Student Baseline and Post-Instruction Checklist
Common Core Essential Elements and Instructional Achievement Level Descriptors
Mathematics Grade 7

Student Name: _____   Student Grade: _____
Teacher: _____   Date: _____

Common Core State Standard: 7.RP.1. Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. *For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction $^{1/2}/_{1/4}$ miles per hour, equivalently 2 miles per hour.*

7.RP.2. Recognize and represent proportional relationships between quantities.
   ▪ Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.
   ▪ Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.
   ▪ Represent proportional relationships by equations. *For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn.*
   ▪ Explain what a point (*x*, *y*) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, *r*) where r is the unit rate.

7.RP.3. Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
EE7.RP.1-3. Use a ratio to model or describe a relationship.		**Indicate Yes or No**
Level IV	Student demonstrates the content knowledge and skills at a higher level of complexity then described in Level 3: • Complete the ratio using numbers to show relationships.	____Y _____N
Level III	Student demonstrates the content knowledge and skills: • Use a ratio to model or describe a relationship.	____Y _____N
Level II	Student demonstrates some of the content knowledge and skills: • Demonstrate a simple ratio relationship.	____Y _____N
Level I	Student attempts to perform the task <u>with support:</u> • Identify one item as it relates to another.	____Y _____N

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Common Core State Standard: 7.NS.1. Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.

- Describe situations in which opposite quantities combine to make 0. *For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged.*
- Understand $p + q$ as the number located a distance $|q|$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.

Understand subtraction of rational numbers as adding the additive inverse, $p – q = p + (–q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
EE7.NS.1. Add fractions with like denominators (halves, thirds, fourths, and tenths) so the solution is less than or equal to one.		**Indicate Yes or No**
Level IV	Student demonstrates the content knowledge and skills at a higher level of complexity then described in Level 3: • Same as Level III AA Students.	**____Y _____N**
Level III	Student demonstrates the content knowledge and skills: • Add fractions with like denominators (halves, thirds fourths, and tenths) so the solution is less than or equal to one.	**____Y _____N**
Level II	Student demonstrates some of the content knowledge and skills: • Use models to add halves, thirds, and fourths.	**____Y _____N**
Level I	Student attempts to perform the task <u>with support:</u> • Use models to identify the whole and find the missing pieces of a whole.	**____Y _____N**

Common Core State Standard: 7.NS.2. Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.

Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(–1)(–1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.

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- Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real-world contexts.
- Apply properties of operations as strategies to multiply and divide rational numbers.
- Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
EE7.NS.2.a. Solve multiplication problems with products to 100.		**Indicate Yes or No**
Level IV	Student demonstrates the content knowledge and skills at a higher level of complexity then described in Level 3: • Solve multiplication problems with products to 144.	**____Y _____N**
Level III	Student demonstrates the content knowledge and skills: • Solve multiplication problems with products to 100.	**____Y _____N**
Level II	Student demonstrates some of the content knowledge and skills: • Solve multiplication problems using factors 1 – 10.	**____Y _____N**
Level I	Student attempts to perform the task <u>with support:</u> • Skip count by twos and tens.	**____Y _____N**

Common Core State Standard: 7.NS.2. Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
EE7.NS.2.b. Solve division problems with divisors up to five and also with a divisor of 10 without remainders.		**Indicate Yes or No**
Level IV	Student demonstrates the content knowledge and skills at a higher level of complexity then described in Level 3: • Solve division problems with divisors up to 10 using numbers.	**____Y _____N**

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
Level III	Student demonstrates the content knowledge and skills: • Solve division problems with divisors up to five and also with a divisor of 10 without remainders.	**____Y ____N**
Level II	Student demonstrates some of the content knowledge and skills: • Determine how many times a number can be subtracted from an equally divisible number.	**____Y ____N**
Level I	Student attempts to perform the task <u>with support</u>: • Associate value with the number one by recognizing the group/set that has more than one.	**____Y ____N**

Common Core State Standard: 7.NS.2. Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
EE7.NS.2.c-d. Compare fractions to fractions and decimals to decimals using rational numbers less than one.		**Indicate Yes or No**
Level IV	Student demonstrates the content knowledge and skills at a higher level of complexity then described in Level 3: • Compare and order fractions and decimals when all numbers are fractions or when all numbers are decimals or when fractions and decimals are mixed.	**____Y ____N**
Level III	Student demonstrates the content knowledge and skills: • Compare fractions to fractions and decimals to decimals using rationale numbers less than one.	**____Y ____N**
Level II	Student demonstrates some of the content knowledge and skills: • Identify the location of a fraction or decimal used in the real world and/or on a number line.	**____Y ____N**
Level I	Student attempts to perform the task <u>with support</u>: • Identify decimals or fractions.	**____Y ____N**

