

Logan County Schools Deconstructed Standards 4th Grade Math

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| Grade Level: | 4 |
| Standard | KY.4.G.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse) and perpendicular and parallel lines. Identify these in two dimensional figures. |
| SMP | MP.5, MP.6 |

Standard for Mathematical Practice (select and highlight)

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of the structure
8. Look for and express regularity in repeated reasoning

1. Critical vocabulary and questions as it relates to the standard.

Points, lines, line segments, rays, polygon, angles (right, acute, obtuse) and perpendicular and parallel lines

2. Key Implementation Questions and Answers:

What is a two dimensional figures?

What is a polygon?

What makes up an angle?

What is an acute, obtuse and right angle?

3. Develop "Learning Intention" statements. Describe the standard and/or element(s) as statements of intended learning. "I am learning"

I am learning to draw points, lines, line segments and rays.

I am learning to draw acute, obtuse and right angles.

I am learning to draw perpendicular and parallel lines.

I am learning to identify points, lines, line segments, rays, angles (right, acute, obtuse), parallel and

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perpendicular lines in two dimensional figures.

4. Establish success criteria by identifying strong and weak work. *Identify the characteristics of strong and weak work related to the standard and/or element(s). Identify common misconceptions. “I will know that I learned it when”*

I will know that I learned it when I can identify points, lines, line segments, rays, angles (right, acute, obtuse), parallel and perpendicular lines in two dimensional figures.

5. Ideas for Relevance (Authentic Work with a Connection to Real-World) *“I am learning this because”*

I am learning this because I am building the foundation for classifying two dimensional figures in a hierarchy based on properties KY.5.G.4

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| Grade Level: | 4 |
| Standard | KY.4.G.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence of absence of angles of a specified size. Recognize right triangles as a category and identify right triangles. |
| SMP | MP.7 |

Standard for Mathematical Practice (select and highlight)

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of the structure
8. Look for and express regularity in repeated reasoning

1. Critical vocabulary and questions as it relates to the standard.

Parallel and perpendicular lines, right triangles, scalene triangles, isosceles triangles, equilateral triangles polygons, quadrilaterals

2. Key Implementation Questions and Answers:

What is a two-dimensional figure?

What are parallel and perpendicular lines?

How do you classify right triangles?

What angles can you identify in a two-dimensional figure?

3. Develop “Learning Intention” statements. Describe the standard and/or element(s) as statements of intended learning. “I am learning”

I am learning to classify two-dimensional figures using parallel or perpendicular lines and angles.

I am learning to identify triangles based on their angles: acute, obtuse, right.

I am learning to identify right triangles.

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4. Establish success criteria by identifying strong and weak work. *Identify the characteristics of strong and weak work related to the standard and/or element(s). Identify common misconceptions. “I will know that I learned it when”*

I will know that I learned it when I can identify two-dimensional figures with parallel or perpendicular lines.

I will know that I learned it when I can identify and name a triangle by its angles.

I will know that I learned it when I can identify a right triangle.

5. Ideas for Relevance (Authentic Work with a Connection to Real-World) *“I am learning this because”*

I am learning so that I can find the attributes of a two dimensional shape and hierarchy for each shape. KY.5.G.3

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| Grade Level: | 4 |
| Standard | KY.4.G.3 Identify lines of symmetry. a. Recognize a line of symmetry for a two-dimensional figure. b. Identify line-symmetric figures and draw lines of symmetry. |
| SMP | MP.5, MP.7 |

Standard for Mathematical Practice (select and highlight)

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of the structure
8. Look for and express regularity in repeated reasoning

1. Critical vocabulary and questions as it relates to the standard.

Horizontal lines, vertical lines, diagonal lines,
Symmetry, sides, equal parts, mirror image

2. Key Implementation Questions and Answers:

What is symmetry?

What does a line of symmetry look like in a two dimensional figure?

What is the pattern for lines of symmetry in a regular polygon?

Does this figure have symmetry?

3. Develop “Learning Intention” statements. Describe the standard and/or element(s) as statements of intended learning. “I am learning”

I am learning to recognize a line of symmetry to a two-dimensional figure,
I am learning to identify whether a figure is symmetric or not.
I am learning to draw lines of symmetry on figures.

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4. Establish success criteria by identifying strong and weak work. *Identify the characteristics of strong and weak work related to the standard and/or element(s). Identify common misconceptions. “I will know that I learned it when”*

I will know that I learned it when I can draw and recognize whether a two dimensional shape has symmetry.

5. Ideas for Relevance (Authentic Work with a Connection to Real-World) *“I am learning this because”*

I am learning this because I will need to be able to understand equal parts in fractions.

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| Grade Level: | 4 |
| Standard | <p>KY.4.MD.1 Know relative size of measurement units (mass, weight, liquid volume, length, time) within one system of units (metric system, U.S. standard system and time).</p> <p>a. Understand the relationship of measurement units within any given measurement system.</p> <p>b. Within any given measurement system, express measurements in a larger unit in terms of a smaller unit.</p> <p>c. Record measurement equivalents in a two-column table.</p> |
| SMP | MP.5, MP.6 |

Standard for Mathematical Practice (select and highlight)

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of the structure
8. Look for and express regularity in repeated reasoning

1. Critical vocabulary and questions as it relates to the standard.

Mass, Volume, liquid, weight, time, length, metric system, standard (customary) system.

2. Key Implementation Questions and Answers:

Charlie and 10 friends are planning for a pizza party. They purchased 3 quarts of milk. If each glass holds 8oz will everyone get at least one glass of milk?

3. Develop “Learning Intention” statements. Describe the standard and/or element(s) as statements of intended learning. “I am learning”

I am learning how to compare and contrast different units of measurement.

