

Southern York County School District Instructional Plan

Name: 4 th Grade	Dates: August-September
Course/Subject: Math	Unit 1: Naming & Constructing Geometric Figures

Stage 1 – Desired Results

<p>PA Core Content & Practice Standards: ←</p> <p>Numbers & Operations in Base Ten</p> <ul style="list-style-type: none"> ▪ Apply place value concepts to show understanding of multidigit whole number CC.2.1.4.B.1 ▪ Use place value & properties of operations to perform multidigit arithmetic CC.2.1.4.B.2 <p>Geometry</p> <ul style="list-style-type: none"> ▪ Draw lines and angles and identify these in two-dimensional figures CC.2.3.4.A.1 ▪ Classify two-dimensional figures by properties of their lines and angles CC.2.3.4.A.2 <p>Use appropriate tools strategically</p> <ul style="list-style-type: none"> ▪ Look for and make use of structures ▪ Model with mathematics ▪ Attend to precision ▪ Reason abstractly & quantitatively 	<p>Content Standards: These standards describe what students should be able to know and do.</p>
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Understanding(s):
The key big ideas students are to learn.

<p>Look for and express regularity in repeated reasoning</p> <p>Understanding(s): <i>Students will understand . . .</i></p> <ol style="list-style-type: none"> 1. Geometric relationships can be described, analyzed, and classified based on spatial reasoning and/or visualization. 2. How place value concepts help us solve math problems 	<p>Essential Question(s):</p> <ul style="list-style-type: none"> ▪ How do you identify and construct building blocks of geometry? ▪ How can you identify and construct geometric figures? ▪ How can your knowledge of place value help you solve computational problems?
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Essential Question(s):
Questions created to foster inquiry, understanding, and the transfer of learning?

<p>Learning Objectives: <i>Students will know and be able to:</i></p> <ul style="list-style-type: none"> ▪ Identify and use tools for geometry (template, straightedge, compass) ▪ Review points, line segments, lines, and rays ▪ Construct angles, triangles, quadrangles, and circles ▪ Classify quadrangles, polygons, and circles based on their properties to formulate definition ▪ Distinguish differences between convex and concave polygons ▪ Use knowledge of place value to solve fact extensions & identify value of a digit in multidigit number 	<p>Learning Objectives: The knowledge and skills students should be able to understand and its application.</p>
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Name: 4 th Grade	Dates: September-October
Course/Subject: Math	Unit 2: Using Numbers & Organizing Data

Stage 1 – Desired Results

PA Core Content & Practice Standards:

Numbers & Operations in Base Ten

- Apply place value concepts to show an understanding of multi-digit whole numbers CC.2.1.4.B.1
- Use place value understanding and properties of operations to perform multi-digit arithmetic CC.2.1.4.B.2

Algebraic Concepts:

- Represent and solve problems involving the four operations CC.2.2.4.A.1.

Measurement, Data and Probability:

- Translate information from one type of data display to another CC.2.4.4.A.2.

Look for and make use of structures

Model with mathematics

Attend to precision

Understanding(s):

Students will understand . . .

1. Mathematical relationships can be represented as expressions, equations, and inequalities in mathematical situations.
2. Data can be modeled and used to make inferences.

Essential Question(s):

- How does the placement of a digit change its value?
- How can we organize data in order to predict outcomes?
- What methods can you use accurately for the addition and subtraction of multi-digit whole numbers?

Learning Objectives:

Students will know and be able to . . .

- Review examples of various ways in which numbers are used.
- Provide practice reading, identifying, and writing values of digits in numbers up to one billion with or without the use of a calculator
- Provide practice organizing and displaying data with a tally chart, line plot, etc. and determining data landmarks using a set of data
- Review and practice using the various algorithms to solve multi-digit addition and subtraction problems

Name: 4th Grade

Dates: October-November

Course/Subject: Math

Unit 3: Multiplication & Division; Number Sentences & Algebra

Stage 1 – Desired Results

PA Core Content & Practice Standards:

Numbers & Operations in Base Ten

- Apply place value concepts to show an understanding of multi-digit whole numbers CC.2.1.4.B.1
- Use place value understanding and properties of operations to perform multi-digit arithmetic CC.2.1.4.B.2.

