2	97.1
644	1041	1.8	45.8	694	107	.2	97.3
645	989	1.7	47.5	695	101	.2	97.5
646	1021	1.7	49.2	696	88	.2	97.6
647	1024	1.8	51.0	697	101	.2	97.8
648	1056	1.8	52.8	698	64	.1	97.9
649	987	1.7	54.5	699	90	.2	98.1
650	977	1.7	56.2	700	68	.1	98.2
651	1082	1.9	58.0	701	78	.1	98.3
652	1016	1.7	59.7	702	55	.1	98.4
653	1020	1.7	61.5	703	83	.1	98.6
654	973	1.7	63.1	704	54	.1	98.7
655	995	1.7	64.9	705	59	.1	98.8
656	964	1.6	66.5	706	53	.1	98.8
657	954	1.6	68.1	707	38	.1	98.9
658	951	1.6	69.8	708	55	.1	99.0
659	990	1.7	71.4	709	27	.0	99.1
660	854	1.5	72.9	710	17	.0	99.1
661	828	1.4	74.3	711	33	.1	99.1
662	824	1.4	75.7	712	6	.0	99.1
663	781	1.3	77.1	713	21	.0	99.2
664	737	1.3	78.3	714	25	.0	99.2
665	728	1.2	79.6	715	38	.1	99.3

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
716	5	.0	99.3	726	24	.0	99.6
717	11	.0	99.3	727	48	.1	99.7
718	20	.0	99.4	729	13	.0	99.7
719	39	.1	99.4	731	8	.0	99.8
720	10	.0	99.4	742	36	.1	99.8
721	30	.1	99.5	744	23	.0	99.9
722	29	.0	99.5	745	2	.0	99.9
723	16	.0	99.6	763	78	.1	100.0
724	5	.0	99.6	Total	58479	100.0	
725	18	.0	99.6				

Table B11
Scale Score Distribution for Grade 8 Social Studies

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
523	133	.2	.2	607	20	.0	.7
556	1	.0	.2	608	16	.0	.7
558	1	.0	.2	609	19	.0	.7
559	1	.0	.2	610	23	.0	.8
561	1	.0	.2	611	14	.0	.8
562	1	.0	.2	612	32	.0	.8
563	1	.0	.2	613	30	.0	.9
564	4	.0	.2	614	31	.0	.9
566	1	.0	.2	615	38	.1	1.0
568	1	.0	.2	616	43	.1	1.1
569	1	.0	.2	617	37	.1	1.1
570	5	.0	.2	618	50	.1	1.2
571	1	.0	.2	619	37	.1	1.2
572	4	.0	.2	620	58	.1	1.3
573	2	.0	.2	621	48	.1	1.4
574	3	.0	.2	622	42	.1	1.5
575	2	.0	.2	623	57	.1	1.6
576	2	.0	.2	624	65	.1	1.6
577	7	.0	.3	625	72	.1	1.8
578	2	.0	.3	626	71	.1	1.9
579	3	.0	.3	627	93	.1	2.0
580	4	.0	.3	628	94	.1	2.1
581	8	.0	.3	629	96	.1	2.3
582	5	.0	.3	630	107	.2	2.5
583	1	.0	.3	631	117	.2	2.6
584	3	.0	.3	632	98	.1	2.8
585	4	.0	.3	633	128	.2	3.0
586	10	.0	.3	634	125	.2	3.2
587	6	.0	.3	635	114	.2	3.3
588	4	.0	.3	636	149	.2	3.6
589	11	.0	.4	637	144	.2	3.8
590	7	.0	.4	638	170	.3	4.0
591	10	.0	.4	639	177	.3	4.3
592	9	.0	.4	640	175	.3	4.6
593	9	.0	.4	641	194	.3	4.9
594	6	.0	.4	642	213	.3	5.2
595	6	.0	.4	643	257	.4	5.6
596	10	.0	.4	644	235	.4	5.9
597	12	.0	.5	645	255	.4	6.3
598	13	.0	.5	646	274	.4	6.7
599	12	.0	.5	647	248	.4	7.1
600	14	.0	.5	648	277	.4	7.5
601	13	.0	.5	649	283	.4	7.9
602	11	.0	.6	650	339	.5	8.4
603	18	.0	.6	651	333	.5	8.9
604	13	.0	.6	652	361	.5	9.5
605	15	.0	.6	653	347	.5	10.0
606	23	.0	.7	654	370	.6	10.6

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
655	431	.6	11.2	705	979	1.5	77.2
656	429	.6	11.9	706	946	1.4	78.7
657	469	.7	12.6	707	909	1.4	80.0
658	440	.7	13.2	708	820	1.2	81.3
659	457	.7	13.9	709	840	1.3	82.5
660	467	.7	14.6	710	792	1.2	83.7
661	462	.7	15.3	711	726	1.1	84.8
662	500	.8	16.1	712	761	1.1	86.0
663	567	.9	16.9	713	703	1.1	87.0
664	549	.8	17.8	714	649	1.0	88.0
665	571	.9	18.6	715	567	.9	88.9
666	550	.8	19.4	716	586	.9	89.7
667	601	.9	20.4	717	509	.8	90.5
668	638	1.0	21.3	718	471	.7	91.2
669	645	1.0	22.3	719	480	.7	91.9
670	680	1.0	23.3	720	448	.7	92.6
671	708	1.1	24.4	721	411	.6	93.2
672	693	1.0	25.4	722	337	.5	93.7
673	713	1.1	26.5	723	358	.5	94.3
674	785	1.2	27.7	724	343	.5	94.8
675	768	1.2	28.8	725	279	.4	95.2
676	864	1.3	30.1	726	280	.4	95.6
677	867	1.3	31.4	727	242	.4	96.0
678	872	1.3	32.8	728	228	.3	96.3
679	817	1.2	34.0	729	223	.3	96.7
680	1003	1.5	35.5	730	211	.3	97.0
681	1031	1.6	37.1	731	160	.2	97.2
682	934	1.4	38.5	732	175	.3	97.5
683	1057	1.6	40.1	733	136	.2	97.7
684	1035	1.6	41.6	734	109	.2	97.9
685	1036	1.6	43.2	735	127	.2	98.1
686	1109	1.7	44.9	736	124	.2	98.3
687	1085	1.6	46.5	737	97	.1	98.4
688	1149	1.7	48.2	738	97	.1	98.5
689	1183	1.8	50.0	739	83	.1	98.7
690	1144	1.7	51.7	740	68	.1	98.8
691	1212	1.8	53.6	741	61	.1	98.9
692	1153	1.7	55.3	742	96	.1	99.0
693	1226	1.8	57.1	743	48	.1	99.1
694	1192	1.8	58.9	744	79	.1	99.2
695	1195	1.8	60.7	745	31	.0	99.3
696	1131	1.7	62.4	746	40	.1	99.3
697	1155	1.7	64.2	747	48	.1	99.4
698	1140	1.7	65.9	748	18	.0	99.4
699	1176	1.8	67.7	749	24	.0	99.4
700	1106	1.7	69.3	750	21	.0	99.5
701	1128	1.7	71.0	751	63	.1	99.6
702	1112	1.7	72.7	752	16	.0	99.6
703	1043	1.6	74.3	753	14	.0	99.6
704	971	1.5	75.8	754	47	.1	99.7

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
755	9	.0	99.7	768	5	.0	99.9
756	6	.0	99.7	770	11	.0	99.9
757	14	.0	99.7	771	27	.0	99.9
758	27	.0	99.8	772	13	.0	99.9
759	10	.0	99.8	779	2	.0	99.9
761	4	.0	99.8	780	4	.0	99.9
762	1	.0	99.8	782	10	.0	100.0
763	5	.0	99.8	785	2	.0	100.0
764	3	.0	99.8	803	27	.0	100.0
765	10	.0	99.8	Total	66345	100.0	
766	16	.0	99.8				

Table B12
Scale Score Distribution for Grade 10 Social Studies

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
548	133	.2	.2	614	1	.0	.4
550	1	.0	.2	615	2	.0	.4
554	3	.0	.2	616	5	.0	.4
557	4	.0	.2	617	4	.0	.4
558	2	.0	.2	618	8	.0	.4
559	4	.0	.2	619	4	.0	.4
560	2	.0	.2	620	4	.0	.4
562	1	.0	.2	621	2	.0	.4
564	2	.0	.2	622	1	.0	.4
565	1	.0	.2	623	8	.0	.4
567	1	.0	.2	624	4	.0	.4
569	1	.0	.2	625	6	.0	.4
570	1	.0	.2	626	4	.0	.4
571	2	.0	.2	627	9	.0	.4
572	5	.0	.2	628	9	.0	.5
575	1	.0	.2	629	11	.0	.5
576	4	.0	.2	630	10	.0	.5
577	3	.0	.2	631	16	.0	.5
578	1	.0	.2	632	11	.0	.5
579	1	.0	.3	633	11	.0	.5
580	3	.0	.3	634	16	.0	.6
581	3	.0	.3	635	12	.0	.6
583	1	.0	.3	636	18	.0	.6
584	4	.0	.3	637	18	.0	.6
587	2	.0	.3	638	30	.0	.7
588	2	.0	.3	639	26	.0	.7
590	1	.0	.3	640	23	.0	.7
591	1	.0	.3	641	25	.0	.8
592	2	.0	.3	642	21	.0	.8
593	1	.0	.3	643	29	.0	.9
594	3	.0	.3	644	46	.1	.9
595	1	.0	.3	645	35	.1	1.0
596	2	.0	.3	646	40	.1	1.0
597	1	.0	.3	647	45	.1	1.1
598	1	.0	.3	648	56	.1	1.2
599	3	.0	.3	649	51	.1	1.3
600	1	.0	.3	650	56	.1	1.3
601	3	.0	.3	651	64	.1	1.4
602	3	.0	.3	652	44	.1	1.5
603	7	.0	.3	653	77	.1	1.6
604	1	.0	.3	654	78	.1	1.7
606	1	.0	.3	655	72	.1	1.8
607	2	.0	.3	656	86	.1	1.9
608	4	.0	.3	657	83	.1	2.1
609	3	.0	.3	658	95	.1	2.2
610	5	.0	.3	659	110	.2	2.4
611	7	.0	.3	660	107	.2	2.5
613	2	.0	.4	661	125	.2	2.7

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
662	130	.2	2.9	713	1162	1.7	55.4
663	152	.2	3.1	714	1242	1.8	57.2
664	165	.2	3.3	715	1223	1.8	59.0
665	169	.2	3.6	716	1150	1.7	60.7
666	186	.3	3.9	717	1120	1.6	62.3
667	187	.3	4.1	718	1167	1.7	64.0
668	219	.3	4.4	719	1201	1.7	65.7
669	224	.3	4.8	720	1104	1.6	67.3
670	257	.4	5.1	721	1058	1.5	68.8
671	261	.4	5.5	722	1050	1.5	70.4
672	261	.4	5.9	723	1046	1.5	71.9
673	280	.4	6.3	724	1049	1.5	73.4
674	337	.5	6.8	725	1001	1.4	74.8
675	329	.5	7.3	726	956	1.4	76.2
677	376	.5	8.3	727	901	1.3	77.5
678	402	.6	8.9	728	926	1.3	78.9
679	405	.6	9.5	729	885	1.3	80.2
680	414	.6	10.1	730	855	1.2	81.4
681	476	.7	10.8	731	827	1.2	82.6
682	512	.7	11.5	732	824	1.2	83.8
683	555	.8	12.3	733	711	1.0	84.8
684	571	.8	13.1	734	677	1.0	85.8
685	662	1.0	14.1	735	662	1.0	86.8
686	618	.9	15.0	736	627	.9	87.7
687	684	1.0	16.0	737	618	.9	88.6
688	692	1.0	17.0	738	586	.8	89.4
689	722	1.0	18.0	739	470	.7	90.1
690	774	1.1	19.1	740	464	.7	90.8
691	798	1.2	20.3	741	468	.7	91.4
692	791	1.1	21.4	742	392	.6	92.0
693	875	1.3	22.7	743	378	.5	92.5
694	895	1.3	24.0	744	409	.6	93.1
695	942	1.4	25.4	745	275	.4	93.5
696	954	1.4	26.8	746	373	.5	94.1
697	979	1.4	28.2	747	240	.3	94.4
698	1047	1.5	29.7	748	318	.5	94.9
699	1093	1.6	31.3	749	232	.3	95.2
700	1024	1.5	32.8	750	285	.4	95.6
701	1145	1.7	34.4	751	239	.3	96.0
702	1124	1.6	36.0	752	139	.2	96.2
703	1195	1.7	37.8	753	234	.3	96.5
704	1203	1.7	39.5	754	150	.2	96.7
705	1170	1.7	41.2	755	113	.2	96.9
706	1169	1.7	42.9	756	164	.2	97.1
707	1225	1.8	44.7	757	135	.2	97.3
708	1267	1.8	46.5	758	131	.2	97.5
709	1214	1.8	48.3	759	96	.1	97.7
710	1211	1.8	50.0	760	158	.2	97.9
711	1302	1.9	51.9	761	88	.1	98.0
712	1280	1.9	53.8	762	48	.1	98.1

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
763	81	.1	98.2	776	142	.2	99.2
764	123	.2	98.4	778	49	.1	99.3
765	86	.1	98.5	780	21	.0	99.3
766	18	.0	98.5	781	21	.0	99.3
767	18	.0	98.6	782	16	.0	99.4
768	63	.1	98.7	786	8	.0	99.4
769	76	.1	98.8	788	3	.0	99.4
770	57	.1	98.8	789	56	.1	99.4
771	51	.1	98.9	790	112	.2	99.6
772	23	.0	99.0	805	104	.2	99.8
773	6	.0	99.0	821	165	.2	100.0
775	21	.0	99.0	Total	69077	100.0	

Scale Score Distribution for Social Studies Grades 4, 8, and 10

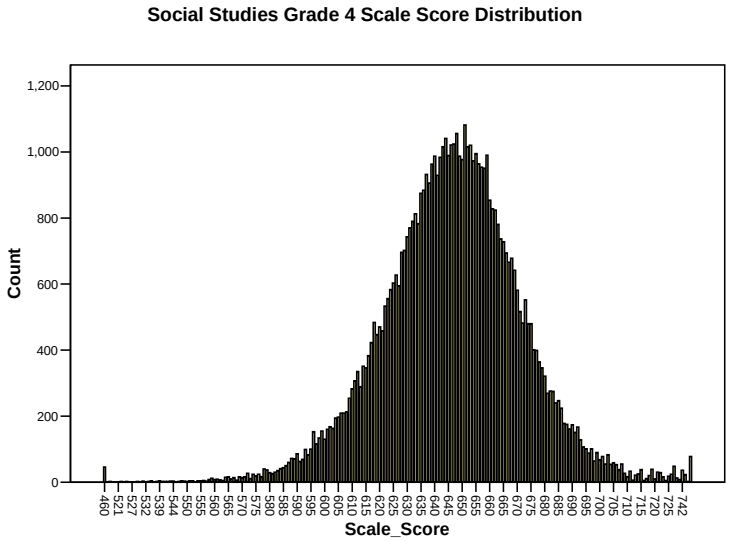

Figure B10
Scale Score Distribution Grade 4 Social Studies

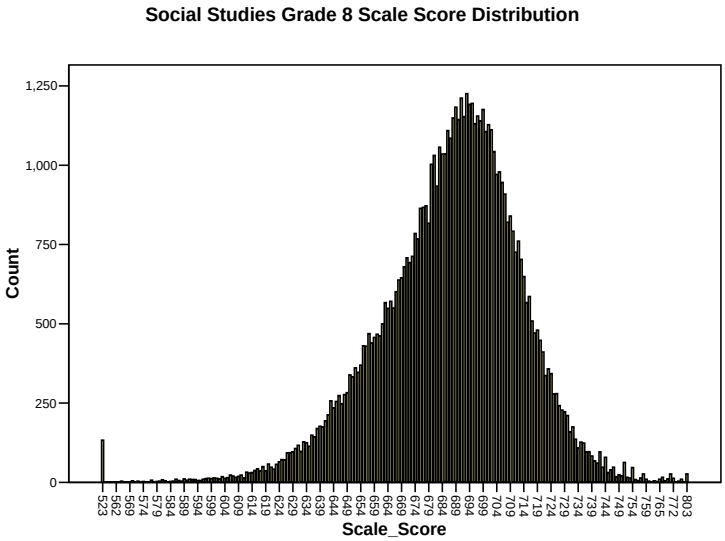

Figure B11
Scale Score Distribution Grade 8 Social Studies

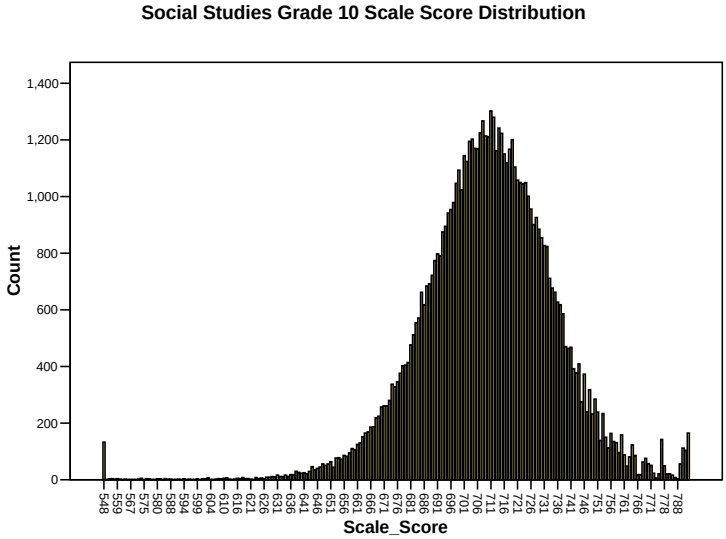

Figure B12
Scale Score Distribution Grade 10 Social Studies

Table B13
Scale Score Distribution for Grade 4 Science

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
421	63	.1	.1	508	3	.0	.3
423	2	.0	.1	509	6	.0	.3
434	1	.0	.1	510	11	.0	.3
436	3	.0	.1	511	3	.0	.3
437	1	.0	.1	512	4	.0	.3
438	1	.0	.1	513	3	.0	.3
439	2	.0	.1	514	8	.0	.3
440	1	.0	.1	515	6	.0	.3
442	1	.0	.1	516	7	.0	.4
445	1	.0	.1	517	4	.0	.4
446	1	.0	.1	518	8	.0	.4
451	2	.0	.1	519	8	.0	.4
455	1	.0	.1	520	7	.0	.4
456	2	.0	.1	521	7	.0	.4
457	1	.0	.1	522	3	.0	.4
459	1	.0	.1	523	12	.0	.4
460	3	.0	.1	524	7	.0	.4
464	1	.0	.2	525	16	.0	.5
465	1	.0	.2	526	13	.0	.5
466	2	.0	.2	527	13	.0	.5
467	1	.0	.2	528	12	.0	.5
469	1	.0	.2	529	12	.0	.6
471	4	.0	.2	530	14	.0	.6
473	1	.0	.2	531	7	.0	.6
475	3	.0	.2	532	10	.0	.6
476	1	.0	.2	533	11	.0	.6
477	1	.0	.2	534	17	.0	.7
478	2	.0	.2	535	14	.0	.7
480	1	.0	.2	536	18	.0	.7
483	1	.0	.2	537	17	.0	.7
486	3	.0	.2	538	19	.0	.8
487	2	.0	.2	539	24	.0	.8
489	1	.0	.2	540	22	.0	.9
491	2	.0	.2	541	18	.0	.9
492	2	.0	.2	542	19	.0	.9
494	1	.0	.2	543	20	.0	1.0
495	4	.0	.2	544	26	.0	1.0
496	4	.0	.2	545	22	.0	1.0
498	3	.0	.2	546	28	.0	1.1
499	4	.0	.2	547	28	.0	1.1
500	2	.0	.2	548	37	.1	1.2
501	4	.0	.2	549	22	.0	1.2
502	1	.0	.2	550	30	.1	1.3
503	1	.0	.2	551	32	.1	1.3
504	7	.0	.3	552	34	.1	1.4
505	2	.0	.3	553	38	.1	1.5
506	3	.0	.3	554	38	.1	1.5
507	3	.0	.3	555	51	.1	1.6

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
556	47	.1	1.7	606	351	.6	15.9
557	52	.1	1.8	607	372	.6	16.5
558	61	.1	1.9	608	381	.7	17.2
559	62	.1	2.0	609	383	.7	17.8
560	51	.1	2.1	610	415	.7	18.6
561	56	.1	2.2	611	416	.7	19.3
562	66	.1	2.3	612	400	.7	19.9
563	47	.1	2.4	613	436	.7	20.7
564	61	.1	2.5	614	481	.8	21.5
565	83	.1	2.6	615	486	.8	22.3
566	70	.1	2.7	616	491	.8	23.2
567	79	.1	2.9	617	520	.9	24.1
568	88	.2	3.0	618	479	.8	24.9
569	85	.1	3.2	619	537	.9	25.8
570	109	.2	3.4	620	571	1.0	26.8
571	91	.2	3.5	621	566	1.0	27.8
572	83	.1	3.7	622	561	1.0	28.7
573	112	.2	3.8	623	566	1.0	29.7
574	102	.2	4.0	624	622	1.1	30.7
575	112	.2	4.2	625	599	1.0	31.8
576	110	.2	4.4	626	657	1.1	32.9
577	125	.2	4.6	627	594	1.0	33.9
578	117	.2	4.8	628	656	1.1	35.0
579	148	.3	5.1	629	653	1.1	36.1
580	135	.2	5.3	630	664	1.1	37.3
581	166	.3	5.6	631	677	1.2	38.4
582	132	.2	5.8	632	710	1.2	39.6
583	157	.3	6.1	633	748	1.3	40.9
584	151	.3	6.3	634	751	1.3	42.2
585	160	.3	6.6	635	773	1.3	43.5
586	180	.3	6.9	636	723	1.2	44.8
587	180	.3	7.2	637	754	1.3	46.1
588	175	.3	7.5	638	766	1.3	47.4
589	187	.3	7.8	639	788	1.3	48.7
590	198	.3	8.2	640	794	1.4	50.1
591	184	.3	8.5	641	754	1.3	51.4
592	225	.4	8.9	642	842	1.4	52.8
593	234	.4	9.3	643	765	1.3	54.1
594	237	.4	9.7	644	781	1.3	55.4
595	251	.4	10.1	645	792	1.4	56.8
596	243	.4	10.5	646	816	1.4	58.2
597	256	.4	11.0	647	806	1.4	59.6
598	315	.5	11.5	648	767	1.3	60.9
599	305	.5	12.0	649	774	1.3	62.2
600	280	.5	12.5	650	816	1.4	63.6
601	297	.5	13.0	651	871	1.5	65.1
602	327	.6	13.6	652	799	1.4	66.5
603	361	.6	14.2	653	798	1.4	67.8
604	315	.5	14.7	654	799	1.4	69.2
605	339	.6	15.3	655	761	1.3	70.5

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
656	743	1.3	71.8	702	44	.1	99.3
657	720	1.2	73.0	703	42	.1	99.4
658	711	1.2	74.2	704	30	.1	99.4
659	701	1.2	75.4	705	38	.1	99.5
660	692	1.2	76.6	706	31	.1	99.5
661	677	1.2	77.7	707	19	.0	99.6
662	628	1.1	78.8	708	21	.0	99.6
663	629	1.1	79.9	709	31	.1	99.7
664	645	1.1	81.0	710	20	.0	99.7
665	650	1.1	82.1	711	16	.0	99.7
666	579	1.0	83.1	712	11	.0	99.7
667	570	1.0	84.1	713	12	.0	99.8
668	539	.9	85.0	714	13	.0	99.8
669	548	.9	85.9	715	13	.0	99.8
670	519	.9	86.8	716	9	.0	99.8
671	504	.9	87.7	717	12	.0	99.8
672	498	.9	88.5	718	6	.0	99.9
673	493	.8	89.4	719	6	.0	99.9
674	430	.7	90.1	720	10	.0	99.9
675	435	.7	90.8	721	8	.0	99.9
676	409	.7	91.5	722	8	.0	99.9
677	373	.6	92.2	723	3	.0	99.9
678	344	.6	92.8	724	4	.0	99.9
679	350	.6	93.4	725	7	.0	99.9
680	334	.6	93.9	726	3	.0	99.9
681	299	.5	94.4	727	7	.0	100.0
682	271	.5	94.9	729	3	.0	100.0
683	257	.4	95.3	730	4	.0	100.0
684	237	.4	95.8	731	2	.0	100.0
685	238	.4	96.2	733	1	.0	100.0
686	204	.3	96.5	734	1	.0	100.0
687	218	.4	96.9	736	2	.0	100.0
688	150	.3	97.1	737	2	.0	100.0
689	151	.3	97.4	738	1	.0	100.0
690	142	.2	97.6	739	1	.0	100.0
691	122	.2	97.8	740	1	.0	100.0
692	111	.2	98.0	742	1	.0	100.0
693	113	.2	98.2	745	1	.0	100.0
694	100	.2	98.4	748	1	.0	100.0
695	81	.1	98.5	750	2	.0	100.0
696	83	.1	98.7	755	1	.0	100.0
697	68	.1	98.8	758	1	.0	100.0
698	72	.1	98.9	763	1	.0	100.0
699	83	.1	99.1	775	1	.0	100.0
700	46	.1	99.1	799	2	.0	100.0
701	49	.1	99.2	Total	58503	100.0	

Table B14
Scale Score Distribution for Grade 8 Science

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
487	98	.1	.1	580	6	.0	.4
488	1	.0	.1	581	10	.0	.4
492	1	.0	.2	582	9	.0	.4
505	1	.0	.2	583	7	.0	.4
510	1	.0	.2	584	9	.0	.4
517	1	.0	.2	585	10	.0	.4
520	1	.0	.2	586	8	.0	.5
523	1	.0	.2	587	8	.0	.5
533	1	.0	.2	588	9	.0	.5
535	2	.0	.2	589	11	.0	.5
536	1	.0	.2	590	14	.0	.5
537	1	.0	.2	591	10	.0	.5
538	1	.0	.2	592	9	.0	.5
540	1	.0	.2	593	8	.0	.6
543	2	.0	.2	594	14	.0	.6
545	3	.0	.2	595	15	.0	.6
546	1	.0	.2	596	5	.0	.6
547	2	.0	.2	597	13	.0	.6
549	1	.0	.2	598	14	.0	.6
550	3	.0	.2	599	21	.0	.7
551	3	.0	.2	600	11	.0	.7
552	2	.0	.2	601	15	.0	.7
553	3	.0	.2	602	22	.0	.7
554	2	.0	.2	603	20	.0	.8
555	4	.0	.2	604	17	.0	.8
556	1	.0	.2	605	25	.0	.8
558	3	.0	.2	606	19	.0	.9
559	5	.0	.2	607	17	.0	.9
560	3	.0	.2	608	22	.0	.9
561	2	.0	.2	609	20	.0	1.0
562	4	.0	.2	610	23	.0	1.0
563	3	.0	.2	611	27	.0	1.0
564	1	.0	.2	612	35	.1	1.1
565	5	.0	.2	613	30	.0	1.1
566	2	.0	.3	614	30	.0	1.2
567	5	.0	.3	615	33	.0	1.2
568	8	.0	.3	616	32	.0	1.3
569	9	.0	.3	617	31	.0	1.3
570	6	.0	.3	618	46	.1	1.4
571	5	.0	.3	619	47	.1	1.5
572	3	.0	.3	620	32	.0	1.5
573	5	.0	.3	621	47	.1	1.6
574	5	.0	.3	622	46	.1	1.7
575	5	.0	.3	623	42	.1	1.7
576	5	.0	.3	624	57	.1	1.8
577	8	.0	.3	625	50	.1	1.9
578	5	.0	.4	626	66	.1	2.0
579	4	.0	.4	627	66	.1	2.1

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
628	62	.1	2.2	678	611	.9	21.9
629	60	.1	2.3	679	629	.9	22.8
630	68	.1	2.4	680	654	1.0	23.8
631	92	.1	2.5	681	731	1.1	24.9
632	71	.1	2.6	682	658	1.0	25.9
633	66	.1	2.7	683	743	1.1	27.0
634	75	.1	2.8	684	714	1.1	28.1
635	102	.2	3.0	685	746	1.1	29.2
636	92	.1	3.1	686	780	1.2	30.4
637	94	.1	3.3	687	842	1.3	31.7
638	103	.2	3.4	688	844	1.3	33.0
639	97	.1	3.6	689	872	1.3	34.3
640	108	.2	3.7	690	873	1.3	35.6
641	114	.2	3.9	691	898	1.4	36.9
642	107	.2	4.0	692	928	1.4	38.3
643	149	.2	4.3	693	935	1.4	39.7
644	138	.2	4.5	694	894	1.3	41.1
645	160	.2	4.7	695	995	1.5	42.6
646	149	.2	4.9	696	930	1.4	44.0
647	171	.3	5.2	697	925	1.4	45.4
648	151	.2	5.4	698	1001	1.5	46.9
649	174	.3	5.7	699	979	1.5	48.4
650	182	.3	6.0	700	980	1.5	49.8
651	209	.3	6.3	701	954	1.4	51.3
652	236	.4	6.6	702	992	1.5	52.8
653	203	.3	6.9	703	1020	1.5	54.3
654	203	.3	7.2	704	959	1.4	55.7
655	246	.4	7.6	705	1011	1.5	57.3
656	229	.3	8.0	706	978	1.5	58.7
657	248	.4	8.3	707	955	1.4	60.2
658	283	.4	8.8	708	919	1.4	61.6
659	263	.4	9.2	709	906	1.4	62.9
660	280	.4	9.6	710	933	1.4	64.3
661	329	.5	10.1	711	920	1.4	65.7
662	346	.5	10.6	712	899	1.4	67.1
663	332	.5	11.1	713	948	1.4	68.5
664	359	.5	11.6	714	839	1.3	69.8
665	362	.5	12.2	715	844	1.3	71.0
666	377	.6	12.7	716	840	1.3	72.3
667	389	.6	13.3	717	809	1.2	73.5
668	461	.7	14.0	718	842	1.3	74.8
669	416	.6	14.7	719	766	1.2	75.9
670	473	.7	15.4	720	809	1.2	77.1
671	461	.7	16.1	721	778	1.2	78.3
672	509	.8	16.8	722	696	1.0	79.4
673	529	.8	17.6	723	678	1.0	80.4
674	530	.8	18.4	724	678	1.0	81.4
675	541	.8	19.2	725	663	1.0	82.4
676	572	.9	20.1	726	666	1.0	83.4
677	589	.9	21.0	727	582	.9	84.3