I am learning how to create a data chart to record the units of measurement in the correct order.

I am learning how to compare units in the metric system and place them in the correct order.

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4. Establish success criteria by identifying strong and weak work. *Identify the characteristics of strong and weak work related to the standard and/or element(s). Identify common misconceptions. “I will know that I learned it when”*

I will know that I learned it when I can accurately recall units of measurement for the correct use. (Ex: time in seconds, mass in grams or kilograms, etc).

I will know that I learned when I can represent data measurements in the correct order and equivalence.

5. Ideas for Relevance (Authentic Work with a Connection to Real-World) *“I am learning this because”*

I am learning this because measurements are used everyday in our lives and the ability to manipulate and understand is vital.

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| Grade Level: | 4 |
| Standard | <p>KY.4.MD.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects and money.</p> <p>a. Solve measurement problems involving whole number, simple fractions or decimals.</p> <p>b. Solve problems that require converting a given measurement from a larger unit to a smaller unit within a common measurement system, such as 2 km = 2,000 m.</p> <p>c. Visually display measurement quantities using representations such as number lines that feature a measurement scale.</p> |
| SMP | MP.1, MP.4 |

Standard for Mathematical Practice (select and highlight)

1. **Make sense of problems and persevere in solving them.**
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others.
4. **Model with mathematics**
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of the structure
8. Look for and express regularity in repeated reasoning

1. Critical vocabulary and questions as it relates to the standard.

Mass, Volume, liquid, weight, time, length, metric system, standard (customary) system.

2. Key Implementation Questions and Answers:

Mason ran for an hour and 15 minutes on Monday, 25 minutes on Tuesday, and 40 minutes on Wednesday. What was the total number of minutes Mason ran?

3. Develop “Learning Intention” statements. Describe the standard and/or element(s) as statements of intended learning. “I am learning”

I am learning to convert between units of measurement.

I am learning to use the four basic mathematical operations to manipulate units of measurement.

4. Establish success criteria by identifying strong and weak work. Identify the characteristics of strong and weak work related to the standard and/or element(s). Identify common

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misconceptions. "I will know that I learned it when"

I will know that I learned it when I can convert between units of measurement accurately and describe the relationship between the units.

I will know that I learned it when I can compare and contrast units of measurements and describe their relationships comfortably.

5. Ideas for Relevance (Authentic Work with a Connection to Real-World) *"I am learning this because"*

I am learning this because of the prevalence of units of measurement in the real world and the necessity to be able to manipulate units to compare and contrast.

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| Grade Level: | 4 |
| Standard | KY.4.MD.3 Apply the area and perimeter formulas for rectangles in real world and mathematical problems. |
| SMP | MP.1, MP.3 |

Standard for Mathematical Practice (select and highlight)

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of the structure
8. Look for and express regularity in repeated reasoning

1. Critical vocabulary and questions as it relates to the standard.

Area, perimeter, rectangle, formula, distance, sq. units

$$A = L \times W$$

$$\text{perimeter} = \text{length} + \text{width} + \text{length} + \text{width} \quad (p = l + w + l + w \text{ OR } p = 2l + 2w)$$

2. Key Implementation Questions and Answers:

What is area?

What is the perimeter?

What is the formula for area?

What is the formula for perimeter?

3. Develop "Learning Intention" statements. Describe the standard and/or element(s) as statements of intended learning. "I am learning"

I am learning to apply the area formula in rectangles to solve real world problems.
I am learning to apply the perimeter formula in rectangles to solve real world problems.

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4. Establish success criteria by identifying strong and weak work. *Identify the characteristics of strong and weak work related to the standard and/or element(s). Identify common misconceptions. “I will know that I learned it when”*

I will know that I learned it when I can find area and perimeter in a rectangle using the formulas.

5. Ideas for Relevance (Authentic Work with a Connection to Real-World) *“I am learning this because”*

I am learning this because it will help build real-world skills such as: remodeling a house, buying floor, building a fence...etc

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| Grade Level: | 4 |
| Standard | KY.4.MD.4 Use dot plots to analyze data to a statistical question. a. Identify a statistical question focused on numerical data. b. Make a dot plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). c. Solve problems involving addition and subtraction of fractions by using information presented in dot plots. |
| SMP | MP.1, MP.6 |

Standard for Mathematical Practice (select and highlight)

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of the structure
8. Look for and express regularity in repeated reasoning

1. Critical vocabulary and questions as it relates to the standard.

Line plots, dot plots, fractional measurements, plot points,

2. Key Implementation Questions and Answers:

Students measured objects in their desk to the nearest $\frac{1}{2}$, $\frac{1}{4}$, or $\frac{1}{8}$ inch. They displayed their data collected on a line plot. How many objects measured $\frac{1}{4}$ inch? $\frac{1}{2}$ inch? If you put all the objects together end to end what would be the total length of all the objects.

3. Develop “Learning Intention” statements. Describe the standard and/or element(s) as statements of intended learning. “I am learning”

I am learning to make dot plots to display a data set of measurements in fractional units of ($\frac{1}{2}$, $\frac{1}{4}$, and $\frac{1}{8}$).

I am learning to interpret data displayed on a dot plot and be able to answer addition or subtraction of fractions.

I am learning to differentiate fractional data based on the information given by the question (longest measurement vs most occurring measurement).

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4. Establish success criteria by identifying strong and weak work. *Identify the characteristics of strong and weak work related to the standard and/or element(s). Identify common misconceptions. “I will know that I learned it when”*

I will know that I learned it when I can take fractional data and accurately display it on a dot plot.

I will know that I learned it when I can answer statistical questions when given a designated dot plot using addition and subtraction.