<p>Algebraic Concepts:</p> <ul style="list-style-type: none"> ▪ Represent and solve problems involving the four operations CC.2.2.4.A.1. ▪ Generate and analyze patterns using one rule CC.2.2.4.A.4. ▪ Develop and/or apply number theory concepts to find factors and multiples CC.2.2.4.A.2. <p>Measurement, Data, and Probability:</p> <ul style="list-style-type: none"> ▪ Translate information from one type of data display to another CC.2.4.4.A.2 <p>Make sense of problems and persevere in solving them. Model with mathematics. Construct viable arguments and critique the reasoning of others.</p>	
<p>Understanding(s): <i>Students will understand . . .</i></p> <ol style="list-style-type: none"> 1. Mathematical relationships among numbers can be represented, compared, and communicated. 2. Patterns exhibit relationships that can be extended, described, and generalized. 	<p>Essential Question(s):</p> <ul style="list-style-type: none"> ▪ How can you use math strategies to improve speed and accuracy with the basic multiplication facts? ▪ What is the link between multiplication and division? ▪ How do we construct and interpret number sentences that use mathematical symbols?
<p>Learning Objectives: <i>Students will know and be able to . . .</i></p> <ul style="list-style-type: none"> ▪ Identify and use numerical patterns ▪ Identify the relationship and review strategies to maintain automaticity with multiplication and division facts ▪ Be introduced to and practice simple strategies in solving number stories ▪ Determine the differences between true and false statements and practice solving with/without the use of parentheses ▪ Use open sentence vocabulary and practice solving open sentences 	
Name: 4 th Grade	Dates: November-December
Course/Subject: Math	Unit 4
Stage 1 – Desired Results	
<p>PA Core Content & Practice Standards:</p> <p>Numbers and Operations:</p> <ul style="list-style-type: none"> ▪ Connect decimal notation to fractions, and compare decimal fractions (base 10, denominator, e.g., 19/100) CC.2.1.4.C.3 <p>Numbers and Operations:</p> <ul style="list-style-type: none"> ▪ Use place value understanding and properties of operations to perform multi-digit arithmetic CC.2.1.4.B.2 <p>Measurement, Data and Probability:</p> <ul style="list-style-type: none"> ▪ Solve problems involving measurement and conversions from a larger unit to a smaller unit CC.2.4.4.A.1. <p>Use appropriate tools strategically Attend to precision Reason abstractly and quantitatively</p>	
<p>Understanding(s):</p>	<p>Essential Question(s):</p>

<p>Students will understand . . .</p> <ol style="list-style-type: none"> 1. Measurement attributes can be quantified and estimated using customary and non-customary units of measurement. 2. Mathematical relationships among numbers can be represented, compared, and communicated. 	<ul style="list-style-type: none"> ▪ Why is representing decimal notation important? ▪ How do decimals help us represent real life measurements? ▪ How can we use decimals to help us represent money in real life situations?
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<p>Learning Objectives: Students will know and be able to . . .</p> <ul style="list-style-type: none"> ▪ Extend the place value system and review basic concepts and notation of decimals through thousandths ▪ Compare and order decimals through hundredths ▪ Estimate and practice solving addition and subtraction of decimals using measurement and money applications ▪ Determine appropriate use of personal references for metric units of length ▪ Review, convert, and measure metric units of length to the nearest millimeter 	
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Name: 4th Grade	Dates: December-January
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Course/Subject: Math	Unit 5
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Stage 1 – Desired Results

