

# Grade 4 Mathematics Standards-based Skills Worksheet

Student: \_\_\_\_\_

Date: \_\_\_\_\_

Completed by (name): \_\_\_\_\_

Position: \_\_\_\_\_

School Division: \_\_\_\_\_

## 1. Review SOL strand for

Number and Number Sense  
(SOL 4.1a-c, 4.2a-c, & 4.3a-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

- Identify and communicate, both orally and in written form, the placed value for each digit in whole numbers expressed through the one millions place.
- Read whole numbers through the one millions place that are presented in standard format, and select the matching number in written format.
- Write whole numbers through the one millions place in standard format when the numbers are presented orally or in written format.
- Identify and use the symbols for *greater than*, *less than*, and *equal to*.
- Compare two whole numbers expressed through the one millions, using symbols  $>$ ,  $<$ , or  $=$ .
- Round whole numbers expressed through the one millions place to the nearest thousand, ten thousand, and hundred-thousand place.

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

- Compare and order fractions having denominators of 12 or less, using manipulative models and drawings, such as region/area models.
- Compare and order fractions with like denominators by comparing number of parts (numerators) (e.g.,  $\frac{1}{5} < \frac{3}{5}$ ).
- Compare and order fractions with like numerators and unlike denominators by comparing the size of the parts (e.g.,  $< \frac{3}{5}$ ).
- Compare and order fractions having unlike denominators of 12 or less by comparing the fractions to benchmarks (e.g., 0,  $\frac{1}{2}$  or 1) to determine their relationships to the benchmarks or by finding a common denominator.
- Compare and order mixed numbers having denominators of 12 or less.
- Use the symbols  $>$ ,  $<$ , and  $=$  to compare the numerical value of fractions and mixed numbers having denominators of 12 or less.
- Represent equivalent fractions through twelfths, using region/area models, set models, and measurement models.
- Identify the division statement that represents a fraction (e.g.,  $\frac{3}{5}$  means the same as 3 divided by 5).

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

- Investigate the ten-to-one place value relationship for decimals through thousandths, using Base-10 manipulatives (e.g., place value mats/charts, decimal squares, Base-10 blocks, money).
- Represent and identify decimals expressed through thousandths, using Base-10 manipulatives, pictorial representations, and numerical symbols (e.g., relate the appropriate drawing to 0.05).
- Identify and communicate, both orally and in written form, the position and value of a decimal through thousandths. For example, in 0.385, the 8 is in the hundredths place and has a value of 0.08.
- Read and write decimals expressed through thousandths, using Base-10 manipulatives, drawings, and numerical symbols.

- Round decimals to the nearest whole number, tenth, and hundredth.
- Compare decimals, using the symbols  $>$ ,  $<$ ,  $=$ .
- Order a set of decimals from least to greatest or greatest to least.
- Represent fractions for halves, fourths, fifths, and tenths as decimals through hundredths, using concrete objects (e.g., demonstrate the relationship between the fraction  $\frac{1}{4}$  and its decimal equivalent 0.25).
- Relate fractions to decimals, using concrete objects (e.g., 10-by-10 grids, meter sticks, number lines, decimal squares, decimal circles, money [coins]).
- Write the decimal and fraction equivalent for a given model (e.g.,  $\frac{1}{4} = 0.25$  or  $0.25 = \frac{1}{4}$ ).

**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**

**Computation and Estimation  
(SOL 4.4 a-b, 4.5a-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 whole number sums, differences, products, and quotients.
- Refine estimates by adjusting the final amount, using terms such as *closer to*, *between*, and *a little more than*.
- Determine the sum or difference of two whole numbers, each 999,999 or less, in vertical and horizontal form with or without regrouping, using paper and pencil, and using a calculator.
- Estimate and find the products of two whole numbers when one factor has two digits or fewer and the other factor has three digits or fewer, using paper and pencil and calculators.
- Estimate and find the quotient of two whole numbers, given a one-digit divisor and a two- or three-digit dividend.
- Solve single-step and multistep problems using whole number operations.
- Verify the reasonableness of sums, differences, products, and quotients of whole numbers using estimation.