5. Ideas for Relevance (Authentic Work with a Connection to Real-World) *“I am learning this because”*

I am learning this because of the prevalence of fractions and the manipulation of fractional data in architecture, carpentry, and engineering.

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|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| Grade Level: | 4 |
| Standard | KY.4.MD.5 Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint and understand concepts of angle measurement. |
| SMP | MP.7 |

Standard for Mathematical Practice (select and highlight)

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of the structure
8. Look for and express regularity in repeated reasoning

1. Critical vocabulary and questions as it relates to the standard.

Angle, degree, circle, point, ray, endpoint,

2. Key Implementation Questions and Answers:

A water sprinkler rotates one-degree at each interval. If the sprinkler rotates a total of 100 degrees, how many one-degree turns has the sprinkler made?

If a person jumps and turns around, facing the opposite direction, how many degrees did the person turn?

A lawn water sprinkler rotates 65 degrees and then pauses. It then rotates an additional 25 degrees. What is the total degree of the water sprinkler rotation?

3. Develop "Learning Intention" statements. Describe the standard and/or element(s) as statements of intended learning. "I am learning"

I am learning how a circle is a geometric shape.

I am learning how many degrees make up a circle.

4. Establish success criteria by identifying strong and weak work. Identify the characteristics of strong and weak work related to the standard and/or element(s). Identify common misconceptions. "I will know that I learned it when"

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I will know that I learned it when students can confidently solve for different angle degree measurements depending on the geometric shape.

I will know that I learned it when students can confidently identify and explain the given angles in a circle.

5. Ideas for Relevance (Authentic Work with a Connection to Real-World) ***"I am learning this because"***

I am learning this because of the importance in understanding angles in rotation in real world situations.

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|---------------------|----------------------------------------------------------------------------------------------------------|
| Grade Level: | 4 |
| Standard | KY.4.MD.6 Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure. |
| SMP | MP.5, MP.6 |

Standard for Mathematical Practice (select and highlight)

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of the structure
8. Look for and express regularity in repeated reasoning

1. Critical vocabulary and questions as it relates to the standard.

Protractor, degrees, vertex, ray, right, left, acute, obtuse

2. Key Implementation Questions and Answers:

How do you know where to begin measuring a given angle?

How do you measure 123 degrees when opening to the right?

How do you measure 37 degrees when opening to the left?

3. Develop "Learning Intention" statements. Describe the standard and/or element(s) as statements of intended learning. "I am learning"

I am learning to measure given angles to the nearest degree and classify them as acute, obtuse, or right.

I am learning how to manipulate and read a protractor correctly.

I am learning how to use a protractor to draw and measure angles correctly.

4. Establish success criteria by identifying strong and weak work. Identify the characteristics of strong and weak work related to the standard and/or element(s). Identify common

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misconceptions. "I will know that I learned it when"

I will know that I learned it when I can successfully measure angles to the nearest degree with zero error.

I will know that I learn it when I can sketch angles of a given measure using a protractor.

5. Ideas for Relevance (Authentic Work with a Connection to Real-World) *"I am learning this because"*

I am learning this because of the prevalence of angles in carpentry, science, and engineering.

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| Grade Level: | 4 |
| Standard | KY.4.MD.7 Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems. |
| SMP | MP.1, MP.4 |

Standard for Mathematical Practice (select and highlight)

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of the structure
8. Look for and express regularity in repeated reasoning

1. Critical vocabulary and questions as it relates to the standard.

Angles, degrees, sum, difference, part, whole, complementary, supplementary, adding, subtracting.

2. Key Implementation Questions and Answers:

If the water sprinkler rotates a total of 25 degrees then pauses. How many 25 degree cycles will it go through for the rotation to reach at least 90 degrees?

A lawn water sprinkler rotates 65 degrees and then pauses. It then rotates an additional 25 degrees. What is the total degree of the water sprinkler rotation?

3. Develop “Learning Intention” statements. Describe the standard and/or element(s) as statements of intended learning. “I am learning”

I am learning to solve addition and subtraction equations to find unknown angle measurements on a diagram.

I am learning to find an angle measure by adding the measurements of the smaller angles that make up the larger angle.

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4. Establish success criteria by identifying strong and weak work. *Identify the characteristics of strong and weak work related to the standard and/or element(s). Identify common misconceptions. “I will know that I learned it when”*

I will know that I learned it when I can recognize angle measurements well enough to solve for a missing or unknown angle.

I will know that I learned it when I can add or subtract angle measurements to obtain the whole.

5. Ideas for Relevance (Authentic Work with a Connection to Real-World) *“I am learning this because”*

I am learning this because of the importance and prominence of angles in the real world.

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|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Grade Level: | 4 |
| Standard | KY.4.NBT.1 Recognize in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. |
| SMP | MP.7 |

Standard for Mathematical Practice (select and highlight)

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of the structure
8. Look for and express regularity in repeated reasoning

1. Critical vocabulary and questions as it relates to the standard.

Place value, ten times a number, ones, tens, hundreds, thousands, ten thousands, hundred thousands, millions

2. Key Implementation Questions and Answers:

How is the 2 in the number 12,583 similar to and different from the 2 in the number 450,247?

The distance between New York City and Boston is 225 miles. The distance between New York and Salt Lake City is 10 times as far. How many miles is it between Salt Lake City and New York City? Show or Explain your reasoning.

3. Develop “Learning Intention” statements. Describe the standard and/or element(s) as statements of intended learning. “I am learning”

I am recognizing how a number increases or decreases in a base 10 system.

I am explaining that a digit in one place is 10 times as much as the place to its right. That means, 7 in the hundreds place is 10 times more than a 7 in the tens place.

4. Establish success criteria by identifying strong and weak work. Identify the characteristics of strong and weak work related to the standard and/or element(s). Identify common misconceptions. “I will know that I learned it when”

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I will know that I learned it when I can explain and show that a digit is 10 times as the place to its right.