Common Core State Standard: 7.NS.3. Solve real-world and mathematical problems involving the four operations with rational numbers.[1]

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
EE7.NS.3. Demonstrate the value of various money amounts using decimals.		**Indicate Yes or No**
Level IV	Student demonstrates the content knowledge and skills at a higher level of complexity then described in Level 3: • Determine the total value of money written as a decimal given real-world situations.	**____Y _____N**
Level III	Student demonstrates the content knowledge and skills: • Demonstrate the value of various money amounts using decimals.	**____Y _____N**
Level II	Student demonstrates some of the content knowledge and skills: • Identify the decimal value of various coins.	**____Y _____N**
Level I	Student attempts to perform the task <u>with support:</u> • Identify money.	**____Y _____N**

Common Core State Standard: 7.EE.1. Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

7.EE.2. Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. *For example, a + 0.05a = 1.05a means that "increase by 5%" is the same as "multiply by 1.05."*

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
EE7.EE.1-2. Use the relationship within addition and/or multiplication to illustrate that two expressions are equivalent.		**Indicate Yes or No**

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[1] Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
Level IV	Student demonstrates the content knowledge and skills at a higher level of complexity then described in Level 3: • Apply the commutative property to complete an equation.	____Y _____N
Level III	Student demonstrates the content knowledge and skills: • Use the relationship within addition and/or multiplication to illustrate that two expressions are equivalent.	____Y _____N
Level II	Student demonstrates some of the content knowledge and skills: • Use the relationship within addition to illustrate that two expressions are equivalent.	____Y _____N
Level I	Student attempts to perform the task <u>with support:</u> • Understand that different displays of the same quantity are equal.	____Y _____N

Common Core State Standard: 7.EE.3. Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. *For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.*

7.EE.4. Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.
▪ Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. *For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?*
Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. *For example: As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions.*

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Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
EE7.EE.3-4. Use the concept of equality with models to solve one-step addition and subtraction equations.		**Indicate Yes or No**
Level IV	Student demonstrates the content knowledge and skills at a higher level of complexity then described in Level 3: • Solve two-step addition and subtraction equations.	**____Y _____N**
Level III	Student demonstrates the content knowledge and skills: • Use the concept of equality with models to solve one-step addition and subtraction equations.	**____Y _____N**
Level II	Student demonstrates some of the content knowledge and skills: • Identify the amount needed to equal the value on the given side of an equation.	**____Y _____N**
Level I	Student attempts to perform the task with support: • Recognize equal quantities on both sides of an equation.	**____Y _____N**

Common Core State Standard: 7.G.1. Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.

7.G.2. Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
EE7.G.1-2. Draw or classify and recognize basic two-dimensional geometric shapes without a model (circle, triangle, rectangle/square).		**Indicate Yes or No**
Level IV	Student demonstrates the content knowledge and skills at a higher level of complexity then described in Level 3: • Draw or model two-dimensional shapes including a trapezoid and rhombus without a model.	**____Y _____N**

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
Level III	Student demonstrates the content knowledge and skills: • Draw or classify and recognize basic two-dimensional geometric shapes without a model (circle, triangle, rectangle/square).	____Y ____N
Level II	Student demonstrates some of the content knowledge and skills: • Demonstrate the ability to complete a two-dimensional shape (circle, triangle, rectangle, square).	____Y ____N
Level I	Student attempts to perform the task with support: • Demonstrate the ability to recognize a two-dimensional shape (circle, triangle, rectangle, square) when given a complete shape.	____Y ____N

Common Core State Standard: 7.G.3. Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
EE7.G.3. Match a two-dimensional shape with a three-dimensional shape that shares an attribute.		**Indicate Yes or No**
Level IV	Student demonstrates the content knowledge and skills at a higher level of complexity then described in Level 3: • Pair two- and three-dimensional shapes to complete a real-world task.	____Y ____N
Level III	Student demonstrates the content knowledge and skills: • Match a two-dimensional shape with a three-dimensional shape that shares an attribute.	____Y ____N
Level II	Student demonstrates some of the content knowledge and skills: • Identify the attributes of a three-dimensional shape (color, number of sides, faces, size, textures, shape, etc.).	____Y ____N

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
Level I	Student attempts to perform the task <u>with support:</u> • Replicate the two-dimensional cross-section of a three-dimensional shape (cube, sphere, cylinder) when given a complete shape.	**____Y _____N**

Common Core State Standard: 7.G.4. Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.