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
728	592	.9	85.2	774	26	.0	99.7
729	539	.8	86.0	775	26	.0	99.7
730	522	.8	86.8	776	26	.0	99.7
731	550	.8	87.6	777	12	.0	99.8
732	480	.7	88.3	778	11	.0	99.8
733	457	.7	89.0	779	12	.0	99.8
734	465	.7	89.7	780	9	.0	99.8
735	413	.6	90.3	781	8	.0	99.8
736	409	.6	90.9	782	10	.0	99.8
737	399	.6	91.5	783	5	.0	99.8
738	327	.5	92.0	784	2	.0	99.8
739	346	.5	92.6	785	3	.0	99.8
740	350	.5	93.1	786	8	.0	99.9
741	290	.4	93.5	787	7	.0	99.9
742	320	.5	94.0	788	9	.0	99.9
743	274	.4	94.4	789	5	.0	99.9
744	264	.4	94.8	790	4	.0	99.9
745	262	.4	95.2	791	9	.0	99.9
746	226	.3	95.5	792	5	.0	99.9
747	234	.4	95.9	793	4	.0	99.9
748	219	.3	96.2	794	2	.0	99.9
749	191	.3	96.5	795	3	.0	99.9
750	192	.3	96.8	796	4	.0	99.9
751	170	.3	97.1	797	1	.0	99.9
752	159	.2	97.3	798	1	.0	99.9
753	151	.2	97.5	799	4	.0	99.9
754	142	.2	97.7	800	5	.0	100.0
755	126	.2	97.9	801	1	.0	100.0
756	118	.2	98.1	802	1	.0	100.0
757	98	.1	98.3	803	5	.0	100.0
758	90	.1	98.4	805	2	.0	100.0
759	110	.2	98.6	806	1	.0	100.0
760	98	.1	98.7	808	1	.0	100.0
761	70	.1	98.8	809	1	.0	100.0
762	69	.1	98.9	810	2	.0	100.0
763	72	.1	99.0	815	1	.0	100.0
764	52	.1	99.1	816	2	.0	100.0
765	49	.1	99.2	819	1	.0	100.0
766	56	.1	99.3	824	1	.0	100.0
767	33	.0	99.3	828	1	.0	100.0
768	32	.0	99.4	829	1	.0	100.0
769	45	.1	99.4	831	1	.0	100.0
770	46	.1	99.5	836	2	.0	100.0
771	30	.0	99.5	852	2	.0	100.0
772	26	.0	99.6	857	5	.0	100.0
773	26	.0	99.6	Total	66425	100.0	

Table B15
Scale Score Distribution for Grade 10 Science

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
501	377	.5	.5	564	4	.0	.7
503	1	.0	.5	565	5	.0	.7
504	2	.0	.5	566	6	.0	.7
505	1	.0	.6	567	3	.0	.7
507	1	.0	.6	568	3	.0	.7
509	1	.0	.6	569	3	.0	.7
512	2	.0	.6	570	2	.0	.7
513	3	.0	.6	571	2	.0	.7
514	1	.0	.6	572	3	.0	.7
515	1	.0	.6	573	7	.0	.7
516	2	.0	.6	574	2	.0	.7
518	1	.0	.6	575	6	.0	.7
519	1	.0	.6	576	3	.0	.8
520	1	.0	.6	577	1	.0	.8
521	4	.0	.6	578	2	.0	.8
523	3	.0	.6	579	1	.0	.8
524	1	.0	.6	580	2	.0	.8
527	1	.0	.6	581	2	.0	.8
528	1	.0	.6	582	6	.0	.8
530	3	.0	.6	583	1	.0	.8
531	1	.0	.6	584	4	.0	.8
532	5	.0	.6	585	11	.0	.8
533	1	.0	.6	586	3	.0	.8
535	1	.0	.6	587	7	.0	.8
536	1	.0	.6	588	5	.0	.8
537	2	.0	.6	589	5	.0	.8
538	3	.0	.6	590	4	.0	.8
539	1	.0	.6	591	7	.0	.8
540	1	.0	.6	592	6	.0	.9
541	1	.0	.6	593	6	.0	.9
542	1	.0	.6	594	4	.0	.9
543	4	.0	.6	595	8	.0	.9
544	3	.0	.6	596	14	.0	.9
545	1	.0	.6	597	9	.0	.9
547	1	.0	.6	598	5	.0	.9
548	2	.0	.6	599	11	.0	.9
549	2	.0	.6	600	3	.0	.9
550	1	.0	.6	601	4	.0	.9
551	1	.0	.6	602	8	.0	1.0
554	2	.0	.6	603	9	.0	1.0
555	1	.0	.6	604	6	.0	1.0
556	4	.0	.6	605	10	.0	1.0
557	1	.0	.6	606	3	.0	1.0
558	4	.0	.7	607	16	.0	1.0
560	5	.0	.7	608	4	.0	1.0
561	2	.0	.7	609	11	.0	1.0
562	6	.0	.7	610	14	.0	1.1
563	6	.0	.7	611	13	.0	1.1

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
612	10	.0	1.1	662	112	.2	4.1
613	15	.0	1.1	663	111	.2	4.2
614	9	.0	1.1	664	109	.2	4.4
615	17	.0	1.2	665	128	.2	4.6
616	14	.0	1.2	666	131	.2	4.8
617	13	.0	1.2	667	141	.2	5.0
618	18	.0	1.2	668	162	.2	5.2
619	21	.0	1.2	669	149	.2	5.4
620	16	.0	1.3	670	156	.2	5.6
621	19	.0	1.3	671	163	.2	5.9
622	22	.0	1.3	672	176	.3	6.1
623	12	.0	1.3	673	176	.3	6.4
624	17	.0	1.4	674	170	.2	6.6
625	15	.0	1.4	675	211	.3	6.9
626	19	.0	1.4	676	194	.3	7.2
627	25	.0	1.5	677	201	.3	7.5
628	24	.0	1.5	678	211	.3	7.8
629	20	.0	1.5	679	234	.3	8.2
630	27	.0	1.6	680	217	.3	8.5
631	31	.0	1.6	681	273	.4	8.9
632	24	.0	1.6	682	266	.4	9.3
633	28	.0	1.7	683	286	.4	9.7
634	28	.0	1.7	684	286	.4	10.1
635	36	.1	1.8	685	296	.4	10.5
636	36	.1	1.8	686	310	.4	11.0
637	40	.1	1.9	687	337	.5	11.4
638	26	.0	1.9	688	341	.5	11.9
639	28	.0	2.0	689	359	.5	12.5
640	34	.0	2.0	690	405	.6	13.0
641	57	.1	2.1	691	387	.6	13.6
642	35	.1	2.1	692	390	.6	14.2
643	48	.1	2.2	693	411	.6	14.8
644	58	.1	2.3	694	433	.6	15.4
645	54	.1	2.4	695	468	.7	16.1
646	38	.1	2.4	696	441	.6	16.7
647	51	.1	2.5	697	495	.7	17.4
648	49	.1	2.6	698	443	.6	18.1
649	49	.1	2.6	699	511	.7	18.8
650	58	.1	2.7	700	516	.7	19.6
651	55	.1	2.8	701	558	.8	20.4
652	54	.1	2.9	702	565	.8	21.2
653	63	.1	3.0	703	565	.8	22.0
654	67	.1	3.1	704	606	.9	22.9
655	64	.1	3.2	705	588	.9	23.7
656	69	.1	3.3	706	635	.9	24.6
657	84	.1	3.4	707	637	.9	25.6
658	89	.1	3.5	708	626	.9	26.5
659	97	.1	3.7	709	669	1.0	27.4
660	96	.1	3.8	710	681	1.0	28.4
661	80	.1	3.9	711	655	.9	29.4

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
712	732	1.1	30.4	762	538	.8	88.6
713	669	1.0	31.4	763	491	.7	89.3
714	710	1.0	32.4	764	443	.6	89.9
715	766	1.1	33.5	765	420	.6	90.5
716	785	1.1	34.7	766	401	.6	91.1
717	742	1.1	35.7	767	419	.6	91.7
718	794	1.1	36.9	768	359	.5	92.2
719	809	1.2	38.1	769	319	.5	92.7
720	836	1.2	39.3	770	358	.5	93.2
721	826	1.2	40.5	771	316	.5	93.7
722	821	1.2	41.7	772	286	.4	94.1
723	840	1.2	42.9	773	273	.4	94.5
724	847	1.2	44.1	774	270	.4	94.9
725	845	1.2	45.3	775	217	.3	95.2
726	842	1.2	46.5	776	226	.3	95.5
727	830	1.2	47.7	777	242	.4	95.9
728	862	1.2	49.0	778	183	.3	96.1
729	892	1.3	50.3	779	178	.3	96.4
730	911	1.3	51.6	780	179	.3	96.6
731	879	1.3	52.9	781	185	.3	96.9
732	956	1.4	54.3	782	151	.2	97.1
733	894	1.3	55.5	783	130	.2	97.3
734	941	1.4	56.9	784	145	.2	97.5
735	878	1.3	58.2	785	141	.2	97.7
736	892	1.3	59.5	786	123	.2	97.9
737	959	1.4	60.9	787	124	.2	98.1
738	926	1.3	62.2	788	97	.1	98.2
739	906	1.3	63.5	789	83	.1	98.3
740	911	1.3	64.8	790	85	.1	98.5
741	913	1.3	66.1	791	74	.1	98.6
742	876	1.3	67.4	792	55	.1	98.7
743	930	1.3	68.8	793	76	.1	98.8
744	874	1.3	70.0	794	80	.1	98.9
745	930	1.3	71.4	795	56	.1	99.0
746	883	1.3	72.6	796	58	.1	99.0
747	850	1.2	73.9	797	47	.1	99.1
748	854	1.2	75.1	798	60	.1	99.2
749	829	1.2	76.3	799	60	.1	99.3
750	787	1.1	77.5	800	30	.0	99.3
751	788	1.1	78.6	801	29	.0	99.4
752	765	1.1	79.7	802	24	.0	99.4
753	687	1.0	80.7	803	40	.1	99.5
754	667	1.0	81.7	804	27	.0	99.5
755	647	.9	82.6	805	37	.1	99.6
756	692	1.0	83.6	806	26	.0	99.6
757	612	.9	84.5	807	20	.0	99.6
758	631	.9	85.4	808	16	.0	99.6
759	586	.8	86.2	809	15	.0	99.7
760	535	.8	87.0	810	24	.0	99.7
761	533	.8	87.8	811	22	.0	99.7

Score	Frequency	Percent	Cumulative Percent	Score	Frequency	Percent	Cumulative Percent
812	10	.0	99.8	830	2	.0	99.9
813	7	.0	99.8	834	3	.0	99.9
814	2	.0	99.8	835	5	.0	99.9
815	11	.0	99.8	836	6	.0	99.9
816	3	.0	99.8	837	1	.0	99.9
817	6	.0	99.8	838	5	.0	99.9
818	8	.0	99.8	839	1	.0	99.9
819	6	.0	99.8	841	5	.0	99.9
820	8	.0	99.8	842	8	.0	100.0
821	25	.0	99.9	844	6	.0	100.0
822	16	.0	99.9	846	1	.0	100.0
823	2	.0	99.9	847	2	.0	100.0
824	3	.0	99.9	850	4	.0	100.0
825	4	.0	99.9	893	19	.0	100.0
826	1	.0	99.9	Total	69105	100.0	
829	1	.0	99.9				

Scale Score Distribution for Science Grades 4, 8, and 10

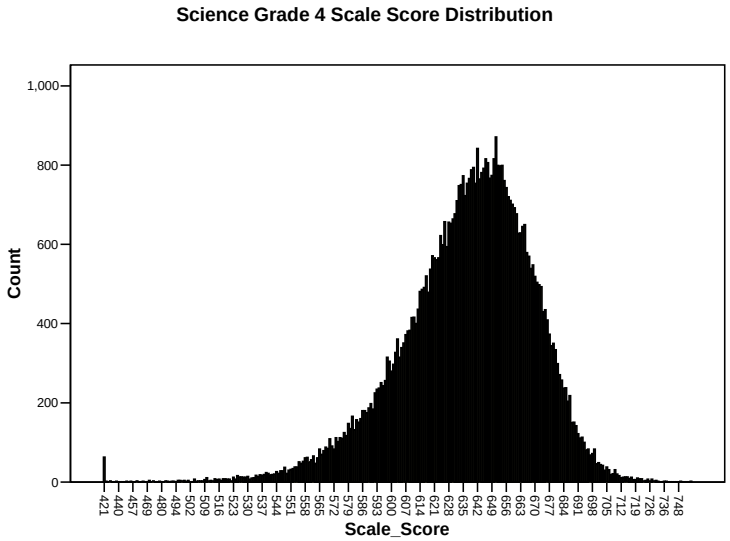

Figure B13
Scale Score Distribution Grade 4 Science

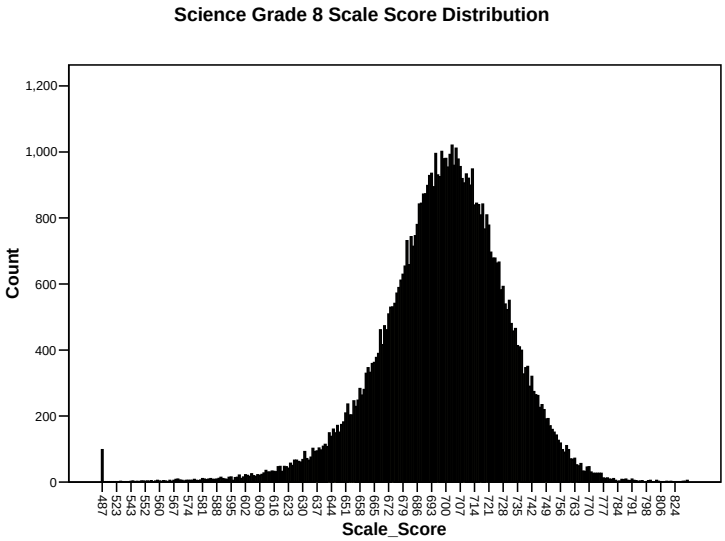

Figure B14
Scale Score Distribution Grade 8 Science

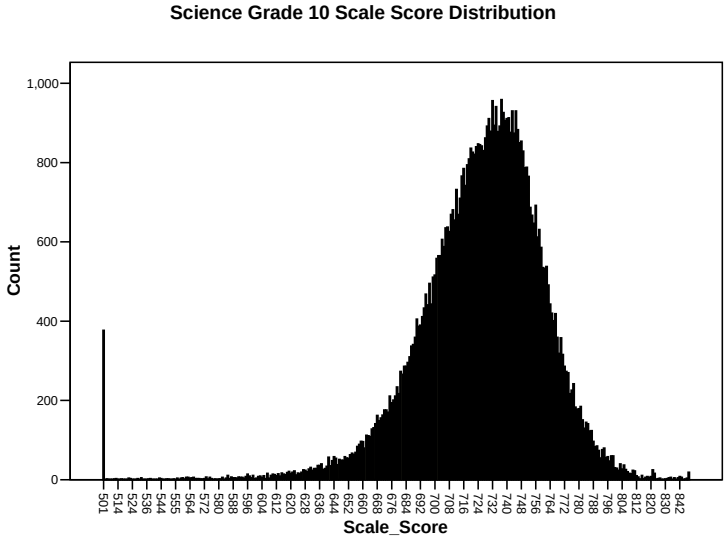

Figure B15
Scale Score Distribution Grade 10 Science

Table C1
Item Parameters and Fit Statistics Grade 4 Reading

item_no	a	b	c	alpha	gam1	gam2	gam3	gam4	Total_N	Z	critical Z	flag
1	0.69	-1.77	0.08						57791	8.26	154.11	
2	0.79	-3.57	0.20						57791	35.61	154.11	
3	0.69	-1.57	0.20						57791	4.02	154.11	
4	0.77	-1.81	0.15						57791	21.82	154.11	
5	0.82	-1.49	0.09						57791	7.58	154.11	
6	0.68	-0.87	0.32						57791	3.01	154.11	
7	0.88	-2.80	0.20						57791	38.40	154.11	
8	1.06	-0.10	0.30						57791	53.39	154.11	
9	1.37	0.81	0.13						57791	63.39	154.11	
10	0.66	-0.71	0.20						57791	-0.55	154.11	
11	0.63	0.98	0.29						57791	6.27	154.11	
12	0.77	-1.14	0.17						57791	5.35	154.11	
13	0.87	-0.99	0.11						57791	6.20	154.11	
14	0.69	-1.55	0.05						57791	35.84	154.11	
15	0.96	-1.87	0.04						57791	122.90	154.11	
16	1.13	-1.20	0.13						57791	17.91	154.11	
17	1.06	-1.85	0.09						57791	10.28	154.11	
18	0.85	-0.25	0.09						57791	5.31	154.11	
19	0.74	-1.66	0.05						57791	22.68	154.11	
20	0.92	-0.94	0.23						57791	6.24	154.11	
21	0.72	-2.03	0.15						57791	5.79	154.11	
22	0.95	-1.34	0.33						57791	3.04	154.11	
23	0.78	-1.33	0.16						57791	5.70	154.11	
24	0.64	-0.14	0.12						57791	7.82	154.11	
25	0.71	-0.46	0.12						57791	2.50	154.11	
26	0.53	-1.89	0.15						57791	8.11	154.11	
27	1.11	-0.84	0.07						57791	8.50	154.11	
28	0.47	-1.80	0.15						57791	12.64	154.11	
29	0.45	0.06	0.22						57791	10.56	154.11	
30	1.22	-1.07	0.19						57791	8.36	154.11	
31	0.80	0.72	0.17						57791	7.03	154.11	

item_no	a	b	c	alpha	gam1	gam2	gam3	gam4	Total_N	Z	critical Z	flag
32	0.77	-1.40	0.12						57791	0.58	154.11	
33	1.07	-0.77	0.06						57791	15.54	154.11	
34	1.15	-0.30	0.20						57791	15.86	154.11	
35	1.05	-0.28	0.19						57791	10.37	154.11	
36	0.98	-0.04	0.27						57791	10.48	154.11	
37	1.13	1.76	0.20						57791	29.96	154.11	
38	1.12	0.58	0.23						57791	32.79	154.11	
39	0.59	-2.42	0.20						57791	30.38	154.11	
40	0.98	-0.93	0.11						57791	13.02	154.11	
41	1.02	0.34	0.20						57791	11.75	154.11	
42				0.72	-1.49	-2.94			57791	155.48	154.11	*
43				0.50	0.78	-0.88			57791	69.37	154.11	
44				0.90	-2.46	-2.52	-1.24	0.68	57791	35.94	154.11	

Table C2
Item Parameters and Fit Statistics Grade 8 Reading

item_no	a	b	c	alpha	gam1	gam2	gam3	Total_N	Z	critical Z	flag
1	0.84	-2.58	0.20					66172	8.76	176.46	
2	0.81	-1.57	0.08					66172	3.85	176.46	
3	0.62	-1.32	0.20					66172	21.63	176.46	
4	0.80	-1.50	0.13					66172	9.19	176.46	
5	0.95	-1.25	0.13					66172	2.90	176.46	
6	0.58	0.21	0.25					66172	3.47	176.46	
7	0.66	-1.11	0.24					66172	4.07	176.46	
8	0.67	-1.60	0.08					66172	5.77	176.46	
9	0.96	-1.99	0.21					66172	11.42	176.46	
10	0.75	-0.23	0.15					66172	10.27	176.46	
11	0.90	-1.56	0.13					66172	27.36	176.46	
12	0.44	-0.98	0.20					66172	38.85	176.46	
13	0.67	-1.71	0.13					66172	53.87	176.46	
14	1.14	-1.80	0.16					66172	5.58	176.46	
15	1.27	-1.66	0.14					66172	8.15	176.46	
16	1.37	-2.39	0.06					66172	20.69	176.46	
17	0.75	-1.80	0.13					66172	8.25	176.46	
18	0.90	-1.30	0.11					66172	1.23	176.46	
19	0.68	-2.27	0.13					66172	3.13	176.46	
20	0.91	0.32	0.10					66172	39.77	176.46	
21	0.60	-0.83	0.12					66172	50.28	176.46	
22	0.52	0.81	0.15					66172	2.64	176.46	
23	0.97	-0.17	0.24					66172	29.67	176.46	
24	1.29	-0.86	0.29					66172	8.92	176.46	
25	0.89	-0.63	0.19					66172	11.32	176.46	
26	0.67	-0.84	0.13					66172	76.08	176.46	
27	0.39	-1.62	0.13					66172	12.45	176.46	
28	1.14	-1.86	0.23					66172	5.31	176.46	
29	0.80	-1.39	0.17					66172	12.41	176.46	
30	1.37	-0.17	0.34					66172	29.35	176.46	
31	0.76	-1.19	0.15					66172	1.87	176.46	

item_no	a	b	c	alpha	gam1	gam2	gam3	Total_N	Z	critical Z	flag
32	0.64	-1.13	0.03					66172	16.62	176.46	
33	0.93	0.80	0.26					66172	26.84	176.46	
34	0.82	0.57	0.20					66172	37.14	176.46	
35	0.77	-1.68	0.06					66172	3.35	176.46	
36	0.99	-2.05	0.06					66172	4.87	176.46	
37	0.77	-1.18	0.09					66172	2.37	176.46	
38	0.89	1.00	0.31					66172	15.15	176.46	
39	0.61	-1.43	0.04					66172	19.70	176.46	
40	0.42	-0.66	0.05					66172	11.01	176.46	
41				0.54	1.01	-1.34		66172	58.62	176.46	
42				0.79	-2.32	0.86	0.39	66172	57.97	176.46	
43				1.35	-2.70	-0.20		66172	77.88	176.46	
44				1.17	-0.74	0.07		66172	136.85	176.46	
45				1.14	-0.65	-0.55		66172	155.05	176.46	

Table C3
Item Parameters and Fit Statistics Grade 10 Reading

item_no	a	b	c	alpha	gam1	Total_N	Z	critical Z	flag
1	0.58	-0.81	0.11			65350	53.34	174.27	
2	1.32	-2.11	0.25			65350	15.91	174.27	
3	0.86	0.15	0.09			65350	235.43	174.27	*
4	0.99	-0.75	0.26			65350	38.23	174.27	
5	1.13	-2.60	0.05			65350	19.69	174.27	
6	1.18	-0.55	0.14			65350	82.13	174.27	
7	0.82	-2.51	0.11			65350	46.24	174.27	
8	0.89	-1.37	0.13			65350	39.16	174.27	
9	0.69	-2.36	0.11			65350	45.14	174.27	
10	0.48	-2.27	0.20			65350	248.91	174.27	*
11	0.91	-2.59	0.06			65350	23.92	174.27	
12	0.67	-2.26	0.11			65350	19.00	174.27	
13	0.88	-1.53	0.18			65350	12.42	174.27	
14	0.81	-3.02	0.11			65350	54.92	174.27	
15	0.61	-2.08	0.11			65350	56.15	174.27	
16	0.99	-2.85	0.13			65350	16.42	174.27	
17	0.78	-2.49	0.11			65350	12.43	174.27	
18	1.17	-2.05	0.14			65350	17.04	174.27	
19	1.42	-0.32	0.31			65350	77.16	174.27	
20	0.83	-0.98	0.14			65350	41.40	174.27	
21	0.32	0.33	0.20			65350	365.19	174.27	*
22	1.50	-0.16	0.22			65350	184.88	174.27	*
23	1.43	0.05	0.15			65350	166.89	174.27	
24	0.74	0.34	0.13			65350	235.25	174.27	*
25	1.38	-1.88	0.24			65350	23.42	174.27	
26	0.58	-1.30	0.11			65350	166.42	174.27	
27	1.04	-1.01	0.11			65350	44.58	174.27	

Table C4
Item Parameters and Fit Statistics Grade 4 Mathematics

item_no	a	b	c	alpha	gam1	gam2	gam3	gam4	Total_N	Z	critical Z	flag
1	0.39	-2.88	0.15						58311	5.02	155.50	
2	0.80	-0.33	0.19						58311	5.58	155.50	
3	0.51	-0.71	0.11						58311	4.52	155.50	
4	0.51	-0.51	0.11						58311	8.54	155.50	
5	0.91	-1.38	0.08						58311	11.05	155.50	
6	0.97	0.08	0.04						58311	7.06	155.50	
7	0.65	0.38	0.05						58311	16.03	155.50	
8	0.78	-1.04	0.19						58311	10.23	155.50	
9	0.79	-1.08	0.28						58311	16.74	155.50	
10	1.05	-0.21	0.19						58311	6.57	155.50	
11	0.69	0.21	0.31						58311	1.92	155.50	
12	0.85	0.47	0.32						58311	5.51	155.50	
13	0.59	-2.72	0.20						58311	24.11	155.50	
14	0.37	-2.85	0.20						58311	4.27	155.50	
15	0.63	-0.24	0.18						58311	7.98	155.50	
16	0.22	-4.86	0.20						58311	3.90	155.50	
17	0.55	-1.69	0.16						58311	16.23	155.50	
18	0.90	0.18	0.09						58311	6.63	155.50	
19	0.79	-0.55	0.10						58311	0.80	155.50	
20	0.86	-0.60	0.05						58311	31.19	155.50	
21	0.53	-1.50	0.16						58311	21.18	155.50	
22	0.62	-1.71	0.08						58311	5.79	155.50	
23	0.65	-0.65	0.12						58311	0.36	155.50	
24	0.44	-3.41	0.20						58311	6.84	155.50	
25	0.78	-1.91	0.12						58311	8.14	155.50	
26	0.51	-3.40	0.20						58311	15.12	155.50	
27	1.03	-1.22	0.30						58311	4.57	155.50	
28	0.70	-1.14	0.04						58311	11.52	155.50	
29	0.99	-1.33	0.03						58311	6.38	155.50	
30	0.54	-1.85	0.34						58311	1.15	155.50	
31	0.72	-2.18	0.08						58311	5.42	155.50	

item_no	a	b	c	alpha	gam1	gam2	gam3	gam4	Total_N	Z	critical Z	flag
32	0.45	0.10	0.12						58311	2.93	155.50	
33	0.71	-0.20	0.20						58311	-0.20	155.50	
34	1.57	1.79	0.52						58311	27.59	155.50	
35	0.99	0.80	0.10						58311	20.25	155.50	
36	1.17	1.46	0.36						58311	82.19	155.50	
37	0.69	0.06	0.16						58311	4.10	155.50	
38	0.73	0.40	0.26						58311	4.58	155.50	
39	1.36	1.83	0.36						58311	12.07	155.50	
40	0.97	-0.69	0.15						58311	6.43	155.50	
41	0.97	0.94	0.28						58311	45.40	155.50	
42	0.84	0.17	0.14						58311	5.95	155.50	
43				0.54	-0.33	-0.90			58311	39.07	155.50	
44				0.60	0.24	1.55			58311	6.09	155.50	
45				0.80	-0.89	0.69	-0.33		58311	67.96	155.50	
46				0.75	-1.10	-0.09	1.00		58311	9.04	155.50	
47				0.83	-1.35	0.32			58311	237.66	155.50	*
48				1.06	0.41	0.42			58311	73.77	155.50	
49				0.65	-0.59	0.85			58311	25.57	155.50	
50				0.86	0.44	0.52			58311	104.88	155.50	
51				0.38	-0.90	-1.21	-0.82	0.13	58311	6.32	155.50	
52				0.57	-0.11	-0.53			58311	15.98	155.50	
53				0.67	-0.05	-0.04	0.04		58311	55.49	155.50	

Table C5
Item Parameters and Fit Statistics Grade 8 Mathematics

item_no	a	b	c	alpha	gam1	gam2	gam3	gam4	Total_N	Z	critical Z	flag
1	0.42	-2.08	0.15						66285	9.12	176.76	
2	0.97	0.44	0.23						66285	7.13	176.76	
3	0.85	0.85	0.11						66285	10.15	176.76	
4	0.56	-1.76	0.15						66285	4.61	176.76	
5	0.83	-1.36	0.15						66285	3.46	176.76	
6	1.20	0.41	0.33						66285	12.48	176.76	
7	0.67	-0.30	0.23						66285	23.85	176.76	
8	0.33	-3.26	0.20						66285	13.68	176.76	
9	0.70	0.04	0.45						66285	3.76	176.76	
10	0.55	-2.66	0.20						66285	31.96	176.76	
11	0.66	-2.84	0.20						66285	9.54	176.76	
12	1.01	-1.41	0.10						66285	20.13	176.76	
13	0.65	-2.52	0.20						66285	21.14	176.76	
14	0.48	-1.97	0.19						66285	4.97	176.76	
15	0.97	0.01	0.35						66285	2.33	176.76	
16	1.00	-2.13	0.08						66285	22.92	176.76	
17	0.74	-1.16	0.12						66285	3.10	176.76	
18	1.07	-0.42	0.20						66285	3.94	176.76	
19	0.94	-0.03	0.27						66285	29.18	176.76	
20	0.70	0.71	0.11						66285	14.66	176.76	
21	0.62	-1.05	0.09						66285	0.18	176.76	
22	0.91	-0.35	0.29						66285	1.87	176.76	
23	1.14	-0.79	0.14						66285	6.39	176.76	
24	0.98	0.05	0.23						66285	3.26	176.76	
25	0.98	-0.56	0.18						66285	6.47	176.76	
26	0.74	0.55	0.23						66285	1.35	176.76	
27	0.70	0.82	0.15						66285	2.86	176.76	
28	0.69	-0.13	0.24						66285	17.00	176.76	
29	0.78	0.42	0.33						66285	4.43	176.76	
30	0.80	0.64	0.15						66285	5.61	176.76	
31	1.19	1.47	0.32						66285	30.48	176.76	

item_no	a	b	c	alpha	gam1	gam2	gam3	gam4	Total_N	Z	critical Z	flag
32	0.73	-1.09	0.09						66285	1.46	176.76	
33	1.41	-0.06	0.40						66285	16.31	176.76	
34	0.66	-1.73	0.08						66285	11.68	176.76	
35	0.34	1.51	0.20						66285	64.69	176.76	
36	1.29	0.17	0.18						66285	18.32	176.76	
37	1.02	0.05	0.13						66285	12.87	176.76	
38	0.82	0.76	0.16						66285	5.99	176.76	
39	0.73	-0.64	0.10						66285	2.43	176.76	
40	1.21	1.80	0.20						66285	6.25	176.76	
41	0.63	1.38	0.25						66285	1.78	176.76	
42	0.57	1.25	0.13						66285	3.91	176.76	
43	0.69	-0.82	0.11						66285	6.66	176.76	
44	1.32	-0.13	0.27						66285	16.79	176.76	
45				1.07	-1.54	-0.73			66285	50.37	176.76	
46				0.72	-0.26	-1.44			66285	5.67	176.76	
47				0.55	-1.10	-1.11	-0.77	-0.64	66285	38.90	176.76	
48				1.02	-0.08	-0.84			66285	19.35	176.76	
49				1.06	-0.21	-0.99			66285	4.82	176.76	
50				0.50	0.90	-1.25			66285	57.43	176.76	
51				0.93	0.24	0.15			66285	11.57	176.76	
52				0.95	-0.23	0.91			66285	18.51	176.76	
53				1.32	0.19	0.94			66285	95.36	176.76	
54				0.89	-0.35	1.59	-0.22		66285	129.83	176.76	

