

Logan County Schools Deconstructed Standards 5th Grade Math

Grade Level:	5
Standard	KY.5.G.1 Use a pair perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis and the second number indicates how far to travel in the direction of the second.
SMP	MP.4, MP.7
Also See	KY.6.NS.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.

Perpendicular
Number Lines
Axes
Coordinate system
Intersection
Origin
Plane
Ordered Pairs/Coordinates

2. Key Implementation Questions and Answers:

How do you create perpendicular number lines?
Where is the intersection?
Which line is the x-axis?
Which line is the y-axis?
What are coordinates/ordered pairs?
How do you use the number line to find the first coordinate?
How do you use the number line to find the second coordinate?

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

- I am learning to use perpendicular number lines (x and y axis) to define a coordinate system.
- I am learning to understand that the origin is at the intersection of the perpendicular number lines.
- I am learning to understand how traveling to the left or right of the origin (x-axis) creates the first number in the ordered pair/coordinate.
- I am learning to understand how traveling above or below the origin (y-axis) creates the second number in the ordered pair/coordinate.

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 the origin, x-axis, and y-axis.
I can use the axes to locate coordinates/ordered pairs.

Misconceptions:

- Switching the order of the coordinates.
- Not understanding which direction from the origin to travel first (over then up, not up then over).

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

I am learning this because coordinate systems can help me find locations.

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Grade Level:	5
Standard	KY.5.G.2 Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane and interpret coordinate values of points in the context of the situation.
SMP	MP.1, MP.6
Also See	KY.6.NS.8, KY.6.G.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.

Quadrant
Coordinate plane
Coordinate values

2. Key Implementation Questions and Answers:

What do you notice about the first quadrant?
How do you determine when to move right of the origin?
How do you determine how to move above the origin?
Will you end up in the same location if you switch the values of the coordinates?

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

I am learning to represent real situations by graphing points on a coordinate plane.
I am learning to interpret what those points mean and how they relate to a situation.

4. Establish success criteria by identifying strong and weak work. Identify the characteristics

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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 this when I can plot points in the correct location on a coordinate plane.
I will know that I learned this when I can explain what the numbers in a coordinate pair mean.

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

I am learning this because the coordinate system helps me find locations.

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Grade Level:	5
Standard	KY.5.G.3 Understand that attributes belonging to a category of two dimensional figures also belong to all subcategories of that category
SMP	MP.3, MP.6
Also See	KY.4.G.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.

Attributes
2-dimensional
Sub-category
Polygons
Quadrilateral
Rectangles
Squares
Rhombus
Square
Trapezoid
Parallelogram

2. Key Implementation Questions and Answers:

What is a polygon?
What is the difference between a 2-dimensional and 3-dimensional figure?
What are different types of quadrilaterals?
Are all quadrilaterals parallelograms?
What is an attribute?

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

I am learning to understand that most shapes fit into more than one category.
I am learning to understand that different shapes have different attributes.

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 determine all the categories a shape fits into.
I will know that I learned it when I can describe the attributes of each shape.

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

I am learning this because shapes are used in building and engineering.

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Grade Level:	5
Standard	KY.5.G.4 Classify two-dimensional figures in a hierarchy based on properties.
SMP	MP.1, MP.7
Also See	KY.4.G.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.

2-dimensional
Hierarchy
Properties
Polygon
Quadrilateral
Rectangle
Rhombus
Square
Trapezoid
Parallelogram

2. Key Implementation Questions and Answers:

How do we use the attributes to decide if a square is a parallelogram, a rhombus, etc.?
How can we create a model that shows the hierarchy?

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

I am learning that different shapes have different attributes that determine where they fit in the hierarchy.

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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 determine all the categories a shape fits into.

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

I am learning this because shapes are used in building and engineering.

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Grade Level:	5
Standard	KY.5.MD.1 Convert among different size measurement units (mass, weight, liquid volume, length, time) within one system of units (metric system, U.S. standard system and time)
SMP	MP.3, MP.8
Also See	KY.4.MD.1, KY.6.RP.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.

Mass
Weight
Liquid Volume
Length
Time
Metric System
US Standard System

2. Key Implementation Questions and Answers:

Does it matter which system we use?
How do we know which system to use?
What units do you use to measure weight? length? volume? time? Mass?
How can we change one unit to another?

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 measurements within the metric system.
I am learning to convert measurements within the US Standard System.