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EE7.G.4. N/A		**Indicate Yes or No**

Common Core State Standard: 7.G.5. Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
EE7.G.5. Find the perimeter of a rectangle given the length and width.		**Indicate Yes or No**
Level IV	Student demonstrates the content knowledge and skills at a higher level of complexity then described in Level 3: • Solve simple perimeter problems with rectangles.	**____Y _____N**
Level III	Student demonstrates the content knowledge and skills: • Find the perimeter of a rectangle given the length and width.	**____Y _____N**
Level II	Student demonstrates some of the content knowledge and skills: • Identify the length and width of a rectangle.	**____Y _____N**
Level I	Student attempts to perform the task <u>with support:</u> • Outline the perimeter of an object.	**____Y _____N**

Common Core State Standard: 7.G.6. Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
EE7.G.6. Find the area of a rectangle given the length and width using a model.		**Indicate Yes or No**
Level IV	Student demonstrates the content knowledge and skills at a higher level of complexity then described in Level 3: • Solve simple area problems with rectangles.	**____Y _____N**
Level III	Student demonstrates the content knowledge and skills: • Find the area of a rectangle given the length and width using a model.	**____Y _____N**
Level II	Student demonstrates some of the content knowledge and skills: • Identify the length and width (dimensions) of a rectangle.	**____Y _____N**
Level I	Student attempts to perform the task with support: • Duplicate the area of a rectangle (square).	**____Y _____N**

Common Core State Standard: 7.SP.1. Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.

7.SP.2. Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. *For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.*

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
EE7.SP.1-2. Answer a question related to the collected data from an experiment, given a model of data, or from data		**Indicate Yes or No**

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
collected by the student.		
Level IV	Student demonstrates the content knowledge and skills at a higher level of complexity then described in Level 3: • Answer a question about data collected from an experiment and explain or demonstrate the results.	____Y ____N
Level III	Student demonstrates the content knowledge and skills: • Answer a question related to the collected data from an experiment, given a model of data, or from data collected by the student.	____Y ____N
Level II	Student demonstrates some of the content knowledge and skills: • Collect data to answer a given question.	____Y ____N
Level I	Student attempts to perform the task with support: • Answer a question for data collection.	____Y ____N

Common Core State Standard: 7.SP.3. Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. *For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability (mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable.*

7.SP.4. Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. *For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.*

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
EE7.SP.3. Compare two sets of data within a single data display such as a picture graph, line plot, or bar graph.		**Indicate Yes or No**
Level IV	Student demonstrates the content knowledge and skills at a higher level of complexity then described in Level 3: • Compare data from two picture graphs, two line plots, or two bar graphs.	____Y ____N

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
Level III	Student demonstrates the content knowledge and skills: • Compare two sets of data within a single data display such as a picture graph, line plot, or bar graph.	**____Y ____N**
Level II	Student demonstrates some of the content knowledge and skills: • Summarize data on a graph or table in one way.	**____Y ____N**
Level I	Student attempts to perform the task with support: • Read data from one given source.	**____Y ____N**

Common Core State Standard: 7.SP.5. Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.

7.SP.6. Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. *For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.*

7.SP.7. Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.
▪ Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. *For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected.*

Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. *For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?*

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
EE7.SP.5-7. Describe the probability of events occurring as possible or impossible.		**Indicate Yes or No**
Level IV	Student demonstrates the content knowledge and skills at a higher level of complexity then described in Level 3: • Differentiate and describe examples of a situation that is possible, a situation that is likely, and a situation that	**____Y ____N**

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Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
	is impossible.	
Level III	Student demonstrates the content knowledge and skills: • Describe the probability of events occurring as possible or impossible.	**____Y ____N**
Level II	Student demonstrates some of the content knowledge and skills: • Identify possible events that could occur in the natural environment.	**____Y ____N**
Level I	Student attempts to perform the task <u>with support</u>: • Identify outcomes based on a possible event.	**____Y ____N**