Grade 6 Mathematics
Standards-based Skills Checklist

Student: _____   **Date:** _____

Completed by (name): _____   **Position:** _____

School Division: _____

1. **Review SOL strand for** Number and Number Sense (SOL 6.1, 6.2a-d, & 6.3a-c, 6.4, 6.5)	2. **Review data on student performance** and indicate all data sources analyzed to assess performance in this strand: ☐ Present Level of Performance (PLOP) ☐ Prior SOL data ☐ Standardized test data ☐ Classroom assessments ☐ Teacher observations

3. **Check the areas that will require specially designed instruction** critical to meeting the standard.

The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to
- ☐ Describe a relationship within a set by comparing part of the set to the entire set.
- ☐ Describe a relationship between two sets by comparing part of one set to a corresponding part of the other set.
- ☐ Describe a relationship between two sets by comparing all of one set to all of the other set.
- ☐ Describe a relationship within a set by comparing one part of the set to another part of the same set.
- ☐ Represent a relationship in words that makes a comparison by using the notations $\frac{a}{b}$, $a{:}b$, and $\quad$ *a to b.*
- ☐ Create a relationship in words for a given ratio expressed symbolically.

The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to
- ☐ Identify the decimal and percent equivalents for numbers written in fraction form including repeating decimals.
- ☐ Represent fractions, decimals, and percents on a number line.
- ☐ Describe orally and in writing the equivalent relationships among decimals, percents, and fractions that have denominators that are factors of 100.
- ☐ Represent, by shading a grid, a fraction, decimal, and percent.
- ☐ Represent in fraction, decimal, and percent form a given shaded region of a grid.
- ☐ Compare two decimals through thousandths using manipulatives, pictorial representations, number lines, and symbols ($<, \leq, \geq, >, =$).
- ☐ Compare two fractions with denominators of 12 or less using manipulatives, pictorial representations, number lines, and symbols ($<, \leq, \geq, >, =$).
- ☐ Compare two percents using pictorial representations and symbols ($<, \leq, \geq, >, =$).
- ☐ Order no more than 3 fractions, decimals, and percents (decimals through thousandths, fractions with denominators of 12 or less), in ascending or descending order.

The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to
- ☐ Identify an integer represented by a point on a number line.
- ☐ Represent integers on a number line.
- ☐ Order and compare integers using a number line.
- ☐ Compare integers, using mathematical symbols ($<, >, =$).
- ☐ Identify and describe the absolute value of an integer

The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to
- ☐ Demonstrate multiplication and division of fractions using multiple representations.
- ☐ Model algorithms for multiplying and dividing with fractions using appropriate representations.

The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to

- ☐ Recognize and describe patterns with exponents that are natural numbers, by using a calculator.

- ☐ Recognize and describe patterns of perfect squares not to exceed 20^2, by using grid paper, square tiles, tables, and calculators.

- ☐ Recognize powers of ten by examining patterns in a place value chart: $10^4 = 10,000$, $10^3 = 1000$, $10^2 = 100$, $10^1 = 10$, $10^0 = 1$.

4. Is/Are standard-based goal(s) needed?	☐ **NO Check one or more justifications:**
☐ **YES** Address areas of need in PLOP	☐ Accommodations Available (specify): ☐ Area of Strength in PLOP ☐ New Content ☐ Other (Specify):

5. Notes Supporting Data Analysis

1. Review SOL strand for **Computation and Estimation** **(SOL 6.6 a-b, 6.7, 6.8)**	2. **Review data on student performance** and indicate all data sources analyzed to assess performance in this strand: ☐ Present Level of Performance (PLOP) ☐ Prior SOL data ☐ Standardized test data ☐ Classroom assessments ☐ Teacher observations

3. Check the areas that will require specially designed instruction critical to meeting the standard.

The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to

- ☐ Multiply and divide with fractions and mixed numbers. Answers are expressed in simplest form.

- ☐ Solve single-step and multistep practical problems that involve addition and subtraction with fractions and mixed numbers, with and without regrouping, that include like and unlike denominators of 12 or less. Answers are expressed in simplest form.

