# Grade 6: Standards-Based Skills Worksheet

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The skills inventory worksheets are designed to assist with data analysis and goal writing for standards-based IEPs. They are based on the [Virginia SOL Curriculum Frameworks](http://www.doe.virginia.gov/testing/sol/standards_docs/index.shtml). Go to [Standards-Based IEP](http://www.doe.virginia.gov/special_ed/iep_instruct_svcs/stds-based_iep/) for the *Standards-based Individualized Education Program (IEP) A Guide for School Divisions* for additional information on the process for creating standards-based IEPs.

## Directions

### **Step 1**

Go to [Standards-Based IEP](http://www.doe.virginia.gov/special_ed/iep_instruct_svcs/stds-based_iep/) for to print the appropriate PDF file **Skills Worksheet** that will match the projected (or current if mid-year) grade level for the student.

### **Step 2**

Gather and analyze data to identify how the student has performed in each of the strands included in the curriculum. **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

### **Step 3**

Based on prior performance, predict what level of instruction ***will be*** necessary for the student to successfully master upcoming curriculum in each of the strands using the following worksheets. Check the areas that specially designed instruction and/or supports may be critical to meeting the standard.

### **Step 4**

After completing the Worksheet, based on data and your knowledge of the student as discussed in the present level of academic and functional performance (PLOP), determine if a goal(s) is/are needed to address the specific skill(s). Guiding Question:  **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):

### **Step 5**

Additional space is provided under each strand for comments or notes on data analysis

## Essential Knowledge and Skills

### Strand: Number and Number Sense (SOL 6.1, 6.2a-b, 6.3a-c, 6.4)

The student will:

* Represent a relationship between two quantities using ratios.
* Represent a relationship in words that makes a comparison by using the notations$ \frac{a}{b}$, *a*:*b*, and *a to b.*
* Create a relationship in words for a given ratio expressed symbolically.
* Represent ratios as fractions (proper or improper), mixed numbers, decimals, and/or percents. (a)
* Determine the decimal and percent equivalents for numbers written in fraction form (proper or improper) or as a mixed number, including repeating decimals. (a)
* Represent and determine equivalencies among decimals, percents, fractions (proper or improper), and mixed numbers that have denominators that are 12 or less or factors of 100. (a)
* Compare two percents using pictorial representations and symbols (<, ≤, ≥, >, =). (b)
* Order no more than four positive rational numbers expressed as fractions (proper or improper), mixed numbers, decimals, and percents (decimals through thousandths, fractions with denominators of 12 or less or factors of 100). Ordering may be in ascending or descending order. (b)
* Model integers, including models derived from practical situations. (a)
* Identify an integer represented by a point on a number line. (a)
* Compare and order integers using a number line. (b)
* Compare integers, using mathematical symbols ($<, \leq , >,\geq , =$). (b)
* Identify and describe the absolute value of an integer. (c)
* Recognize and represent patterns with bases and exponents that are whole numbers.
* Recognize and represent patterns of perfect squares not to exceed$ 20^{2}$, by using grid paper, square tiles, tables, and calculators.
* Recognize powers of 10 with whole number exponents by examining patterns in place value.

### Strand: Computation and Estimation (SOL 6.5a-c, 6.6a-c)

The student will:

* Demonstrate/model multiplication and division of fractions (proper or improper) and mixed numbers using multiple representations. (a)
* Multiply and divide fractions (proper or improper) and mixed numbers. Answers are expressed in simplest form. (a)
* Solve single-step and multistep practical problems that involve addition and subtraction with fractions (proper or improper) and mixed numbers, with and without regrouping, that include like and unlike denominators of 12 or less. Answers are expressed in simplest form. (b)
* Solve single-step and multistep practical problems that involve multiplication and division with fractions (proper or improper) and mixed numbers that include denominators of 12 or less. Answers are expressed in simplest form. (b)
* Solve multistep practical problems involving addition, subtraction, multiplication and division with decimals. Divisors are limited to a three-digit number, with decimal divisors limited to hundredths. (c)
* The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to
* Model addition, subtraction, multiplication and division of integers using pictorial representations or concrete manipulatives. (a)
* Add, subtract, multiply, and divide two integers. (a)
* Solve practical problems involving addition, subtraction, multiplication, and division with integers. (b)
* Use the order of operations and apply the properties of real numbers to simplify numerical expressions involving more than two integers. Expressions should not include braces { } or brackets [ ], but may contain absolute value bars $\left|\right|$. Simplification will be limited to three operations, which may include simplifying a whole number raised to an exponent of 1, 2 or 3. (c)