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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 I learned this when I can accurately describe a measurement in more than one way.

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

I am learning this because measurement is used in many jobs including: construction, medicine, fashion design, science, baking.

I am learning this because measurement is used in many everyday skills.

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Grade Level:	5
Standard	KY.5.MD.2 Identify and gather data for statistical questions focused on both categorical and numerical data. Select an appropriate data display (bar graph, pictograph, dot plot). Make observations from the graph about the questions posed. MP.4, MP.5, MP.6
SMP	MP.4, MP.5, MP.6
Also See	KY.4.MD.4, KY.6.SP.4, KY.6.SP.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.

Data
Statistics
Bar graph
Pictograph
Dot Plot

2. Key Implementation Questions and Answers:

What is a good question to use to gather data?
How do we know which type of graph to use?
What questions do we have after looking at the graph?
What is the purpose of a graph?

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

I am learning to identify statistical questions.
I am learning to gather data from statistical questions.

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I am learning to select a way to display my data.

I am learning to create a graph.

I am learning to make observations from the graph I created and use the information to answer questions..

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 gather statistical data based on a question.

I will know that I learned it when I can create a graph displaying my data.

I will know that I learned it when I can answer a question using my graph.

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

I am learning this because data is presented in many ways and it is important to be able to read and understand it.

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Grade Level:	5
Standard	<p>KY.5.MD.3 Recognize volume as an attribute of solid figures and understand concepts of volume measurement.</p> <p>a. A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume and can be used to measure volume.</p> <p>b. A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.</p>
SMP	MP.6
Also See	KY.3.MD.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.

Volume
 Attribute
 Solid figures
 Unit cube
 Cubic unit

2. Key Implementation Questions and Answers:

What is a solid figure?
 What form of measurement is volume?
 How can I show volume using unit cubes?

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

I am learning that solid shapes have volume.
 I am learning that a unit cube is one cubic unit.

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I am learning that unit cubes can be used to calculate volume.

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 pack a solid figure with unit cubes without gaps or overlaps.
I will know that I learned it when I can calculate the volume by the number of unit cubes in the base and the height.

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

I am learning this because volume is used in daily activities such as: packing a box, cooking, gardening, etc.

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Grade Level:	5
Standard	KY.5.MD.3 Recognize volume as an attribute of solid figures and understand concepts of volume measurement. a. A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume and can be used to measure volume. b. A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.
SMP	MP.6
Also See	KY.3.MD.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.

Volume
Attribute
Solid figures
Unit cube
Cubic unit

2. Key Implementation Questions and Answers:

What is a solid figure?
What form of measurement is volume?
How can I show volume using unit cubes?

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

I am learning that solid shapes have volume.
I am learning that a unit cube is one cubic unit.

Logan County Schools Deconstructed Standards 5th Grade Math

I am learning that unit cubes can be used to calculate volume.

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 pack a solid figure with unit cubes without gaps or overlaps.
I will know that I learned it when I can calculate the volume by the number of unit cubes in the base and the height.

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

I am learning this because volume is used in daily activities such as: packing a box, cooking, gardening, etc.

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Grade Level:	5
Standard	KY.5.MD.4 Measure volumes by counting unit cubic cm, cubic in, cubic ft. and improvised units
SMP	MP.5, MP.6
Also See	KY.3.MD.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.

Volume
Cubic units

2. Key Implementation Questions and Answers:

Are all volumes calculated using the same units?
How can we find the volume using cubes?

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 volume using cubic units.
I am learning to count unit cubes to calculate volume.
I am learning to label volume using the correct unit 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 misconceptions. “I will know that I learned it when”

I will know that I learned it when I can count the unit cubes and calculate the volume.

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I will know that I learned it when I use the correct unit of measurement to label my answer.

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

I am learning this because volume is used in daily activities such as: packing a box, cooking, gardening, etc.

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Grade Level:	5
Standard	<p>KY.5.MD.5 Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.</p> <p>a. Find the volume of a right rectangular prism with whole number side lengths by packing it with unit cubes and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes.</p> <p>b. Apply the formulas $V = l \times w \times h$ and $V = B \times h$ for rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems.</p> <p>c. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems</p>
SMP	MP.1, MP.4, MP.8
Also See	Coherence KY.4.MD.3 → KY.5.MD.5 → KY.6.G.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.