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

- Find common multiples and common factors of numbers.
- Determine the least common multiple and greatest common factor of numbers.
- Use least common multiple and/or greatest common factor to find a common denominator for fractions.
- Add and subtract with fractions having like denominators whose denominators are limited to 2, 3, 4, 5, 6, 8, 10, and 12, and simplify the resulting fraction using common multiples and factors.
- Add and subtract with fractions having unlike denominators whose denominators are limited to 2, 3, 4, 5, 6, 8, 10, and 12, and simplify the resulting fraction using common multiples and factors.
- Solve problems that involve adding and subtracting with fractions having like and unlike denominators whose denominators are limited to 2, 3, 4, 5, 6, 8, 10, and 12, and simplify the resulting fraction using common multiples and factors.
- Add and subtract with decimals through thousandths, using concrete materials, pictorial representations, and paper and pencil.
- Solve single-step and multistep problems that involve adding and subtracting with fractions and decimals through thousandths.

<p><b>4. Is/Are standard-based goal(s) needed?</b></p> <p><input type="checkbox"/> <b>YES</b> Address areas of need in PLOP</p>	<p><input type="checkbox"/> <b>NO Check one or more justifications:</b></p> <p><input type="checkbox"/> Accommodations Available (specify):</p> <p><input type="checkbox"/> Area of Strength in PLOP</p> <p><input type="checkbox"/> New Content</p> <p><input type="checkbox"/> Other (Specify):</p>
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**5. Notes Supporting Data Analysis**

<p><b>1. Review SOL strand for</b></p> <p><b>Measurement</b> <b>(SOL 4.6a-b, 4.7a-b, 4.8a-b, 4.9)</b></p>	<p><b>2. Review data on student performance</b> and indicate all data sources analyzed to assess performance in this strand:</p> <p><input type="checkbox"/> Present Level of Performance (PLOP)</p> <p><input type="checkbox"/> Prior SOL data</p> <p><input type="checkbox"/> Standardized test data</p> <p><input type="checkbox"/> Classroom assessments</p> <p><input type="checkbox"/> Teacher observations</p>
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<p><b>3. Check the areas that will require specially designed instruction</b> critical to meeting the standard.</p>	
<p><b>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</b></p>	
<p>Determine an appropriate unit of measure (e.g., ounce, pound, ton, gram, kilogram) to use when measuring everyday objects in both metric and U.S. Customary units.</p>	
<p>Measure objects in both metric and U.S. Customary units (e.g., ounce, pound, ton, gram, or kilogram) to the nearest appropriate measure, using a variety of measuring instruments.</p>	
<p>Record the mass of an object including the appropriate unit of measure (e.g., 24 grams).</p>	
<p><b>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</b></p>	
<p>Determine an appropriate unit of measure (e.g., inch, foot, yard, mile, millimeter, centimeter, and meter) to use when measuring everyday objects in both metric and U.S. Customary units.</p>	
<p>Estimate the length of everyday objects (e.g., books, windows, tables) in both metric and U.S. Customary units of measure.</p>	
<p>Measure the length of objects in both metric and U.S. Customary units, measuring to the nearest inch (<math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{8}</math>), foot, yard, mile, millimeter, centimeter, or meter, and record the length including the appropriate unit of measure (e.g., 24 inches).</p>	
<p>Compare estimates of the length of objects with the actual measurement of the length of objects.</p>	
<p>Identify equivalent measures of length between units within the U.S. Customary measurements and between units within the metric measurements.</p>	
<p><b>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</b></p>	
<p>Determine an appropriate unit of measure (cups, pints, quarts, gallons) to use when measuring liquid volume in U.S. Customary units.</p>	
<p>Estimate the liquid volume of containers in U.S. Customary units of measure to the nearest cup, pint, quart, and gallon.</p>	
<p>Measure the liquid volume of everyday objects in U.S. Customary units, including cups, pints, quarts, and gallons, and record the volume including the appropriate unit of measure (e.g., 24 gallons).</p>	
<p>Identify equivalent measures of volume between units within the U.S. Customary system.</p>	
<p><b>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</b></p>	
<p>Determine the elapsed time in hours and minutes within a 12-hour period (times can cross between a.m. and p.m.).</p>	
<p>Solve practical problems in relation to time that has elapsed.</p>	