<p>PA Core Content & Practice Standards: Numbers and Operations:</p> <ul style="list-style-type: none"> ▪ Apply place value concepts to show an understanding of multi-digit whole numbers CC.2.1.4.B.1. ▪ Use place value understanding and properties of operations to perform multi-digit arithmetic CC.2.1.4.B.2. <p>Algebraic Concepts:</p> <ul style="list-style-type: none"> ▪ Represent and solve problems involving the four operations CC.2.2.4.A.1. <p>Construct viable arguments and critique the reasoning of others. Look for and express regularity in repeated reasoning. Model with mathematics.</p>	
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<p>Understanding(s): Students will understand . . .</p> <ol style="list-style-type: none"> 1. Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools. 	<p>Essential Question(s):</p> <ul style="list-style-type: none"> ▪ What strategies aid in computation? ▪ When is estimation reasonable for computation? ▪ How does our ability to represent large numbers help us to accurately solve problems?
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<p>Learning Objectives: Students will know and be able to . . .</p> <ul style="list-style-type: none"> ▪ Extend basic facts to products of ones and tens and products of tens and tens. ▪ Estimate where appropriate to the thousands place ▪ Learn, practice, and use the multiplication algorithms ▪ Learn, practice, and use reading, writing, and comparing large numbers using pattern in the base ten value system as well as exponential notation for powers of 10. ▪ Compare numerical data. 	
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Name: 4th Grade	Dates: January
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Course/Subject: Math	Unit 6
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Stage 1 – Desired Results

PA Core Content & Practice Standards:

Numbers and Operations:

- Use place value understanding and properties of operations to perform multi-digit arithmetic CC.2.1.4.B.2.

Algebraic Concepts:

- Represent and solve problems involving the four operations CC.2.2.4.A.1.
- Develop and/or apply number theory concepts to find factors and multiples CC.2.2.4.A.2.

Measurement, Data and Probability:

- Measure angles and use properties of adjacent angles to solve problems CC.2.4.4.A.6

Geometry:

- Draw lines and angles and identify these in two-dimensional figures CC.2.3.4.A.1.

Use appropriate tools strategically.

Construct viable arguments and critique reasoning of others.

Model with mathematics.

Make sense of problems and persevere in solving them.

Understanding(s):

Students will understand . . .

1. Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.

Essential Question(s):

- What is the relationship between multiplication and division and how do they aid in problem solving?
- How do geometric tools help us classify angles?
- How does understanding various strategies help us to solve a mathematical problem?

Learning Objectives:

Students will know and be able to . . .

- Learn, practice, and use the division algorithms
- Practice solving multiplication/division number stories with or without the use of expressing remainders as fractions or decimals and to interpret remainders when appropriate.
- Review rotations and practice using full- and half-circle protractors and drawing angles less than 360 degrees while classifying them as acute, right, obtuse, straight, and reflex angles.
- Use letter-number pairs and ordered pairs of numbers to locate point on a grid.

Name: 4th Grade

Dates: February

Course/Subject: Math

Unit 7:

Stage 1 – Desired Results

PA Core Content & Practice Standards:

Numbers and Operations:

- Extend the understanding of fractions to show equivalence and ordering CC.2.1.4.C.1.
- Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers CC.2.1.4.C.2.
- Connect decimal notation to fractions and compare decimal fractions (base 10 denominator, e.g., 19/100) CC.2.1.4.C.3