Volume, additive, rectangular prism, length, height, area of the base, unit cubes, formulas, non-overlapping

2. Key Implementation Questions and Answers:

What is a formula?
 Will this formulas always work? Why?
 Why will both formulas work?
 How do I find the volume of an figure that is not one rectangular prism?

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

I am learning to find the volume by counting unit cubes to determine the length, width and height then multiply those together.

I am learning to determine that length x width x height is the same as area of the base x height.

I am learning to find volume in real world situations.

I am learning to recognize that a figure can be divided into separate rectangular prisms.

I am learning that 2 volumes can be added together to find the volume of a figure.

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 the volume of a figure using length, width and height.

I will know that I learned it when I can determine where to split a figure to create 2 rectangular prisms and add them together.

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

I am learning this because volume is used in daily activities such as: packing a box, cooking, gardening, etc.

Logan County Schools Deconstructed Standards 5th Grade Math

Grade Level:	5
Standard	KY.5.NBT.1 Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.
SMP	MP.2, MP.7
Also See	Coherence KY.4.NBT.1→KY.5.NBT.1

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.

Digit, multi-digit, place, represents, 10 times

2. Key Implementation Questions and Answers:

1. What is the difference between a digit's place and value?
2. What are the names of each place?
3. What are the values of each place?
4. Does the value of a digit increase or decrease as it moves left? Right?
5. How much does it increase or decrease?

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

I am learning that a digit's value is 10 times greater than the digit to its right.
I am learning that a digit's value is 1/10 of the digit to its left.

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 this when I can decide the value of a digit as it moves to the left and right.

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

I am learning this because the metric system is an important part of society. Understanding values of numbers will be using with conversions and in jobs such as construction, architecture, and culinary arts.

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Grade Level:	5
Standard	KY.5.NBT.2 Multiply and divide by powers of 10. <ul style="list-style-type: none">• Explain patterns in the number of zeros of the product when multiplying a number by powers of 10.• Explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10.• Use whole-number exponents to denote powers of 10.
SMP	MP.3, MP.8
Also See	Coherence KY.5.NBT.2→ KY.6.EE.1

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.

Exponent, powers of 10, product, quotient

2. Key Implementation Questions and Answers:

1. Does the value of a number get greater or less when multiplying? Dividing?
2. What happens when a number is multiplied by 10? 100?
3. What would happen to a decimal as a number is multiplied or divided by 10, 100, 1000?

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

I am learning to use an exponent to represent a power of 10.(10, 100, 1000)
I am learning to explain that numbers will increase the number of zeros every time it is multiplied by a power of 10. ($2 \times 1=2$ $2 \times 10=20$ $2 \times 100=200$ $2 \times 1000=2000$)
I am learning to explain why a decimal will move to the left when dividing by a power of 10.
I am learning to explain why a decimal will move to the right when multiplying by a power of 10.

Logan County Schools Deconstructed Standards 5th 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 explain accurately what to do when multiplying or dividing by a power of 10.

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 find patterns that I will use later in life. (metric system)

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Grade Level:	5
Standard	KY.5.NBT.3 Read, write and compare decimals to thousandths. a. Read and write decimals to thousandths using base-ten numerals, number names and expanded form. b. Compare two decimals to thousandths based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.
SMP	MP.2, MP.5, MP.7
Also See	Coherence KY.4.NF.7 \rightarrow KY.5.NBT.3 KY.4.NBT.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, decimals, tenth, hundredth, thousandth, base-ten numeral, expanded form, number names, less than, greater than, equal to

2. Key Implementation Questions and Answers:

1. How can I decide which decimal is greater?
2. How can I write numbers in different ways?

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

I am learning to write a decimal in base-ten numeral.
I am learning to write a decimal in expanded form.
I am learning to show a decimal in expanded form.
I am learning to compare decimals.

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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 have learned when I can write a decimal in base-ten numeral, number name, and expanded form.

I will know the I have learned when I can compare decimals.

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 be able to recognize decimals in more than one way.

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Grade Level:	5
Standard	KY.5.NBT.4 Use place value understanding to round decimals to any place.
SMP	MP.5, MP.7
Also See	Coherence KY.4.NBT.3→ KY.5.NBT.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.

Place value, rounding, round up, round down

2. Key Implementation Questions and Answers:

1. How do I round a decimal to different places?
2. How do I know when to round up or down?

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

I am learning to understand when to round a decimal up or down.

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 to round decimals when I can round accurately to any decimal place to the thousandths.

