

PA (PSSA) Standards
Grade 3 Math

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2.1. Numbers, Number Systems and Number Relationships

- A. Count using whole numbers (to 10,000) and by 2's, 3's, 5's, 10's, 25's and 100's.
- B. Use whole numbers and fractions to represent quantities.
- C. Represent equivalent forms of the same number through the use of concrete objects, drawings, word names and symbols.
- D. Use drawings, diagrams or models to show the concept of fraction as part of a whole.
- E. Count, compare and make change using a collection of coins and one-dollar bills.
- F. Apply number patterns (even and odd) and compare values of numbers on the hundred board.
- G. Use concrete objects to count, order and group.
- H. Demonstrate an understanding of one-to-one correspondence.
- I. Apply place-value concepts and numeration to counting, ordering and grouping.
- J. Estimate, approximate, round or use exact numbers as appropriate.
- K. Describe the inverse relationship between addition and subtraction.
- L. Demonstrate knowledge of basic facts in four basic operations.

2.2. Computation and Estimation

- A. Apply addition and subtraction in everyday situations using concrete objects.
- B. Solve single- and double-digit addition and subtraction problems with regrouping in vertical form.
- C. Demonstrate the concept of multiplication as repeated addition and arrays.
- D. Demonstrate the concept of division as repeated subtraction and as sharing.
- E. Use estimation skills to arrive at conclusions.
- F. Determine the reasonableness of calculated answers.
- G. Explain addition and subtraction algorithms with regrouping.

2.3. Measurement and Estimation

- A. Compare measurable characteristics of different objects on the same dimensions (e.g., time, temperature, area, length, weight, capacity, perimeter).
- B. Determine the measurement of objects with non-standard and standard units (e.g., US customary and metric).
- C. Determine and compare elapsed times.
- D. Tell time (analog and digital) to the minute.
- E. Determine the appropriate unit of measure.
- F. Use concrete objects to determine area and perimeter.
- G. Estimate and verify measurements.

- H. Demonstrate that a single object has different attributes that can be measured in different ways (e.g., length, mass, weight, time, area, temperature, capacity, perimeter).

2.4. Mathematical Reasoning and Connections

- A. Make, check and verify predictions about the quantity, size and shape of objects and groups of objects.
- B. Use measurements in everyday situations (e.g., determine the geography of the school building).

2.5. Mathematical Problem Solving and Communication

- A. Use appropriate problem-solving strategies (e.g., guess and check, working backwards).
- B. Determine when sufficient information is present to solve a problem and explain how to solve a problem.
- C. Select and use an appropriate method, materials and strategy to solve problems, including mental mathematics, paper and pencil and concrete objects.

2.6. Statistics and Data Analysis

- A. Gather, organize and display data using pictures, tallies, charts, bar graphs and pictographs.
- B. Formulate and answer questions based on data shown on graphs.
- C. Predict the likely number of times a condition will occur based on analyzed data.
- D. Form and justify an opinion on whether a given statement is reasonable based on a comparison to data.

2.7. Probability and Predictions

- A. Predict and measure the likelihood of events and recognize that the results of an experiment may not match predicted outcomes.
- B. Design a fair and an unfair spinner.
- C. List or graph the possible results of an experiment.
- D. Analyze data using the concepts of largest, smallest, most often, least often and middle.

2.8. Algebra and Functions

- A. Recognize, describe, extend, create and replicate a variety of patterns including attribute, activity, number and geometric patterns.
- B. Use concrete objects and trial and error to solve number sentences and check if solutions are sensible and accurate.
- C. Substitute a missing addend in a number sentence.
- D. Create a story to match a given combination of symbols and numbers.
- E. Use concrete objects and symbols to model the concepts of variables, expressions, equations and inequalities.
- F. Explain the meaning of solutions and symbols.
- G. Use a table or a chart to display information.
- H. Describe and interpret the data shown in tables and charts.
- I. Demonstrate simple function rules.

- J. Analyze simple functions and relationships and locate points on a simple grid.

2.9. Geometry

- A. Name and label geometric shapes in two and three dimensions (e.g., circle/sphere, square/cube, triangle/pyramid, rectangle/prism).
- B. Build geometric shapes using concrete objects (e.g., manipulatives).
- C. Draw two- and three-dimensional geometric shapes and construct rectangles, squares and triangles on the geoboard and on graph paper satisfying specific criteria.
- D. Find and describe geometric figures in real life.
- E. Identify and draw lines of symmetry in geometric figures.
- F. Identify symmetry in nature.
- G. Fold paper to demonstrate the reflections about a line.
- H. Show relationships between and among figures using reflections.
- I. Predict how shapes can be changed by combining or dividing them.

2.10. Trigonometry

- A. Identify right angles in the environment.
- B. Model right angles and right triangles using concrete objects.

2.11. Concepts of Calculus

- A. Identify whole number quantities and measurements from least to most and greatest value.

- B. Identify least and greatest values represented in bar graphs and pictographs.
- C. Categorize rates of change as faster and slower.
- D. Continue a pattern of numbers or objects that could be extended infinitely.