### **Strand: Measurement and Geometry** (SOL 6.7a-c, 6.8a-b, 6.9)

The student will

* 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. (a)
* Solve problems, including practical problems, involving circumference and area of a circle when given the length of the diameter or radius. (b)
* Solve problems, including practical problems, involving area and perimeter of triangles and rectangles.(c)
* Identify and label the axes, origin, and quadrants of a coordinate plane. (a)
* Identify the quadrant or the axis on which a point is positioned by examining the coordinates (ordered pair) of the point. Ordered pairs will be limited to coordinates expressed as integers. (a)
* Graph ordered pairs in the four quadrants and on the axes of a coordinate plane. Ordered pairs will be limited to coordinates expressed as integers. (b)
* Identify ordered pairs represented by points in the four quadrants and on the axes of the coordinate plane. Ordered pairs will be limited to coordinates expressed as integers. (b)
* Relate the coordinates of a point to the distance from each axis and relate the coordinates of a single point to another point on the same horizontal or vertical line. Ordered pairs will be limited to coordinates expressed as integers. (b)
* Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to determine the length of a side joining points with the same first coordinate or the same second coordinate. Ordered pairs will be limited to coordinates expressed as integers. Apply these techniques in the context of solving practical and mathematical problems. (b)
* Identify regular polygons.
* Draw lines of symmetry to divide regular polygons into two congruent parts.
* Determine the congruence of segments, angles, and polygons given their properties.
* Determine whether polygons are congruent or noncongruent according to the measures of their sides and angles.

### Strand: Probability and Statistics (SOL 6.10a-c, 6.11a-b)

*The student will:*

* Collect, organize and represent data in a circle graph. The number of data values should be limited to allow for comparisons that have denominators of 12 or less or those that are factors of 100 (e.g., in a class of 20 students, 7 choose apples as a favorite fruit, so the comparison is 7 out of 20, $\frac{7}{20}$, or 35%). (a)
* Make observations and inferences about data represented in a circle graph. (b)
* Compare data represented in a circle graph with the same data represented in bar graphs, pictographs, and line plots. (c)
* Represent the mean of a set of data graphically as the balance point represented in a line plot. (a)
* Determine the effect on measures of center when a single value of a data set is added, removed, or changed. (b)

### Strand: Patterns, Functions, and Algebra (SOL 6.12a-d, 6.13, 6.14a-b)

*The student will:*

* Make a table of equivalent ratios to represent a proportional relationship between two quantities, when given a ratio. (a)
* Make a table of equivalent ratios to represent a proportional relationship between two quantities, when given a practical situation. (a)
* Identify the unit rate of a proportional relationship represented by a table of values or a verbal description, including those represented in a practical situation. Unit rates are limited to positive values. (b)
* Determine a missing value in a ratio table that represents a proportional relationship between two quantities using a unit rate. Unit rates are limited to positive values. (b)
* Determine whether a proportional relationship exists between two quantities, when given a table of values or a verbal description, including those represented in a practical situation. Unit rates are limited to positive values. (c)
* Determine whether a proportional relationship exists between two quantities given a graph of ordered pairs. Unit rates are limited to positive values. (c)
* Make connections between and among multiple representations of the same proportional relationship using verbal descriptions, ratio tables, and graphs. Unit rates are limited to positive values. (d)
* Identify examples of the following algebraic vocabulary: equation, variable, expression, term, and coefficient.
* Represent and solve one-step linear equations in one variable, using a variety of concrete materials such as colored chips, algebra tiles, or weights on a balance scale.
* Apply properties of real numbers and properties of equality to solve a one-step equation in one variable. Coefficients are limited to integers and unit fractions. Numeric terms are limited to integers.
* Confirm solutions to one-step linear equations in one variable.
* Write verbal expressions and sentences as algebraic expressions and equations.
* Write algebraic expressions and equations as verbal expressions and sentences.
* Represent and solve a practical problem with a one-step linear equation in one variable.
* Given a verbal description, represent a practical situation with a one-variable linear inequality. (a)
* Apply properties of real numbers and the addition or subtraction property of inequality to solve a one-step linear inequality in one variable, and graph the solution on a number line. Numeric terms being added or subtracted from the variable are limited to integers. (b)
* Given the graph of a linear inequality with integers, represent the inequality two different ways (e.g., *x* < -5 or -5 > *x*) using symbols. (b)
* Identify a numerical value(s) that is part of the solution set of a given inequality. (a, b)