<p><b>4. Is/Are standard-based goal(s) needed?</b></p> <p><input type="checkbox"/> <b>YES</b> Address areas of need in PLOP</p>	<p><input type="checkbox"/> <b>NO Check one or more justifications:</b></p> <p><input type="checkbox"/> Accommodations Available (specify):</p> <p><input type="checkbox"/> Area of Strength in PLOP</p> <p><input type="checkbox"/> New Content</p> <p><input type="checkbox"/> Other (Specify):</p>
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**5. Notes Supporting Data Analysis**

<p><b>1. Review SOL strand for</b></p> <p><b>Geometry (SOL 4.10a-b, 4.11a-b &amp; 4.12a-b)</b></p>	<p><b>2. Review data on student performance</b> and indicate all data sources analyzed to assess performance in this strand:</p> <p><input type="checkbox"/> Present Level of Performance (PLOP)</p> <p><input type="checkbox"/> Prior SOL data</p> <p><input type="checkbox"/> Standardized test data</p> <p><input type="checkbox"/> Classroom assessments</p> <p><input type="checkbox"/> Teacher observations</p>
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<p><b>3. Check the areas that will require specially designed instruction</b> critical to meeting the standard.</p>	
<p><b>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Identify and describe representations of points, lines, line segments, rays, and angles, including endpoints and vertices.</li> <li><input type="checkbox"/> Understand that lines in a plane can intersect or are parallel. Perpendicularity is a special case of intersection.</li> <li><input type="checkbox"/> Identify practical situations that illustrate parallel, intersecting, and perpendicular lines.</li> </ul> <p><b>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Recognize the congruence of plane figures resulting from geometric transformations such as translation, reflection, and rotation, using mirrors, paper folding and tracing.</li> </ul> <p><b>The student will use problem solving, mathematical communication, mathematical reasoning, connections and representation to</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Define and identify properties of polygons with 10 or fewer sides.</li> <li><input type="checkbox"/> Identify polygons by name with 10 or fewer sides in multiple orientations (rotations, reflections, and translations of the polygons).</li> </ul>	

<p><b>4. Is/Are standard-based goal(s) needed?</b></p> <p><input type="checkbox"/> <b>YES</b> Address areas of need in PLOP</p>	<p><input type="checkbox"/> <b>NO Check one or more justifications:</b></p> <p><input type="checkbox"/> Accommodations Available (specify):</p> <p><input type="checkbox"/> Area of Strength in PLOP</p> <p><input type="checkbox"/> New Content</p> <p><input type="checkbox"/> Other (Specify):</p>
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**5. Notes Supporting Data Analysis**

<p><b>1. Review SOL strand for</b></p> <p><b>Probability and Statistics</b> (SOL 4.13a-b, 4.14,)</p>	<p><b>2. Review data on student performance</b> and indicate all data sources analyzed to assess performance in this strand:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Present Level of Performance (PLOP)</li> <li><input type="checkbox"/> Prior SOL data</li> <li><input type="checkbox"/> Standardized test data</li> <li><input type="checkbox"/> Classroom assessments</li> <li><input type="checkbox"/> Teacher observations</li> </ul>
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**3. Check the areas that will require specially designed instruction** critical to meeting the standard.