- ☐ Solve single-step and multistep practical problems that involve multiplication and division with fractions and mixed numbers that include denominators of 12 or less. Answers are expressed in simplest form.

The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to

- ❑ Solve single-step and multistep practical problems involving addition, subtraction, multiplication and division with decimals expressed to thousandths with no more than two operations

The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to

- ❑ Simplify expressions by using the order of operations in a demonstrated step-by-step approach. The expressions should be limited to positive values and not include braces { } or absolute value | |.

- ❑ Find the value of numerical expressions, using order of operations, mental mathematics, and appropriate tools. Exponents are limited to positive values.

4. Is/Are standard-based goal(s) needed?	☐ **NO** **Check one or more justifications:**
☐ **YES** Address areas of need in PLOP	☐ Accommodations Available (specify): ☐ Area of Strength in PLOP ☐ New Content ☐ Other (Specify):

5. Notes Supporting Data Analysis

1. **Review SOL strand for** **Measurement** **(SOL 6.9, 6.10a-d)**	2. **Review data on student performance** and indicate all data sources analyzed to assess performance in this strand: ☐ Present Level of Performance (PLOP) ☐ Prior SOL data ☐ Standardized test data ☐ Classroom assessments ☐ Teacher observations

3. Check the areas that will require specially designed instruction critical to meeting the standard.

The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to
- ☐ Estimate the conversion of units of length, weight/mass, volume, and temperature between the U.S. Customary system and the metric system by using ballpark comparisons. Ex: 1 L ≈ 1qt. Ex: 4L ≈ 4 qts.
- ☐ Estimate measurements by comparing the object to be measured against a benchmark.

The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to

- ☐ Derive an approximation for pi (3.14 or $\frac{22}{7}$) by gathering data and comparing the circumference to the diameter of various circles, using concrete materials or computer models.
- ☐ Find the circumference of a circle by substituting a value for the diameter or the radius into the formula $C = \pi d$ or $C = 2\pi r$.
- ☐ Find the area of a circle by using the formula $A = \pi r^2$.
- ☐ Apply formulas to solve practical problems involving area and perimeter of triangles and rectangles.
- ☐ Create and solve problems that involve finding the circumference and area of a circle when given the diameter or radius.
- ☐ Solve problems that require finding the surface area of a rectangular prism, given a diagram of the prism with the necessary dimensions labeled.
- ☐ Solve problems that require finding the volume of a rectangular prism given a diagram of the prism with the necessary dimensions labeled.

4. Is/Are standard-based goal(s) needed?	☐ **NO** **Check one or more justifications:**
☐ **YES** Address areas of need in PLOP	☐ Accommodations Available (specify): ☐ Area of Strength in PLOP ☐ New Content ☐ Other (Specify):

5. Notes Supporting Data Analysis

1. Review SOL strand for Geometry (SOL 6.11a-b, 6.12, 6.13)	2. Review data on student performance and indicate all data sources analyzed to assess performance in this strand: ☐ Present Level of Performance (PLOP) ☐ Prior SOL data ☐ Standardized test data ☐ Classroom assessments ☐ Teacher observations

3. Check the areas that will require specially designed instruction critical to meeting the standard.

The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to
- ☐ Identify and label the axes of a coordinate plane.
- ☐ Identify and label the quadrants of a coordinate plane.
- ☐ Identify the quadrant or the axis on which a point is positioned by examining the coordinates (ordered pair) of the point.
- ☐ Graph ordered pairs in the four quadrants and on the axes of a coordinate plane.
- ☐ Identify ordered pairs represented by points in the four quadrants and on the axes of the coordinate plane.

The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to
- ☐ Characterize polygons as congruent and noncongruent according to the measures of their sides and angles.
- ☐ Determine the congruence of segments, angles, and polygons given their attributes.

The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to
- ☐ Sort and classify polygons as quadrilaterals, parallelograms, rectangles, trapezoids, kites, rhombi, and squares based on their properties. Properties include number of parallel sides, angle measures and number of congruent sides.
- ☐ Identify the sum of the measures of the angles of a quadrilateral as 360°.

