Student Baseline and Post-Instruction Checklist
Common Core Essential Elements and Instructional Achievement Level Descriptors
Mathematics Grade 5

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

Common Core State Standard: 5.OA.1. Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.

5.OA.2. Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. *For example, express the calculation "add 8 and 7, then multiply by 2" as 2 × (8 + 7). Recognize that 3 × (18932 + 921) is three times as large as 18932 + 921, without having to calculate the indicated sum or product.*

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
EE5.OA.1-2. N/A		**Indicate Yes or No**

Common Core State Standard: 5.OA.3. Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. *For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.*

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
EE5.OA.3. Identify and extend numerical patterns.		**Indicate Yes or No**
Level IV	Student demonstrates the content knowledge and skills at a higher level of complexity then described in Level 3: • When given a rule, generate the pattern.	**____Y ـــــــN**
Level III	Student demonstrates the content knowledge and skills: • Identify and extend numerical patterns.	**____Y ـــــــN**
Level II	Student demonstrates some of the content knowledge and skills: • Extend a picture pattern.	**____Y ـــــــN**

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>: • Repeat a pattern.	**____Y _____N**

Common Core State Standard: 5.NBT.1. Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
EE5.NBT.1. Compare numbers to each other based on place value groups by composing and decomposing to 99.		**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 numbers by composing and decomposing in two different ways.	**____Y _____N**
Level III	Student demonstrates the content knowledge and skills: • Compare numbers to each other based on place value groups by composing and decomposing to 99.	**____Y _____N**
Level II	Student demonstrates some of the content knowledge and skills: • Compare numbers to 20.	**____Y _____N**
Level I	Student attempts to perform the task <u>with support</u>: • Compare numbers 0-10.	**____Y _____N**

Common Core State Standard: 5.NBT.2. Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
EE5.NBT.2. Recognize patterns in the number of zeros when multiplying a number by powers of 10.		**Indicate Yes or No**

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: • Extend patterns in the number of zeros when multiplying by the powers of 10 up to 1,000, order numbers to 100.	**____Y ____N**
Level III	Student demonstrates the content knowledge and skills: • Recognize patterns in the number of zeros when multiplying a number by powers of 10.	**____Y ____N**
Level II	Student demonstrates some of the content knowledge and skills: • Order multiples of ten ranging from 0-50 in sequential order least to greatest.	**____Y ____N**
Level I	Student attempts to perform the task <u>with support:</u> • Indicate the sequential order of numbers to 10.	**____Y ____N**

Common Core State Standard: 5.NBT.3. Read, write, and compare decimals to 1000ths.
• Read and write decimals to 1000ths using base-ten numerals, number names, and expanded form, e.g., 347.392 = 3 × 100 + 4 × 10 + 7 × 1 + 3 × (1/10) + 9 × (1/100) + 2 × (1/1000).
• Compare two decimals to 1000ths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
EE5.NBT.3. Round two-digit whole numbers to the nearest 10 from 0—90.		**Indicate Yes or No**
Level IV	Student demonstrates the content knowledge and skills at a higher level of complexity then described in Level 3: • Round three-digit whole numbers to hundreds place.	**____Y ____N**
Level III	Student demonstrates the content knowledge and skills: • Round two-digit whole numbers to the nearest 10 from 0-90.	**____Y ____N**
Level II	Student demonstrates some of the content knowledge and skills: • Determine if a single-digit number is closer to zero or 10.	**____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> • Indicate more or less than five.	____Y _____N

Common Core State Standard: 5.NBT.4. Use place value understanding to round decimals to any place.

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
EE5.NBT.4. Round money to a nearest dollar.		**Indicate Yes or No**
Level IV	Student demonstrates the content knowledge and skills at a higher level of complexity then described in Level 3: • Round money to the nearest dime.	____Y _____N
Level III	Student demonstrates the content knowledge and skills: • Round money to the nearest dollar.	____Y _____N
Level II	Student demonstrates some of the content knowledge and skills: • Round money to the nearest dime.	____Y _____N
Level I	Student attempts to perform the task <u>with support:</u> • Indicate which money amount is more.	____Y _____N

Common Core State Standard: 5.NBT.5. Fluently multiply multi-digit whole numbers using the standard algorithm.