5. Ideas for Relevance (Authentic Work with a Connection to Real-World) ***“I am learning this because”***

I am learning this this because it provides the foundation for regrouping, multiply digit number multiplication and more in the decimal system.

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| Grade Level: | 4 |
| Standard | KY.4.NBT.2 Represent and compare multi-digit whole numbers. a. Read and write multi-digit whole numbers using base-ten numerals, number names and expanded form. b. Compare two multi-digit numbers based on meanings of the digit in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons. |
| SMP | MP.7, MP.2 |

Standard for Mathematical Practice (select and highlight)

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of the structure
8. Look for and express regularity in repeated reasoning

1. Critical vocabulary and questions as it relates to the standard.

Compare, greater than, less than, equal to, ones, tens, hundreds, thousands, ten thousands, hundred thousands, millions, expanded form, word form, standard form

2. Key Implementation Questions and Answers:

Write 325,675 in standard, expanded and word form.

Compare whether three hundred thousand five hundred sixty-three is greater than, less than or equal to seventy five thousand six hundred sixty-four

3. Develop “Learning Intention” statements. Describe the standard and/or element(s) as statements of intended learning. “I am learning”

I am learning to read numbers to 1,000,000 using numerals, number names, and expanded form.

I am writing numbers to 1,000,000 using numerals, number names, and expanded form.

I am learning to write numbers to 1,000,000 using ($<$, $>$, $=$) to record the results of comparisons.

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4. Establish success criteria by identifying strong and weak work. *Identify the characteristics of strong and weak work related to the standard and/or element(s). Identify common misconceptions. “I will know that I learned it when”*

I will know that I learned it when I can read and write numbers to 1,000,000 and be able to compare them in standard, expanded and word form.

5. Ideas for Relevance (Authentic Work with a Connection to Real-World) *“I am learning this because”*

I am learning this because it is an essential skill for comparing different values such as whole numbers, decimals and fractions.

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|---------------------|------------------------------------------------------------------------------------------|
| Grade Level: | 4 |
| Standard | KY.4.NBT.3 Use place value understanding to round multi-digit whole numbers to any place |
| SMP | MP.2, MP.6 |

Standard for Mathematical Practice (select and highlight)

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of the structure
8. Look for and express regularity in repeated reasoning

1. Critical vocabulary and questions as it relates to the standard.

Place value
Understanding
Round
Multi-digit whole numbers up to million
Number line
Hundreds chart

2. Key Implementation Questions and Answers:

Round 236,389 to the nearest hundreds place value using a numberline if helpful.

What is the smallest possible number that will round to 80,000 when rounding to the nearest thousands place.

3. Develop “Learning Intention” statements. Describe the standard and/or element(s) as statements of intended learning. “I am learning”

I am learning to round numbers (up to 1,000,000) to any place using place value.

4. Establish success criteria by identifying strong and weak work. Identify the characteristics of strong and weak work related to the standard and/or element(s). Identify common misconceptions. “I will know that I learned it when”

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I will know that I learned it when I have a deeper understanding of number sense and place value to understand the answer I got when rounding.

5. Ideas for Relevance (Authentic Work with a Connection to Real-World) ***“I am learning this because”***

I am learning this because it allows us to understand about how much money we will need to buy something.

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|---------------------|------------------------------------------------------------------------------------|
| Grade Level: | 4 |
| Standard | KY.4.NBT.4 Fluently add and subtract multi-digit whole numbers using an algorithm. |
| SMP | MP.2, MP.8 |

Standard for Mathematical Practice (select and highlight)

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of the structure
8. Look for and express regularity in repeated reasoning

1. Critical vocabulary and questions as it relates to the standard.

Fluently
Add & subtract
Multi-digit
Whole numbers
Algorithm

2. Key Implementation Questions and Answers:

A school district in Las Vegas reported 633,621 students in 2016. A school district in New Jersey reported 984,462 students in the same year.

- a. Which school district had more students and how many more students did they have? Explain or show your reasoning.
- b. How many more students does the school district in New Jersey need to have 1,000,000 students? Explain or show your reasoning.

3. Develop “Learning Intention” statements. Describe the standard and/or element(s) as statements of intended learning. “I am learning”

I am fluently adding whole numbers using an algorithm (up to 1,000,000).

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I am fluently subtracting whole numbers (up to 1,000,000.)

4. Establish success criteria by identifying strong and weak work. *Identify the characteristics of strong and weak work related to the standard and/or element(s). Identify common misconceptions. “I will know that I learned it when”*

I will know that I learned it when I can fluently add and subtract using the standard algorithm.

5. Ideas for Relevance (Authentic Work with a Connection to Real-World) *“I am learning this because”*

I am learning this because addition and subtraction are used in everyday life like setting the table, making change at the store and playing board games. Addition and subtraction also helps students with multiplying and dividing.

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| Grade Level: | 4 |
| Standard | <p>KY.4.NBT.5 Multiply whole numbers</p> <ul style="list-style-type: none">• Up to four digit number by a one-digit number• Two-digit number by two-digit number <p>Multiply using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays and/or area models</p> |
| SMP | MP.3, MP.4, MP.8 |

Standard for Mathematical Practice (select and highlight)

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of the structure
8. Look for and express regularity in repeated reasoning

1. Critical vocabulary and questions as it relates to the standard.

Multiply, illustrate, explain, whole numbers, four digit, one digit, two digit, properties of operations

2. Key Implementation Questions and Answers:

Lin's school bought 275 packages of pens. There are 6 pens in each package. How many pens did Lin's school buy? Show your reasoning.

Another school bought a total of 1,734 pens. There are 6 pens in each package. How many packages of pens did this school buy? Show your reasoning.