<p><b>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Model and determine all possible outcomes of a given simple event where there are no more than 24 possible outcomes, using a variety of manipulatives, such as coins, number cubes, and spinners.</li> <li><input type="checkbox"/> Write the probability of a given simple event as a fraction, where the total number of possible outcomes is 24 or fewer.</li> <li><input type="checkbox"/> Identify the likelihood of an event occurring and relate it to its fractional representation (e.g., impossible/0; equally likely/<math>\frac{1}{2}</math>; certain/1).</li> <li><input type="checkbox"/> Determine the outcome of an event that is least likely to occur (less than half) or most likely to occur (greater than half) when the number of possible outcomes is 24 or less.</li> <li><input type="checkbox"/> Represent probability as a point between 0 and 1, inclusively, on a number line.</li> </ul> <p><b>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Collect data, using, for example, observations, measurement, surveys, scientific experiments, polls, or questionnaires.</li> <li><input type="checkbox"/> Organize data into a chart or table.</li> <li><input type="checkbox"/> Construct and display data in bar graphs, labeling one axis with equal whole number increments of 1 or more (numerical data) (e.g., 2, 5, 10, or 100) and the other axis with categories related to the title of the graph (categorical data) (e.g., swimming, fishing, boating, and water skiing as the categories of "Favorite Summer Sports").</li> <li><input type="checkbox"/> Construct and display data in line graphs, labeling the vertical axis with equal whole number increments of 1 or more and the horizontal axis with continuous data commonly related to time (e.g., hours, days, months, years, and age). Line graphs will have no more than 10 identified points along a continuum for continuous data. For example, growth charts showing age versus height place age on the horizontal axis (e.g., 1 month, 2 months, 3 months, and 4 months).</li> <li><input type="checkbox"/> Title or identify the title in a given graph and label or identify the axes.</li> <li><input type="checkbox"/> Interpret data from simple line and bar graphs by describing the characteristics of the data and the data as a whole (e.g., the category with the greatest/least, categories with the same number of responses, similarities and differences, the total number). Data points will be limited to 30 and categories to 8.</li> <li><input type="checkbox"/> Interpret the data to answer the question posed, and compare the answer to the prediction (e.g., "The summer sport preferred by most is swimming, which is what I predicted before collecting the data.").</li> <li><input type="checkbox"/> Write at least one sentence to describe the analysis and interpretation of the data, identifying parts of the data that have special characteristics, including categories with the greatest, the least, or the same.</li> </ul>
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<p><b>4. Is/Are standard-based goal(s) needed?</b></p> <p><input type="checkbox"/> <b>YES</b> Address areas of need in PLOP</p>	<p><input type="checkbox"/> <b>NO Check one or more justifications:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Accommodations Available (specify):</li> <li><input type="checkbox"/> Area of Strength in PLOP</li> <li><input type="checkbox"/> New Content</li> <li><input type="checkbox"/> Other (Specify):</li> </ul>
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**5. Notes Supporting Data Analysis**

<p><b>1. Review SOL strand for</b> <b>Patterns, Functions, and Algebra</b> <b>(SOL 4.15, 4.16)</b></p>	<p><b>2. Review data on student performance</b> and indicate all data sources analyzed to assess performance in this strand:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Present Level of Performance (PLOP)</li> <li><input type="checkbox"/> Prior SOL data</li> <li><input type="checkbox"/> Standardized test data</li> <li><input type="checkbox"/> Classroom assessments</li> <li><input type="checkbox"/> Teacher observations</li> </ul>
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<p><b>3. Check the areas that will require specially designed instruction</b> critical to meeting the standard.</p>	
<p><b>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Describe geometric and numerical patterns, using tables, symbols, or words.</li> <li><input type="checkbox"/> Create geometric and numerical patterns, using concrete materials, number lines, tables, and words.</li> <li><input type="checkbox"/> Extend geometric and numerical patterns, using concrete materials, number lines, tables, and words.</li> </ul> <p><b>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Recognize and demonstrate that the equals sign (=) relates equivalent quantities in an equation.</li> <li><input type="checkbox"/> Write an equation to represent equivalent mathematical relationships (e.g., <math>4 \times 3 = 2 \times 6</math>).</li> <li><input type="checkbox"/> Recognize and demonstrate appropriate use of the equals sign in an equation.</li> <li><input type="checkbox"/> Investigate and describe the associative property for addition as <math>(6 + 2) + 3 = 6 + (2 + 3)</math>.</li> <li><input type="checkbox"/> Investigate and describe the associative property for multiplication as <math>(3 \times 2) \times 4 = 3 \times (2 \times 4)</math>.</li> </ul>	

<p><b>4. Is/Are standard-based goal(s) needed?</b></p> <p><input type="checkbox"/> <b>YES</b> Address areas of need in PLOP</p>	<p><input type="checkbox"/> <b>NO Check one or more justifications:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Accommodations Available (specify):</li> <li><input type="checkbox"/> Area of Strength in PLOP</li> <li><input type="checkbox"/> New Content</li> <li><input type="checkbox"/> Other (Specify):</li> </ul>
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**5. Notes Supporting Data Analysis**