Table C6
Item Parameters and Fit Statistics Grade 10 Mathematics

item_no	a	b	c	alpha	gam1	Total_N	Z	critical Z	flag
1	0.61	-1.65	0.20			68489	1.65	182.64	
2	0.68	0.45	0.33			68489	12.37	182.64	
3	1.21	-2.32	0.20			68489	15.19	182.64	
4	0.71	-2.08	0.20			68489	59.99	182.64	
5	0.70	-3.66	0.20			68489	51.85	182.64	
6	0.87	-1.04	0.22			68489	0.73	182.64	
7	0.95	-2.10	0.20			68489	80.55	182.64	
8	1.03	-2.05	0.14			68489	71.27	182.64	
9	0.74	-1.99	0.16			68489	8.99	182.64	
10	0.77	-2.73	0.20			68489	14.31	182.64	
11	0.69	-2.22	0.16			68489	25.44	182.64	
12	0.45	-2.01	0.20			68489	51.61	182.64	
13	0.66	-0.98	0.12			68489	26.98	182.64	
14	0.86	-1.95	0.10			68489	5.28	182.64	
15	0.59	-1.75	0.08			68489	12.98	182.64	
16	0.50	-0.98	0.16			68489	30.75	182.64	
17	0.61	-1.10	0.19			68489	2.55	182.64	
18	0.79	-0.94	0.08			68489	1.45	182.64	
19	1.43	-0.58	0.24			68489	18.62	182.64	
20	0.94	-1.31	0.23			68489	0.05	182.64	
21	1.21	-0.95	0.13			68489	16.86	182.64	
22	0.96	0.21	0.24			68489	9.67	182.64	
23	1.29	0.22	0.36			68489	52.66	182.64	
24	0.78	-0.48	0.29			68489	4.97	182.64	
26	0.92	-3.26	0.16			68489	16.34	182.64	
27	0.89	-1.04	0.05			68489	0.53	182.64	
28	1.22	-1.20	0.16			68489	4.88	182.64	
29	1.11	-1.10	0.23			68489	1.37	182.64	
30	1.16	-0.55	0.17			68489	17.98	182.64	
31	0.93	-1.26	0.15			68489	4.34	182.64	
32	0.56	-1.33	0.11			68489	2.20	182.64	

item_no	a	b	c	alpha	gam1	Total_N	Z	critical Z	flag
33	1.08	-0.60	0.08			68489	15.08	182.64	
34	0.76	-0.99	0.12			68489	95.54	182.64	
35	1.08	0.80	0.30			68489	23.49	182.64	
36	1.75	0.39	0.31			68489	68.94	182.64	
37	0.62	0.56	0.21			68489	8.85	182.64	
38	1.03	0.46	0.19			68489	16.10	182.64	
39	0.72	-0.11	0.26			68489	6.26	182.64	
40	0.54	-1.26	0.16			68489	20.84	182.64	
41	0.45	0.12	0.20			68489	87.37	182.64	
42	1.08	-0.93	0.18			68489	10.40	182.64	
43	1.39	-0.54	0.05			68489	33.40	182.64	
44	1.48	1.06	0.21			68489	93.10	182.64	
45	1.25	0.31	0.30			68489	37.14	182.64	
46	0.55	-1.09	0.16			68489	75.28	182.64	
47	1.19	0.66	0.22			68489	25.20	182.64	
48	0.83	-0.70	0.09			68489	17.33	182.64	
49	0.70	0.49	0.30			68489	4.67	182.64	
50	0.69	-0.97	0.10			68489	3.27	182.64	

Table C7
Item Parameters and Fit Statistics Grade 4 Language Arts

item_no	a	b	c	alpha	gam1	gam2	gam3	gam4	gam5	gam6	Total_N	Z	critical Z	flag
1	0.51	-1.55	0.20								58120	27.87	154.99	
2	0.76	-1.82	0.20								58120	24.62	154.99	
3	0.96	-0.54	0.34								58120	7.10	154.99	
4	0.95	0.09	0.18								58120	14.40	154.99	
5	0.79	0.41	0.28								58120	5.47	154.99	
6	0.73	0.36	0.23								58120	4.27	154.99	
7	0.50	1.30	0.11								58120	23.05	154.99	
8	0.60	-1.36	0.18								58120	24.47	154.99	
9	0.98	-0.64	0.20								58120	7.53	154.99	
10	0.82	-0.75	0.15								58120	3.79	154.99	
11	0.70	0.76	0.16								58120	7.98	154.99	
12	0.42	0.95	0.15								58120	29.92	154.99	
13	0.96	-1.64	0.31								58120	6.60	154.99	
14	1.16	-1.00	0.34								58120	8.62	154.99	
15	1.03	-0.66	0.27								58120	19.70	154.99	
16	0.46	-0.28	0.12								58120	-0.18	154.99	
17	0.87	-0.49	0.20								58120	9.79	154.99	
18	0.70	-1.24	0.15								58120	1.60	154.99	
19	0.78	-1.72	0.08								58120	7.65	154.99	
20	0.74	-1.57	0.18								58120	13.87	154.99	
21	0.74	-0.48	0.17								58120	2.31	154.99	
22	0.84	-1.28	0.14								58120	3.02	154.99	
23	0.69	-0.53	0.07								58120	7.67	154.99	
24	0.56	0.06	0.09								58120	1.56	154.99	
25	1.41	0.11	0.20								58120	50.10	154.99	
26	1.01	-0.66	0.15								58120	6.10	154.99	
27	0.23	3.28	0.11								58120	10.75	154.99	
28	1.15	0.92	0.19								58120	29.67	154.99	
29	1.20	1.41	0.14								58120	43.29	154.99	
30	0.96	-1.02	0.31								58120	3.97	154.99	
31	0.38	1.98	0.31								58120	9.99	154.99	

item_no	a	b	c	alpha	gam1	gam2	gam3	gam4	gam5	gam6	Total_N	Z	critical Z	flag
32				0.76	-1.37	-0.55	-0.09	0.31	0.82	1.16	58120	48.77	154.99	
33				0.64	-0.93	-1.18	-0.87	-0.52	0.75	0.18	58120	120.80	154.99	
34				0.55	-0.73	-1.80					58120	32.97	154.99	
35				0.76	0.43	-5.36	2.45				58120	87.61	154.99	

Table C8
Item Parameters and Fit Statistics Grade 8 Language Arts

item_no	a	b	c	alpha	gam1	gam2	gam3	gam4	gam5	gam6	Total_N	Z	critical Z	flag
1	0.48	-1.04	0.20								66401	5.13	177.07	
2	0.57	-1.42	0.08								66401	1.23	177.07	
3	1.03	-2.26	0.13								66401	16.58	177.07	
4	0.91	-1.48	0.15								66401	10.46	177.07	
5	0.94	-1.39	0.12								66401	10.32	177.07	
6	0.68	-1.94	0.19								66401	12.39	177.07	
7	0.81	-1.12	0.17								66401	18.11	177.07	
8	0.62	-2.41	0.20								66401	15.69	177.07	
9	0.92	-0.28	0.17								66401	15.81	177.07	
10	1.38	-0.35	0.20								66401	48.76	177.07	
11	1.00	0.48	0.29								66401	8.39	177.07	
12	0.93	0.46	0.19								66401	38.82	177.07	
13	0.65	0.03	0.25								66401	0.80	177.07	
14	0.93	-0.05	0.26								66401	6.50	177.07	
15	0.89	-1.97	0.07								66401	11.36	177.07	
16	0.94	-1.51	0.27								66401	4.11	177.07	
17	1.08	-0.27	0.13								66401	9.56	177.07	
18	0.73	0.44	0.41								66401	1.43	177.07	
19	1.10	0.08	0.12								66401	13.46	177.07	
20	1.10	-0.29	0.21								66401	17.26	177.07	
21	0.91	1.14	0.21								66401	10.02	177.07	
22	0.80	-1.67	0.16								66401	4.76	177.07	
23	1.02	0.13	0.24								66401	24.41	177.07	
24	0.77	-0.79	0.06								66401	16.91	177.07	
25	0.86	1.09	0.27								66401	5.48	177.07	
26	0.91	1.42	0.17								66401	12.91	177.07	
27	1.00	1.90	0.20											
28	0.61	-1.11	0.06								66401	1.88	177.07	
29	0.75	-0.91	0.07								66401	1.66	177.07	
30	0.60	-0.73	0.17								66401	15.99	177.07	
31	0.48	-0.14	0.20								66401	70.22	177.07	

item_no	a	b	c	alpha	gam1	gam2	gam3	gam4	gam5	gam6	Total_N	Z	critical Z	flag
32	0.79	1.25	0.17								66401	30.55	177.07	
33				0.93	-0.93	-0.72	-0.30	0.21	0.72	1.22	66401	91.60	177.07	
34				0.54	0.29	-1.23					66401	70.35	177.07	
35				0.34	2.10	-4.18	1.88				66401	435.27	177.07	*
36				0.96	-0.91	-0.78	-0.31	0.42	1.65	2.80	66401	253.64	177.07	*
37				0.76	-1.74	-1.83					66401	29.11	177.07	

Table C9
Item Parameters and Fit Statistics Grade 10 Language Arts

item_no	a	b	c	alpha	gam1	gam2	gam3	gam4	gam5	gam6	Total_N	Z	critical Z	flag
1	0.48	-1.04	0.20								66401	5.13	177.07	
2	0.57	-1.42	0.08								66401	1.23	177.07	
3	1.03	-2.26	0.13								66401	16.58	177.07	
4	0.91	-1.48	0.15								66401	10.46	177.07	
5	0.94	-1.39	0.12								66401	10.32	177.07	
6	0.68	-1.94	0.19								66401	12.39	177.07	
7	0.81	-1.12	0.17								66401	18.11	177.07	
8	0.62	-2.41	0.20								66401	15.69	177.07	
9	0.92	-0.28	0.17								66401	15.81	177.07	
10	1.38	-0.35	0.20								66401	48.76	177.07	
11	1.00	0.48	0.29								66401	8.39	177.07	
12	0.93	0.46	0.19								66401	38.82	177.07	
13	0.65	0.03	0.25								66401	0.80	177.07	
14	0.93	-0.05	0.26								66401	6.50	177.07	
15	0.89	-1.97	0.07								66401	11.36	177.07	
16	0.94	-1.51	0.27								66401	4.11	177.07	
17	1.08	-0.27	0.13								66401	9.56	177.07	
18	0.73	0.44	0.41								66401	1.43	177.07	
19	1.10	0.08	0.12								66401	13.46	177.07	
20	1.10	-0.29	0.21								66401	17.26	177.07	
21	0.91	1.14	0.21								66401	10.02	177.07	
22	0.80	-1.67	0.16								66401	4.76	177.07	*
23	1.02	0.13	0.24								66401	24.41	177.07	*
	0.77	-0.79	0.06								66401	16.91	177.07	
	0.86	1.09	0.27								66401	5.48	177.07	
	0.91	1.42	0.17								66401	12.91	177.07	
	1.00	1.90	0.20											
	0.61	-1.11	0.06								66401	1.88	177.07	
	0.75	-0.91	0.07								66401	1.66	177.07	
	0.60	-0.73	0.17								66401	15.99	177.07	
	0.48	-0.14	0.20								66401	70.22	177.07	

item_no	a	b	c	alpha	gam1	gam2	gam3	gam4	gam5	gam6	Total_N	Z	critical Z	flag
	0.79	1.25	0.17								66401	30.55	177.07	
				0.93	-0.93	-0.72	-0.30	0.21	0.72	1.22	66401	91.60	177.07	
				0.54	0.29	-1.23					66401	70.35	177.07	
				0.34	2.10	-4.18	1.88				66401	435.27	177.07	
				0.96	-0.91	-0.78	-0.31	0.42	1.65	2.80	66401	253.64	177.07	
				0.76	-1.74	-1.83					66401	29.11	177.07	

Table C10
Item Parameters and Fit Statistics Grade 4 Social Studies

item_no	a	b	c	alpha	gam1	gam2	gam3	Total_N	Z	critical Z	flag
1	0.78	-1.99	0.20					58401	6.18	155.74	
2	0.50	-3.38	0.20					58401	23.22	155.74	
3	0.93	-2.43	0.20					58401	4.55	155.74	
4	1.02	-1.94	0.14					58401	8.37	155.74	
5	0.80	-1.06	0.19					58401	5.91	155.74	
6	0.59	-1.75	0.20					58401	2.52	155.74	
7	0.88	-3.88	0.20					58401	13.76	155.74	
8	0.94	-2.41	0.11					58401	8.39	155.74	
9	0.85	-0.66	0.15					58401	9.71	155.74	
10	0.84	-2.46	0.11					58401	5.70	155.74	
11	0.94	-2.29	0.20					58401	5.13	155.74	
12	0.85	-0.17	0.13					58401	13.59	155.74	
13	0.34	-2.74	0.20					58401	66.44	155.74	
14	0.62	-0.88	0.18					58401	0.41	155.74	
15	0.53	0.19	0.26					58401	5.28	155.74	
16	0.58	-0.46	0.18					58401	102.27	155.74	
17	0.66	-0.20	0.30					58401	12.82	155.74	
18	0.37	0.62	0.13					58401	3.02	155.74	
19	0.79	-1.14	0.13					58401	7.17	155.74	
20	0.60	-0.51	0.16					58401	2.41	155.74	
21	0.30	0.37	0.10					58401	2.44	155.74	
22	1.14	1.54	0.39					58401	37.96	155.74	
23	0.60	-1.41	0.13					58401	7.56	155.74	
24	0.47	-0.93	0.18					58401	18.11	155.74	
25	1.01	1.09	0.18					58401	34.97	155.74	
26	0.48	0.41	0.24					58401	3.81	155.74	
27	0.49	-1.46	0.22					58401	2.97	155.74	
28	0.87	-0.62	0.31					58401	8.78	155.74	
29	1.02	-2.13	0.23					58401	18.86	155.74	
30	1.16	-0.73	0.26					58401	25.74	155.74	
31				0.76	-2.97	-1.70		58401	2.44	155.74	

item_no	a	b	c	alpha	gam1	gam2	gam3	Total_N	Z	critical Z	flag
32				0.88	-0.30			58401	18.52	155.74	
33				0.95	-0.09			58401	2.87	155.74	
34				0.64	-0.86	-1.52	-2.32	58401	6.92	155.74	
35				0.76	-0.43	-0.52		58401	18.91	155.74	
36				0.64	-1.22	-0.92	-0.21	58401	5.29	155.74	
37				0.73	-1.05	-1.64	1.02	58401	38.90	155.74	
38				0.94	0.24			58401	5.67	155.74	
39				0.84	-1.88	-1.24	-0.26	58401	16.27	155.74	
40				0.88	-0.98	0.69		58401	29.91	155.74	

Table C11
Item Parameters and Fit Statistics Grade 8 Social Studies

item_no	a	b	c	alpha	gam1	gam2	gam3	Total_N	Z	critical Z	flag
1	0.51	-2.14	0.17					66318	-0.53	176.85	
2	0.96	-1.98	0.23					66318	10.74	176.85	
3	0.56	-2.27	0.10					66318	0.77	176.85	
4	0.93	-2.35	0.17					66318	8.21	176.85	
5	0.81	-2.66	0.10					66318	9.68	176.85	
6	1.08	-2.85	0.20					66318	18.40	176.85	
7	0.94	-0.03	0.26					66318	24.91	176.85	
8	0.93	-1.52	0.17					66318	19.46	176.85	
9	1.01	-1.75	0.19					66318	6.40	176.85	
10	0.70	-1.81	0.17					66318	17.75	176.85	
11	0.75	-0.05	0.23					66318	30.54	176.85	
12	0.89	-0.52	0.34					66318	8.70	176.85	
13	0.61	-1.54	0.17					66318	2.19	176.85	
14	0.85	-0.25	0.26					66318	13.78	176.85	
15	0.75	1.91	0.33					66318	27.60	176.85	
16	1.00	-2.28	0.10					66318	8.17	176.85	
17	0.76	0.47	0.23					66318	11.18	176.85	
18	0.77	-1.48	0.09					66318	1.13	176.85	
19	0.91	-0.52	0.36					66318	12.06	176.85	
20	0.70	-1.49	0.16					66318	7.39	176.85	
21	0.69	-0.30	0.20					66318	14.31	176.85	
22	0.70	-1.74	0.17					66318	13.76	176.85	
23	0.97	0.69	0.31					66318	19.76	176.85	
24	0.43	1.25	0.14					66318	3.86	176.85	
25	0.70	1.17	0.29					66318	7.08	176.85	
26	0.48	-2.44	0.17					66318	3.94	176.85	
27	0.33	1.63	0.35					66318	7.45	176.85	
28	0.45	1.68	0.15					66318	3.48	176.85	
29	0.67	-1.07	0.16					66318	2.31	176.85	
30	0.39	0.35	0.20					66318	57.17	176.85	
31	0.51	2.30	0.25					66318	8.51	176.85	

item_no	a	b	c	alpha	gam1	gam2	gam3	Total_N	Z	critical Z	flag
32	0.86	-0.58	0.31					66318	9.13	176.85	
33	0.86	-1.82	0.24					66318	3.08	176.85	
34	0.78	-0.82	0.12					66318	8.65	176.85	
35	0.66	-1.31	0.04					66318	17.96	176.85	
36	0.57	-0.49	0.08					66318	3.58	176.85	
37				0.81	-1.37	-0.83		66318	15.99	176.85	
38				0.61	-1.07	-0.46	0.26	66318	14.48	176.85	
39				1.14	-2.34			66318	14.20	176.85	
40				0.51	0.78	-1.17	-1.15	66318	287.93	176.85	*
41				0.66	-1.76	-0.72		66318	5.81	176.85	
42				0.55	-0.36	-0.54		66318	79.49	176.85	
43				0.88	0.34	1.07		66318	44.18	176.85	
44				0.94	-0.47			66318	4.28	176.85	
45				1.21	0.50			66318	10.44	176.85	
46				0.94	-0.98	-0.19		66318	40.19	176.85	

Table C12
Item Parameters and Fit Statistics Grade 10 Social Studies

item_no	a	b	c	alpha	gam1	Total_N	Z	critical Z	flag
1	0.40	-2.68	0.20			68941	21.74	183.84	
2	0.57	-1.75	0.20			68941	6.76	183.84	
3	0.60	-0.04	0.17			68941	58.74	183.84	
4	0.60	-1.64	0.20			68941	31.02	183.84	
5	0.78	-1.97	0.15			68941	32.97	183.84	
6	0.56	-2.08	0.20			68941	67.47	183.84	
7	1.17	-1.33	0.34			68941	2.53	183.84	
8	1.29	-1.53	0.34			68941	8.77	183.84	
9	0.86	-1.52	0.14			68941	1.99	183.84	
10	0.19	-1.83	0.20			68941	69.34	183.84	
11	0.47	-0.99	0.20			68941	185.89	183.84	*
12	0.95	0.34	0.09			68941	45.37	183.84	
13	1.11	1.07	0.16			68941	51.76	183.84	
14	1.16	-0.54	0.36			68941	10.79	183.84	
15	1.60	-1.37	0.28			68941	13.25	183.84	
16	0.75	-0.46	0.20			68941	2.24	183.84	
17	0.74	-1.45	0.04			68941	3.15	183.84	
18	0.96	-1.58	0.08			68941	6.76	183.84	
19	0.65	-1.74	0.08			68941	18.76	183.84	
20	0.73	-1.87	0.06			68941	13.38	183.84	
21	0.82	-1.78	0.07			68941	12.24	183.84	
22	0.76	-1.01	0.15			68941	9.94	183.84	
23	0.56	-1.01	0.17			68941	12.30	183.84	
24	1.13	-1.19	0.19			68941	3.63	183.84	
25	1.18	-1.49	0.20			68941	8.55	183.84	
26	0.91	-0.76	0.21			68941	18.26	183.84	
27	0.53	-1.19	0.08			68941	0.40	183.84	
28	1.32	0.03	0.22			68941	43.30	183.84	
29	0.40	-1.84	0.20			68941	31.01	183.84	
30	0.66	-1.01	0.24			68941	11.49	183.84	
31	0.52	-0.85	0.20			68941	232.29	183.84	*

item_no	a	b	c	alpha	gam1	Total_N	Z	critical Z	flag
32	0.22	1.45	0.20			68941	117.86	183.84	
33	1.06	-0.32	0.22			68941	18.15	183.84	
34	0.85	-0.21	0.36			68941	47.96	183.84	
35	0.75	-1.08	0.13			68941	9.04	183.84	
36	0.58	-0.51	0.04			68941	8.65	183.84	
37	0.65	-0.04	0.12			68941	39.87	183.84	
38	0.74	-0.53	0.16			68941	7.86	183.84	
39	0.95	-1.06	0.32			68941	3.17	183.84	
40	0.78	-2.30	0.17			68941	56.99	183.84	
41	0.56	-0.97	0.17			68941	52.12	183.84	
42	0.61	-1.20	0.05			68941	1.00	183.84	
43	0.27	-0.19	0.20			68941	185.99	183.84	*
44	0.73	-0.42	0.10			68941	13.55	183.84	
45	0.77	-0.88	0.13			68941	20.65	183.84	
46	0.32	0.95	0.20			68941	86.98	183.84	
47	1.05	-1.15	0.24			68941	1.77	183.84	
48	0.82	-0.22	0.31			68941	9.75	183.84	
49	1.28	-0.11	0.24			68941	31.28	183.84	
50	0.69	0.94	0.17			68941	15.63	183.84	

Table C13
Item Parameters and Fit Statistics Grade 4 Science

item_no	a	b	c	alpha	gam1	gam2	Total_N	Z	critical Z	flag
1	0.37	-3.51	0.20				58493	5.26	155.98	
2	0.40	-2.79	0.20				58493	10.60	155.98	
3	0.68	-2.79	0.20				58493	8.00	155.98	
4	0.71	-2.16	0.20				58493	25.76	155.98	
5	0.81	-2.91	0.20				58493	7.64	155.98	
6	0.82	-0.72	0.23				58493	11.55	155.98	
7	0.77	-2.43	0.20				58493	5.13	155.98	
8	0.39	-2.05	0.20				58493	5.51	155.98	
9	0.43	-2.75	0.20				58493	0.82	155.98	
10	0.55	0.19	0.31				58493	4.98	155.98	
11	0.45	-1.98	0.20				58493	2.03	155.98	
12	0.52	-1.42	0.08				58493	2.69	155.98	
13	0.68	0.39	0.55				58493	2.85	155.98	
14	0.87	-1.37	0.06				58493	3.60	155.98	
15	0.76	-0.56	0.28				58493	9.95	155.98	
16	0.24	-2.03	0.20				58493	10.53	155.98	
17	0.53	-0.10	0.04				58493	5.79	155.98	
18	0.63	-0.24	0.38				58493	4.71	155.98	
19	0.68	-1.11	0.17				58493	6.78	155.98	
20	0.31	-1.14	0.20				58493	12.83	155.98	
21	0.38	-0.64	0.16				58493	6.17	155.98	
22	0.52	-0.14	0.20				58493	2.38	155.98	
23	0.35	-1.30	0.20				58493	0.68	155.98	
24	0.86	0.11	0.22				58493	12.86	155.98	
25	0.62	0.58	0.14				58493	3.80	155.98	
26	0.70	-2.89	0.18				58493	9.86	155.98	
27	0.95	-0.73	0.19				58493	13.21	155.98	
28	0.61	1.02	0.12				58493	6.31	155.98	
29	1.03	1.75	0.19				58493	11.92	155.98	
30	1.24	1.96	0.29				58493	6.79	155.98	
31	0.57	0.52	0.20				58493	3.81	155.98	

item_no	a	b	c	alpha	gam1	gam2	Total_N	Z	critical Z	flag
32	0.27	0.69	0.10				58493	32.27	155.98	
33	0.94	2.66	0.19				58493	5.27	155.98	
34	0.56	0.27	0.19				58493	11.53	155.98	
35	0.59	-0.41	0.14				58493	8.02	155.98	
36	0.39	-0.93	0.18				58493	3.62	155.98	
37	0.23	3.09	0.09				58493	1.18	155.98	
38	0.58	-4.78	0.20				58493	28.71	155.98	
39	0.62	-1.37	0.18				58493	6.84	155.98	
40	1.03	1.13	0.25				58493	11.71	155.98	
41	0.61	1.89	0.28				58493	2.23	155.98	
42	0.78	0.64	0.33				58493	7.71	155.98	
43	0.27	-4.22	0.20				58493	36.82	155.98	
44	0.37	0.62	0.08				58493	9.91	155.98	
45	0.62	2.13	0.20				58493	6.64	155.98	
46	0.77	-1.92	0.18				58493	41.69	155.98	
47	0.54	1.55	0.21				58493	8.15	155.98	
48	0.59	-2.19	0.20				58493	68.96	155.98	
49	0.77	-0.76	0.25				58493	9.03	155.98	
50	0.47	-1.91	0.12				58493	4.55	155.98	
51	0.87	2.36	0.13				58493	32.46	155.98	
52	0.91	-1.72	0.04				58493	51.05	155.98	
53	0.31	-2.47	0.20				58493	21.87	155.98	
54	0.61	-1.43	0.09				58493	3.73	155.98	
55	0.86	-1.81	0.25				58493	3.73	155.98	
56				0.75	-2.38		58493	21.77	155.98	
57				0.51	-1.81	-0.96	58493	68.00	155.98	
58				1.43	-2.73		58493	17.50	155.98	
59				0.88	-1.63		58493	2.91	155.98	
60				0.10	-1.77	0.10	58493	29.38	155.98	
61				1.16	-0.92		58493	6.33	155.98	
62				0.93	-1.39	0.50	58493	97.66	155.98	
63				0.58	0.39	-0.91	58493	173.51	155.98	*
64				1.14	0.30		58493	73.50	155.98	
65				1.37	0.16		58493	19.53	155.98	

item_no	a	b	c	alpha	gam1	gam2	Total_N	Z	critical Z	flag
66				0.72	-0.31		58493	5.23	155.98	
67				0.62	1.12		58493	43.91	155.98	

Table C14
Item Parameters and Fit Statistics Grade 8 Science

item_no	a	b	c	alpha	gam1	gam2	gam3	Total_N	Z	critical Z	flag
1	0.43	-3.65	0.20					66419	4.80	177.12	
2	1.09	-1.16	0.37					66419	3.97	177.12	
3	0.47	-2.78	0.20					66419	3.70	177.12	
4	0.57	-3.59	0.20					66419	21.77	177.12	
5	0.44	-1.03	0.20					66419	18.32	177.12	
6	0.52	-1.89	0.09					66419	14.81	177.12	
7	0.50	-1.77	0.20					66419	24.52	177.12	
8	0.50	0.84	0.24					66419	1.18	177.12	
9	1.04	-1.09	0.14					66419	5.22	177.12	
10	0.78	-0.64	0.20					66419	7.14	177.12	
11	0.78	-3.08	0.20					66419	11.07	177.12	
12	0.91	-0.37	0.16					66419	5.53	177.12	
13	0.84	-0.98	0.13					66419	14.69	177.12	
14	0.50	-0.81	0.18					66419	31.90	177.12	
15	0.63	-1.01	0.18					66419	0.31	177.12	
16	0.45	-3.33	0.20					66419	9.74	177.12	
17	0.84	0.73	0.39					66419	14.89	177.12	
18	0.64	0.33	0.30					66419	4.10	177.12	
19	0.85	-0.12	0.36					66419	5.76	177.12	
20	0.87	0.91	0.32					66419	4.86	177.12	
21	0.69	0.04	0.31					66419	7.45	177.12	
22	1.04	0.59	0.20					66419	25.04	177.12	
23	0.81	-0.10	0.20					66419	6.28	177.12	
24	0.22	-0.48	0.20					66419	15.26	177.12	
25	0.75	0.67	0.22					66419	6.27	177.12	
26	1.07	-1.84	0.19					66419	5.16	177.12	
27	0.89	-3.01	0.18					66419	21.44	177.12	
28	0.51	-0.20	0.20					66419	15.17	177.12	
29	0.74	-0.27	0.19					66419	2.78	177.12	
30	0.25	1.36	0.20					66419	27.85	177.12	
31	1.06	2.12	0.18					66419	6.81	177.12	
32	1.05	-0.85	0.11					66419	6.28	177.12	

item_no	a	b	c	alpha	gam1	gam2	gam3	Total_N	Z	critical Z	flag
33	0.63	-0.63	0.18					66419	2.61	177.12	
34	0.63	0.61	0.23					66419	11.56	177.12	
35	0.83	-1.34	0.25					66419	8.19	177.12	
36	0.39	1.37	0.20					66419	39.20	177.12	
37	0.67	-1.59	0.16					66419	1.68	177.12	
38	0.86	0.06	0.22					66419	15.83	177.12	
39	0.66	-1.11	0.18					66419	43.96	177.12	
40	0.56	-0.83	0.10					66419	7.88	177.12	
41	0.59	-1.06	0.05					66419	13.18	177.12	
42	0.64	-0.10	0.11					66419	5.07	177.12	
43	0.50	-2.17	0.20					66419	122.53	177.12	
44	0.40	0.51	0.20					66419	141.34	177.12	
45	0.60	-0.51	0.18					66419	25.71	177.12	
46	1.01	2.23	0.13					66419	23.92	177.12	
47	0.46	-1.01	0.18					66419	77.72	177.12	
48	0.53	1.63	0.16					66419	1.86	177.12	
49	0.66	-0.10	0.30					66419	5.25	177.12	
50	0.83	2.52	0.26					66419	3.19	177.12	
51	0.83	0.81	0.10					66419	13.12	177.12	
52	1.03	-0.98	0.28					66419	13.41	177.12	
53	0.36	-1.53	0.20					66419	114.85	177.12	
54	0.71	-1.76	0.18					66419	24.17	177.12	
55	1.08	-1.78	0.19					66419	6.27	177.12	
56	0.90	-0.70	0.17					66419	8.03	177.12	
57	0.59	-1.69	0.18					66419	37.26	177.12	
58	1.24	-1.79	0.15					66419	12.53	177.12	
59	1.15	-1.11	0.18					66419	6.16	177.12	
60	1.05	-1.91	0.18					66419	6.56	177.12	
61				0.64	-1.20	-3.78		66419	22.40	177.12	
62				0.51	0.14	-0.37		66419	53.94	177.12	
63				0.64	-0.08			66419	11.96	177.12	
64				0.99	-0.66			66419	5.35	177.12	
65				0.68	-0.15			66419	11.00	177.12	
66				0.97	0.62			66419	3.69	177.12	

item_no	a	b	c	alpha	gam1	gam2	gam3	Total_N	Z	critical Z	flag
67				0.43	-1.91	0.82	-2.41	66419	185.65	177.12	*
68				0.98	-0.35	-0.39		66419	35.65	177.12	
69				0.67	-0.38			66419	165.58	177.12	
70				0.71	-0.57	0.82		66419	15.94	177.12	

Table C15
Item Parameters and Fit Statistics Grade 10 Science

item_no	a	b	c	alpha	gam1	Total_N	Z	critical Z	flag
1	0.29	-3.36	0.20			69085	127.10	184.23	
2	0.85	-1.95	0.20			69085	24.07	184.23	
3	0.88	-1.89	0.20			69085	12.63	184.23	
4	0.73	-1.47	0.08			69085	21.30	184.23	
5	0.37	-2.93	0.20			69085	28.56	184.23	
6	0.62	-1.76	0.20			69085	17.32	184.23	
7	0.73	-1.44	0.20			69085	11.70	184.23	
8	0.92	-1.77	0.19			69085	27.83	184.23	
9	0.57	-1.53	0.08			69085	20.96	184.23	
10	1.01	-0.25	0.44			69085	12.24	184.23	
11	0.99	-0.57	0.33			69085	11.17	184.23	
12	0.20	-3.22	0.20			69085	175.17	184.23	
13	0.72	-1.43	0.15			69085	10.34	184.23	
14	0.57	-1.30	0.32			69085	16.57	184.23	
15	0.43	-1.79	0.20			69085	266.23	184.23	*
16	0.63	-1.69	0.10			69085	6.32	184.23	
17	0.60	-1.33	0.09			69085	26.60	184.23	
18	0.44	-0.62	0.20			69085	147.58	184.23	
19	0.57	-1.53	0.20			69085	135.17	184.23	
20	0.89	-2.01	0.08			69085	15.48	184.23	
21	0.34	-1.06	0.20			69085	19.18	184.23	
22	0.57	-1.17	0.21			69085	4.42	184.23	
23	0.48	-1.21	0.20			69085	33.82	184.23	
24	1.08	-0.71	0.20			69085	21.37	184.23	
25	0.78	-0.64	0.12			69085	3.89	184.23	
26	0.55	-1.29	0.16			69085	0.90	184.23	
27	0.69	-0.71	0.15			69085	8.72	184.23	
28	1.07	-0.61	0.27			69085	20.98	184.23	
29	1.04	-0.63	0.22			69085	42.89	184.23	
30	0.48	-0.51	0.20			69085	124.07	184.23	
31	0.73	1.02	0.46			69085	7.87	184.23	

item_no	a	b	c	alpha	gam1	Total_N	Z	critical Z	flag
32	0.50	-0.15	0.12			69085	8.11	184.23	
33	0.87	-0.26	0.25			69085	17.20	184.23	
34	0.77	-0.18	0.19			69085	9.23	184.23	
35	1.24	0.33	0.15			69085	48.53	184.23	
36	0.28	1.33	0.20			69085	54.68	184.23	
37	0.80	0.54	0.16			69085	13.65	184.23	
38	1.26	0.92	0.26			69085	65.88	184.23	
39	1.23	0.36	0.16			69085	77.07	184.23	
40	0.91	0.37	0.26			69085	17.33	184.23	
41	0.50	1.08	0.17			69085	7.13	184.23	
42	0.74	0.83	0.11			69085	24.68	184.23	
43	0.47	-0.05	0.12			69085	20.53	184.23	
44	0.76	1.86	0.19			69085	9.22	184.23	
45	0.39	1.19	0.13			69085	30.33	184.23	
46	0.33	0.33	0.08			69085	13.80	184.23	
47	0.73	1.47	0.36			69085	6.70	184.23	
48	0.62	1.97	0.19			69085	21.49	184.23	
49	0.46	0.37	0.28			69085	32.49	184.23	
50	1.02	2.05	0.25			69085	15.88	184.23	