3. Develop "Learning Intention" statements. Describe the standard and/or element(s) as statements of intended learning. "I am learning"

I am learning to solve two digit by one digit multiplication problems.
I am learning to solve one digit by three or four digit multiplication problems.
I am learning to solve two digit by two digit multiplication problems.

Logan County Schools Deconstructed Standards 4th Grade Math

4. Establish success criteria by identifying strong and weak work. *Identify the characteristics of strong and weak work related to the standard and/or element(s). Identify common misconceptions. “I will know that I learned it when”*

I will know that I learned it when I can solve one digit by four digit multiplication and two digit by two digit multiplication problems and explain my answer using written equations.

I will know that i learned it when I can explain my answer using rectangular arrays, area models or illustrations.

5. Ideas for Relevance (Authentic Work with a Connection to Real-World) *“I am learning this because”*

I am learning this because it sets the ground for many advanced mathematical concepts in algebra and calculus.

Logan County Schools Deconstructed Standards 4th Grade Math

| | |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Grade Level: | 4 |
| Standard | KY.4.NBT.6 Divide up to four-digit dividends by one-digit divisors. Find whole number quotients and remainders using <ul style="list-style-type: none">• strategies based on place value• the properties of operations• the relationship between multiplication and division Illustrate and explain the calculation by using equations, rectangular arrays and/or area models. |
| SMP | MP.3, MP.7, MP.8 |

Standard for Mathematical Practice (select and highlight)

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of the structure
8. Look for and express regularity in repeated reasoning

1. Critical vocabulary and questions as it relates to the standard.

Divide
Dividends
One-digit divisors
Illustrate
Explain

2. Key Implementation Questions and Answers:

Noah's class raised the same amount each day and raised \$2,016 in total. How many dollars did Noah's class raise in one week? Show your reasoning.

3. Develop "Learning Intention" statements. Describe the standard and/or element(s) as statements of intended learning. "I am learning"

I am learning to divide using written equations.
I am learning to divide using rectangular arrays.
I am learning to divide using area models.

Logan County Schools Deconstructed Standards 4th Grade Math

I am learning to explain my answer using the relationship between multiplication and division.

4. Establish success criteria by identifying strong and weak work. *Identify the characteristics of strong and weak work related to the standard and/or element(s). Identify common misconceptions. "I will know that I learned it when"*

I will know that I learned it when I can divide up to four digit dividends using different strategies.

5. Ideas for Relevance (Authentic Work with a Connection to Real-World) *"I am learning this because"*

I am learning this because division is used in everyday life like separating into equal groups or sharing.

Logan County Schools Deconstructed Standards 4th Grade Math

| | |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Grade Level: | 4 |
| Standard | <p>KY.4.NF.1 Understand and generate equivalent fractions.</p> <p>a. Use visual fraction models to recognize and generate equivalent fractions that have different numerators/denominators even though they are the same size.</p> <p>b. Explain why a fraction $\frac{a}{b}$ is equivalent to a fraction $(n \times a) / (n \times b)$.</p> <p>(For denominators of 2, 3, 4, 5, 6, 8, 10, 12, 100 only)</p> |
| SMP | MP.4, MP.7, MP.8 |

Standard for Mathematical Practice (select and highlight)

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of the structure
8. Look for and express regularity in repeated reasoning

1. Critical vocabulary and questions as it relates to the standard.

Fractions, equivalent, numerator, denominator, models, fractional bar, partition

2. Key Implementation Questions and Answers:

What are equivalent fractions?

What is an equivalent fraction of $\frac{1}{2}$? $\frac{1}{4}$? $\frac{1}{8}$?

3. Develop "Learning Intention" statements. Describe the standard and/or element(s) as statements of intended learning. "I am learning"

I am learning to draw equivalent fractions even though they have different numerators and denominators are the same size.

I am learning to use multiplication or division to explain why fractions are equivalent.

4. Establish success criteria by identifying strong and weak work. Identify the characteristics of strong and weak work related to the standard and/or element(s). Identify common

Logan County Schools Deconstructed Standards 4th Grade Math

misconceptions. "I will know that I learned it when"

I will know that I learned it when I can represent equivalent fractions with different numerators and denominators.

I will know that I learned it when students are able to explain why fractions are equivalent and how they are equivalent.

5. Ideas for Relevance (Authentic Work with a Connection to Real-World) *"I am learning this because"*

I am learning this because of the prevalence of fractional measurements in baking and cooking.

Logan County Schools Deconstructed Standards 4th Grade Math

| | |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Grade Level: | 4 |
| Standard | KY.4.NF.2 Compare two fractions with different numerators and different denominators using the symbols $<$, $=$, or $>$. Recognize are valid only when the two fractions refer to the same whole. Justify the conclusions. Denominators 2, 3, 4, 5, 6, 8, 10, 12, 100 only. |
| SMP | MP.2, MP.3 |

Standard for Mathematical Practice (select and highlight)

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of the structure
8. Look for and express regularity in repeated reasoning

1. Critical vocabulary and questions as it relates to the standard.

Numerators, denominators, fractions, greater than, less than, equal to, compare, benchmark fractions, consecutive numbers

2. Key Implementation Questions and Answers:

There are two cakes on the counter that are the same size. The first cake has $\frac{1}{2}$ of it left. The second cake has $\frac{5}{12}$ of it left. Which cake has more left?

3. Develop "Learning Intention" statements. Describe the standard and/or element(s) as statements of intended learning. "I am learning"

I am learning to compare fractions that are greater to, less than, or equal to other fractions that have different numerators or denominators.

I am learning to justify my response when comparing fractions with different numerators or denominators.