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

Logan County Schools Deconstructed Standards 5th Grade Math

because”

I am learning this because we often estimate amounts rather than giving exact amounts.

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Grade Level:	5
Standard	KY.5.NBT.5 Fluently multiply multi-digit whole numbers (not to exceed four-digit by two-digit multiplication) using an algorithm.
SMP	MP.7, MP.8
Also See	Coherence KY.4.NBT.5→ KY.5.NBT.5→KY.6.NS.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.

Multiply, multi-digit numbers, algorithm

2. Key Implementation Questions and Answers:

1. How do you break apart numbers to multiply?
2. How do you use place value to multiply?
3. Why wouldn't you use repeated addition to multiply multi-digit numbers?

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 multi-digit numbers.

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 multiply to get the correct product.

Logan County Schools Deconstructed Standards 5th Grade Math

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

I am learning this because multiplying is a necessity for computing everyday activities in life.

Logan County Schools Deconstructed Standards 5th Grade Math

Grade Level:	5
Standard	<p>KY.5.NBT.6 Divide up to four-digit dividends by two-digit divisors.</p> <p>a. Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors using...</p> <ul style="list-style-type: none"> ● strategies based on place value ● the properties of operations ● the relationship between multiplication and division <p>b. Illustrate and explain the calculation by using equations, rectangular arrays and/or area models.</p>
SMP	MP.2, MP.3, MP.4
Also See	Coherence KY.4.NBT.6→ KY.5.NBT.6→KY.6.NS.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.

Divide, quotient, dividend, divisor, inverse operations, properties, illustrate, calculation, arrays, area models

2. Key Implementation Questions and Answers:

1. How can you show division in multiple ways?
2. How do you know when to divided? What does it mean?
3. What are inverse operations?

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 multi digit numbers.
 I am learning to show division in model and explain division in different ways.

Logan County Schools Deconstructed Standards 5th Grade Math

I am learning to understand division can be check with multiplication.

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 the quotient accurately using more than one strategy.
I will know that I learned it when I can create the fact family for a specific division problem.

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

I am learning this because division is a necessary skill for creating groups, splitting objects, and making connections to multiplication.

Logan County Schools Deconstructed Standards 5th Grade Math

Grade Level:	5
Standard	<p>KY.5.NBT.7 Operations with decimals to hundredths.</p> <p>a. Add, subtract, multiply and divide decimals to hundredths using...</p> <ul style="list-style-type: none"> ● concrete models or drawings ● strategies based on place value ● properties of operations ● the relationship between addition and subtraction <p>b. Relate the strategy to a written method and explain the reasoning used.</p>
SMP	MP.2, MP.3, MP.5
Also See	Coherence KY.4.NBT.6→ KY.5.NBT.7→KY.6.NS.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.

Decimals, place value, models, inverse operations

2. Key Implementation Questions and Answers:

1. Do I compute all decimals the same?
2. How do I use place value to compute decimals?

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 decimals.
 I am learning to subtract decimals.
 I am learning to multiply decimals.
 I am learning to divide decimals.
 I can create models to show computation with decimals.

Logan County Schools Deconstructed Standards 5th Grade Math

I can explain how addition and subtraction can check each other.

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 find accurately compute the sum, difference, product or quotient using decimals.

I will know that I learned it when I can create a model for decimal computations.

I will know that I learned it when I can check subtraction with addition.

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 compute decimals when adding and subtracting money and measurements.

Logan County Schools Deconstructed Standards 5th Grade Math

Grade Level:	5
Standard	<p>KY.5.NF.1 Efficiently add and subtract fractions with unlike denominators (including mixed numbers) by...</p> <ul style="list-style-type: none"> ● using reasoning strategies, such as counting up on a number line or creating visual fraction models ● finding common denominators
SMP	MP.2, MP.3
Also See	Coherence KY.4.NF.3→ KY.5.NF.1→KY.6.EE.7, KY.4.NF.1

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.

Unlike denominators, numerators, mixed numbers, common, equivalent fractions, least common multiple, simplify, convert, proper fractions

2. Key Implementation Questions and Answers:

1. Why can't you add denominators that are different?
2. How do I make the denominators the same?
3. How can I make equivalent fractions?

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 fractions that have different denominators.
I am learning how to make denominators the same.

Logan County Schools Deconstructed Standards 5th 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 find a denominator that works for all fractions.
I will know that I learned it when I can find the sum or difference of fractions with unlike denominators.