<p>Measurement, Data and Probability:</p> <ul style="list-style-type: none"> ▪ Represent and interpret data involving fractions using information provided in a line plot CC.2.4.4.A.4 <p>Algebraic Concepts:</p> <ul style="list-style-type: none"> ▪ Develop and/or apply number theory concepts to find factors and multiples CC.2.2.4.A.2 <p>Reason abstractly and quantitatively. Look for and make use of structure. Look for and express regularity in repeated reasoning.</p>	
<p>Understanding(s): <i>Students will understand . . .</i></p> <ol style="list-style-type: none"> 1. Mathematical relationships can be represented as expressions, equations, and inequalities in mathematical situations. 2. Mathematical relationships among numbers can be represented, compared and communicated. 3. Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions. 	<p>Essential Question(s):</p> <ul style="list-style-type: none"> ▪ What are fractional numbers? ▪ What are different ways we can create equivalent fractions? ▪ How do we use fractional numbers to represent real life applications?
<p>Learning Objectives: <i>Students will know and be able to . . .</i></p> <ul style="list-style-type: none"> ▪ Review fractions as parts of a whole (ONE)/sets, fractions on number lines, pattern blocks, clock fractions and uses of fractions. ▪ Practice identifying and develop a rule for generating equivalent fractions. ▪ Rename fractions as decimals and visa- versa. ▪ Practice comparing and ordering fractions. 	
Name: 4th Grade	Dates: March
Course/Subject: Math	Unit 8
Stage 1 – Desired Results	
<p>PA Core Content & Practice Standards:</p> <ul style="list-style-type: none"> • Apply appropriate tools to solve real-world and mathematical problems involving area, surface area, and volume. (6th grade CC Standard) • Represent and solve problems involving the four operations CC.2.2.4.A.1. • Solve problems involving measurement and conversions from a larger unit to a smaller unit CC.2.4.4.A.1. <p>Reason abstractly and quantitatively. Attend to precision. Look for and express regulatory in repeated reasoning.</p>	
<p>Understanding(s): <i>Students will understand . . .</i></p> <ol style="list-style-type: none"> 1. Measurement attributes can be quantified and estimated using customary and non-customary units of measure. 	<p>Essential Question(s):</p> <ul style="list-style-type: none"> ▪ What is the difference between area and perimeter? ▪ How do we find the area of different types of polygons? ▪ How do we use area and perimeter in real life applications?

Learning Objectives: <i>Students will know and be able to . . .</i> <ul style="list-style-type: none"> ▪ Learn, practice, and use formulas for perimeter of polygonal shapes, and area for rectangles, parallelograms, and triangles. 	
Name: 4th Grade	Dates: March
Course/Subject: Math	Unit 9
Stage 1 – Desired Results	
PA Core Content & Practice Standards: Numbers and Operations: <ul style="list-style-type: none"> ▪ Use place value understanding and properties of operations to perform multi-digit arithmetic CC.2.1.4.B.2 ▪ Extend the understanding of fractions to show equivalence and ordering CC.2.1.4.C.1. ▪ Connect decimal notation to fractions, and compare decimal fractions (base 10 denominator, e.g., 19/100) CC.2.1.4.C.3. Measurement, Data and Probability <ul style="list-style-type: none"> ▪ Solve problems involving measurement and conversions from larger unit to a smaller unit CC.2.4.4.A.1 ▪ Measure angles and use properties of adjacent angles to solve problems CC.2.4.4.A.6 Make sense of problems & persevere in solving them. Look for and express regularity in repeated reasoning. Look for and make use of structure.	
Understanding(s): <i>Students will understand . . .</i> <ol style="list-style-type: none"> 1. Mathematical relationships can be represented as expressions, equations, and inequalities in mathematical situations. 2. Mathematical relationships among numbers can be represented compared, and communicated. 	Essential Question(s): <ul style="list-style-type: none"> ▪ How are fractions and decimals converted to percents? ▪ How are percents used in estimating and solving problems involving discounts and other real life applications? ▪ How can estimation strategies help in solving multiplication and division problems involving decimals?
Learning Objectives: <i>Students will know and be able to . . .</i> <ul style="list-style-type: none"> ▪ Rename equivalencies among fractions, decimals, and percents including fourths, fifths, and tenths with or without the use of a calculator while applying this to real life situations. ▪ Use survey results and other forms of data to compare quantities expressed as fractions with unlike denominators, while converting to decimals and percents ▪ Learn, practice, and use multiplication and division algorithms with problems involving decimals. 	
Name: 4th Grade	Dates: March/April
Course/Subject: Math	Unit 10