4. Establish success criteria by identifying strong and weak work. Identify the characteristics of strong and weak work related to the standard and/or element(s). Identify common misconceptions. "I will know that I learned it when"

Logan County Schools Deconstructed Standards 4th Grade Math

I will know that I learned it when effectively compare fractions using a variety of strategies.

I will know that I learned it when I can explain the strategy used to compare effectively.

5. Ideas for Relevance (Authentic Work with a Connection to Real-World) ***"I am learning this because"***

I am learning this because of the prevalence of fractional data and manipulation in architecture, carpentry, engineering and science.

I am learning this because of the prevalence of fractional data when baking, cooking, or serving food.

Logan County Schools Deconstructed Standards 4th Grade Math

| | |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Grade Level: | 4 |
| Standard | <p>KY.4.NF.3 Understand a fraction $\frac{a}{b}$ with $a > 1$ as a sum of fractions $\frac{1}{b}$.</p> <p>a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.</p> <p>b. Decomposing a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions.</p> <p>c. Add and subtract mixed numbers with like denominators.</p> <p>d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators (For denominators of 2, 3, 4, 5, 6, 8, 10, 12, 100 only)</p> |
| SMP | MP.1, MP.5, MP.7 |

Standard for Mathematical Practice (select and highlight)

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of the structure
8. Look for and express regularity in repeated reasoning

1. Critical vocabulary and questions as it relates to the standard.

Addition, subtraction, sum, difference, denominator, decomposing, numerator, mixed numbers,

2. Key Implementation Questions and Answers:

Trevor has $4 \frac{1}{8}$ pizzas left over from his soccer party. After giving some pizza to his friend, he has $2 \frac{4}{8}$ of a pizza left. How much pizza did Trevor give to his friend?

Susan and Maria need $8 \frac{3}{8}$ feet of ribbon to package gift baskets. Susan has $3 \frac{1}{8}$ feet of ribbon and Maria has $5 \frac{3}{8}$ feet of ribbon. How much ribbon do they have altogether? Will it be enough to complete the project? Explain why or why not.

A cake recipe calls for you to use $\frac{3}{4}$ cup of milk, $\frac{1}{4}$ cup of oil, and $\frac{2}{4}$ cup of water. How much

Logan County Schools Deconstructed Standards 4th Grade Math

liquid was needed to make the cake?

3. Develop “Learning Intention” statements. Describe the standard and/or element(s) as statements of intended learning. “I am learning”

I am learning to add and subtract fractions with like denominators.

I am learning to solve real world problems by adding or subtracting fractions with like denominators.

I am learning to decompose fractions using a variety of methods using an equation.

I am learning to add or subtract mixed numbers with like denominators.

4. Establish success criteria by identifying strong and weak work. Identify the characteristics of strong and weak work related to the standard and/or element(s). Identify common misconceptions. “I will know that I learned it when”

I will know that I learned it when I can add or subtract fractions with like denominators and simplify my response.

I will know that I learned it when I can create equations that decompose a given fraction.

I will know that I learned it when I can add or subtract mixed numbers with like denominators and simplify my response.

I will know that I learned it when I can add or subtract fractions using real world word problems and explain my method for solving.

5. Ideas for Relevance (Authentic Work with a Connection to Real-World) “I am learning this because”

I am learning this because adding and subtracting fractional amounts when baking or in basic carpentry.

I am learning this because of the importance of being able to manipulate fractions and compare and contrast fractional data to achieve the correct outcome.

Logan County Schools Deconstructed Standards 4th Grade Math

| | |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Grade Level: | 4 |
| Standard | <p>KY.4.NF.4 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.</p> <p>a. Understand a fraction $\frac{a}{b}$ as a multiple of $\frac{1}{b}$.</p> <p>b. Understand a multiple of $\frac{a}{b}$ as a multiple of $\frac{1}{b}$ and use this understanding to multiply a fraction by a whole number.</p> <p>c. Solve word problems involving multiplication of a fraction by a whole number. (For denominators of 2, 3, 4, 5, 6, 8, 10, 12, 100 only)</p> |
| SMP | MP.5, MP.8 |

Standard for Mathematical Practice (select and highlight)

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of the structure
8. Look for and express regularity in repeated reasoning

1. Critical vocabulary and questions as it relates to the standard.

Fraction, numerator, denominator, fraction bar, whole number, improper fractions.

2. Key Implementation Questions and Answers:

You purchase a backpack for $\frac{1}{3}$ off the original price. What is the price of the discounted backpack?

How can a fraction times a whole number be represented visually?

3. Develop “Learning Intention” statements. Describe the standard and/or element(s) as statements of intended learning. “I am learning”

I am learning to multiply fractions times a whole number when the numerator is 1.
 I am learning to solve real world word problems that multiply a fraction times a whole number.

4. Establish success criteria by identifying strong and weak work. Identify the characteristics of strong and weak work related to the standard and/or element(s). Identify common

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misconceptions. "I will know that I learned it when"

I will know that I learned it when I can multiply a fraction times a whole number using a visual representation.

I will know that I learned it when I can solve real world fractions times a whole number word problems and justify my answer.

5. Ideas for Relevance (Authentic Work with a Connection to Real-World) *"I am learning this because"*

I am learning this because when shopping for groceries or clothing there are $\frac{1}{2}$ sales, I will have to find a discounted price.

I am learning this because I may need to find fractional amounts of a whole number. $\frac{3}{4}$ of 12

I am learning this because often recipes have to be recalculated based on serving size.