Figure C1
Grade 4 Language Arts Item 4 – Actual Parameters

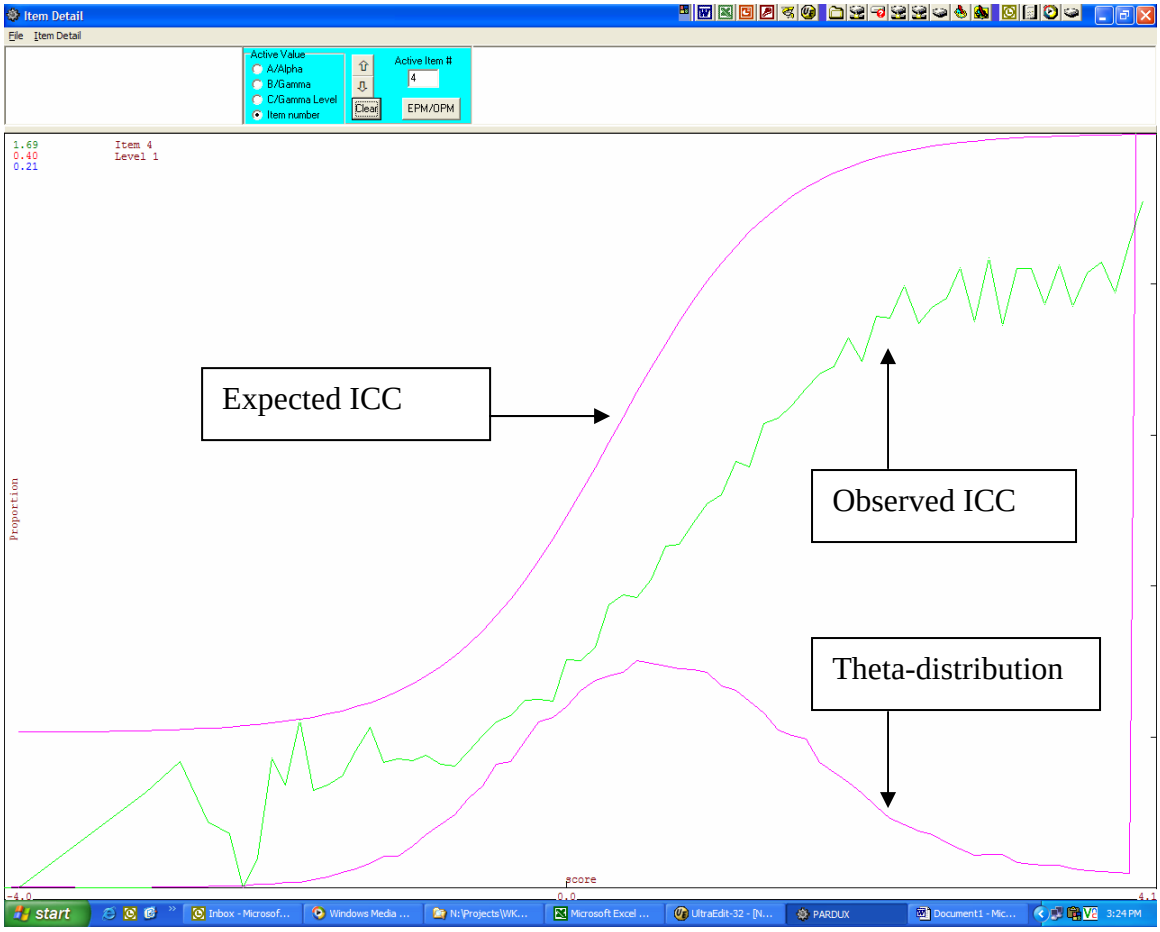

Figure C2
Grade 4 Reading Item 42 Level 1 - Estimated Parameters

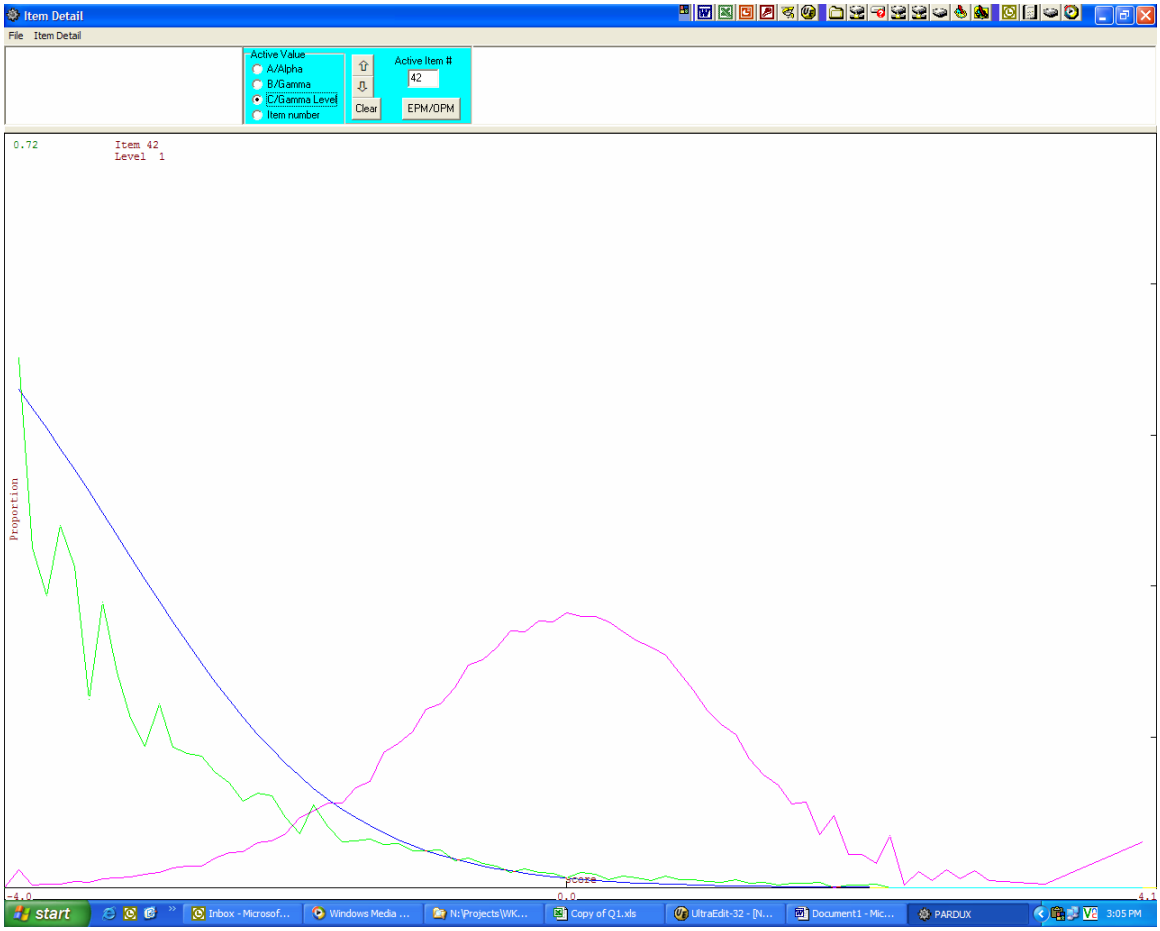

Figure C3
Grade 4 Reading Item 42 Level 2 - Estimated Parameters

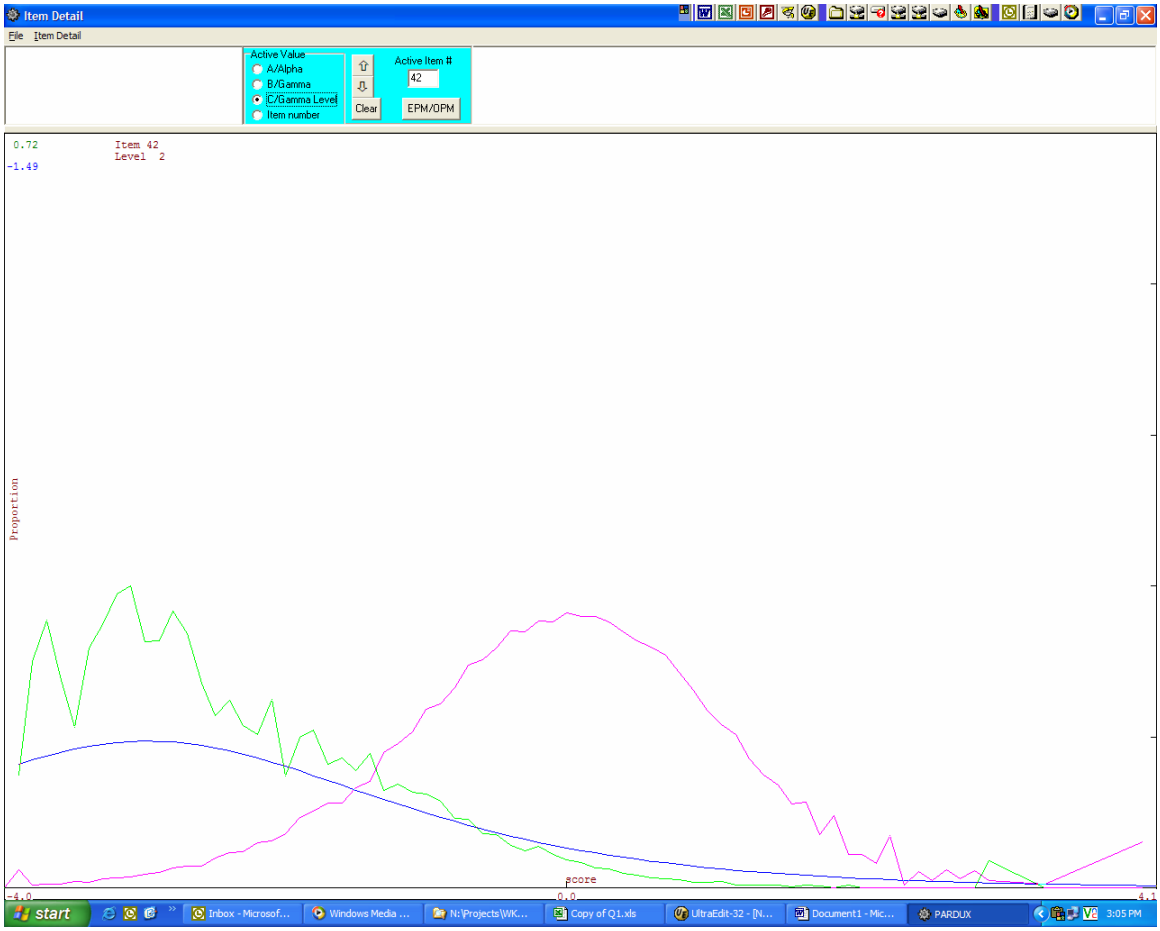

Figure C4
Grade 4 Reading Item 42 Level 3 - Estimated Parameters

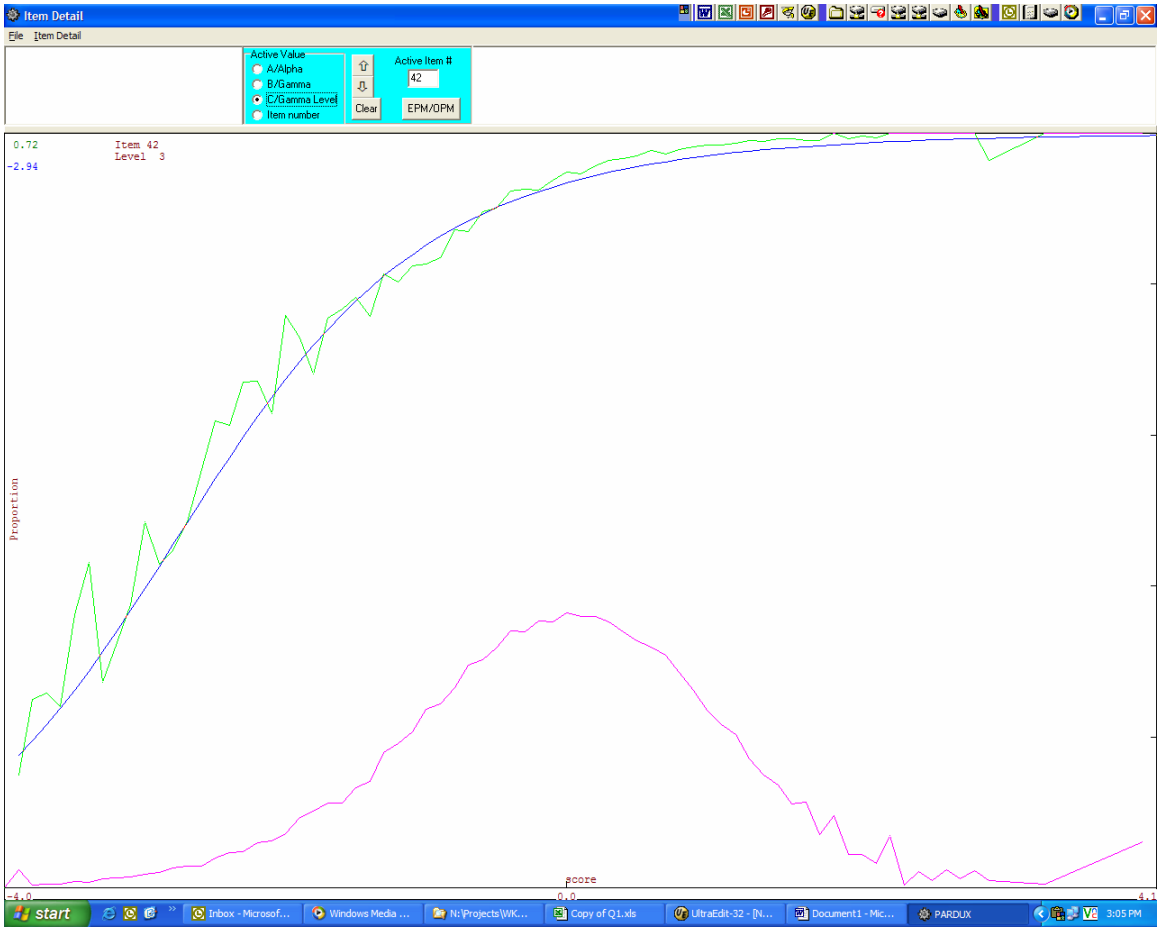

Figure C5
Grade 10 Reading Item 3 - Estimated Parameters

Figure C6
Grade 10 Reading Item 10 - Estimated Parameters

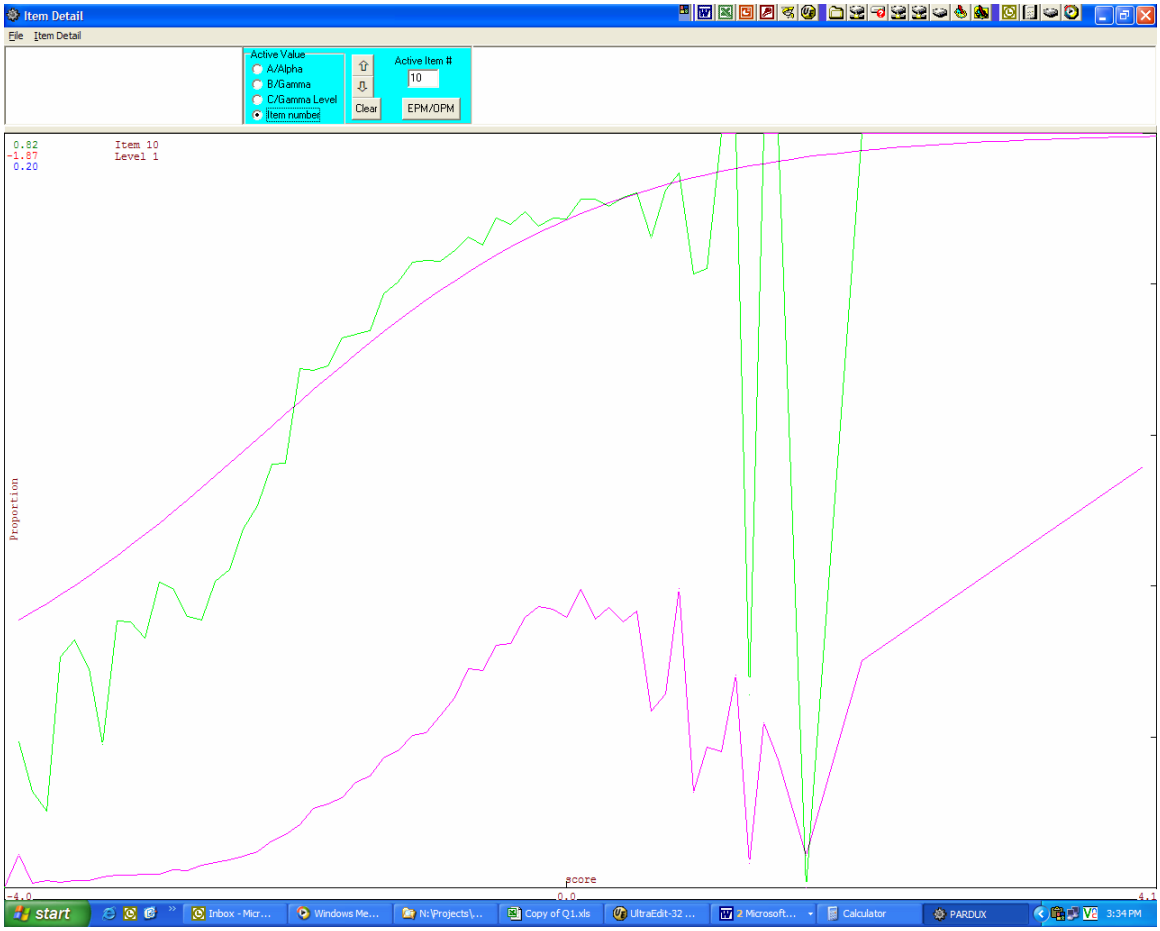

Figure C7
Grade 10 Reading Item 21 - Estimated Parameters

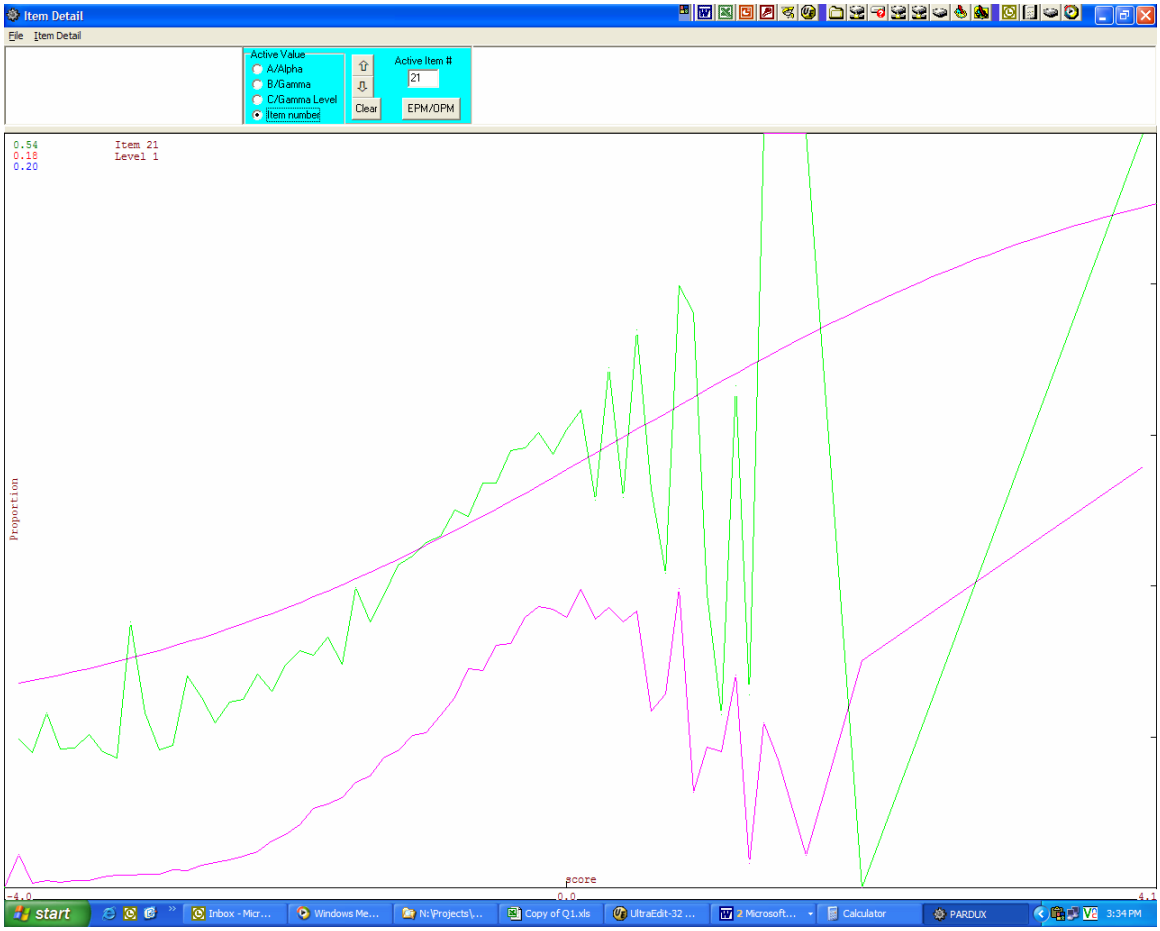

Figure C8
Grade 10 Reading Item 22 - Estimated Parameters

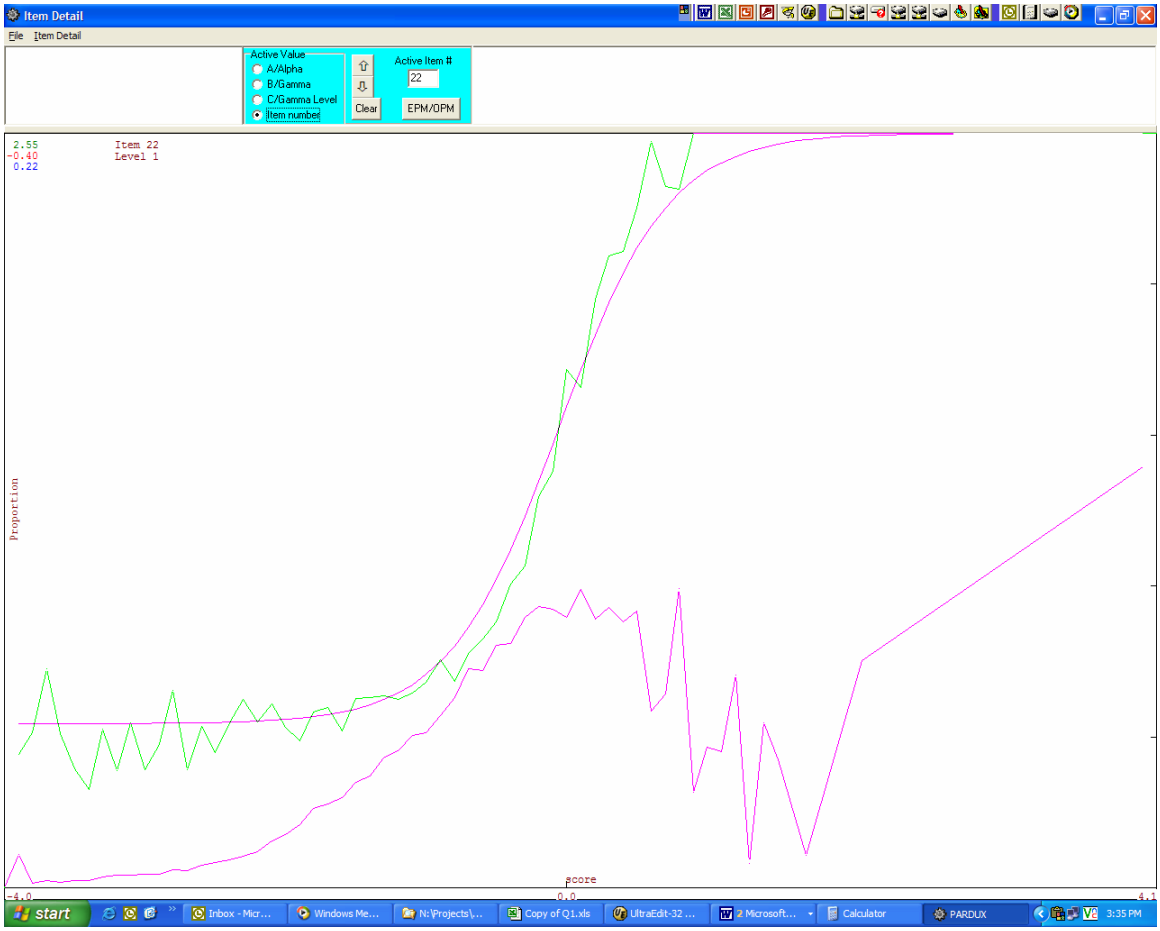

Figure C9
Grade 10 Reading Item 24 - Estimated Parameters

Figure C10
Grade 4 Mathematics Item 47 Level 1 - Estimated Parameters

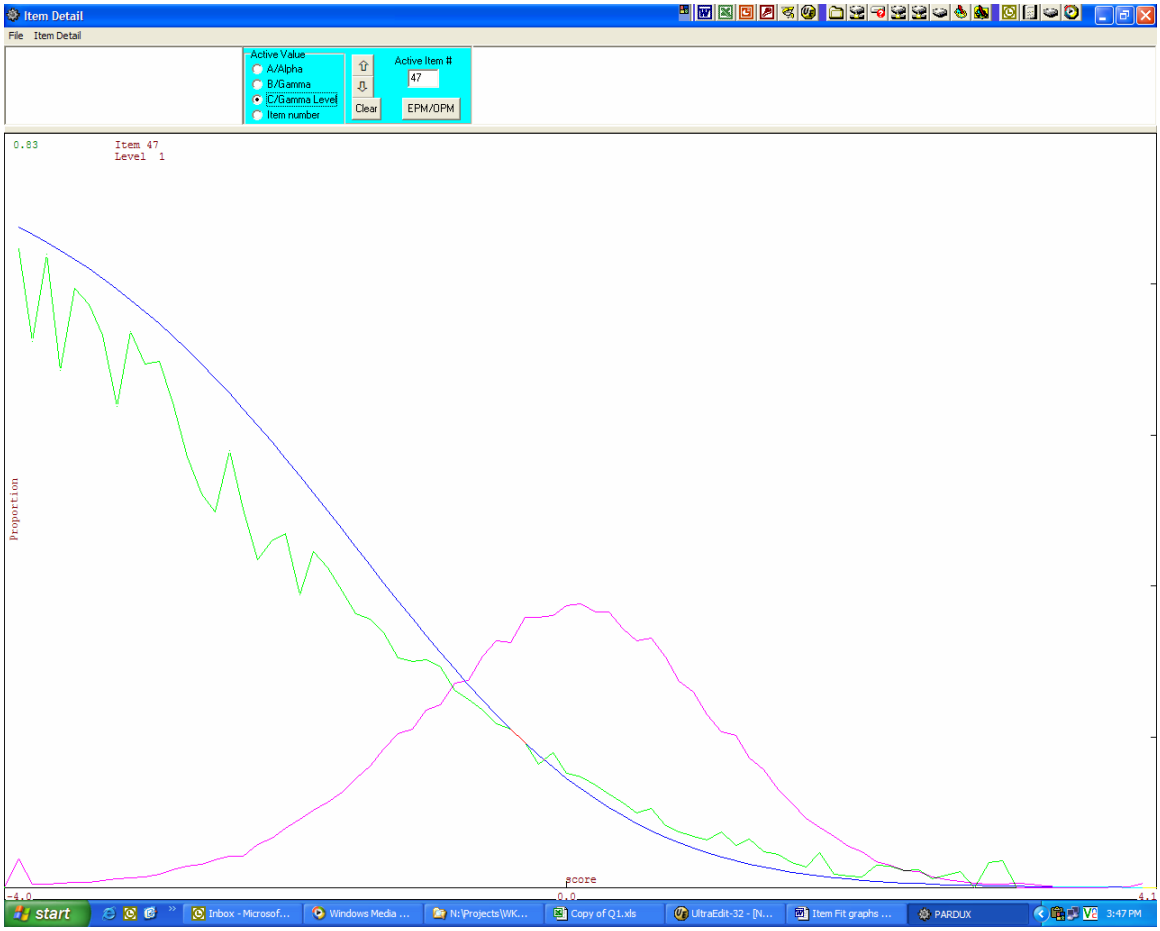

Figure C11
Grade 4 Mathematics Item 47 Level 2 - Estimated Parameters

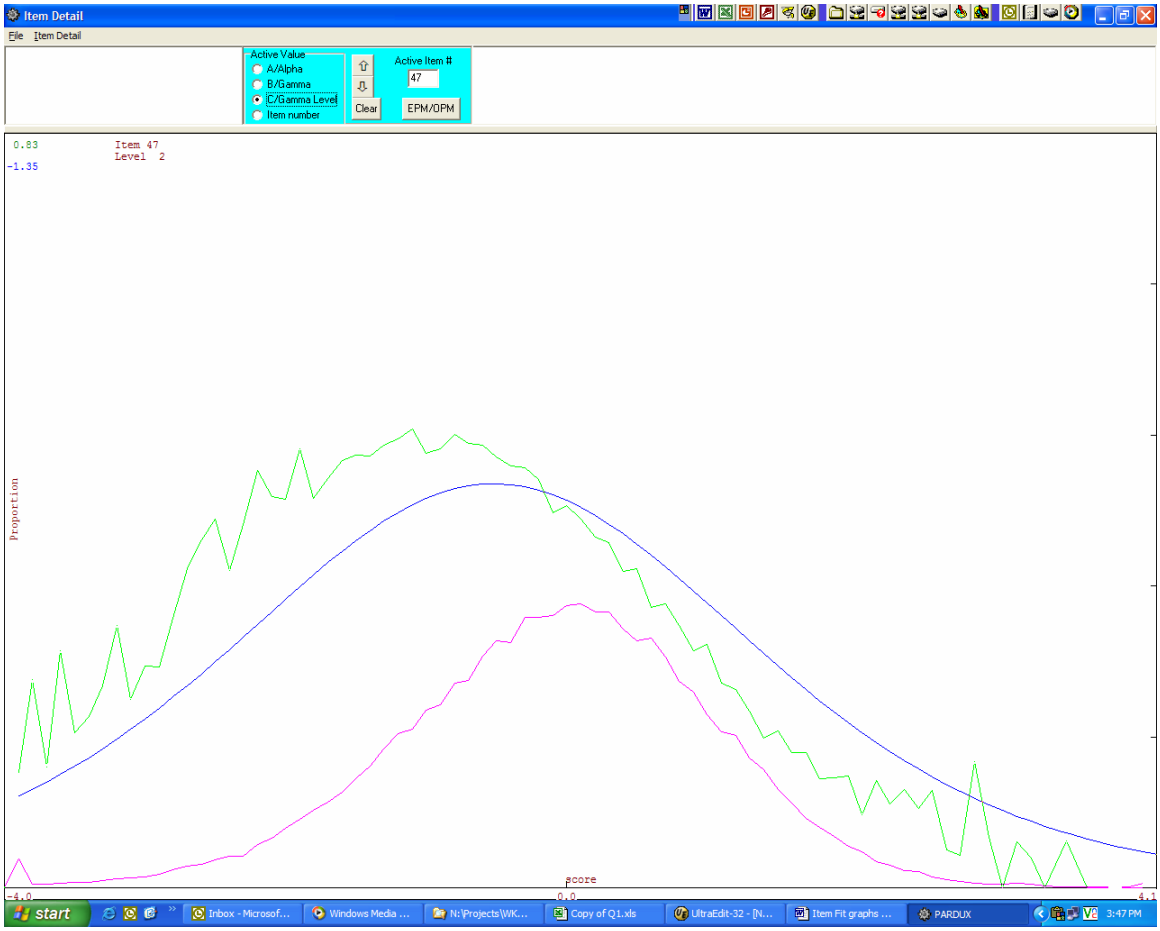

