# Grade 7: 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 7.1a-e)

The student will:

* Recognize powers of 10 with negative exponents by examining patterns. (a)
* Represent a power of 10 with a negative exponent in fraction and decimal form. (a)
* Convert between numbers greater than 0 written in scientific notation and decimals. (b)
* Compare and order no more than four numbers greater than 0 written in scientific notation. Ordering may be in ascending or descending order. (b)
* Compare and order no more than four rational numbers expressed as integers, fractions (proper or improper), mixed numbers, decimals, and percents. Fractions and mixed numbers may be positive or negative. Decimals may be positive or negative and are limited to the thousandths place. Ordering may be in ascending or descending order. (c)
* Identify the perfect squares from 0 to 400. (d)
* Determine the positive square root of a perfect square from 0 to 400. (d)
* Demonstrate absolute value using a number line. (e)
* Determine the absolute value of a rational number. (e)
* Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle to solve practical problems.(e)

### Strand: Computation and Estimation (SOL 7.2, 7.3)

The student will:

* Solve practical problems involving addition, subtraction, multiplication, and division with rational numbers expressed as integers, fractions (proper or improper), mixed numbers, decimals, and percents. Fractions may be positive or negative. Decimals may be positive or negative and are limited to the thousandths place.
* Given a proportional relationship between two quantities, create and use a ratio table to determine missing values.
* Write and solve a proportion that represents a proportional relationship between two quantities to find a missing value.
* Apply proportional reasoning to convert units of measurement within and between the U.S. Customary System and the metric system when given the conversion factor.
* Apply proportional reasoning to solve practical problems, including scale drawings. Scale factors shall have denominators no greater than 12 and decimals no less than tenths**.**
* Using 10% as a benchmark, compute 5%, 10%, 15%, or 20% of a given whole number.
* Using 10% as a benchmark, compute 5%, 10%, 15%, or 20% in a practical situation such as tips, tax, and discounts.
* Solve problems involving tips, tax, and discounts. Limit problems to only one percent computation per problem.

### **Strand: Measurement and Geometry** (SOL 7.4a-b, 7.5, 7.6a-b, 7.7)

The student will

* Determine the surface area of rectangular prisms and cylinders using concrete objects, nets, diagrams, and formulas. (a)
* Determine the volume of rectangular prisms and cylinders using concrete objects, diagrams, and formulas. (a)
* Determine if a practical problem involving a rectangular prism or cylinder represents the application of volume or surface area. (b)
* Solve practical problems that require determining the surface area of rectangular prisms and cylinders. (b)
* Solve practical problems that require determining the volume of rectangular prisms and cylinders. (b).
* Identify corresponding sides and corresponding congruent angles of similar quadrilaterals and triangles.
* Given two similar quadrilaterals or triangles, write similarity statements using symbols.
* Write proportions to express the relationships between the lengths of corresponding sides of similar quadrilaterals and triangles.
* Solve a proportion to determine a missing side length of similar quadrilaterals or triangles.
* Given angle measures in a quadrilateral or triangle, determine unknown angle measures in a similar quadrilateral or triangle.
* Compare and contrast properties of the following quadrilaterals: parallelogram, rectangle, square, rhombus, and trapezoid. (a)
* Sort and classify quadrilaterals, as parallelograms, rectangles, trapezoids, rhombi, and/or squares based on their properties. (a)
* Given a diagram, determine an unknown angle measure in a quadrilateral, using properties of quadrilaterals. (b)
* Given a diagram determine an unknown side length in a quadrilateral using properties of quadrilaterals. (b)
* Given a preimage in the coordinate plane, identify the coordinates of the image of a right triangle or rectangle that has been translated either vertically, horizontally, or a combination of a vertical and horizontal translation.
* Given a preimage in the coordinate plane, identify the coordinates of the image of a right triangle or a rectangle that has been reflected over the *x*- or *y*-axis.
* Given a preimage in the coordinate plane, identify the coordinates of the image of a right triangle or rectangle that has been translated and reflected over the *x*- or *y*-axis or reflected over the *x*- or *y*-axis and then translated.
* Sketch the image of a right triangle or rectangle that has been translated vertically, horizontally, or a combination of both.
* Sketch the image of a right triangle or rectangle that has been reflected over the *x*- or *y*-axis.
* Sketch the image of a right triangle or rectangle that has been translated and reflected over the *x*- or *y*-axis or reflected over the *x*- or *y*-axis and then translated.