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
EE5.NBT.5. Multiply whole numbers up to 5 x 5.		**Indicate Yes or No**
Level IV	Student demonstrates the content knowledge and skills at a higher level of complexity then described in Level 3: • Identify basic multiplication facts for numbers greater than five.	____Y _____N
Level III	Student demonstrates the content knowledge and skills: • Multiply whole numbers up 5 x 5.	____Y _____N

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
Level II	Student demonstrates some of the content knowledge and skills: • Use repeated addition to show multiplication with single digits 1-5.	**____Y _____N**
Level I	Student attempts to perform the task <u>with support:</u> • Use concrete representations to show numbers 1-5.	**____Y _____N**

Common Core State Standard: 5.NBT.6. Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

5.NBT.7. Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
EE5.NBT.6-7. Illustrate the concept of division using fair and equal shares.		**Indicate Yes or No**
Level IV	Student demonstrates the content knowledge and skills at a higher level of complexity then described in Level 3: • Apply the concept of fair share and equal shares to solve a division problem.	**____Y _____N**
Level III	Student demonstrates the content knowledge and skills: • Illustrate the concept of division using fair and equal shares.	**____Y _____N**
Level II	Student demonstrates some of the content knowledge and skills: • Construct equal sets.	**____Y _____N**
Level I	Student attempts to perform the task <u>with support:</u> • Replicate an equal set from a model.	**____Y _____N**

Common Core State Standard: 5.NF.1. Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. *For example, 2/3 + 5/4 = 8/12 + 15/12 = 23/12. (In general, a/b + c/d = (ad + bc)/bd).*

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
EE5.NF.1. Differentiate between halves, fourths, and eighths.		**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 fractional parts less than 1/4.	**____Y _____N**
Level III	Student demonstrates the content knowledge and skills: • Differentiate between halves, fourths, and eighths.	**____Y _____N**
Level II	Student demonstrates some of the content knowledge and skills: • Differentiate between whole and a part.	**____Y _____N**
Level I	Student attempts to perform the task <u>with support:</u> • Recognize that fractions are part of a whole.	**____Y _____N**

Common Core State Standard: 5.NF.2. Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. *For example, recognize an incorrect result 2/5 + 1/2 = 3/7, by observing that 3/7 < 1/2.*

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
EE5.NF.2. Solve two-step word problems using addition and subtraction of whole numbers.		**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 word problems using addition and subtraction of numbers after showing the problem in numerals.	**____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 two-step word problems using addition and subtraction of whole numbers.	____Y ____N
Level II	Student demonstrates some of the content knowledge and skills: • Solve one-step problems using addition and subtraction.	____Y ____N
Level I	Student attempts to perform the task <u>with support:</u> • Recognize words that are used for addition and subtraction.	____Y ____N

Common Core State Standard: 5.NF.3. Interpret a fraction as division of the numerator by the denominator (*a/b = a ÷ b*). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. *For example, interpret 3/4 as the result of dividing 3 by 4, noting that 3/4 multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size 3/4. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?*

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
EE5.NF.3. N/A (See EE5.NF.1)		Indicate Yes or No

Common Core State Standard: 5.NF.4. Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.
▪ Interpret the product (*a/b*) × *q* as a parts of a partition of *q* into *b* equal parts; equivalently, as the result of a sequence of operations *a* × *q* ÷ *b*. *For example, use a visual fraction model to show (2/3) × 4 = 8/3, and create a story context for this equation. Do the same with (2/3) × (4/5) = 8/15. (In general, (a/b) × (c/d) = ac/bd.)*

Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.

5.NF.5. Interpret multiplication as scaling (resizing), by:
▪ Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.

Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n × a)/(n × b)$ to the effect of multiplying a/b by 1.

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
EE5.NF.4-5. N/A		Indicate Yes or No

Common Core State Standard: 5.NF.6. Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

5.NF.7. Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.
- Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. *For example, create a story context for (1/3) ÷ 4, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that (1/3) ÷ 4 = 1/12 because (1/12) × 4 = 1/3.*
- Interpret division of a whole number by a unit fraction, and compute such quotients. *For example, create a story context for 4 ÷ (1/5), and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that 4 ÷ (1/5) = 20 because 20 × (1/5) = 4.*
- Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. *For example, how much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 1/3-cup servings are in 2 cups of raisins?*

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
EE5.NF. 6-7. N/A		Indicate Yes or No

Common Core State Standard: 5.MD.1. Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
EE5.MD.1.a. Tell time using an analog or digital clock to the half or quarter hour.		Indicate Yes or No
Level IV	Student demonstrates the content knowledge and skills at a higher level of complexity then described in Level 3:	____Y ____N