Figure C12
Grade 4 Mathematics Item 47 Level 3 - Estimated Parameters

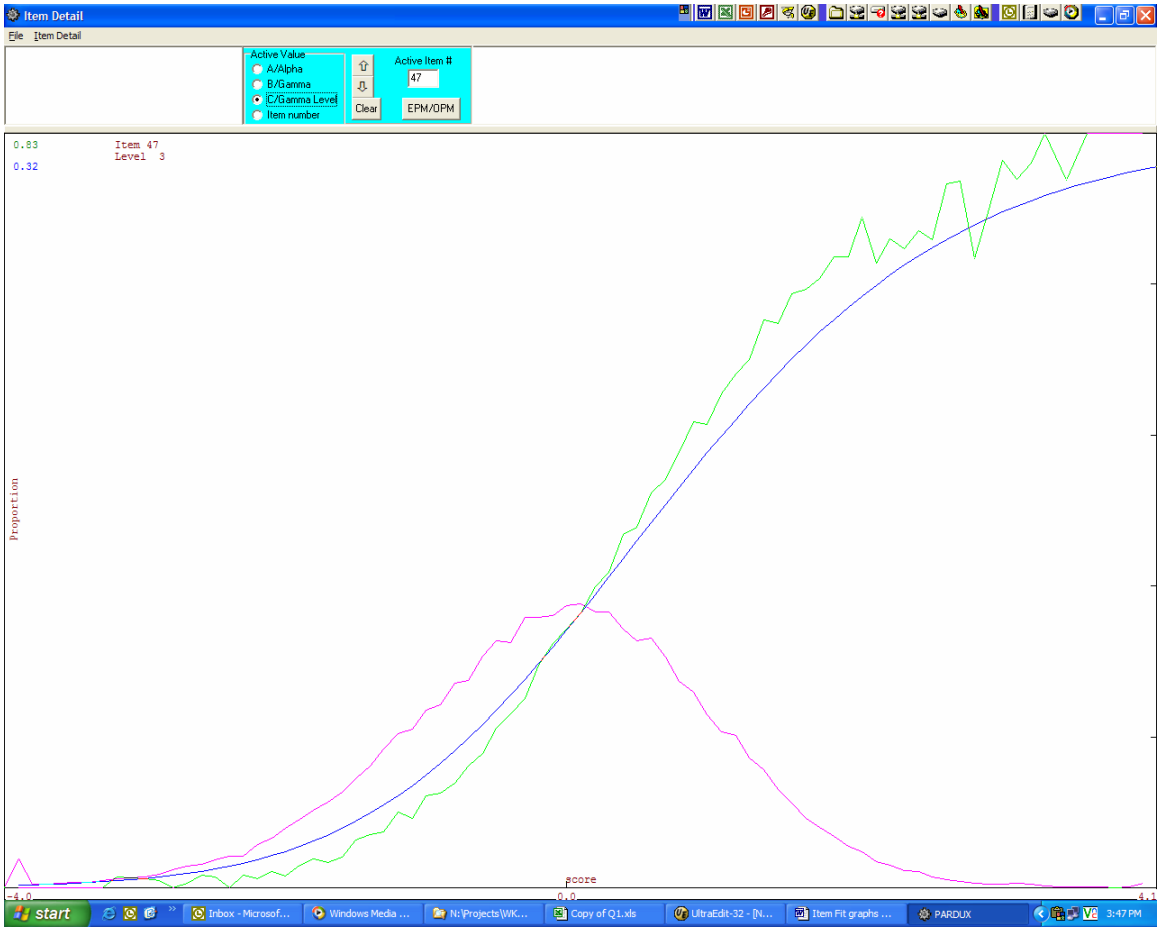

Figure C13
Grade 8 Language Arts Item 27 - Estimated Parameters

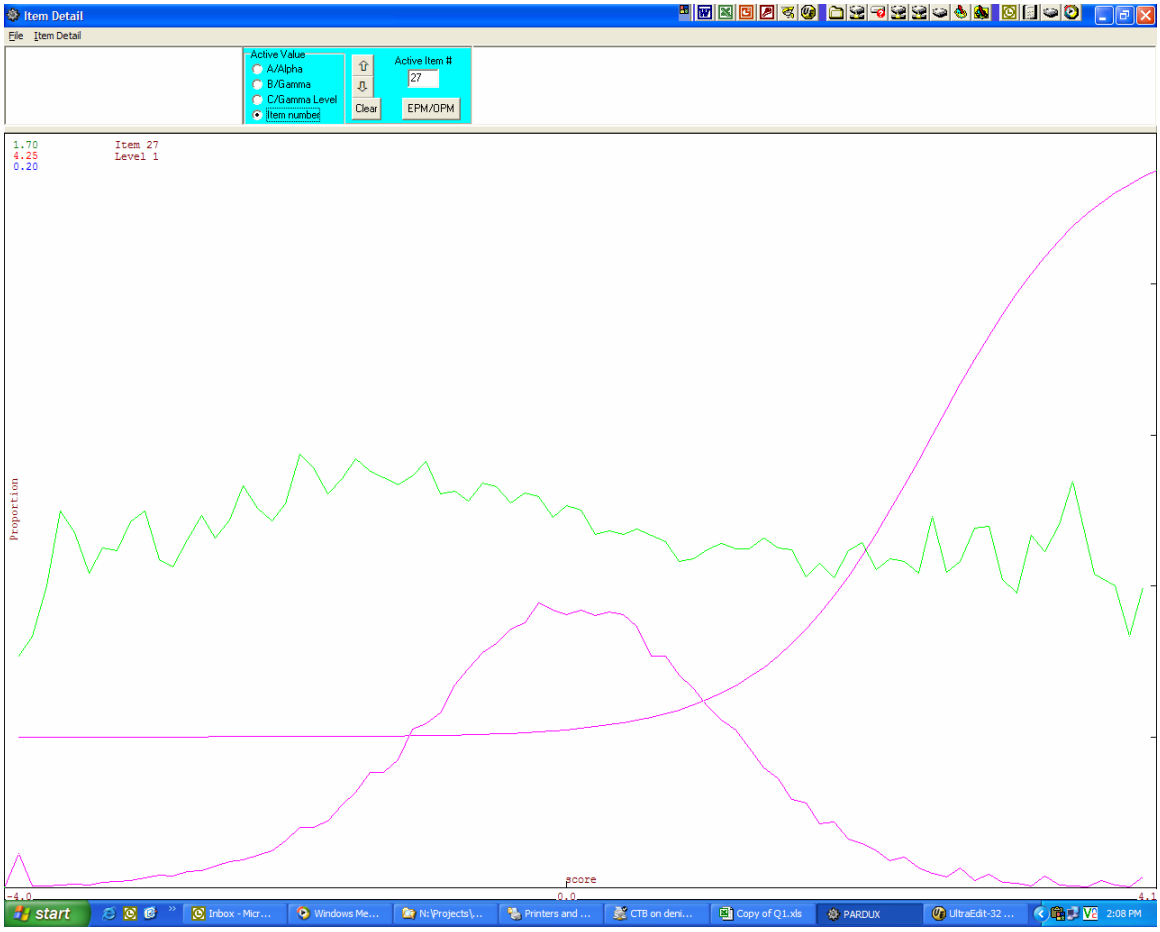

Figure C14
Grade 8 Language Arts Item 35 Level 1 - Estimated Parameters

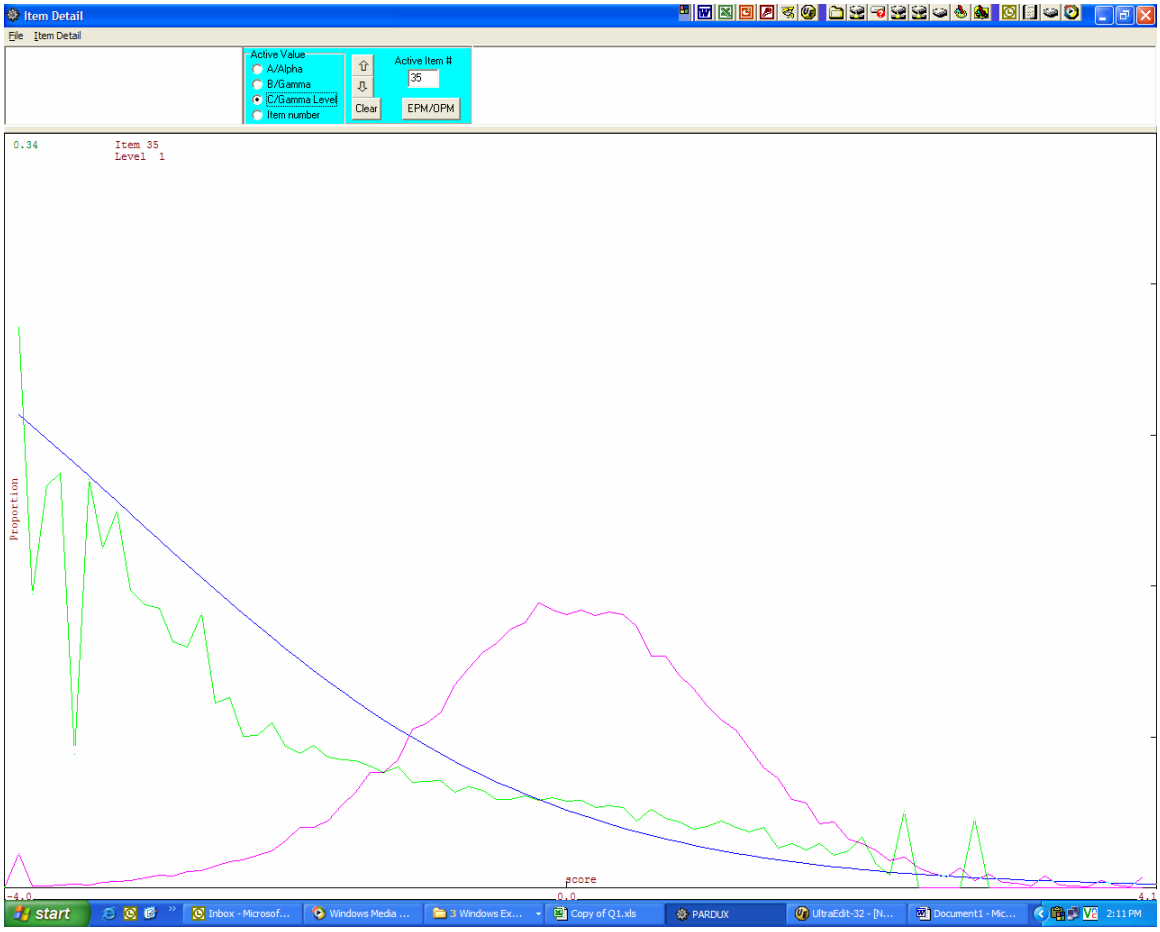

Figure C15
Grade 8 Language Arts Item 35 Level 2 - Estimated Parameters

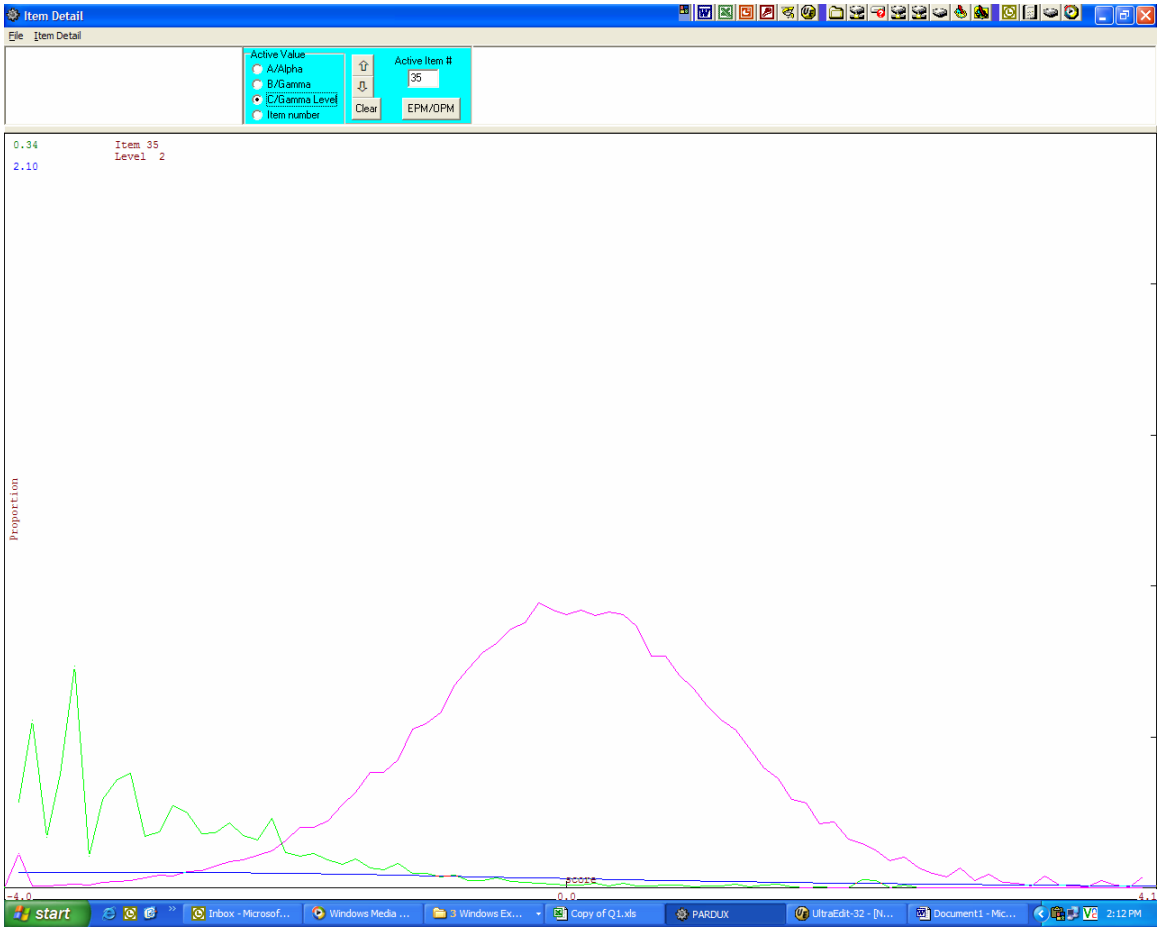

Figure C16
Grade 8 Language Arts Item 35 Level 3 - Estimated Parameters

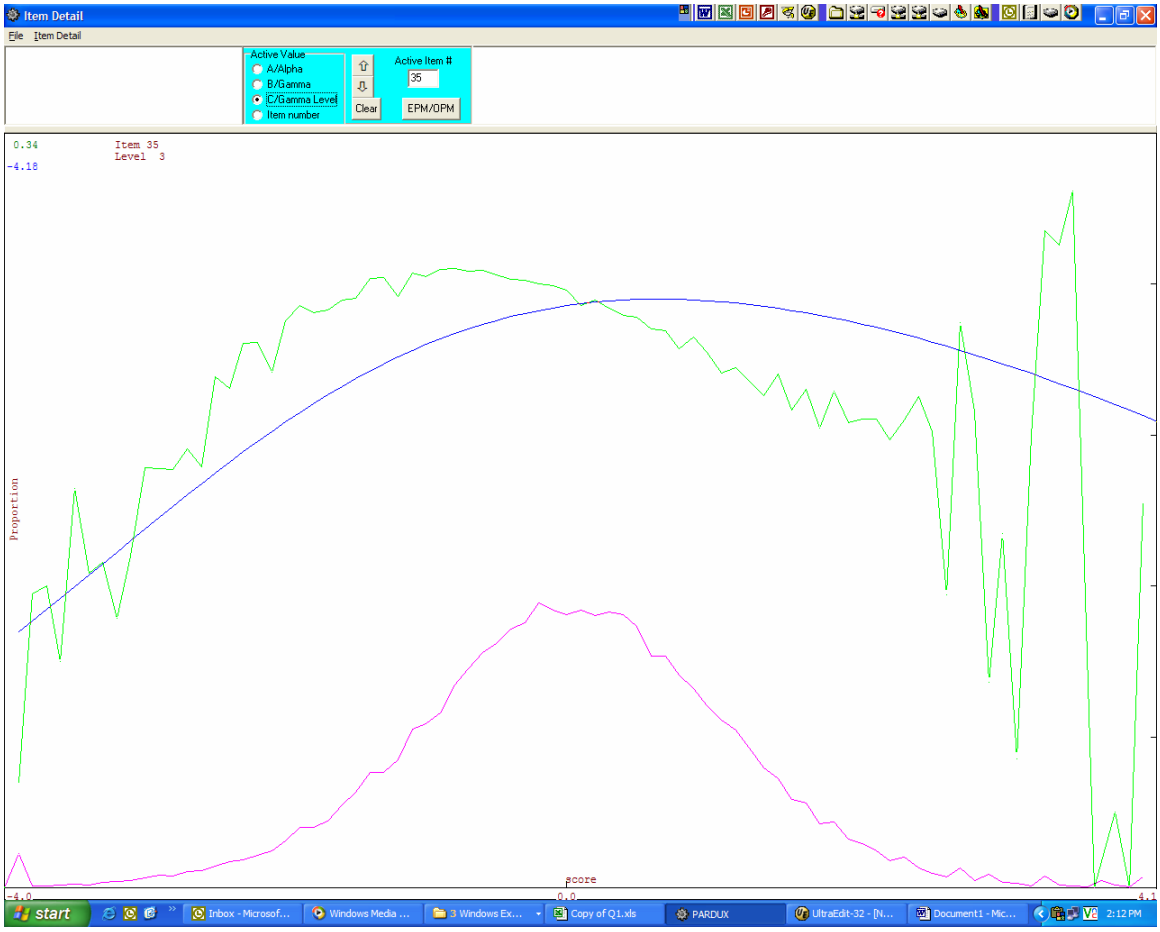

Figure C17
Grade 8 Language Arts Item 35 Level 4 - Estimated Parameters

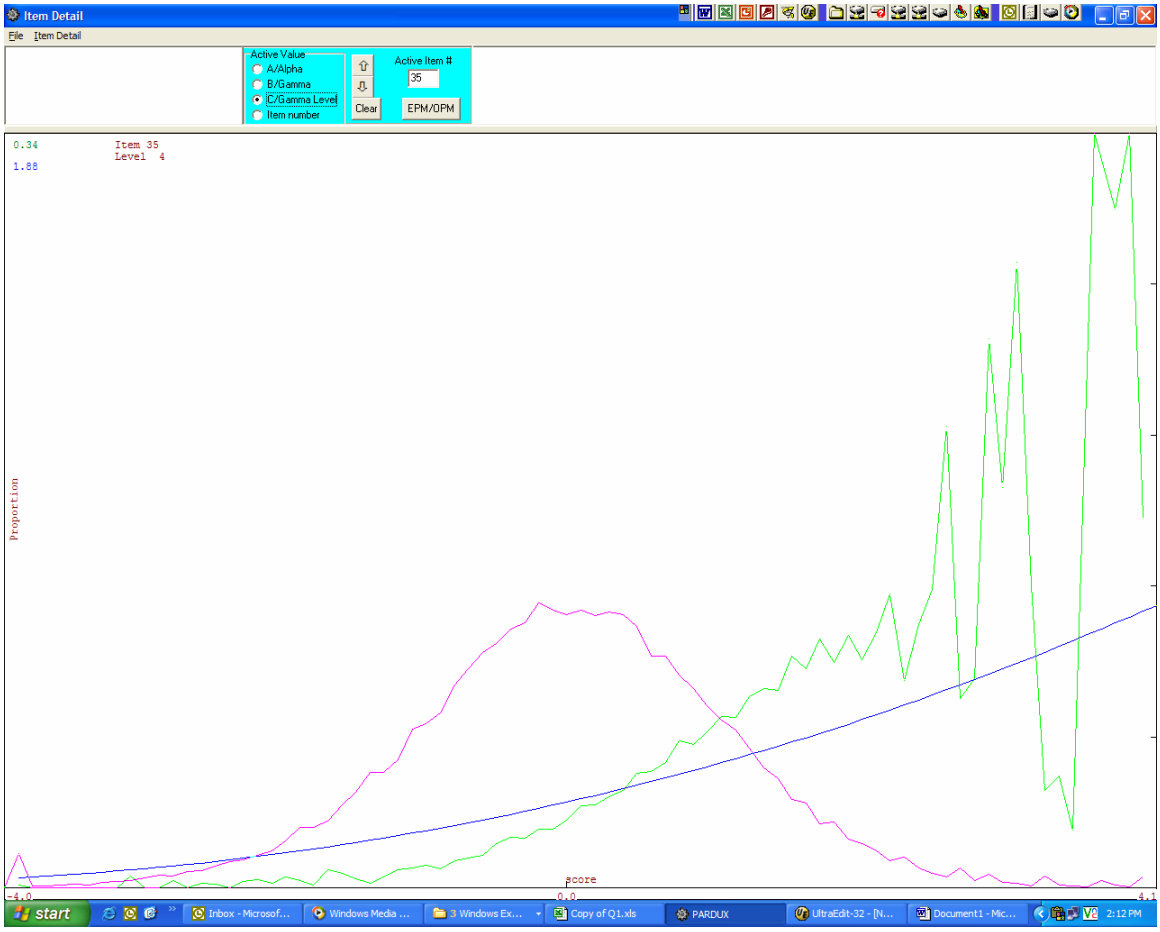

Figure C18
Grade 8 Language Arts Item 36 Level 1 - Estimated Parameters

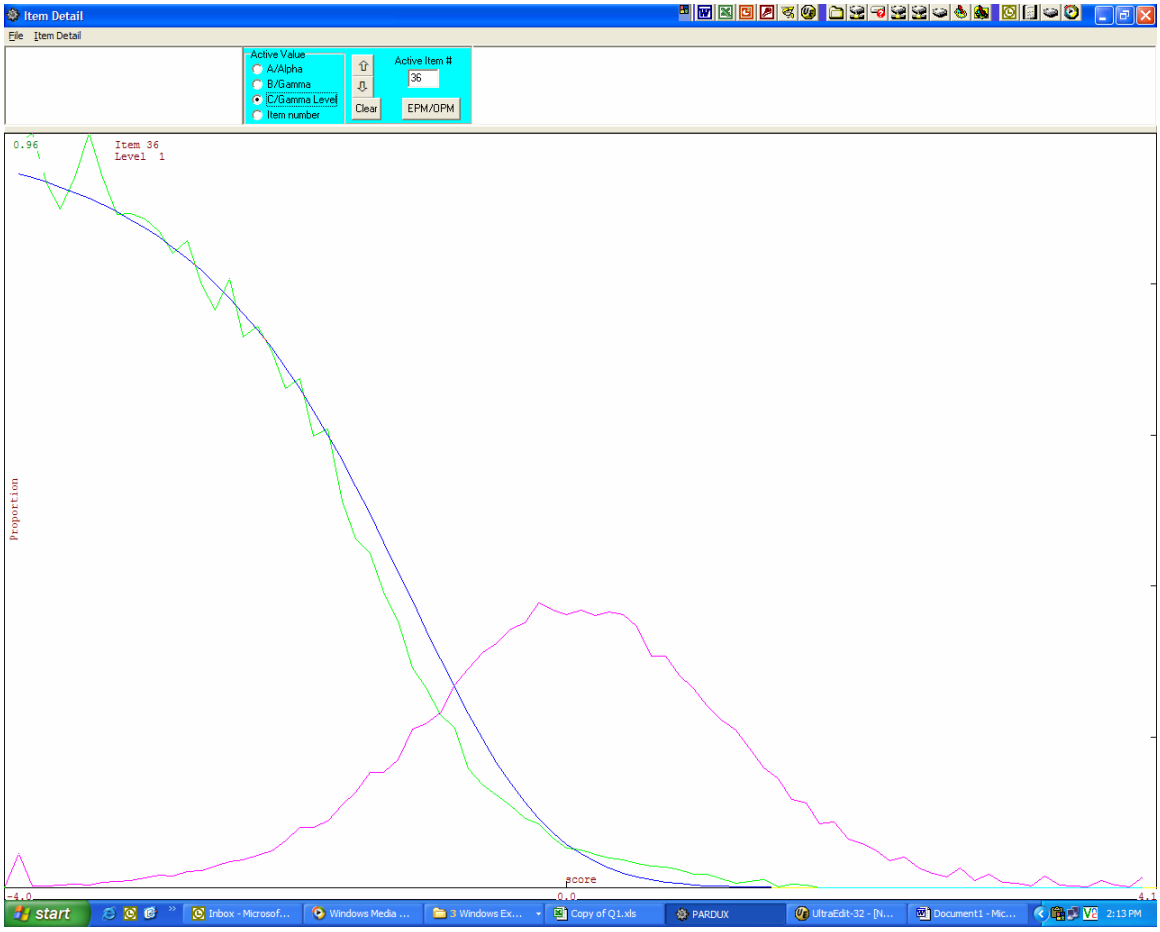

Figure C19
Grade 8 Language Arts Item 36 Level 2 - Estimated Parameters

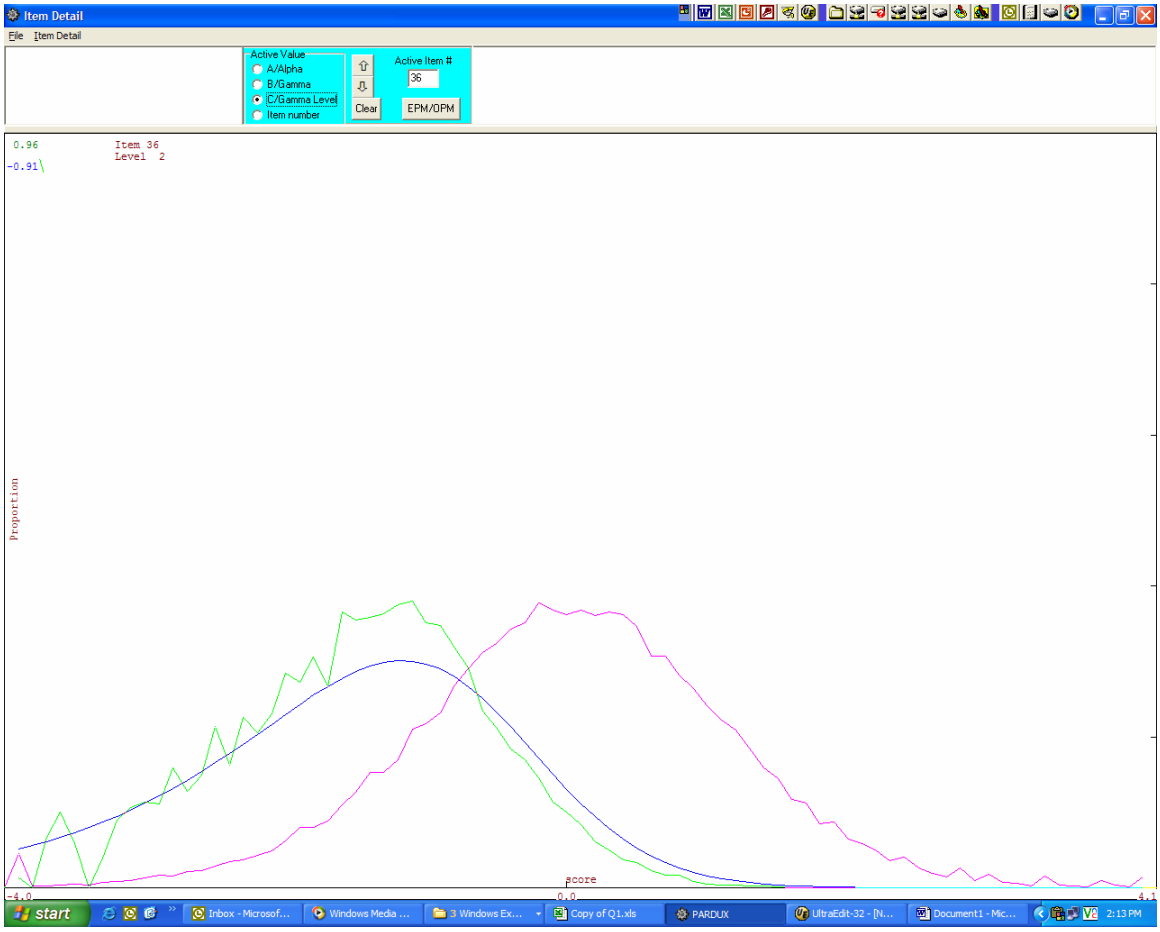

Figure C20
Grade 8 Language Arts Item 36 Level 3 - Estimated Parameters

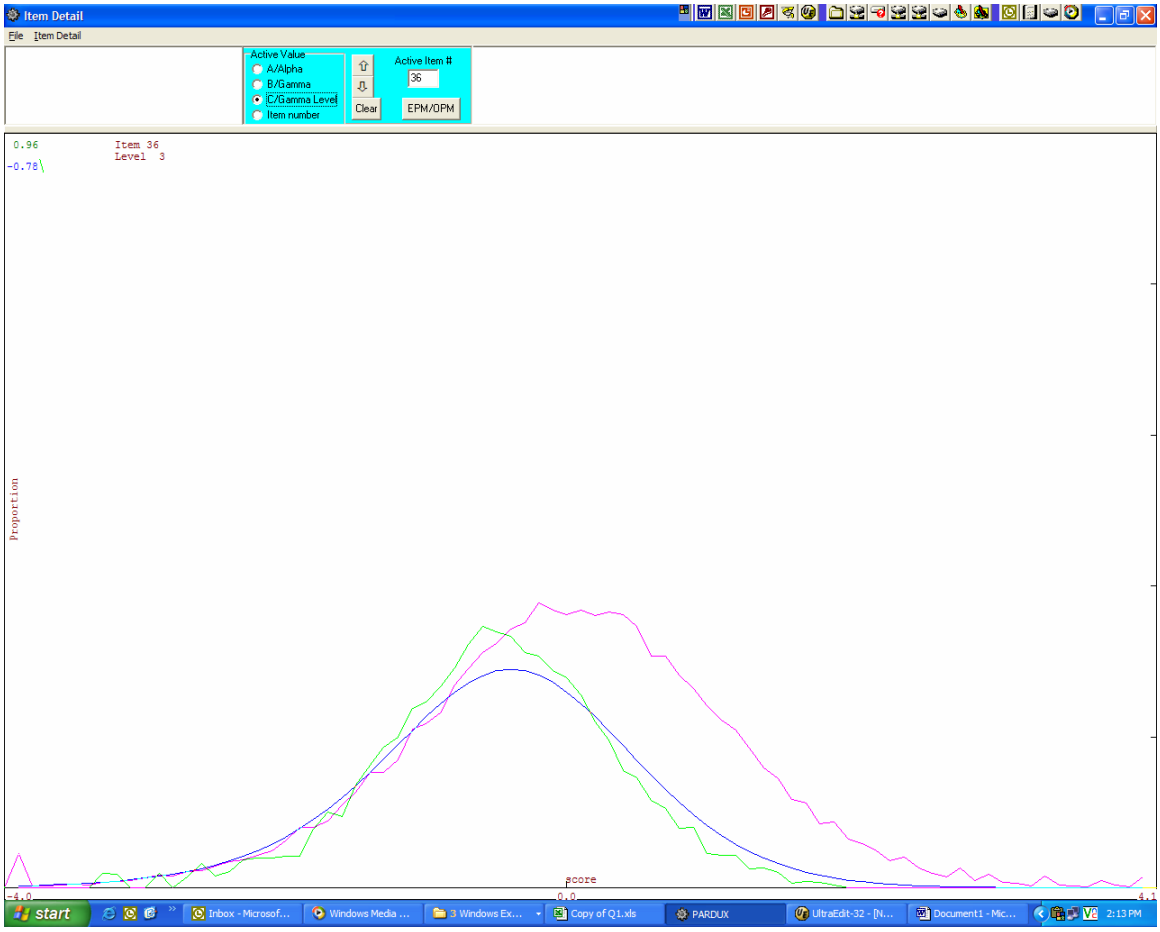

Figure C21