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

I am learning this because measurements will often be in fractions. This can be used in cooking, construction, architecture, home repairs, and distance.

Logan County Schools Deconstructed Standards 5th Grade Math

Grade Level:	5
Standard	KY.5.NF.2 Solve word problems involving addition and subtraction of fractions. a. Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators. b. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers.
SMP	MP.1, MP.4
Also See	Coherence KY.4.NF.3→KY.5.NF.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.

Unlike denominators, numerators, mixed numbers, common, equivalent fractions, least common multiple, reasonableness, benchmark fractions

2. Key Implementation Questions and Answers:

1. How can I decide if a word problem is adding and subtracting fractions?
2. What is a benchmark fraction?
3. How can I use a benchmark fraction to help me with my answer?

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

I am learning to solved real world problems adding and subtracting fractions.
I am learning to use a benchmark fraction to decide if my answer is reasonable.

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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 solve a word problem using addition and subtraction.

I will know that I learned it when I can use a benchmark fraction to decide if my answer is reasonable.

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

I am learning this because it will be necessary to solve problems using fractions in the future.

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Grade Level:	5
Standard	KY.5.NF.3 Interpret a fraction as division of the numerator by the denominator ($\frac{a}{b} = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers by using visual fraction models or equations to represent the problem.
SMP	MP.4, MP.8
Also See	Coherence KY.5.NF.3→KY.6.RP.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.

Numerator, denominator, mixed numbers, models

2. Key Implementation Questions and Answers:

1. How can a fraction be divided?
2. What do I do if my answer is improper?
3. How do you model fractions as division?

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 fraction as a division problem.
 I am learning to solve word problems using division to get a fraction.
 I am learning to use a model to show division of whole numbers that create a fraction.
 I am learning to simplify or convert my quotient.

4. Establish success criteria by identifying strong and weak work. Identify the characteristics

Logan County Schools Deconstructed Standards 5th Grade Math

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 decide what is being divided in a word problem and create a fraction or mixed number.

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 be able to divide whole numbers quickly to solve a problem.

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Grade Level:	5
Standard	<p>KY.5.NF.4 Apply and extend previous understanding of multiplication to multiply a fraction or whole number by a fraction.</p> <p>a. Interpret the product $(\frac{a}{b}) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$.</p> <p>b. Find the area of a rectangle with fractional side lengths by tiling it with squares of the appropriate unit fraction side lengths and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles and represent fraction products as rectangular areas</p>
SMP	MP.1
Also See	Coherence KY.4.NF.4→ KY.5.NF.4→KY.6.G.1

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.

Product, partition, area, length, width

2. Key Implementation Questions and Answers:

1. How can I show why we multiply to find area? (arrays)
2. How do I change a whole number into 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 to find the area of a rectangle by multiplying fractions.
 I am learning to multiply a fraction by a fraction.
 I am learning to multiply a fraction by a whole number.
 I am learning to model how to multiply fractions.

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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 use tiles to model multiplying 2 fractions.

I will know that I learned it when I can get the accurate product when multiplying a fraction by a fraction or whole number.

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

I am learning this because I will use fractions for cooking, building, decorating, and remodeling.

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Grade Level:	5
Standard	<p>KY.5.NF.5 Interpret multiplication as scaling (resizing), by:</p> <p>a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication. b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $aa \ bb = (nn \times aa) \ (nn \times bb)$ to the effect of multiplying $aa \ bb$ by 1</p>
SMP	MP.2, MP.6
Also See	Coherence KY.4.OA.1 → KY.5.NF.5 → KY.6.RP.1

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.

Scaling, factor, multiplication, product, equivalence

2. Key Implementation Questions and Answers:

1. How can you compare the size of a product based on its' factor?
2. Why will multiplying by a factor greeting than 1 yield a product greater than 1?

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 to look at one factor and decide the product based on the other factor.
 I am learning to explain why when multiplying a fraction by a factor greater than 1 will yield a product greater than that fraction.

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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 compare fractions based on the factors and products.
I will now that I learned it when I can decide if one factor will be less than or greater than 1 based on the product.

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

I am learning this because it is necessary to be able to estimate and reason.

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Grade Level:	5
Standard	KY.5.NF.6 Solve real world problems involving multiplication of fractions and mixed numbers.
SMP	MP.4, MP.5
Also See	Coherence KY.4.NF.4→KY.5.NF.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.