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
	• Tell time using a digital clock to the minute and an analog clock to the nearest five minutes.	
Level III	Student demonstrates the content knowledge and skills: • Tell time using an analog or digital clock to the half or quarter hour.	**____Y _____N**
Level II	Student demonstrates some of the content knowledge and skills: • Tell time to the half hour using a digital clock and to the half hour using an analog clock.	**____Y _____N**
Level I	Student attempts to perform the task <u>with support</u>: • Identify morning and afternoon.	**____Y _____N**

Common Core State Standard: 5.MD.1. Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
EE5.MD.1.b. Use customary units to measure weight and length of objects.		**Indicate Yes or No**
Level IV	Student demonstrates the content knowledge and skills at a higher level of complexity then described in Level 3: • Use two customary units to measure weight and length of objects.	**____Y _____N**
Level III	Student demonstrates the content knowledge and skills: • Use customary units to measure weight and length of objects.	**____Y _____N**
Level II	Student demonstrates some of the content knowledge and skills: • Identify customary units of measurement for weight and length.	**____Y _____N**
Level I	Student attempts to perform the task <u>with support</u>: • Identify which tools are used to weigh.	**____Y _____N**

Common Core State Standard: 5.MD.1. Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
EE5.MD.1.c. Indicate relative value of collections of coins.		**Indicate Yes or No**
Level IV	Student demonstrates the content knowledge and skills at a higher level of complexity then described in Level 3: • Indicate relative value of coins and bills to each other.	**____Y _____N**
Level III	Student demonstrates the content knowledge and skills: • Indicate relative value of collections of coins.	**____Y _____N**
Level II	Student demonstrates some of the content knowledge and skills: • Identify coins (penny, nickel, dime, quarter) and their values.	**____Y _____N**
Level I	Student attempts to perform the task <u>with support</u>: • Match coins that are alike (penny, nickel, dime, quarter).	**____Y _____N**

Common Core State Standard: 5.MD.2. Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots. *For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.*

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
EE5.MD.2.a. Represent and interpret data on a picture, line plot, or bar graph given a model and a graph to complete.		**Indicate Yes or No**
Level IV	Student demonstrates the content knowledge and skills at a higher level of complexity then described in Level 3: • Collect, organize, and interpret data. Create a graph using a graph template, and display the data on the graph.	**____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: • Represent and interpret data on a picture, line plot, or bar graph given a model and a graph to complete.	**____Y _____N**
Level II	Student demonstrates some of the content knowledge and skills: • Display data on a picture, line plot, or bar graph and answer questions about the graph.	**____Y _____N**
Level I	Student attempts to perform the task <u>with support:</u> • Identify a simple graph.	**____Y _____N**

Common Core State Standard: 5.MD.3. Recognize volume as an attribute of solid figures and understand concepts of volume measurement.
- A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume.
- A solid figure, which can be packed without gaps or overlaps using n unit cubes, is said to have a volume of n cubic units.

5.MD.4. Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.

5.MD.5. Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.
- Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.
- Apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems.
- Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
EE5.MD.3-5. Determine volume of a cube by counting units of measure.		**Indicate Yes or No**
Level IV	Student demonstrates the content knowledge and skills at a higher level of complexity then described in Level 3: • **N/A**	**____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: • Determine volume of a cube by counting units of measure.	**____Y _____N**
Level II	Student demonstrates some of the content knowledge and skills: • Identify objects that have volume.	**____Y _____N**
Level I	Student attempts to perform the task <u>with support:</u> • Demonstrate solid or liquid, full or empty.	**____Y _____N**

Common Core State Standard: 5.G.1. Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., *x*-axis and *x*-coordinate, *y*-axis and *y*-coordinate).

5.G.2. Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.

5.G.3. Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.

5.G.4. Classify two-dimensional figures in a hierarchy based on properties.

Common Core Essential Elements - Math	Instructional Achievement Level Descriptors	Estimated Level of Student Proficiency
EE5.G.1-5. Sort two-dimensional figures and describe the common attributes such as angles, number of sides, corners (dimension), and color.		**Indicate Yes or No**
Level IV	Student demonstrates the content knowledge and skills at a higher level of complexity then described in Level 3: • Sort into quadrant tables and describe figures by two common attributes.	**____Y _____N**

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Level III	Student demonstrates the content knowledge and skills: • Sort two-dimensional figures and describe the common attributes such as angles, number of sides, corners (dimension), and color.	**____Y _____N**
Level II	Student demonstrates some of the content knowledge and skills: • Sort figures based on a given attribute.	**____Y _____N**
Level I	Student attempts to perform the task <u>with support:</u> • Indicate two-dimensional shapes named.	**____Y _____N**