Stage 1 – Desired Results

PA Core Content & Practice Standards:

- Recognize symmetric shapes and draw lines of symmetry CC.2.3.4.A.3

Numbers and Operations:

- Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers CC.2.1.4.C.2.
- Connect decimal notation to fractions, and compare decimal fractions (base 10 denominator, e.g. 19/100) CC.2.1.4.C.3

Algebraic Concepts:

- Generate and analyze patterns using one rule CC.2.2.4.A.4.
- Represent and solve problems involving the four operations CC.2.2.4.A.1.

Look for and make use of structure.

Reason abstractly and quantitatively.

Look for and express regularity in repeated reasoning.

Understanding(s):

Students will understand . . .

3. Geometric relationships can be described, analyzed, and classified based on spatial reasoning and/or visualization.
4. Patterns exhibit relationships that can be extended, described, and generalized.

Essential Question(s):

- How are lines of symmetry, lines of reflections, and reflected figures shown?
- To what extent is using negative numbers helpful in real life?

Students will know and be able to . . .

- Identify, practice, and connect lines of reflection and symmetry.
- Apply reflections, rotations, and translations.
- Learn and practice addition involving negative integers

Name: 4th Grade

Dates: April/May

Course/Subject: Math

Unit 11

Stage 1 – Desired Results

PA Core Content & Practice Standards:

Measurement, Data, and Probability

- Solve problems involving measurement and conversions from a larger unit to a smaller unit. CC.2.4.4.A.1.

Algebraic Concepts:

- Represent and solve problems involving the four operations. CC.2.2.4.A.1.

Look for and make use of structure.

Use appropriate tools strategically.

Model with mathematics.

Understanding(s):

Students will understand . . .

1. Measurements and attributes can be quantified and estimated using customary and non-customary units of measure.
2. Patterns exhibit relationships that can be extended, described, and generalized.

Essential Question(s):

- How do we calculate volume of a rectangular prism?
- How are grams and ounces used to measure weight?
- To what extent is using negative numbers helpful in real life?

Learning Objectives: <i>Students will know and be able to . . .</i> <ul style="list-style-type: none"> ▪ Estimate and measure weight, capacity and volume in US customary and metric measurements. ▪ Review and practice identifying geometric solids through their properties. 	
Name: 4th Grade	Dates: May
Course/Subject: Math	Unit 12
Stage 1 – Desired Results	
PA Core Content & Practice Standards: Algebraic Concepts: <ul style="list-style-type: none"> ▪ Represent and solve problems involving the four operations CC.2.2.4.A.1. Measurement, Data and Probability: <ul style="list-style-type: none"> ▪ Solve problems involving measurement and conversions from a larger unit to a smaller unit CC.2.4.4.A.1 ▪ Represent and interpret data involving fractions using information provided in a line plot CC.2.4.4.A.4. ▪ Translate information from one type of data display to another CC.2.4.4.A.2. Construct viable arguments and critique reasoning of others. Make sense of problems and persevere in solving them. Reason abstractly and quantitatively.	
Understanding(s): <i>Students will understand . . .</i> <ol style="list-style-type: none"> 1. Data can be modeled and used to make inferences. 2. Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions. 	Essential Question(s): <ul style="list-style-type: none"> ▪ How can unit-rate comparisons be applied to shopping? ▪ How can unit rate tables be applied to real life?
Learning Objectives: <i>Students will know and be able to . . .</i> <ul style="list-style-type: none"> ▪ Learn, use, and practice collecting and comparing rate data. ▪ Learn and practice solving rate problems and checking the validity of data by converting it to more accessible rates. ▪ Calculate and practice unit pricing involving decimals and fractions of cents in comparison shopping. 	