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| | |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Grade Level: | 4 |
| Standard | KY.4.NF.5 Convert and add fractions with denominators of 10 and 100. a. Convert a fraction with a denominator of 10 to an equivalent fraction with a denominator of 100. b. Add two fractions with respective denominators 10 and 100. |
| SMP | MP.5, MP.7 |

Standard for Mathematical Practice (select and highlight)

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of the structure
8. Look for and express regularity in repeated reasoning

1. Critical vocabulary and questions as it relates to the standard.

Numerator, denominator, convert, equivalent

2. Key Implementation Questions and Answers:

Example: Represent 3 tenths and 30 hundredths on the models below.
→ 10ths circle 100ths circle models need to accompany this problem.

3. Develop “Learning Intention” statements. Describe the standard and/or element(s) as statements of intended learning. “I am learning”

I am learning how to rename fractions with a denominator of 10 into a denominator of 100.

I am learning to add fractions with denominators of 10 or 100.

4. Establish success criteria by identifying strong and weak work. Identify the characteristics of strong and weak work related to the standard and/or element(s). Identify common misconceptions. “I will know that I learned it when”

I will know that I learned it when I can add $\frac{3}{10}$ and $\frac{30}{100}$ to obtain $\frac{34}{100}$.

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I will know that I learned it when I can add fractions with denominators of 10 or 100 fluently.

5. Ideas for Relevance (Authentic Work with a Connection to Real-World) ***"I am learning this because"***

I am learning this because of the prevalence of fractions, percentages, and numerical analysis in everyday life.

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| | |
|---------------------|---------------------------------------------------------------------------|
| Grade Level: | 4 |
| Standard | KY.4.NF.6 Use decimal notation for fractions with denominators 10 or 100. |
| SMP | MP.4, MP.7 |

Standard for Mathematical Practice (select and highlight)

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of the structure
8. Look for and express regularity in repeated reasoning

1. Critical vocabulary and questions as it relates to the standard.

Decimals, fractions, tenths, hundredths

2. Key Implementation Questions and Answers:

How would you rewrite $\frac{62}{100}$ as a decimal?

How would you rewrite 0.34 as a fraction?

3. Develop “Learning Intention” statements. Describe the standard and/or element(s) as statements of intended learning. “I am learning”

I am learning how to manipulate fractions into decimal form and vice versa.

4. Establish success criteria by identifying strong and weak work. Identify the characteristics of strong and weak work related to the standard and/or element(s). Identify common misconceptions. “I will know that I learned it when”

I will know that I learned it when I can write fractions as decimals and decimals as fractions comfortably.

5. Ideas for Relevance (Authentic Work with a Connection to Real-World) “I am learning this because”

Logan County Schools Deconstructed Standards 4th Grade Math

I am learning this because it has applications in finances, prices, and money, along with statistical analysis.

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| | |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Grade Level: | 4 |
| Standard | KY.4.NF.7 Compare two decimals to hundredths. a. Compare two decimals to hundredths by reasoning about their size. b. Recognize that comparisons are valid only when the two decimals refer to the same whole. c. Record the results of comparisons with the symbols $>$, $=$, or $<$ and justify the conclusions. |
| SMP | MP.2, MP.3, MP.5 |

Standard for Mathematical Practice (select and highlight)

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of the structure
8. Look for and express regularity in repeated reasoning

1. Critical vocabulary and questions as it relates to the standard.

Visual model, decimals, hundreds, tenths

2. Key Implementation Questions and Answers:

Draw a model to show that $0.03 < 0.5$. (Students would need to sketch two models of approximately the same size to show the area that represents three-tenths is smaller than the area that represents five-tenths.

3. Develop “Learning Intention” statements. Describe the standard and/or element(s) as statements of intended learning. “I am learning”

I am learning to compare decimals written in different places, decimals written in 10th vs decimals in 100th form, using greater than, less than, or equal to analysis.

I am learning to use visual models to compare two decimals that may or may not be written in the same place.

4. Establish success criteria by identifying strong and weak work. Identify the characteristics of strong and weak work related to the standard and/or element(s). Identify common

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misconceptions. "I will know that I learned it when"

I will know that I learned it when I can draw visual models to compare decimals written to the 100ths place.

I will know that I learned it when I can compare two models by justifying the comparison of two decimals based on place value.

5. Ideas for Relevance (Authentic Work with a Connection to Real-World) *"I am learning this because"*

I am learning this because the necessity to understand how to manipulate numerical values in both the decimal and fractional system.

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| | |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Grade Level: | 4 |
| Standard | KY.4.OA.1 Interpret a multiplication equation as a comparison. Represent verbal statements of multiplicative comparisons as multiplication equations. |
| SMP | MP.2, MP.4 |

Standard for Mathematical Practice (select and highlight)

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of the structure
8. Look for and express regularity in repeated reasoning

1. Critical vocabulary and questions as it relates to the standard.

multiplicative comparisons, equation, multiplication, times as many

2. Key Implementation Questions and Answers:

Interpret $35=7 \times 5$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5.

3. Develop "Learning Intention" statements. Describe the standard and/or element(s) as statements of intended learning. "I am learning"

I am learning to interpret a multiplication equation as a comparison.

4. Establish success criteria by identifying strong and weak work. Identify the characteristics of strong and weak work related to the standard and/or element(s). Identify common misconceptions. "I will know that I learned it when"

I will know that I learned it when I can write equations to represent multiplicative comparisons.

5. Ideas for Relevance (Authentic Work with a Connection to Real-World) "I am learning this because"

I am learning this because it is important to understand the connection between multiplication and

Logan County Schools Deconstructed Standards 4th Grade Math

multiplicative comparisons.

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| | |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Grade Level: | 4 |
| Standard | KY.4.OA.2 Multiply or divide to solve word problems involving multiplicative comparisons by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison. |
| SMP | MP.1, MP.2, MP.3 |

Standard for Mathematical Practice (select and highlight)

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of the structure
8. Look for and express regularity in repeated reasoning

1. Critical vocabulary and questions as it relates to the standard.

Multiplication, division, variable, multiplicative comparison, word problems, equations

2. Key Implementation Questions and Answers:

A rubber band is 6 cm long. How long will the rubber band be when it is stretched to be 3 times as long?