### Strand: Probability and Statistics (SOL 7.8a-b, 7-9a-c)

*The student will:*

* Determine the theoretical probability of an event. (a)
* Determine the experimental probability of an event. (a)
* Describe changes in the experimental probability as the number of trials increases. (b)
* Investigate and describe the difference between the probability of an event found through experiment or simulation versus the theoretical probability of that same event. (b)
* Collect, organize and represent data in a histogram. (a)
* Make observations and inferences about data represented in a histogram. (b)
* Compare data represented in histograms with the same data represented in line plots, circle graphs, and stem-and-leaf plots. (c)

### Strand: Patterns, Functions, and Algebra (SOL 7.10a-e, 7.11, 7.12, 7.13)

*The student will:*

* Determine the slope, *m*, as rate of change in a proportional relationship between two quantities given a table of values or a verbal description, including those represented in a practical situation, and write an equation in the form *y* = *mx* to represent the relationship. Slope will be limited to positive values. (a)
* Graph a line representing a proportional relationship, between two quantities given an ordered pair on the line and the slope, *m*, as rate of change. Slope will be limited to positive values. (b)
* Graph a line representing a proportional relationship between two quantities given the equation of the line in the form *y* = *mx*, where *m* represents the slope as rate of change. Slope will be limited to positive values. (b)
* Determine the *y-*intercept, *b*, in an additive relationship between two quantities given a table of values or a verbal description, including those represented in a practical situation, and write an equation in the form *y* = *x* + *b*, *b* ≠ 0, to represent the relationship. (c)
* Graph a line representing an additive relationship (*y* = *x* + *b,
b* ≠ 0) between two quantities, given an ordered pair on the line and the *y*-intercept (*b*). The *y*-intercept (*b*) is limited to integer values and slope is limited to 1. (d)
* Graph a line representing an additive relationship between two quantities, given the equation in the form *y* = *x* + *b, b* ≠ 0. The
*y*-intercept (*b*) is limited to integer values and slope is limited to 1. (d)
* Make connections between and among representations of a proportional or additive relationship between two quantities using verbal descriptions, tables, equations, and graphs. (e)
* Represent algebraic expressions using concrete materials and pictorial representations. Concrete materials may include colored chips or algebra tiles.
* Use the order of operations and apply the properties of real numbers to evaluate expressions for given replacement values of the variables. Exponents are limited to 1, 2, 3, or 4 and bases are limited to positive integers. Expressions should not include braces { } but may include brackets [ ] and absolute value | |. Square roots are limited to perfect squares. Limit the number of replacements to no more than three per expression.
* Represent and solve two-step linear equations in one variable using a variety of concrete materials and pictorial representations.
* Apply properties of real numbers and properties of equality to solve two-step linear equations in one variable. Coefficients and numeric terms will be rational.
* Confirm algebraic solutions to 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.
* Solve practical problems that require the solution of a two-step linear equation.
* Apply properties of real numbers and the multiplication and division properties of inequality to solve one-step inequalities in one variable, and the addition, subtraction, multiplication, and division properties of inequality to solve two-step inequalities in one variable. Coefficients and numeric terms will be rational.
* Represent solutions to inequalities algebraically and graphically using a number line.
* Write verbal expressions and sentences as algebraic expressions and inequalities.
* Write algebraic expressions and inequalities as verbal expressions and sentences.
* Solve practical problems that require the solution of a one- or two-step inequality.
* Identify a numerical value(s) that is part of the solution set of a given inequality.