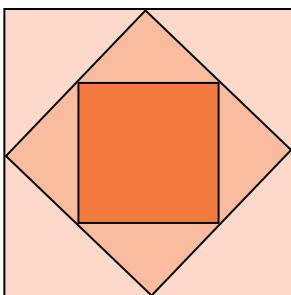


# Harford County Public Schools

## Meeting the Maryland State Department Voluntary State Curriculum Standards for Mathematics



### Third Grade

Welcome to third grade! In addition to extending their knowledge about addition and subtraction, third grade students learn about multiplication and division, fractions, and decimals. Third grade students also learn about angles and symmetry, how to determine the area of a geometric figure, how to determine the likelihood that an event occurs, and how to calculate the mean, median, and mode.

Jacqueline C. Haas, Ed.D.,  
Superintendent

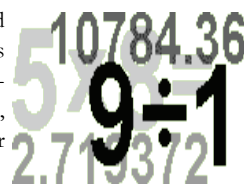
## Third Grade Mathematics

### Algebra, Patterns and Functions

Third grade students will demonstrate an understanding of how patterns, relationships, and functions are connected to the real world. Third graders will investigate and model relationships among quantities and apply this knowledge in real world situations.

Third grade learning outcomes include:

- Identify, describe, extend, and create numeric patterns by representing and analyzing numeric patterns in a variety of ways, including: skip counting by multiples of two, five, ten, or 100 beginning with any whole number, skip counting backwards by tens starting with any two-digit whole number, and complete a function table with a given rule (+, -).
- Identify, copy, describe, create, and extend non-numeric patterns such as growing patterns and repeating patterns using symbols, shapes, designs, and pictures using no more than four different objects in the core pattern.
- Identify, write, and solve equations, expressions, and inequalities by representing relationships using greater than, less than, and equal to and relational symbols (<, >, =) and operational symbols (+, -, x, ÷) on either side. Students will also find the missing number (unknown) in a number sentence (equation) using symbols (+, -, x, ÷) and find the missing number(s) (unknown) on one or both sides of a number sentence.



### Geometry

Third grade students will analyze and compare the characteristics and properties of two- and three-dimensional geometric shapes. They will explore ways to describe, reason, and solve problems about shape, size, position, or the motion of objects in relationship to their world.

Third grade learning outcomes include:

- Analyze and represent the properties of plane geometric figures by identifying, describing, and sketching their points, lines, line segments, rays, and angles, as well as identify and describe polygons and quadrilaterals (number of sides or vertices/length of sides).
- Analyze congruent (similar) figures, analyze a transformation by using horizontal slide, flip over a vertical line, or turn of 90° around a given point, and analyze geometric figures or pictures by identifying and describing lines of symmetry.

### Number

Third grade students will continue to build a strong foundation of number sense which is paramount to mathematical thinking since all other areas of mathematics are grounded in numbers. Students will describe, represent, and apply numbers or their relationships when estimating and computing by using mental strategies, paper/pencil, or technology.

Third grade learning outcomes include:

- Demonstrate proficiency with addition and subtraction basic facts using a variety of strategies, build equal groups to model multiplication, and build groups that share for division.
- Use the numbers 10, 50, and 100 as anchors in relationship to other numbers.
- Read, write, and represent whole numbers up to 1,000 using models, symbols, and words and count forward and backward by twos, fives, and tens starting with a number other than one.
- Express whole numbers up to 999 using expanded form (ex.  $241 = 200 + 40 + 1$ ) as well as compare and order whole numbers to 999 using words and relational symbols (<, >, =).
- Develop a sense of the size of a number in relation to other numbers.
- Apply knowledge of fractions of a single region with denominators of two and four as well as use pictures and models to represent halves as part of a set.
- Apply knowledge of money by identifying and representing the value of a set of mixed currency up to \$10 and compare the value of two sets of the same currency up to \$10.



### Measurement

Third grade students will continue to shape their understanding of the attributes, units, processes and systems of measurement through real world contexts by applying a variety of techniques, formulas, tools, or technology for determining measurement.

Third grade learning outcomes include:

- Read customary and metric measurement units of length to the nearest centimeter or 1/2 inch; tell time in days, hours, minutes, and seconds; read temperature to the nearest degree; and determine the weight of objects to the nearest ounce.
- Measure the capacity of containers to the nearest cup, pint, quart, gallon, milliliter, and liter and the mass of an object to the nearest gram and kilogram.
- Apply concepts of measurement by estimating and determining perimeter and area, as well as calculating equivalent measurements to determine equivalent units of length.

### Statistics and Probability

Third grade students will discover the world of data and how it helps them be informed citizens, employees, and consumers by collecting, organizing, displaying, analyzing, and interpreting data to make decisions and predictions that are relevant to their world. They will experiment with different methods of reasoning to determine probabilities to make predictions or solve problems about events whose outcomes involve random variation.

Third grade learning outcomes include:

- Collect and analyze data in tables by conducting surveys and organizing and displaying data to make: pictographs using a variety of scales, line plots, and single bar graphs using a variety of intervals.
- Identify possible outcomes that make up the sample space, such as spinning a spinner, and identify the probability of one simple event using terms like most likely or least likely.

### Processes of Mathematics

Third grade students demonstrate the processes of mathematics by making connections and applying reasoning to solve problems and communicate their findings. Third grade students will continually weave the interconnectedness of the different areas of mathematics and its relationship to the world.

Third grade learning outcomes include:

- Identify the question in a problem, make a plan to solve a problem by applying strategies, show that a problem might have multiple solutions or no solution, extend it to a new problem or situation, and use methods of proof.
- Express mathematical ideas orally and in various written and model forms. (pictures, symbols, manipulatives)
- Ask questions about mathematical ideas or problems and give feedback to revise mathematical thinking.