Grade 8 Language Arts Item 36 Level 4 - Estimated Parameters

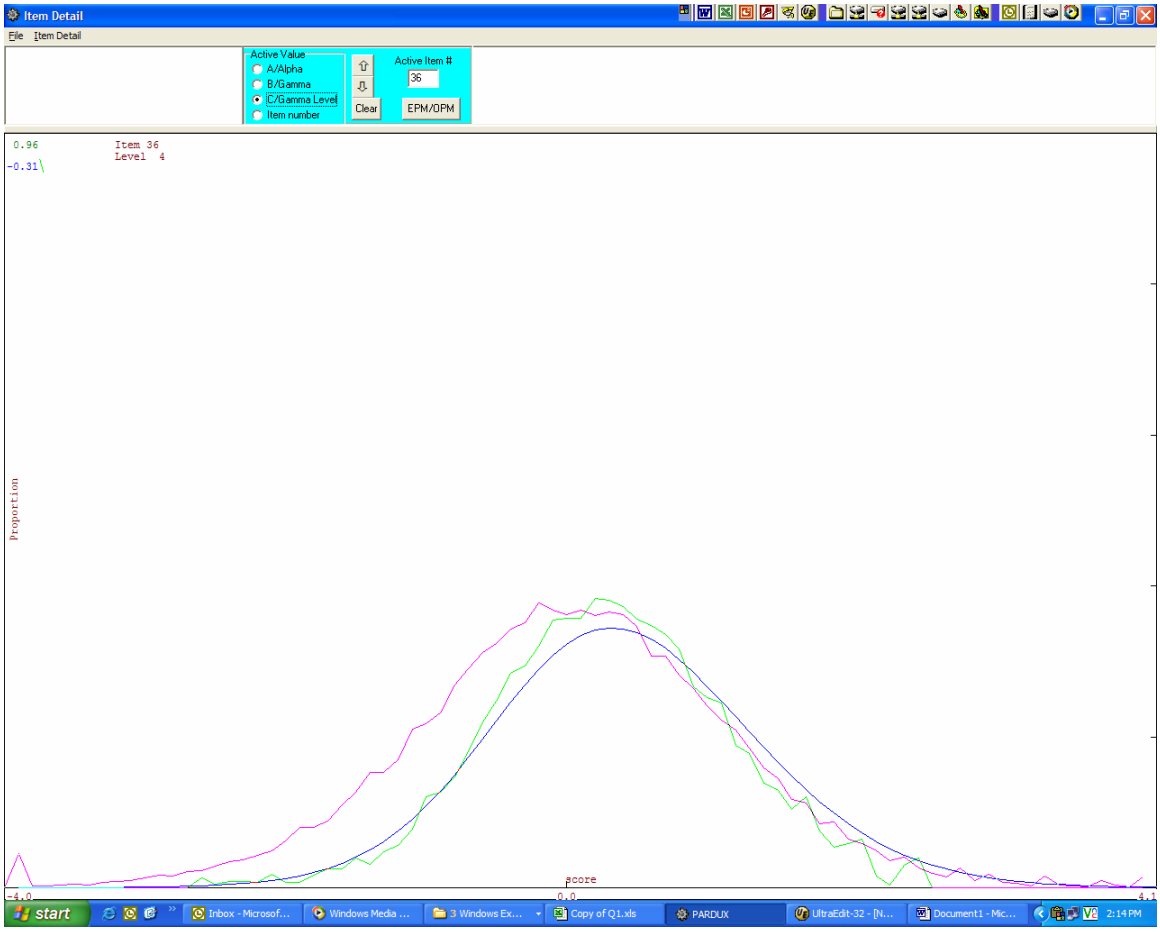

Figure C22
Grade 8 Language Arts Item 36 Level 5 - Estimated Parameters

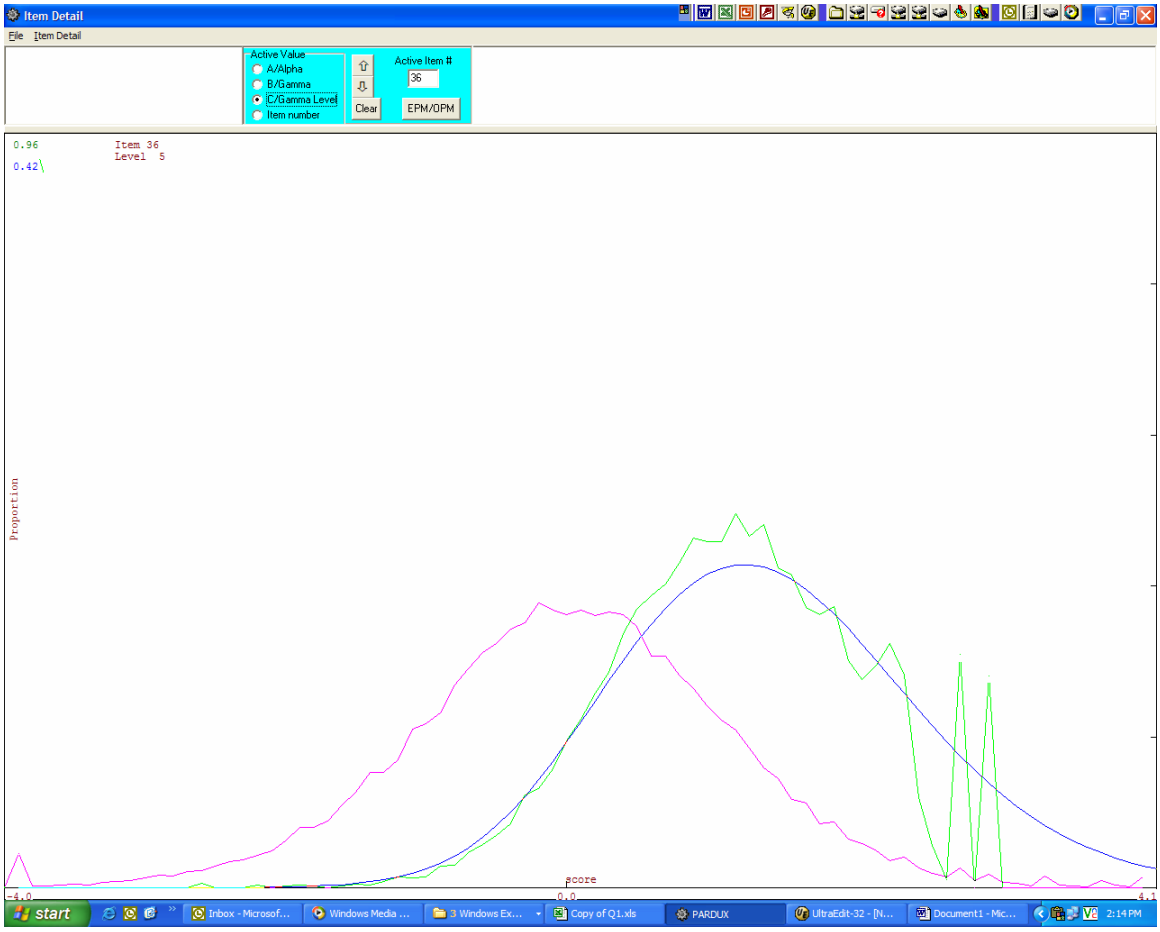

Figure C23
Grade 8 Language Arts Item 36 Level 6 - Estimated Parameters

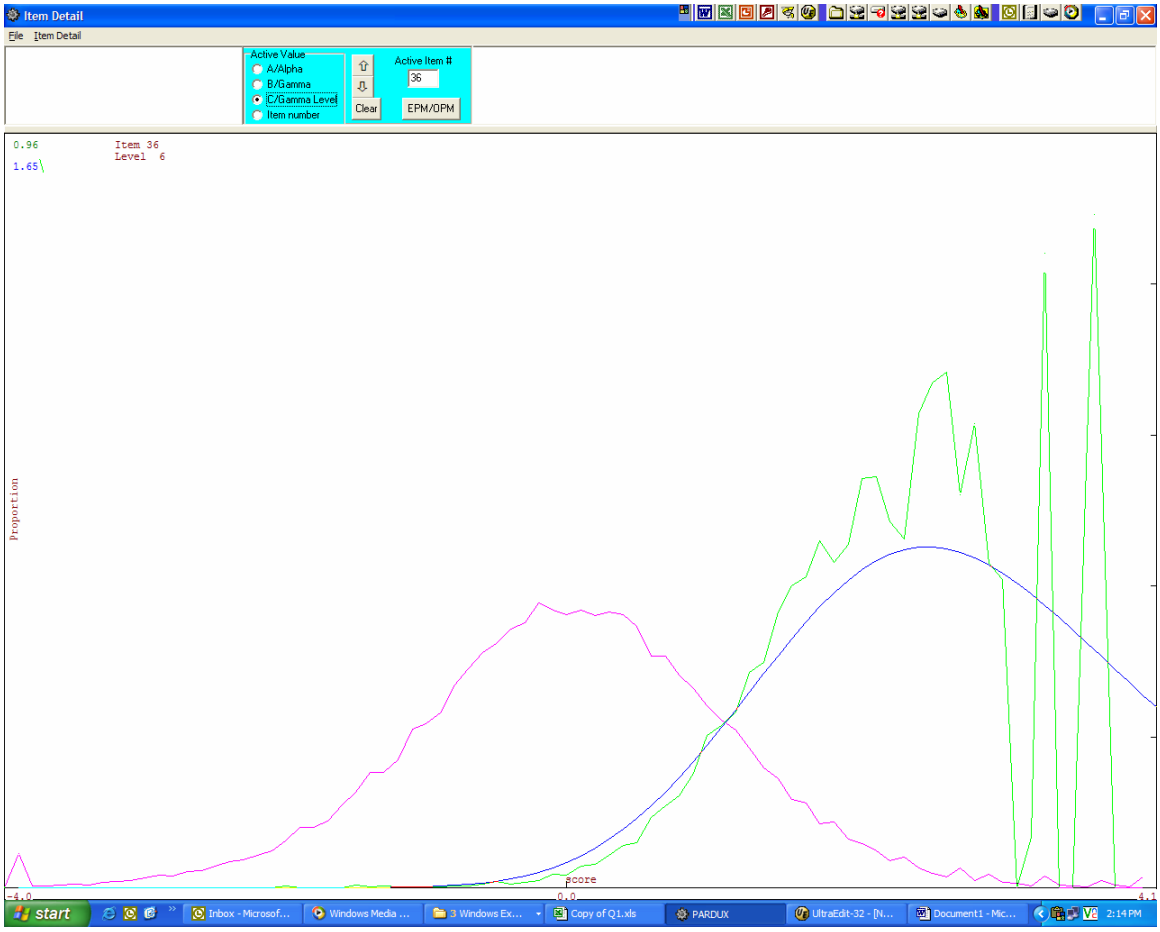

Figure C24
Grade 8 Language Arts Item 36 Level 7 - Estimated Parameters

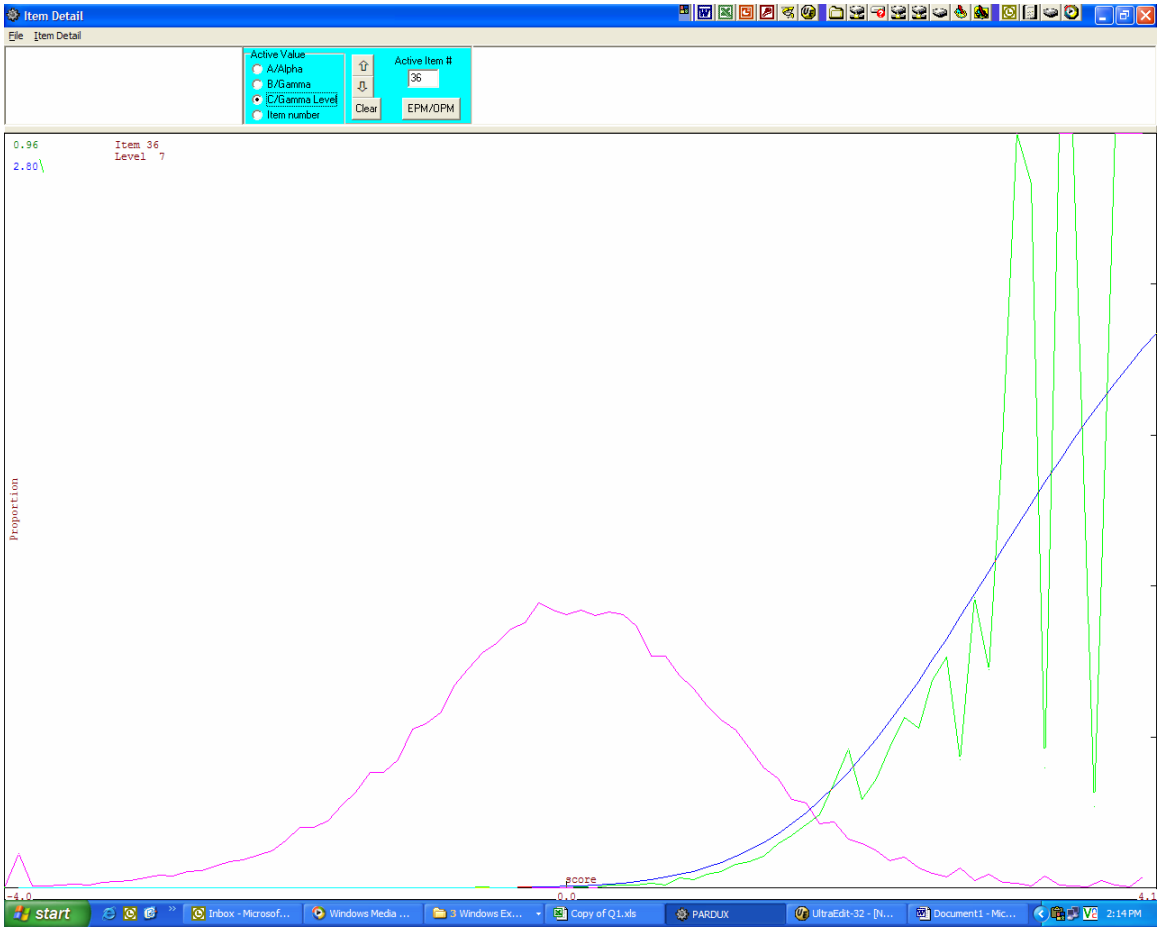

Figure C25
Grade 10 Language Arts Item 22 Level 1 - Estimated Parameters

Figure C26
Grade 10 Language Arts Item 22 Level 2 - Estimated Parameters

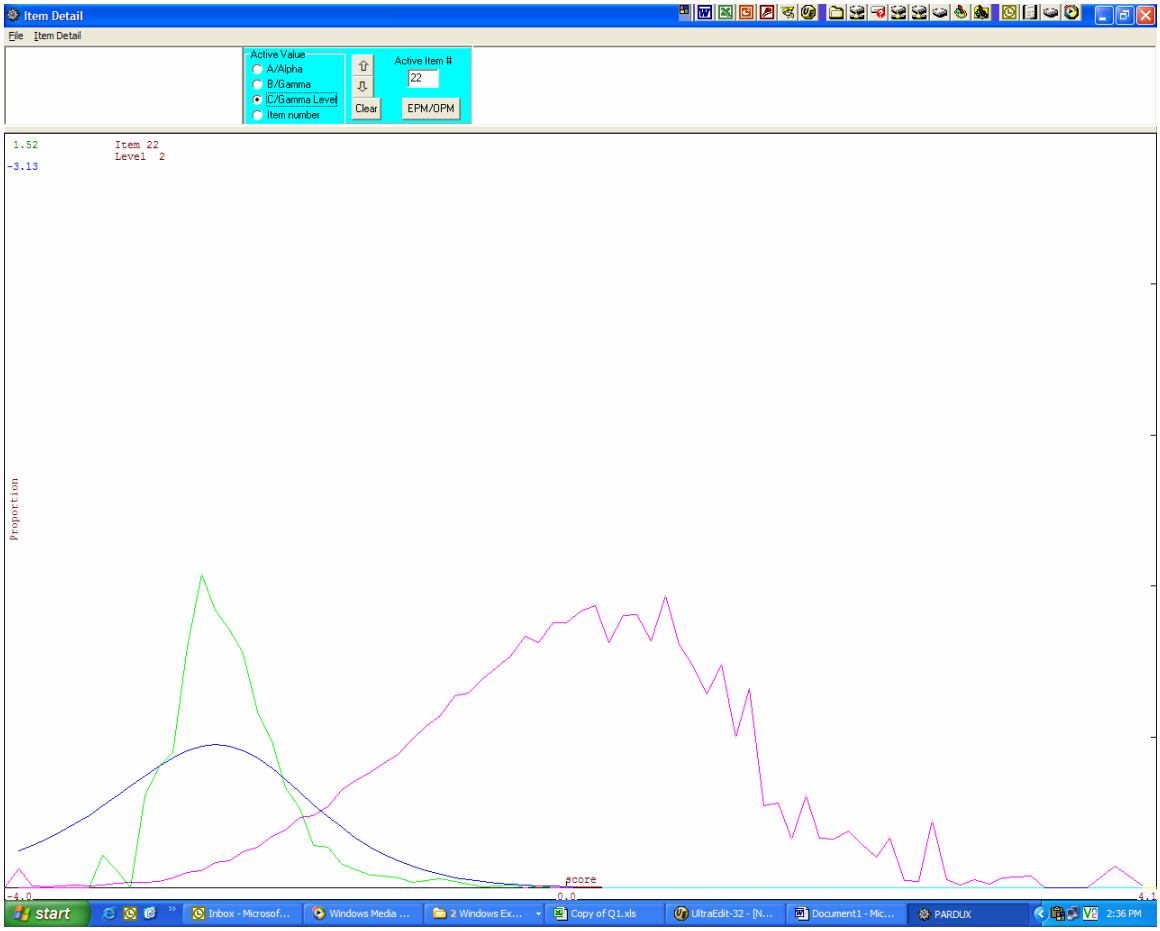

Figure C27
Grade 10 Language Arts Item 22 Level 3 - Estimated Parameters

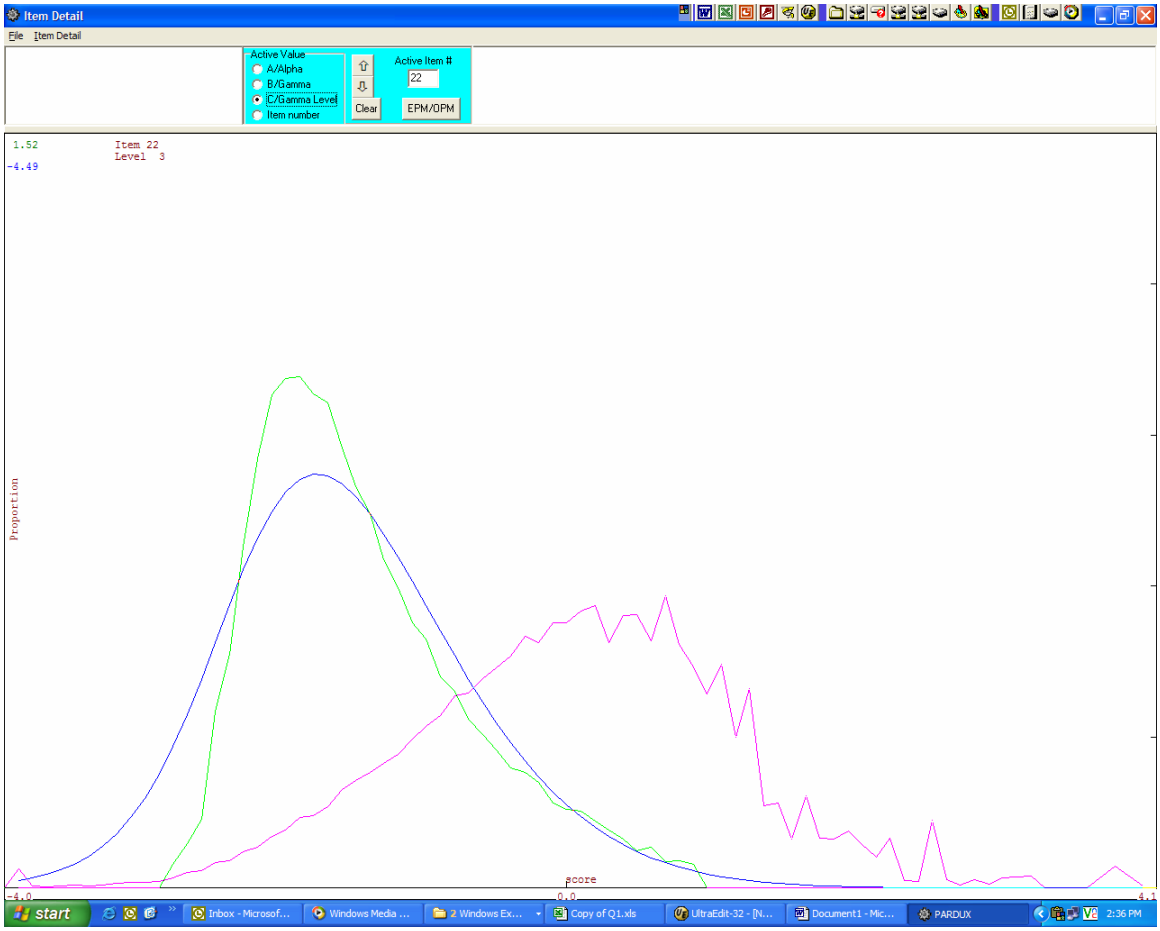

Figure C28
Grade 10 Language Arts Item 22 Level 4 - Estimated Parameters

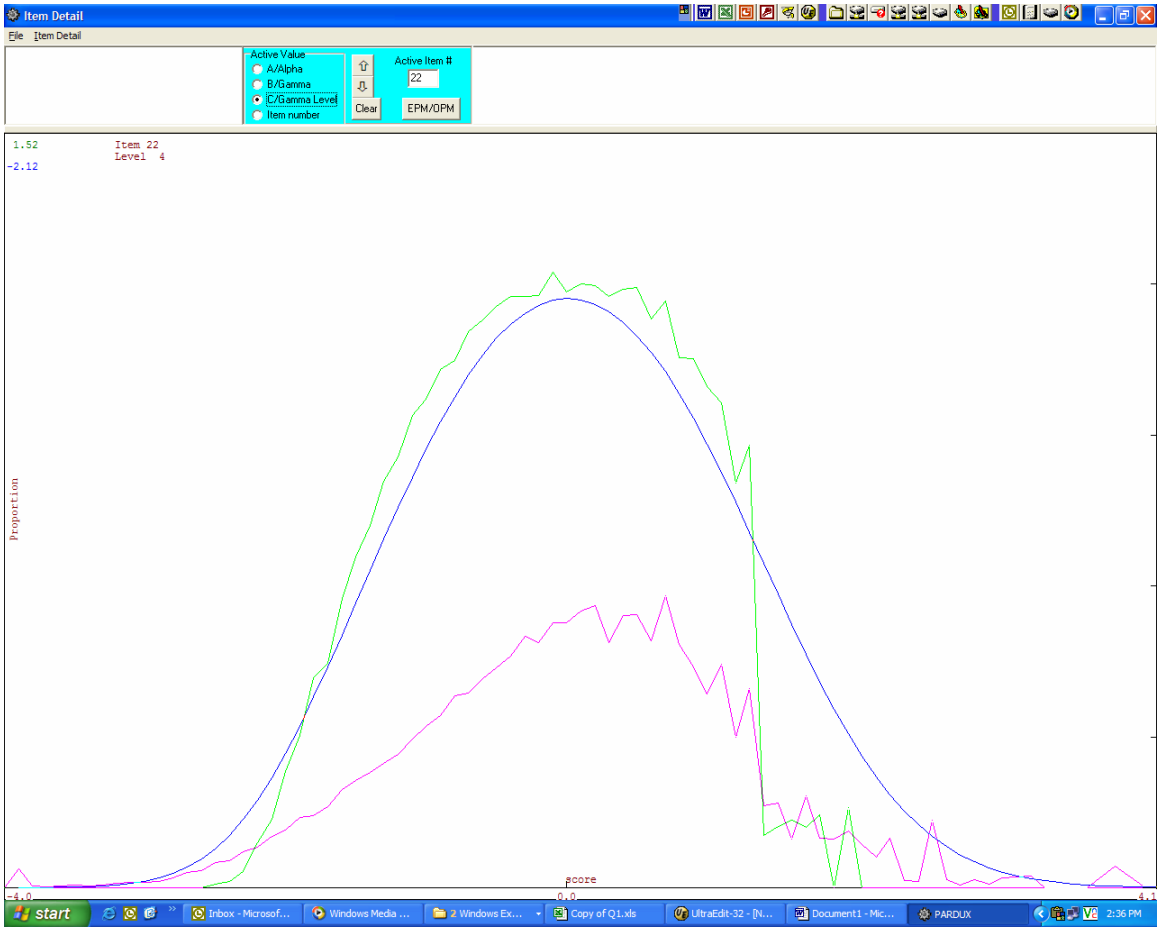

Figure C29
Grade 10 Language Arts Item 22 Level 5 - Estimated Parameters

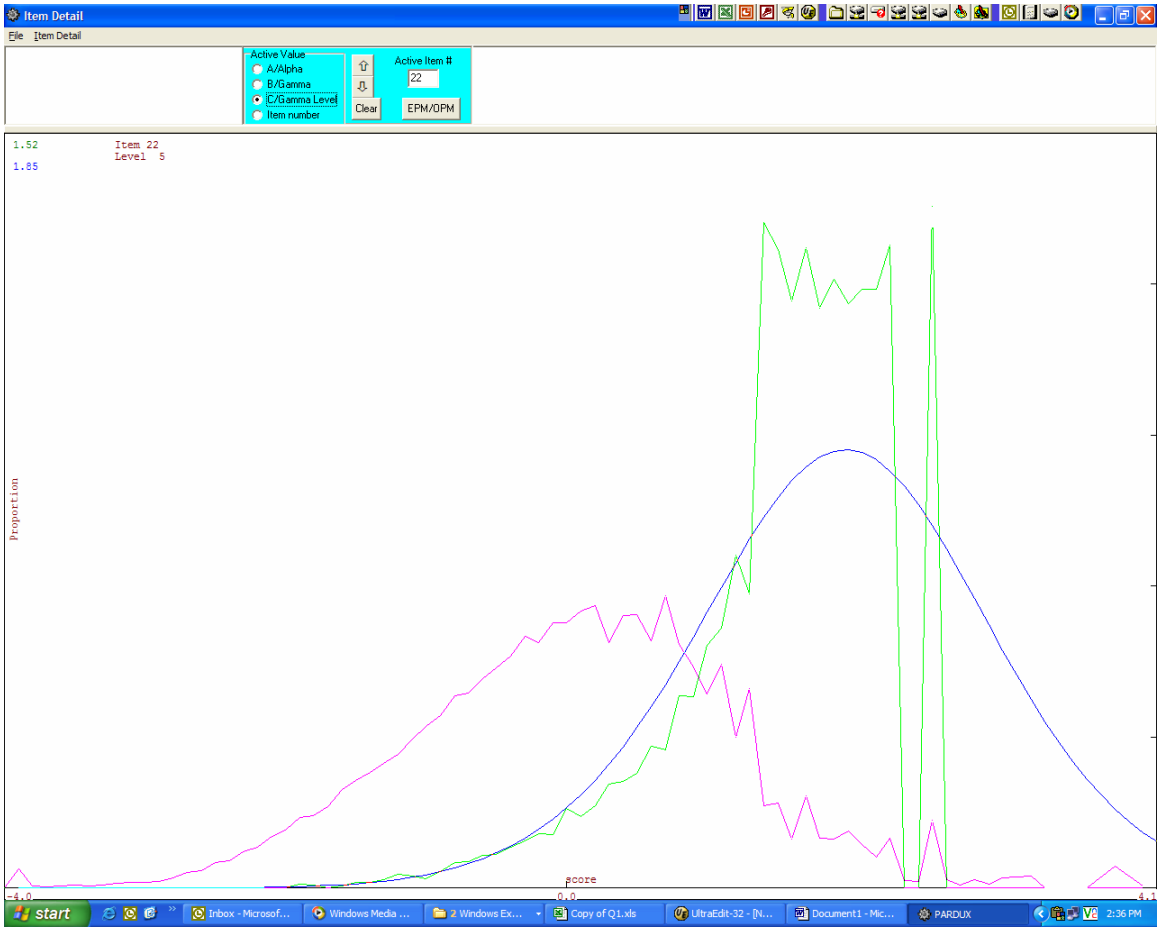

Figure C30
Grade 10 Language Arts Item 22 Level 6 - Estimated Parameters

Figure C31