Multiply, mixed numbers, improper fractions, proper fractions, convert, simplify

2. Key Implementation Questions and Answers:

1. How do you know if a word problem wants you to divide?
2. How do I multiply a mixed number?

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

I am learning to real world problems by multiplying fractions.
I am learning to real world problems by multiplying mixed numbers.

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 determine a fraction word problem can be solved using multiplication.

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I will know that I learned it when I can solve a fraction word problem using multiplication.

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

I am learning this because you need to be able to know when to multiply fractions to get measurements.

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Grade Level:	5
Standard	<p>KY.5.NF.7 Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.</p> <p>a. Interpret division of a unit fraction by a non-zero whole number and compute such quotients.</p> <p>b. Interpret division of a whole number by a unit fraction and compute such quotients.</p> <p>c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions.</p>
SMP	MP.1, MP.4, MP.8
Also See	Coherence KY.4.NF.4→ KY.5.NF.7→KY.6.NS.1

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.

Unit fractions, quotients, non-zero whole numbers

2. Key Implementation Questions and Answers:

1. What is a unit fraction?
2. When would I need to divide fractions?
3. How can you determine if a word problem is asking you to divide?
4. How can you model this situation?
5. When I divide a whole number by a unit fraction, what do I notice about the quotient?
6. When I divide a unit fraction by a whole number, what do I notice about the quotient?

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

Logan County Schools Deconstructed Standards 5th Grade Math

I am learning to divide a unit fraction by a whole number.
I am learning to divide a whole number by a unit fraction.
I am learning to solve word problems using division of fractions.

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 have learned it when I can solve division problems using a unit fraction and a whole number.

I will know I have learned it when I can relate my division problem to a multiplication problem.

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

I am learning this because you need to be able to know when to divide fractions to get measurements.

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Grade Level:	5
Standard	KY.5.OA.1 Use parentheses, brackets or braces in numerical expressions and evaluate expressions that include symbols.
SMP	MP.1, MP.3
Also See	Coherence KY.5.OA.1 → KY.6.EE.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.

Parentheses, brackets, braces, numerical expression, evaluate, symbols, operations

2. Key Implementation Questions and Answers:

1. What is an operation?
2. Is there a certain order we must perform operations?
3. Why must these operations occur in a certain order?

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

I am learning to evaluate expressions using symbols.
(I am learning to create and solve expressions using order of operations)

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 have learned it when I can determine the correct order to calculate the operations.

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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 numbers must be calculated in a specific order to formulate the correct answer.

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Grade Level:	5
Standard	KY.5.OA.2 Write simple expressions with numbers and interpret numerical expressions without evaluating them.
SMP	MP.2, MP.7
Also See	Coherence KY.4.OA.1→ KY.5.OA.2→KY.6.EE.2 KY.6.EE.3 KY.6.EE.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.

Expression, numerical expressions, variables

2. Key Implementation Questions and Answers:

1. What is an expression?
2. What is a variable?
3. Why don't we solve expressions?
4. How can we use expressions to solve problems?

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

I am learning to write and interpret numerical expressions.

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 a numerical expression to describe a situation.

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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 expressions help us organize information so that we can understand how situations can be solved.

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Grade Level:	5
Standard	<p>KY.5.OA.3 Generate numerical patterns for situations.</p> <p>a. Generate a rule for growing patterns, identifying the relationship between corresponding terms (x, y).</p> <p>b. Generate patterns using one or two given rules (x, y).</p> <p>c. Use tables, ordered pairs and graphs to represent the relationship between the quantities.</p>
SMP	MP.2, MP.4
Also See	Coherence KY.4.OA.5 → KY.5.OA.3 → KY.6.EE.9

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.

Numerical patterns, rules, relationships, corresponding terms, graphs/tables, ordered pairs, quantities

2. Key Implementation Questions and Answers:

1. What are corresponding terms?
2. How do we create them?
3. How can we generate patterns using a rule?

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

I am learning to generate a rule from x and y coordinates and explain their relationship.
 I am learning to generate a pattern for x and a pattern for y using given rules.
 I am learning to create ways to display show the relationship between x and y.

Logan County Schools Deconstructed Standards 5th 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 read information and create a rule.
I will know that I learned it when I can generate patterns given a rule.
I will know that I have learned it when I can create ordered pairs using the rule for x and y .
I will know that I have learned it when I can explain how x and y are related.

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 be able to create and read data.