3. Develop "Learning Intention" statements. Describe the standard and/or element(s) as statements of intended learning. "I am learning"

I am learning to create equations to represent multiplicative word problems.

I am learning to create equations to present division word problems.

4. Establish success criteria by identifying strong and weak work. Identify the characteristics of strong and weak work related to the standard and/or element(s). Identify common misconceptions. "I will know that I learned it when"

I will know that I learned it when I can accurately create an equation that correlates with the word problem.

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5. Ideas for Relevance (Authentic Work with a Connection to Real-World) *"I am learning this because"*

I am learning this because of the importance of understanding real world word problems and being able to dissect the given information is vital.

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| | |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Grade Level: | 4 |
| Standard | <p>KY.4.OA.3 Solve multistep problems.</p> <p>a. Perform operations in the conventional order when there are no parentheses to specify a particular order. b. Solve multistep word problems posed with whole numbers and having whole number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computations and estimation strategies including rounding.</p> |
| SMP | MP.1, MP.4 |

Standard for Mathematical Practice (select and highlight)

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of the structure
8. Look for and express regularity in repeated reasoning

1. Critical vocabulary and questions as it relates to the standard.

Addition, subtraction, multiplication, division, operation, interpret remainders

2. Key Implementation Questions and Answers:

What key vocabulary lets me know what operation to perform?
 What does the remainder represent?
 How can I represent the real world problem using an equation?

3. Develop “Learning Intention” statements. Describe the standard and/or element(s) as statements of intended learning. “I am learning”

I am learning to distinguish when a real-world situation ask me to add, subtract, multiply or divide.

I am learning to determine if the remainder, dropped, used or rounded up.

I am learning to write equations using real-world problems using variables (letters)

Logan County Schools Deconstructed Standards 4th Grade Math

4. Establish success criteria by identifying strong and weak work. *Identify the characteristics of strong and weak work related to the standard and/or element(s). Identify common misconceptions. “I will know that I learned it when”*

I will know that I learned it when I have determined what operation to use when solving real-world word problems.

I will know that I learned it when I can interpret remainders.

I will know that I learned it when I can write equations using variables for various real-world problems.

5. Ideas for Relevance (Authentic Work with a Connection to Real-World) *“I am learning this because”*

I am learning this because I need to know what operation to apply to real world problems/situations. Example: I am ordering pizza for a birthday party. There are 64 people attending the birthday party and pizza's are sold in slices of 8. How many pizzas will I need to order for everyone to get at least one slice.

Logan County Schools Deconstructed Standards 4th Grade Math

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|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Grade Level: | 4 |
| Standard | KY.4.OA.4 Find factors and multiples of numbers in the range 1-100. a. Find all factor pairs for a given whole number. b. Recognize that a whole number is a multiple of each of its factors. c. Determine whether a given whole number is a multiple of a given one-digit number. d. Determine whether a given whole number is prime or composite |
| SMP | MP.5, MP.7 |

Standard for Mathematical Practice (select and highlight)

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of the structure
8. Look for and express regularity in repeated reasoning

1. Critical vocabulary and questions as it relates to the standard.

Multiple, factors, prime, composite, pairs, divisibility rules

2. Key Implementation Questions and Answers:

What is the difference between multiples and factors?
What are divisibility rules?
How do I determine if a number is prime or composite?

3. Develop “Learning Intention” statements. Describe the standard and/or element(s) as statements of intended learning. “I am learning”

I am learning what a multiple is.
I am learning what a factor is.
I am learning what the divisibility rules are.
I am learning what prime and composite is.

4. Establish success criteria by identifying strong and weak work. Identify the characteristics of strong and weak work related to the standard and/or element(s). Identify common misconceptions. “I will know that I learned it when”

Logan County Schools Deconstructed Standards 4th Grade Math

I will know that I learned it when I can determine multiples of a given number

I will know that I learned it when I can list all the factors of a given number.

I will know that I learned it when I can determine if a number is prime or composite.

5. Ideas for Relevance (Authentic Work with a Connection to Real-World) ***"I am learning this because"***

I am learning this because I will be finding the least common multiple and greatest common factors in the future.

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| | |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| Grade Level: | 4 |
| Standard | KY.4.OA.5 Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern not explicit in the rule itself. |
| SMP | MP.2, MP.3 |

Standard for Mathematical Practice (select and highlight)

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of the structure
8. Look for and express regularity in repeated reasoning

1. Critical vocabulary and questions as it relates to the standard.

Patterns, rules, repeat, odd, even, prime, composite, multiple

2. Key Implementation Questions and Answers:

Is the pattern a growing or repeated pattern?
What is the rule for the given pattern?

3. Develop “Learning Intention” statements. Describe the standard and/or element(s) as statements of intended learning. “I am learning”

I am learning how to analyze patterns to determine a rule that works every time.
I am learning how to identify features of the pattern not explicit in the rule itself. Example: every other number is odd, or the numbers alternate between odd and even. They are all prime, etc.

4. Establish success criteria by identifying strong and weak work. Identify the characteristics of strong and weak work related to the standard and/or element(s). Identify common misconceptions. “I will know that I learned it when”

I will know that I learned it when I can analyze a pattern and determine the given rule.
I will know that I learned it when I can identify other features in the pattern that are not related directly to the rule itself.

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5. Ideas for Relevance (Authentic Work with a Connection to Real-World) ***“I am learning this because”***

I am learning to determine the rule of a given pattern as well as observe other math concepts occurring within a pattern that do not directly relate to the rule.