Grade 10 Language Arts Item 22 Level 7 - Estimated Parameters

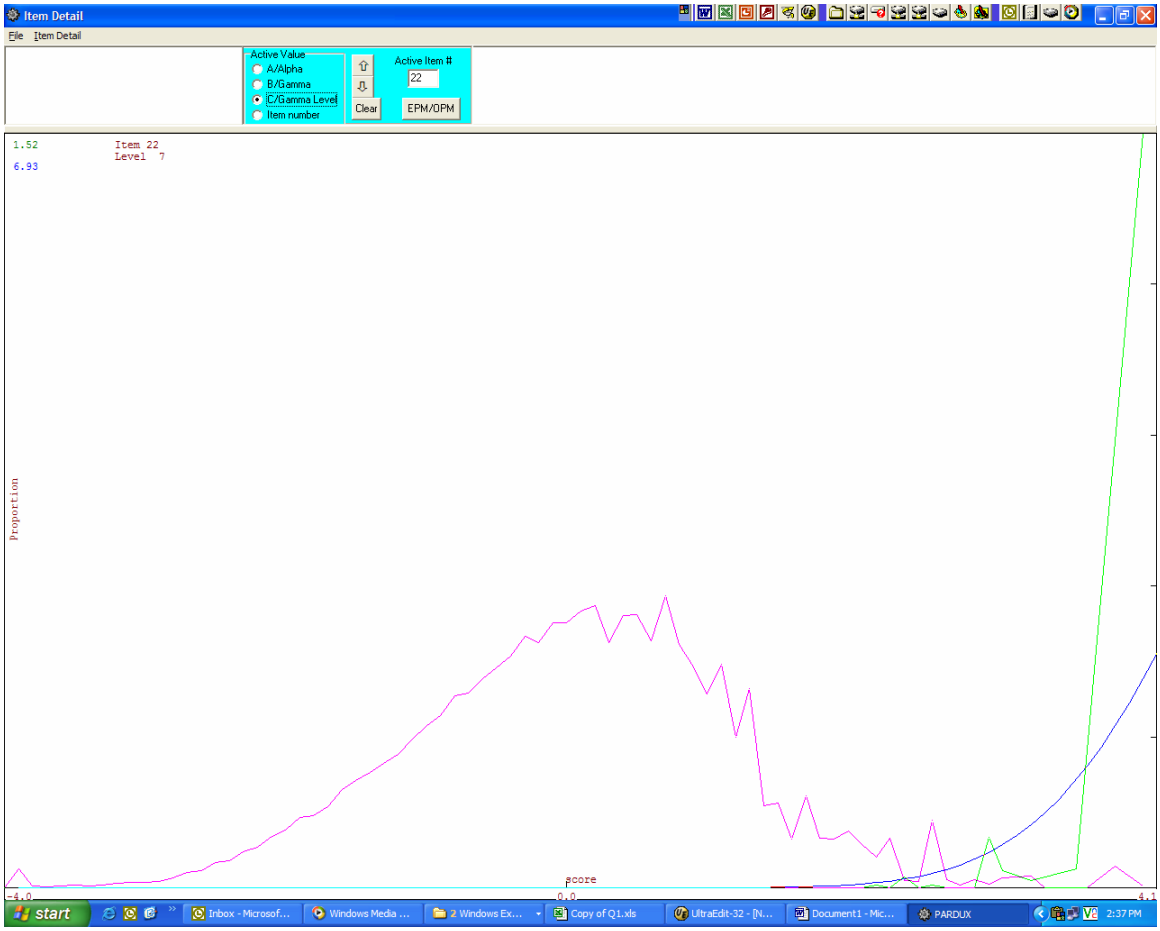

Figure C32
Grade 10 Language Arts Item 23 Level 1 - Estimated Parameters

Figure C33
Grade 10 Language Arts Item 23 Level 2 - Estimated Parameters

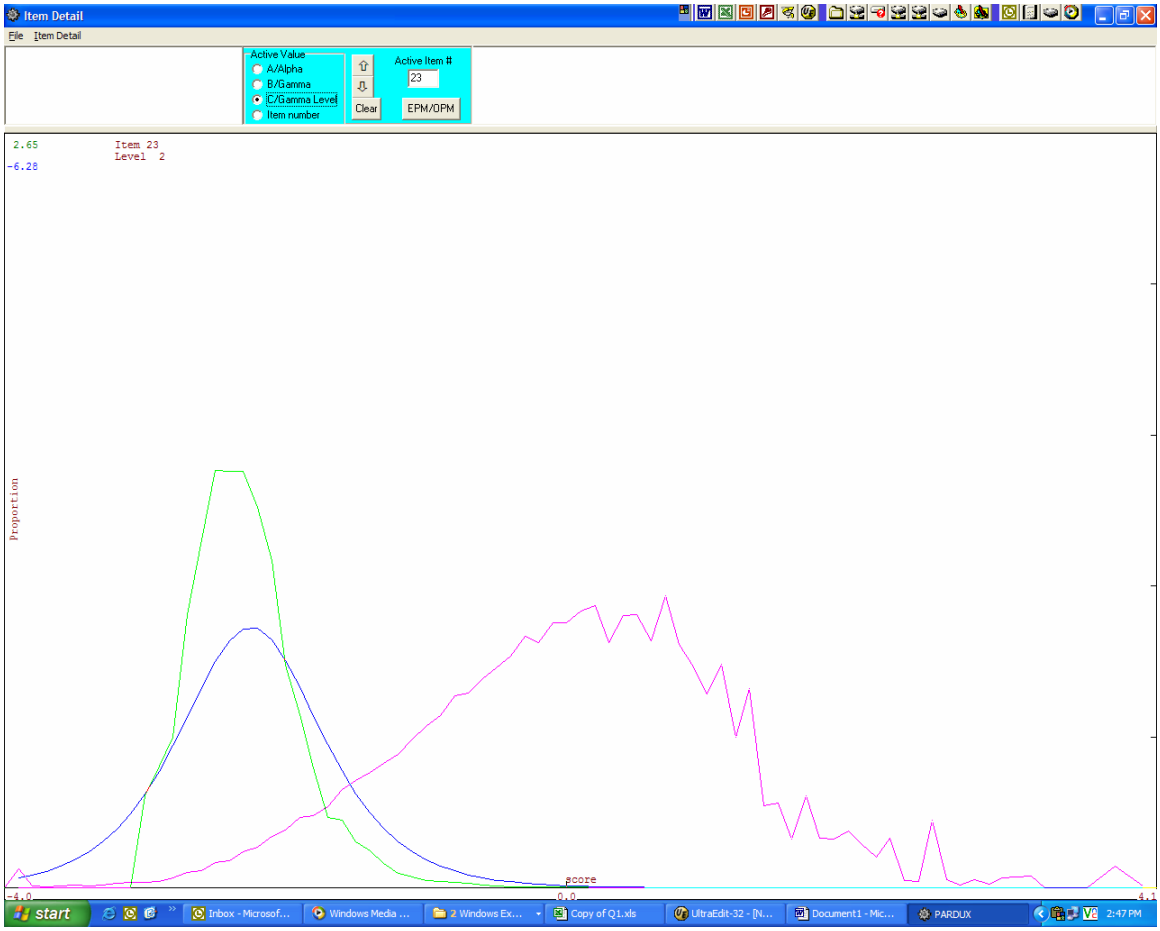

Figure C34
Grade 10 Language Arts Item 23 Level 3 - Estimated Parameters

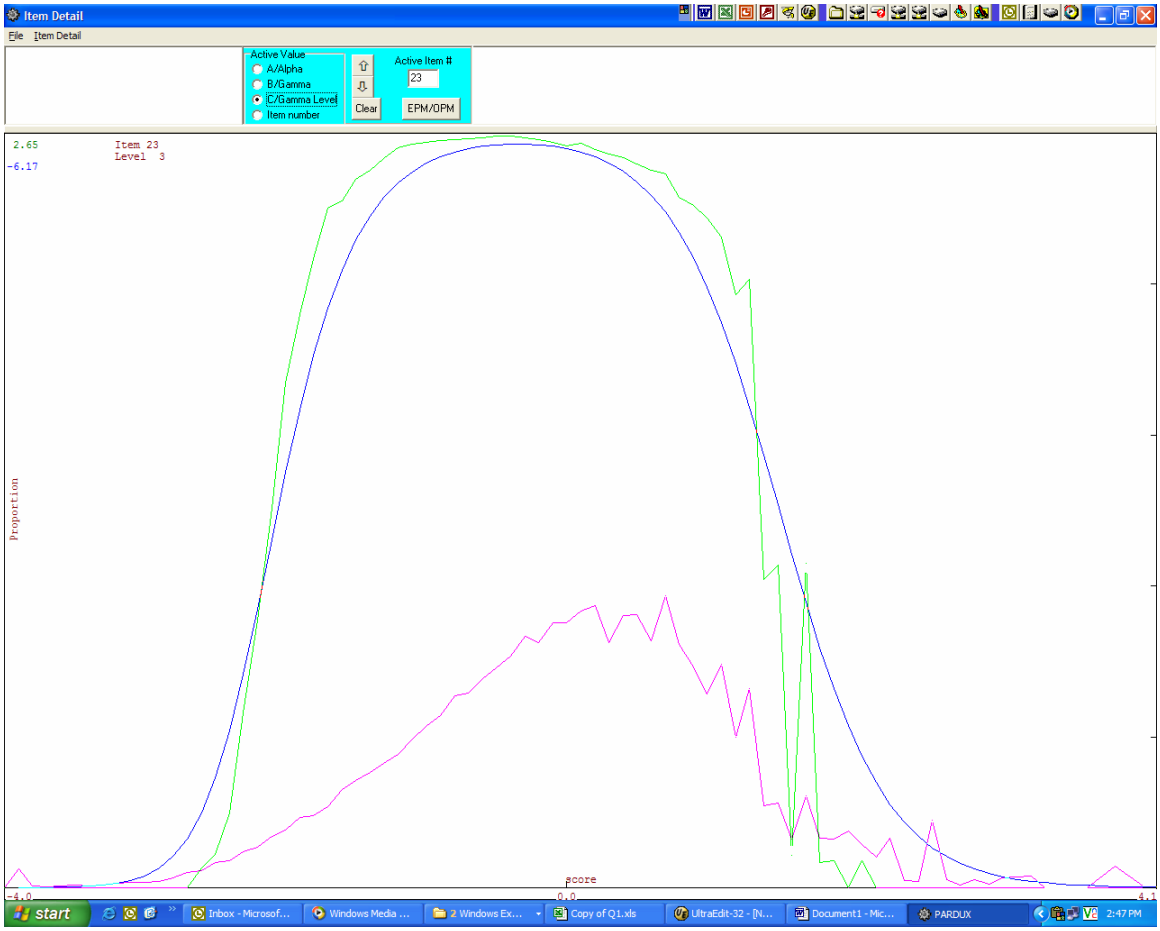

Figure C35
Grade 10 Language Arts Item 23 Level 4 - Estimated Parameters

Figure C36
Grade 8 Social Studies Item 40 Level 1 - Estimated Parameters

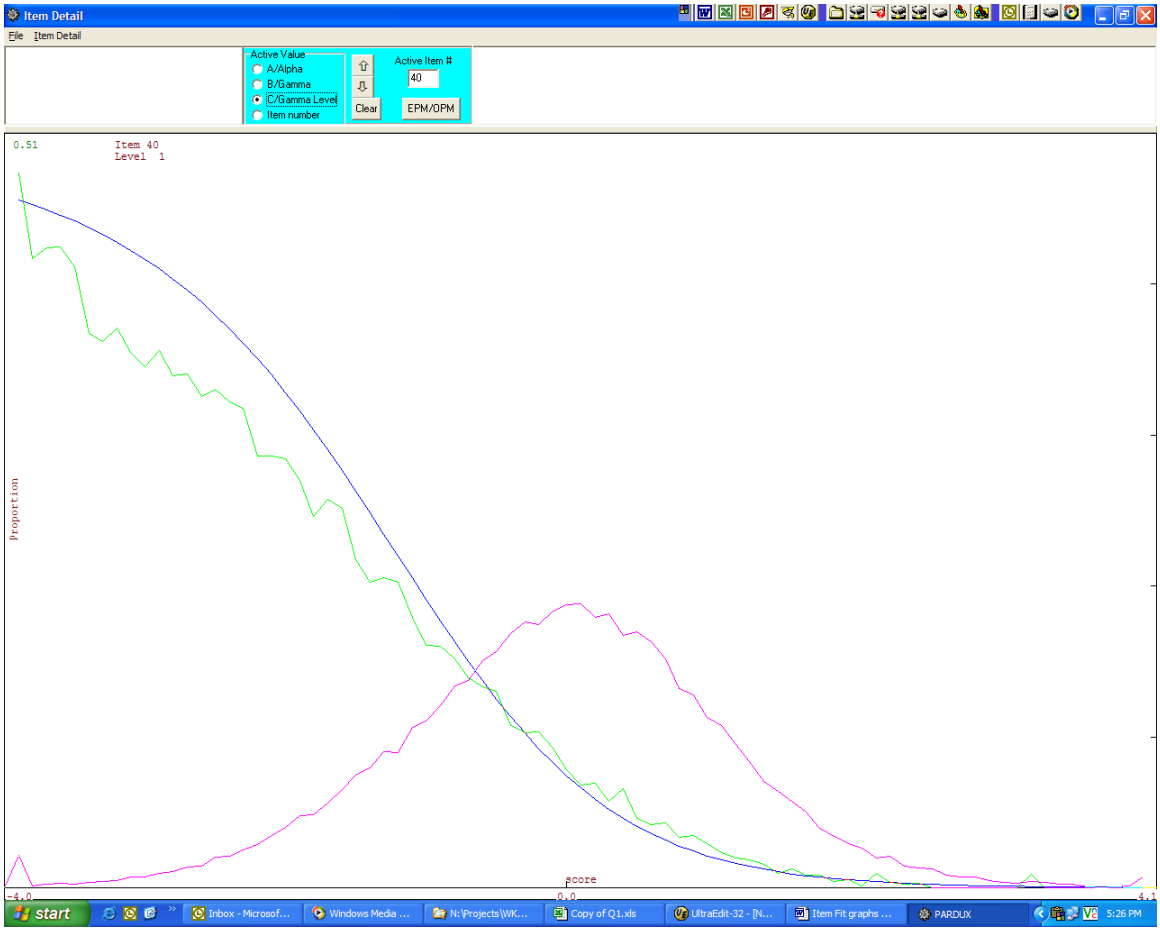

Figure C37
Grade 8 Social Studies Item 40 Level 2 - Estimated Parameters

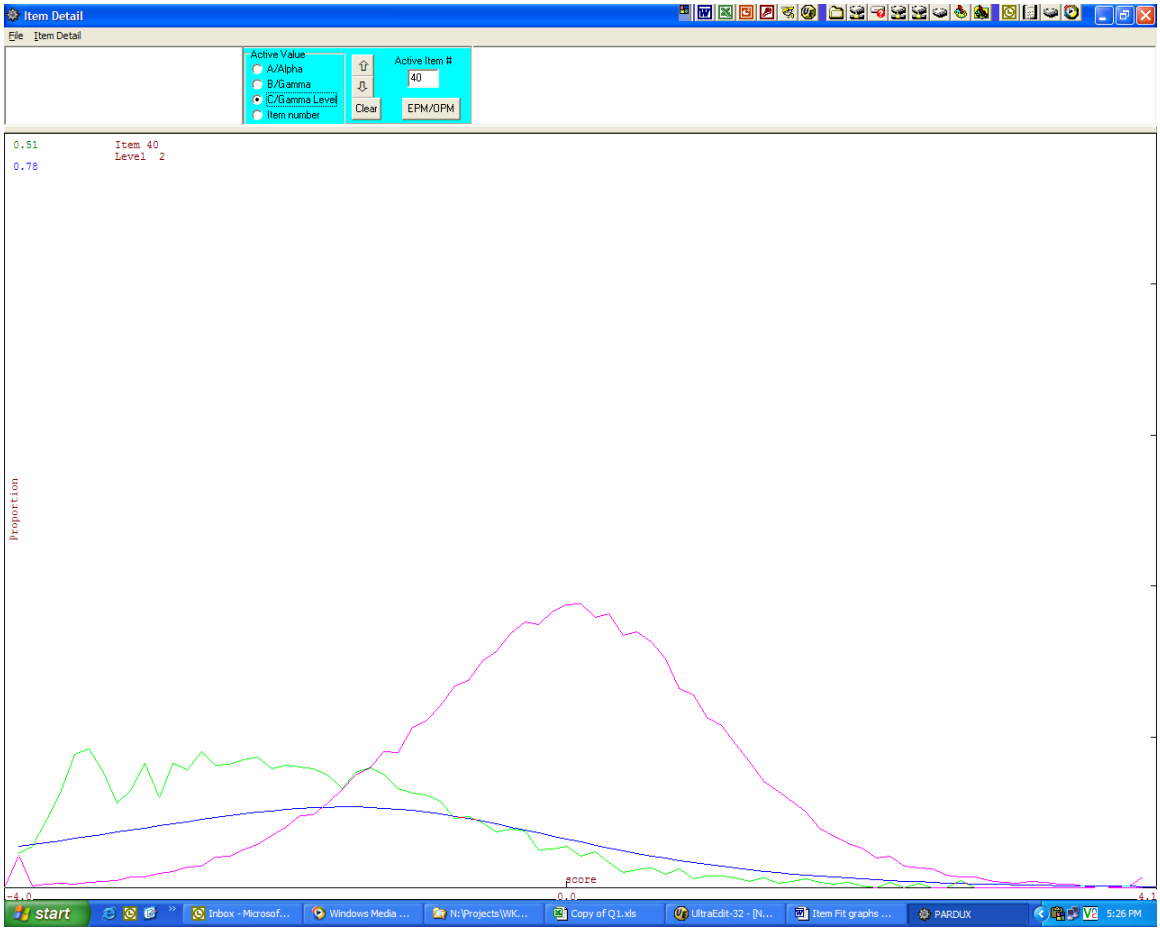

Figure C38
Grade 8 Social Studies Item 40 Level 3 - Estimated Parameters

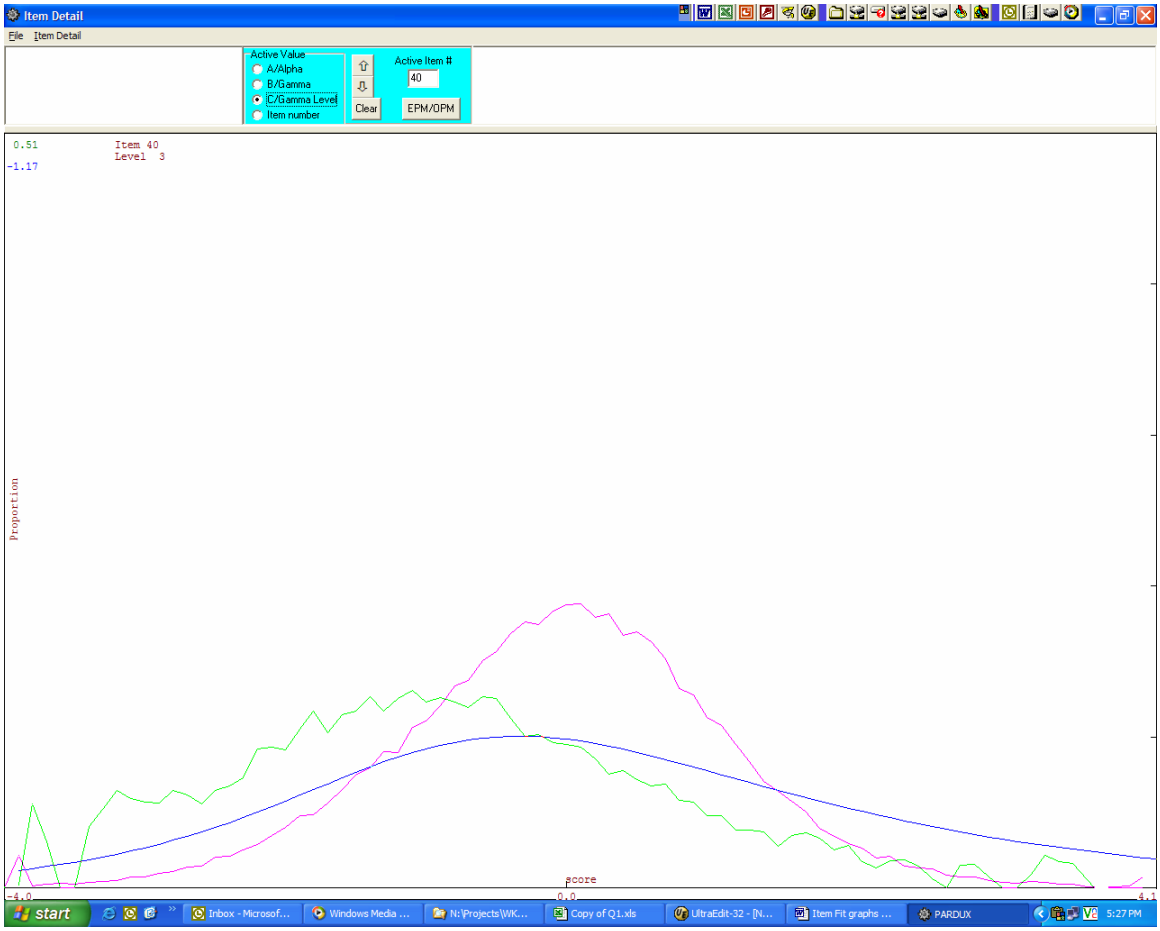

Figure C39
Grade 8 Social Studies Item 40 Level 4 - Estimated Parameters

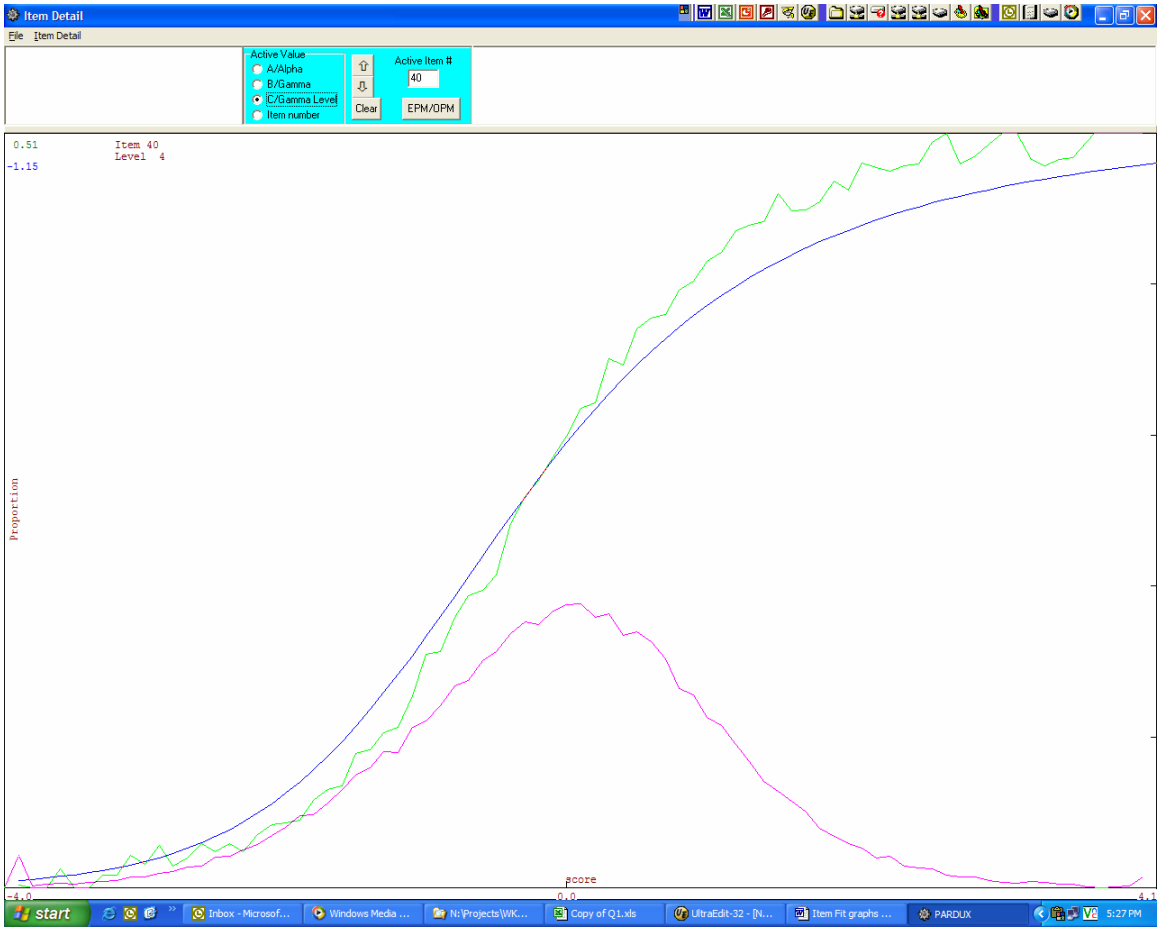

Figure C40
Grade 10 Social Studies Item 11 - Estimated Parameters

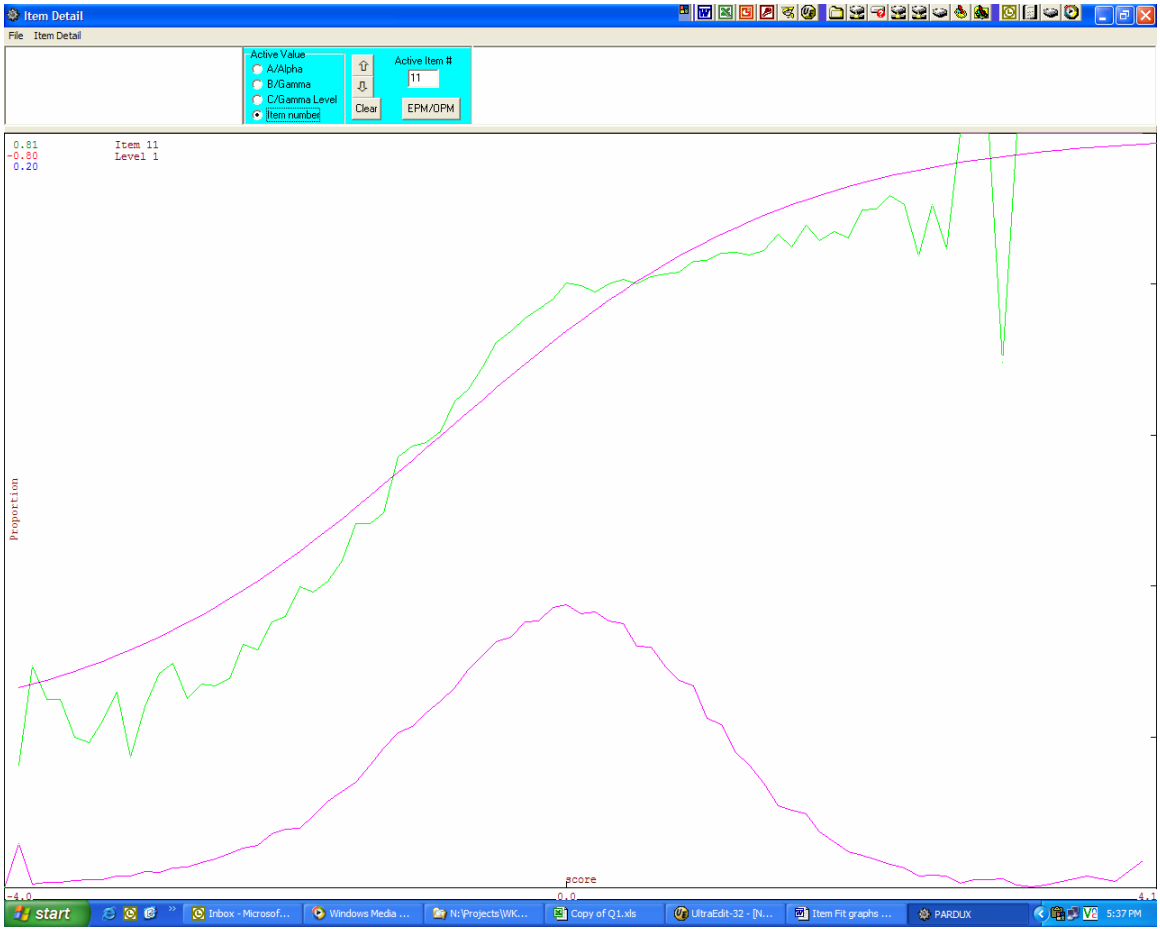

Figure C41