4. Is/Are standard-based goal(s) needed?
 	
☐ **YES** Address areas of need in PLOP
	☐ **NO Check one or more justifications:**
	  ☐ Accommodations Available (specify):
	  ☐ Area of Strength in PLOP
	  ☐ New Content
	  ☐ Other (Specify):

5. Notes Supporting Data Analysis

1. Review SOL strand for **Probability and Statistics** **(SOL 6.14a-c, 6.15a-b, 6.16a-b)**	2. **Review data on student performance** and indicate all data sources analyzed to assess performance in this strand: ☐ Present Level of Performance (PLOP) ☐ Prior SOL data ☐ Standardized test data ☐ Classroom assessments ☐ Teacher observations

3. Check the areas that will require specially designed instruction critical to meeting the standard.

The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to
- ☐ Collect, organize and display data in circle graphs by depicting information as fractional.
- ☐ Draw conclusions and make predictions about data presented in a circle graph.
- ☐ Compare and contrast data presented in a circle graph with the same data represented in other graphical forms**.**

The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to
- ☐ Find the mean for a set of data.
- ☐ Describe the three measures of center and a situation in which each would best represent a set of data.
- ☐ Identify and draw a number line that demonstrates the concept of mean as balance point for a set of data

The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to
- ☐ Determine whether two events are dependent or independent.
- ☐ Compare and contrast dependent and independent events.
- ☐ Determine the probability of two dependent events.
- ☐ Determine the probability of two independent events.

4. Is/Are standard-based goal(s) needed? ☐ **YES** Address areas of need in PLOP	☐ **NO Check one or more justifications:** ☐ Accommodations Available (specify): ☐ Area of Strength in PLOP ☐ New Content ☐ Other (Specify):

5. Notes Supporting Data Analysis

1. Review SOL strand for **Patterns, Functions, and Algebra** **(SOL 6.17, 6.18, 6.19a-c, 6.20)**	2. **Review data on student performance** and indicate all data sources analyzed to assess performance in this strand: ☐ Present Level of Performance (PLOP) ☐ Prior SOL data ☐ Standardized test data ☐ Classroom assessments ☐ Teacher observations

3. Check the areas that will require specially designed instruction critical to meeting the standard.

The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to

- ☐ Investigate and apply strategies to recognize and describe the change between terms in arithmetic patterns.
- ☐ Investigate and apply strategies to recognize and describe geometric patterns.
- ☐ Describe verbally and in writing the relationships between consecutive terms in an arithmetic or geometric sequence.
- ☐ Extend and apply arithmetic and geometric sequences to similar situations.
- ☐ Extend arithmetic and geometric sequences in a table by using a given rule or mathematical relationship.
- ☐ Compare and contrast arithmetic and geometric sequences.
- ☐ Identify the common difference for a given arithmetic sequence.
- ☐ Identify the common ratio for a given geometric sequence.

The student will use problem solving, mathematical communication, mathematical reasoning, connections and representation to

- ☐ Represent and solve a one-step equation, using a variety of concrete materials such as colored chips, algebra tiles, or weights on a balance scale.
- ☐ Solve a one-step equation by demonstrating the steps algebraically.
- ☐ Identify and use the following algebraic terms appropriately: *equation*, v*ariable, expression, term,* and *coefficient*.

The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to

- ☐ Identify a real number equation that represents each property of operations with real numbers, when given several real number equations.
- ☐ Test the validity of properties by using examples of the properties of operations on real numbers.
- ☐ Identify the property of operations with real numbers that is illustrated by a real number equation.

NOTE: The commutative, associative and distributive properties are taught in previous grades.

The student will use problem solving, mathematical communication, mathematical reasoning, connections and representation to

- ☐ Given a simple inequality with integers, graph the relationship on a number line.
- ☐ Given the graph of a simple inequality with integers, represent the inequality two different ways using symbols ($<, >, \leq, \geq$).

4. Is/Are standard-based goal(s) needed?	☐ **NO** Check one or more justifications:
☐ **YES** Address areas of need in PLOP	☐ Accommodations Available (specify): ☐ Area of Strength in PLOP ☐ New Content ☐ Other (Specify):

5. Notes Supporting Data Analysis