PA CORE STANDARDS OVERVIEW – MATH

Content Standards

Kindergarten

Counting and Cardinality

- Know number names and write and recite the count sequence
- Apply one-to-one correspondence to count the number of objects
- Apply the concept of magnitude to compare numbers and quantities

Numbers & Operations in Base Ten

- Use place value to compose an decompose numbers within 19

Operations and Algebraic Thinking

- Extend the concepts of putting together and taking apart to add and subtract within 10

Geometry

- Identify and describe 2- and 3- dimensional shapes
- Analyze, compare, create, and compose 2- and 3- dimensional shapes

Measurement and Data

- Describe and compare attributes of length, area, weight, and capacity of everyday objects
- Classify objects and count the number of objects in each category

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Grade 1

Numbers & Operations in Base Ten

- Extend the counting sequence to read and write numerals to represent objects
- Use place-value concepts to represent amounts of tens and ones and to compare 2-digit numbers
- Use place-value concepts and properties of operations to add and subtract within 100

Operations and Algebraic Thinking

- Represent and solve problems involving addition and subtraction within 20
- Understand and apply properties and the relationship between addition and subtraction

Geometry

- Compose and distinguish between 2- and 3- dimensional shapes based on their attributes
- Use the understanding of fractions to partition shapes into halves and quarters

Measurement and Data

- Order lengths and measure them both indirectly and by repeating length units
- Tell and write time to the nearest half hour using both analog and digital clocks
- Represent and interpret data using tables/charts

Grade 2
Numbers & Operations in Base Ten

- Use place-value concepts to represent amounts of tens and ones and to compare three digit numbers
- Use place-value concepts to read, write, and skip count to 1000
- Use place-value understanding and properties of operations to add and subtract within 1000

Operations and Algebraic Thinking

- Represent and solve problems involving addition and subtraction within 100
- Understand and apply properties of operations and the relationship between addition and subtraction

Geometry

- Analyze and draw 2- and 3- dimensional shapes having specified attributes
- Use the understanding of fractions to partition shapes into halves, quarters, and thirds

Measurements and Data

- Measure and estimate lengths in standard units using appropriate tools
- Tell and write time to the nearest five minutes using both analog and digital clocks
- Solve problems and make change using coins and paper currency with appropriate symbols
- Represent and interpret data using line plots, picture graphs, and bar graphs
- Extend the concepts of addition and subtraction to problems involving length

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Grade 3
Numbers & Operations in Base Ten

- Apply place-value understanding and properties of operations to perform multi-digit arithmetic

Number & Operations – Fractions

- Explore and develop an understanding of fractions as numbers

Operations and Algebraic Thinking

- Represent and solve problems involving multiplication and division
- Understand properties of multiplication and the relationship between multiplication and division
- Demonstrate multiplication and division fluency
- Solve problems involving the four operations, and identify and explain patterns in arithmetic

Geometry

- Identify, compare, and classify shapes and their attributes
- Use the understanding of fractions to partition shapes into parts with equal areas and express the area of each part as a unit fraction of the whole

Measurement and Data

- Solve problems involving measurement and estimation of temperature, liquid volume, mass, and length
- Tell and write time to the nearest minute and solve problems by calculating time intervals
- Solve problems and make change involving money using a combination of coins and bills
- Represent and interpret data using tally charts, tables, pictographs, line plots, and bar graphs
- Determine the area of a rectangle and apply the concept to multiplication and to addition
- Solve problems involving perimeters of polygons and distinguish between linear and area measures

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Grade 4
Numbers & Operations in Base Ten

- Apply place-value concepts to show an understanding of multi-digit whole numbers
- Use place-value understanding and properties of operations to perform multi-digit arithmetic

Numbers & Operations – Fractions

- Extend the understanding of fractions to show equivalence and ordering
- Build fractions from unit fractions by applying and extending previous understanding of operations of whole numbers
- Connect decimal notation to fractions, and compare decimal fractions9base 10 denominator, e.g., 19/100)

Operations and Algebraic Thinking

- Represent and solve problems involving the four operations
- Develop and/or apply number theory concepts to find factors and multiples
- Generate and analyze patterns using one rule

Geometry

- Draw lines and angles and identify these in 2-dimensional figures
- Classify 2-dimensional figures by properties of their lines and angles
- Recognize symmetric shapes and draw lines of symmetry

Measurement and Data

- Solve problems involving measurement and conversions from a larger unit to a smaller unit
- Translate information from one type of data display to another
- Represent and interpret data involving fractions using information provided in a line plot
- Measure angles and use properties of adjacent angles to solve problems

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Standards for Mathematical Practice
(Kindergarten – Grade 12)

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 structure
8. Look for and express regularity in repeated reasoning