Grade 10 Social Studies Item 31 - Estimated Parameters

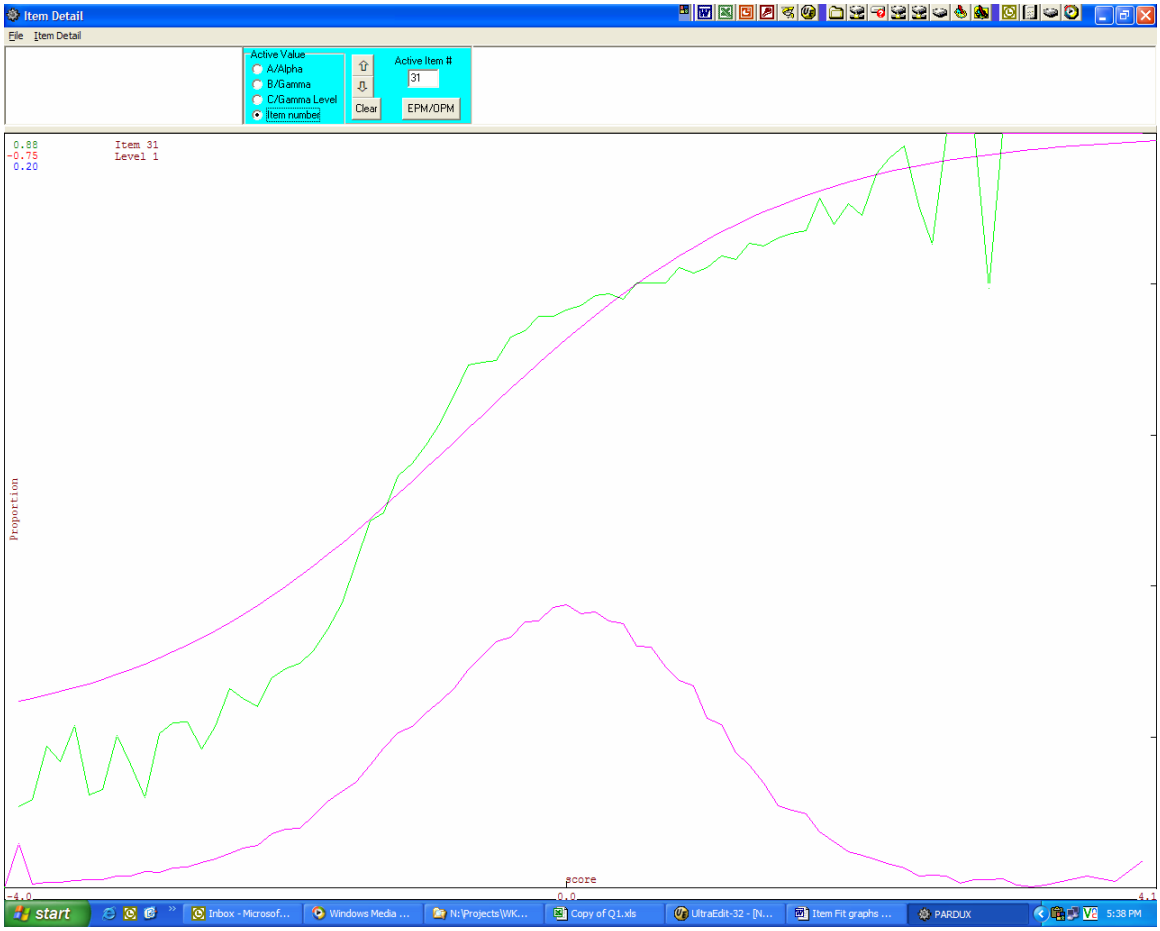

Figure C42
Grade 10 Social Studies Item 43 - Estimated Parameters

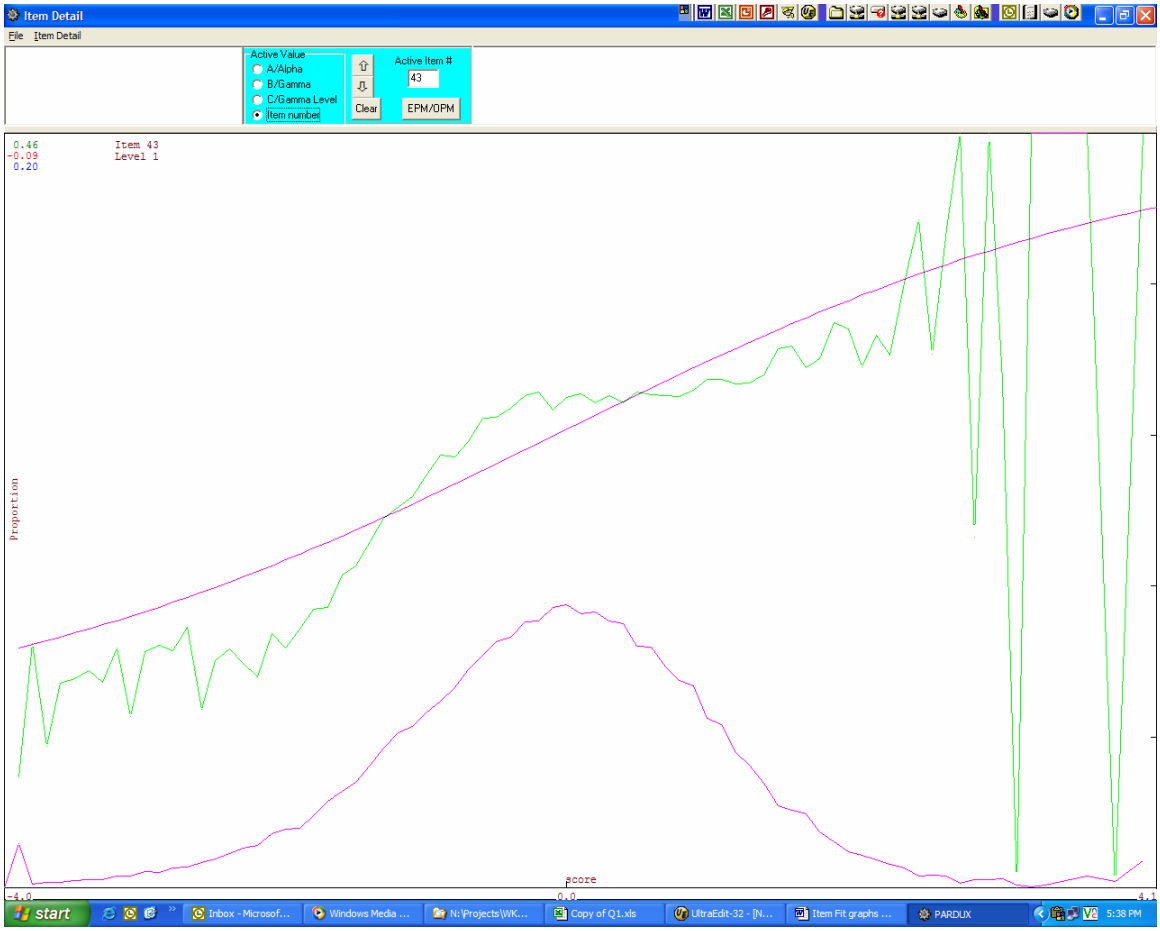

Figure C43
Grade 4 Science Item 63 Level 1 - Estimated Parameters

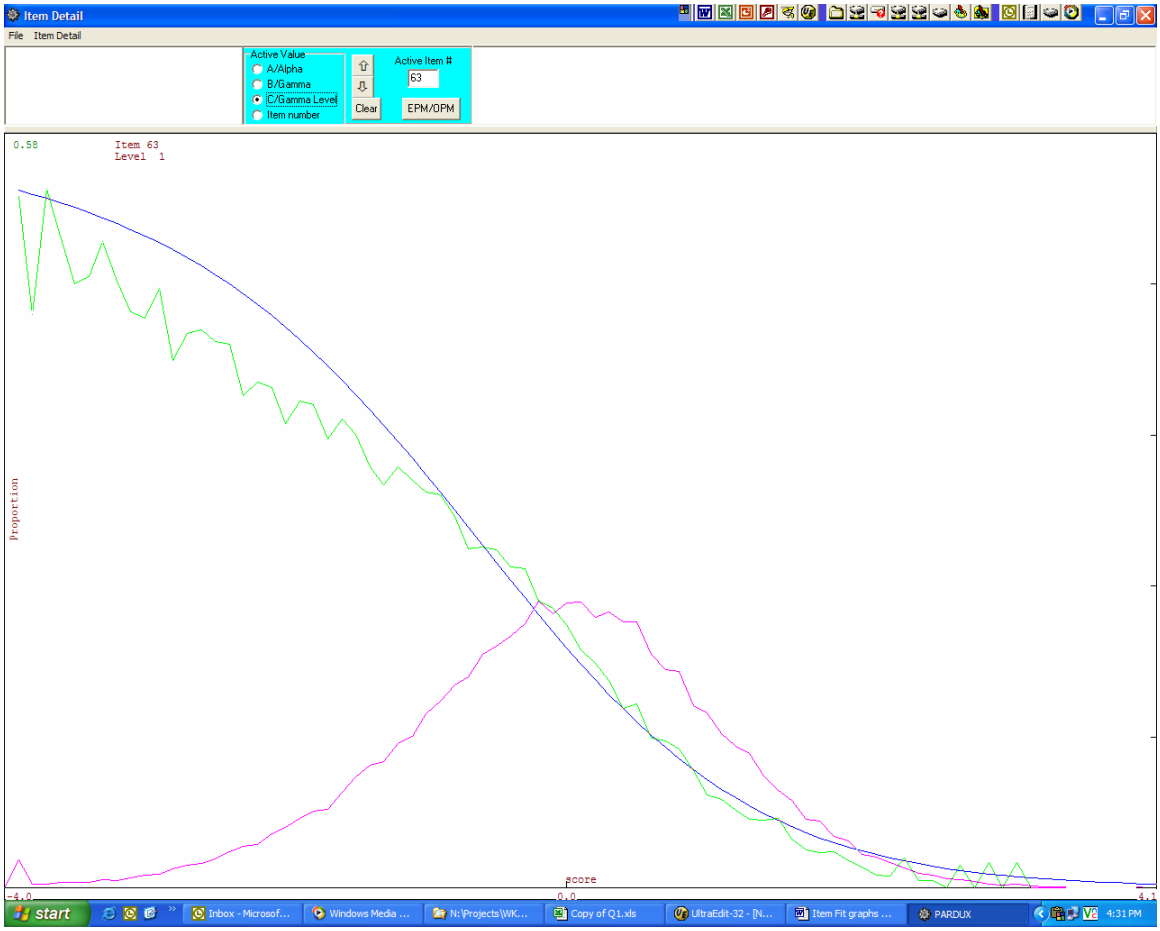

Figure C44
Grade 4 Science Item 63 Level 2 - Estimated Parameters

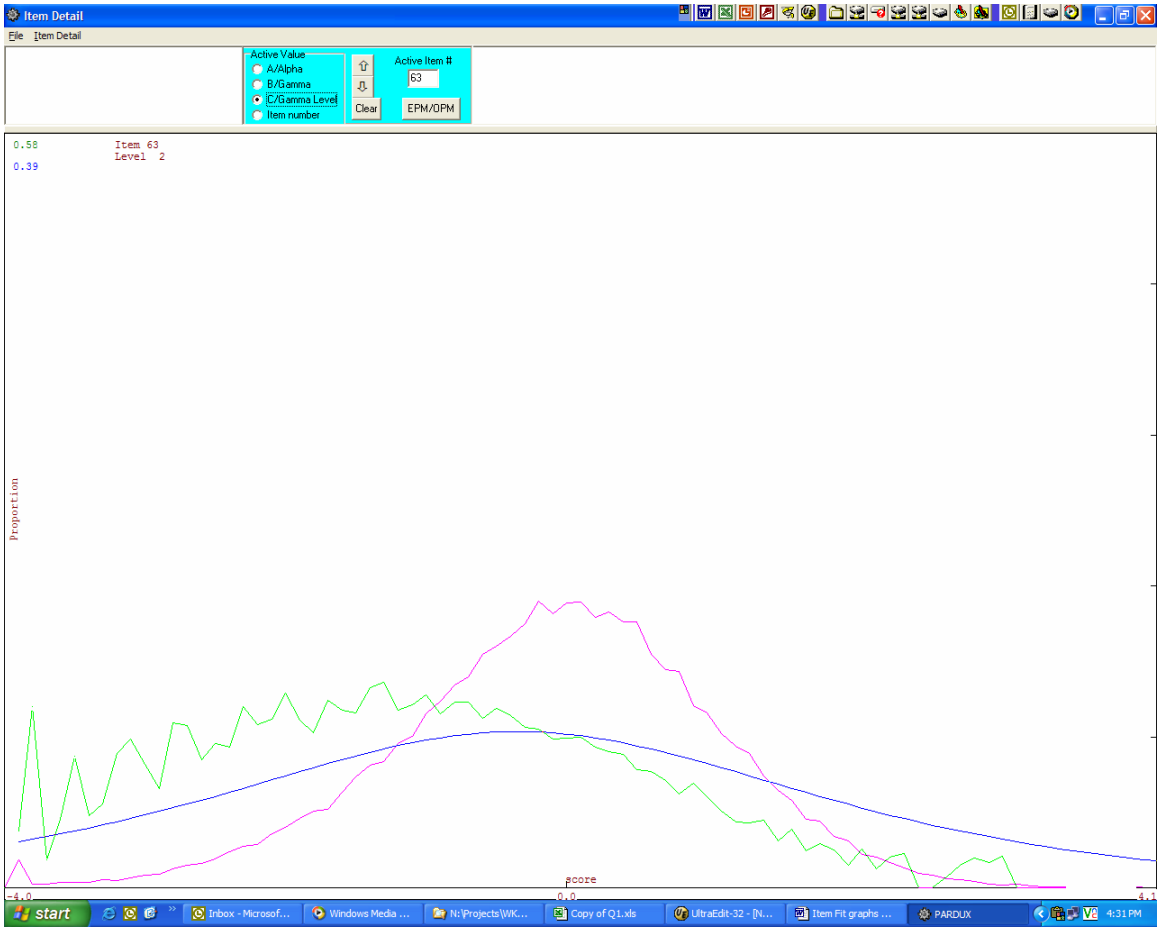

Figure C45
Grade 4 Science Item 63 Level 3 - Estimated Parameters

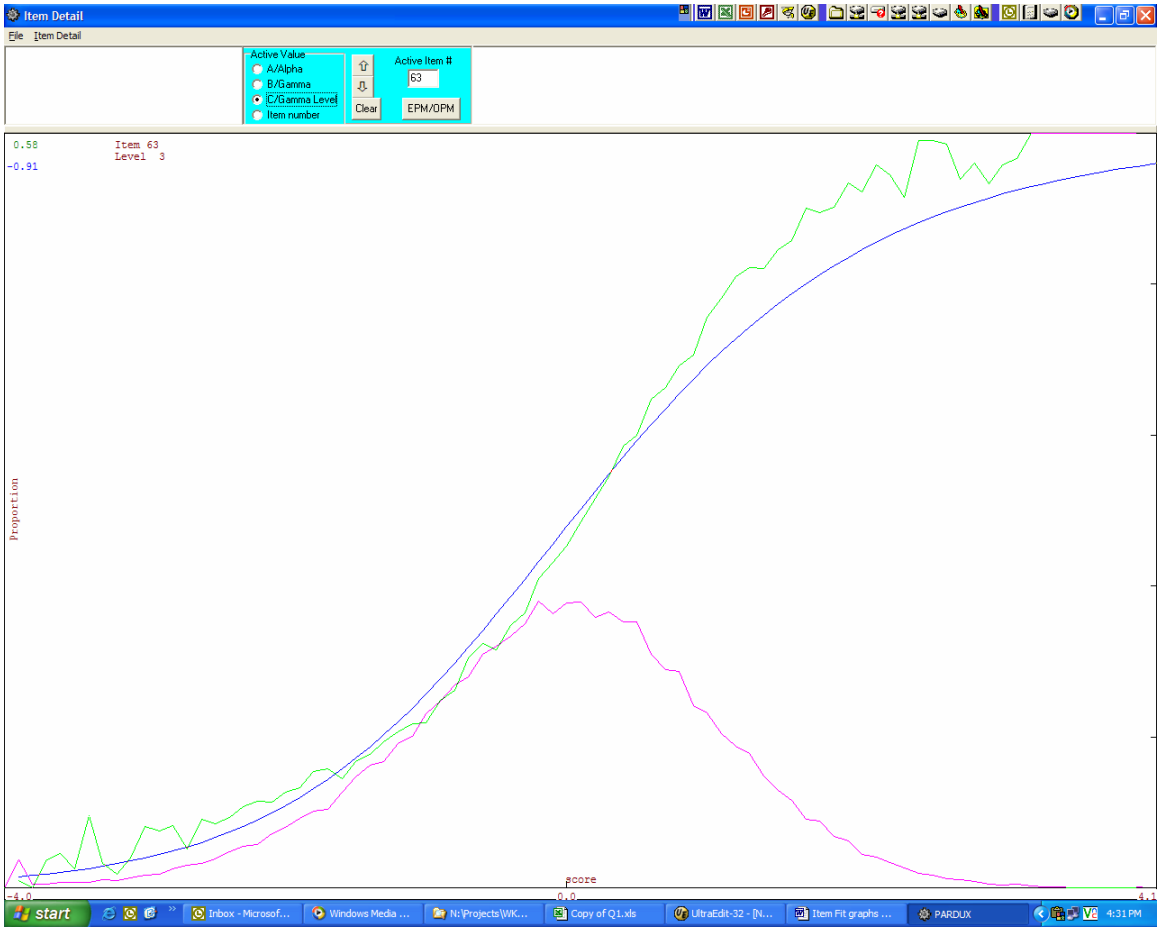

Figure C46
Grade 8 Science Item 67 Level 1 - Estimated Parameters

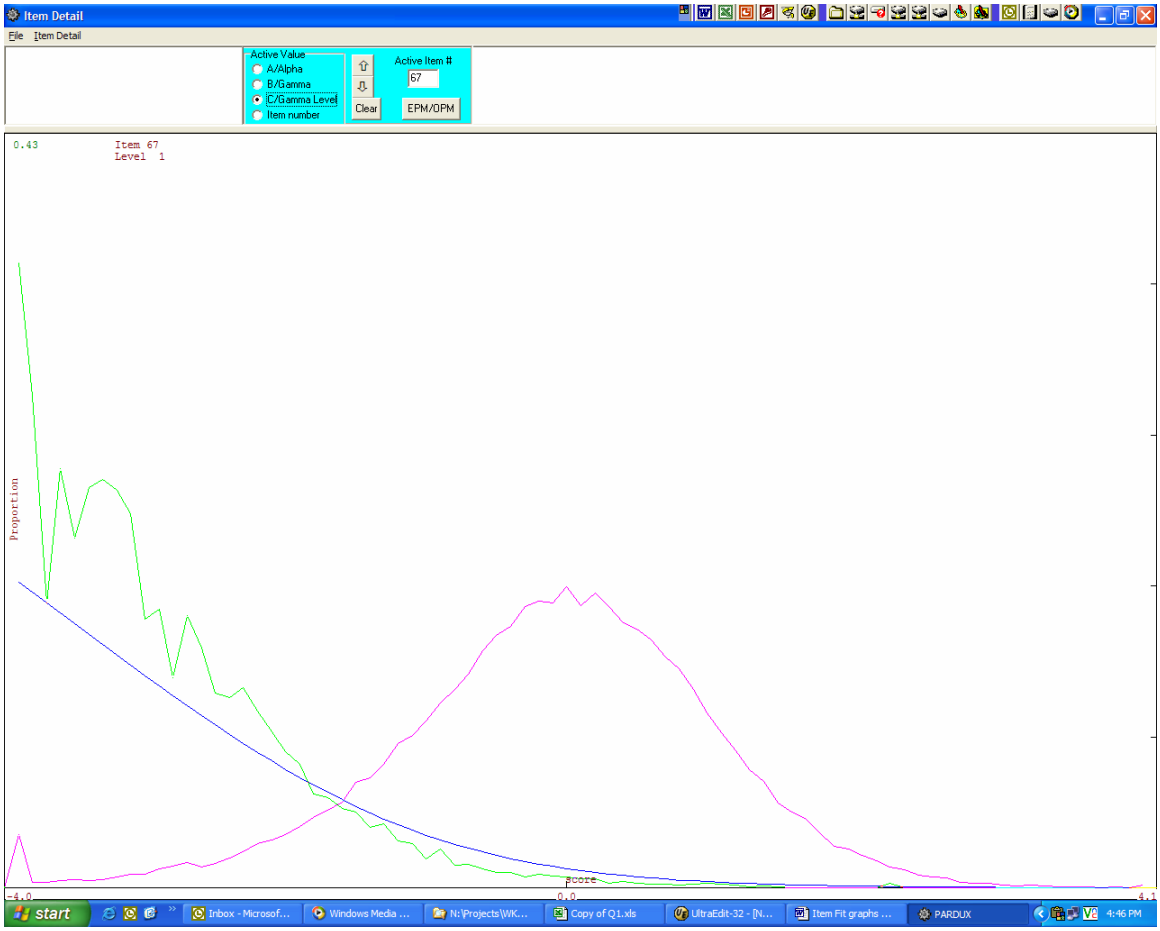

Figure C47
Grade 8 Science Item 67 Level 2 - Estimated Parameters

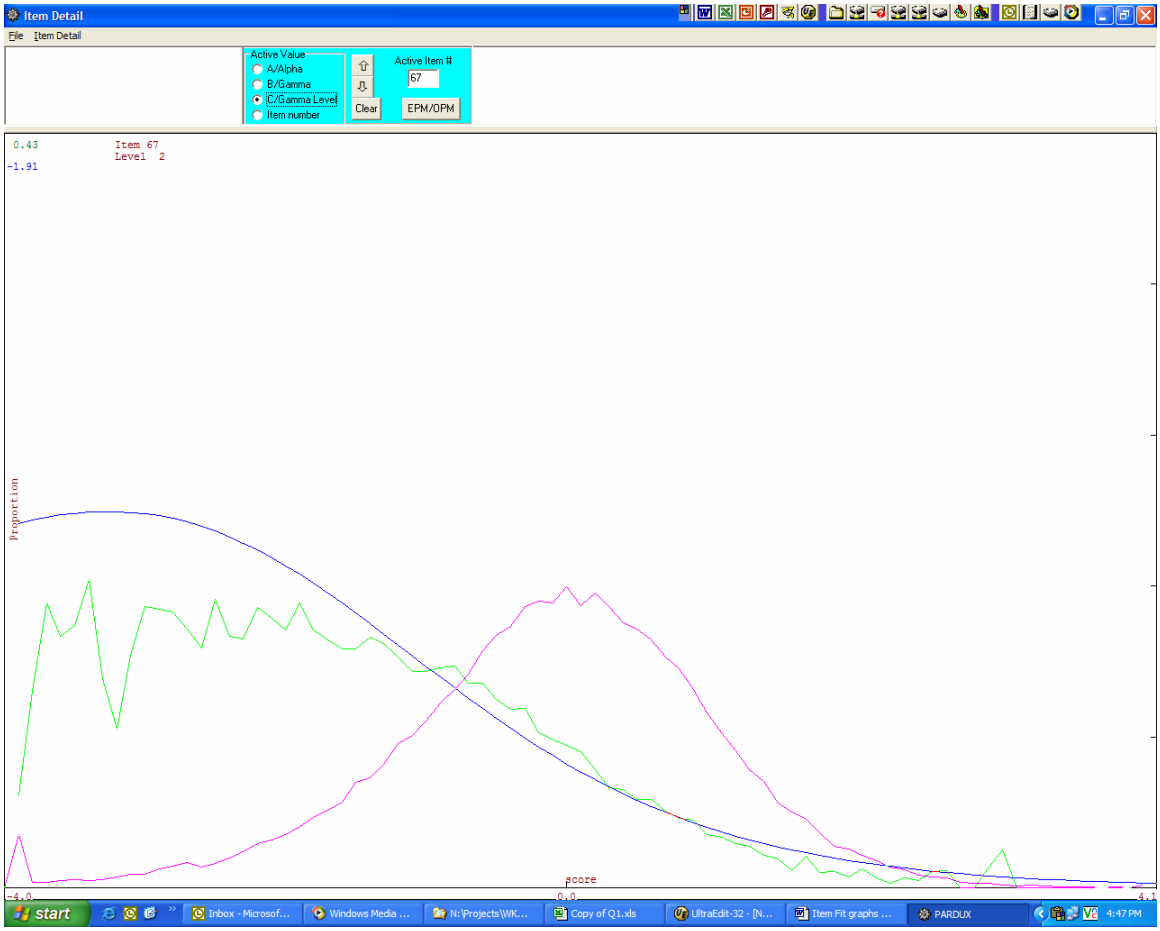

Figure C48
Grade 8 Science Item 67 Level 3 - Estimated Parameters

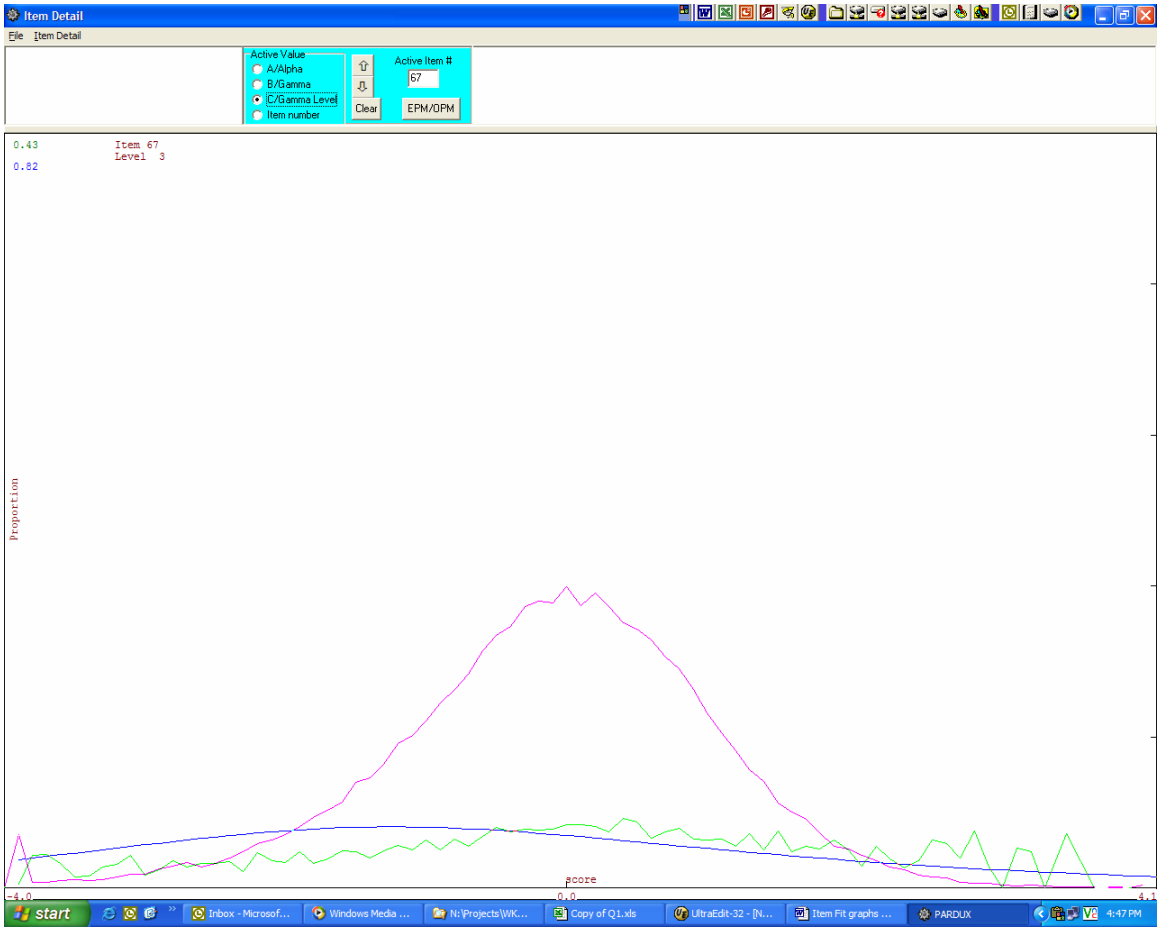

Figure C49
Grade 8 Science Item 67 Level 4 - Estimated Parameters

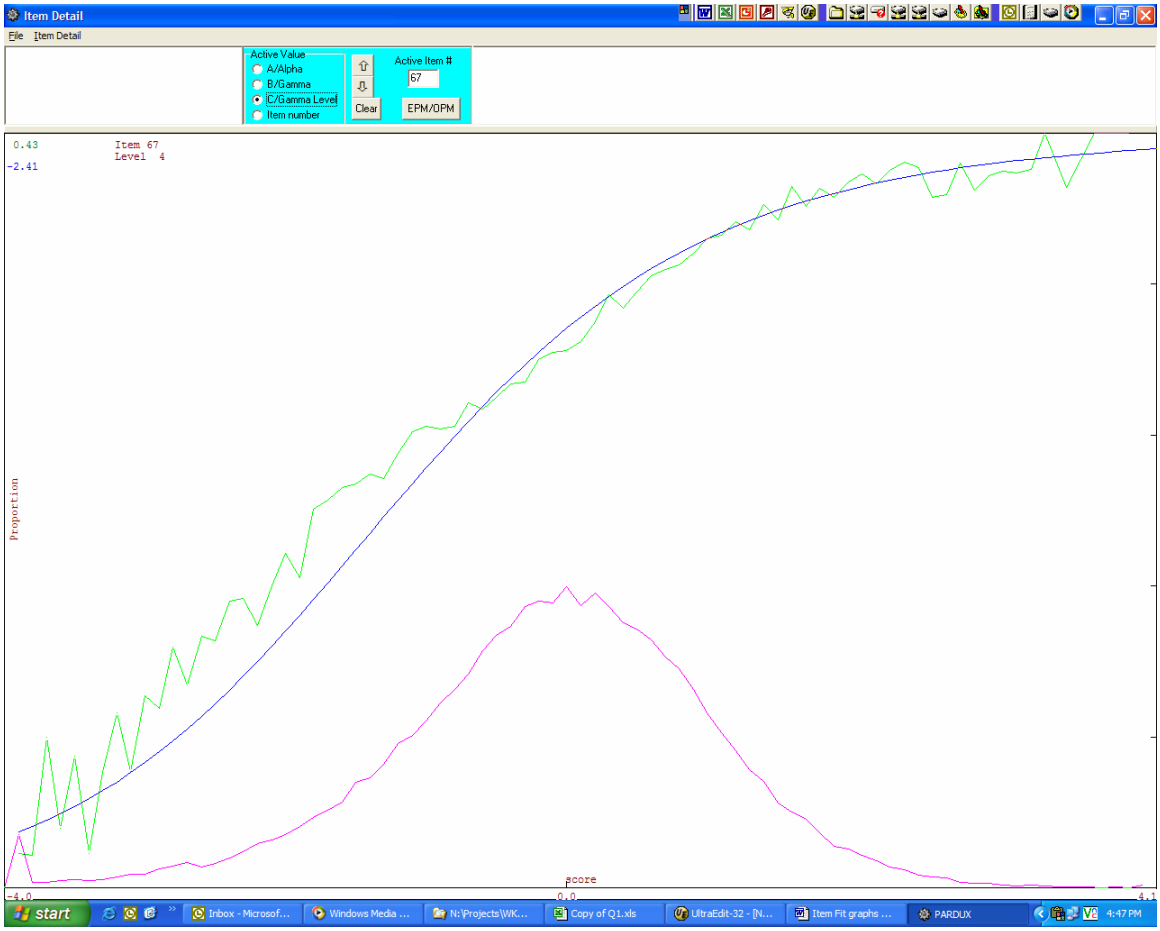
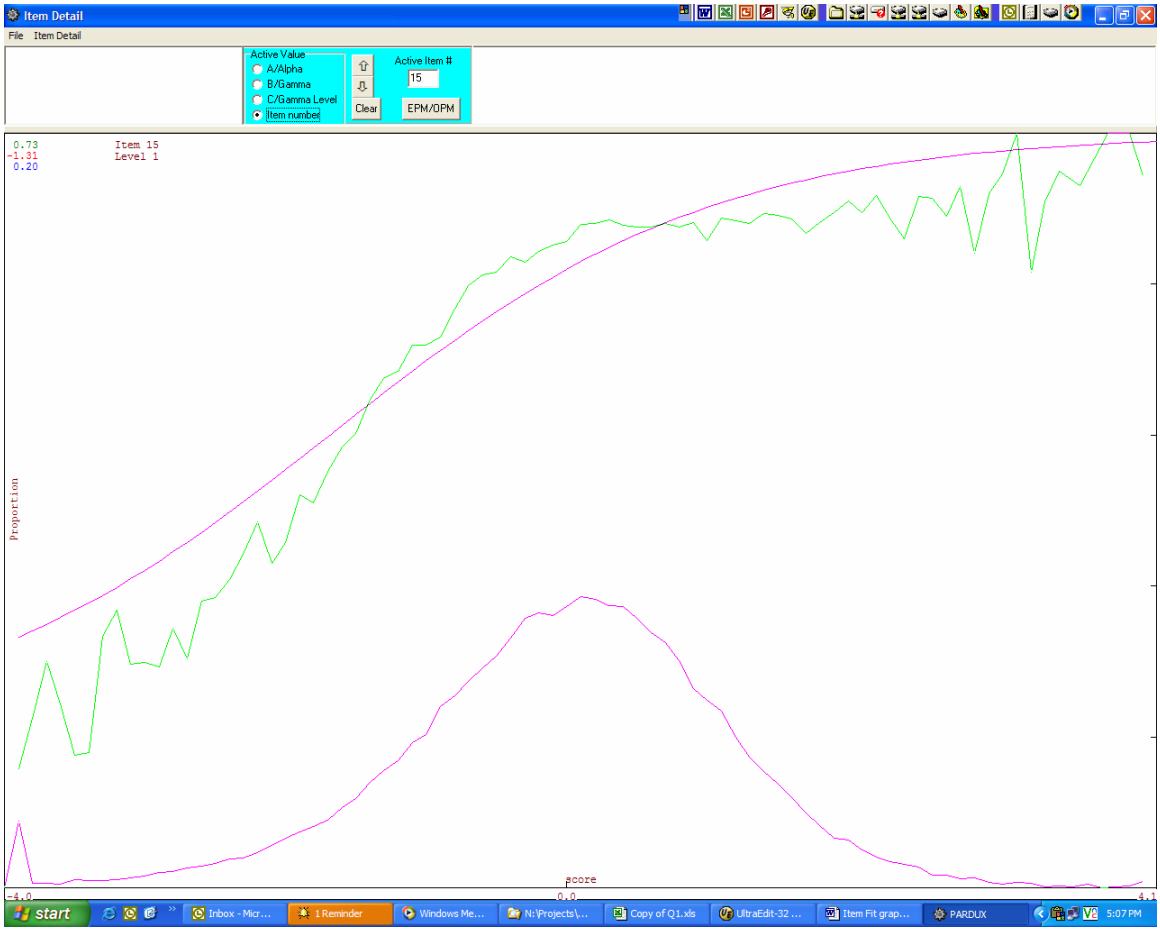
Figure C50
Grade 10 Science Item 15 - Estimated Parameters