Hope Township School Mathematics

Measurable Expectations

Mission Statement

Hope Township School, in cooperation with our community, values the importance of a supportive, challenging education for all students delivered through an effective, contemporary curriculum that meets or exceeds the Common Core State Standards and the New Jersey Core Curriculum Content Standards. By fostering communication and respect in a positive educational environment, all children can realize their potential.

8th Grade

Grade Level Goals:

- ◊ Use approximations of irrational numbers to order, compare and graph on number line irrational and rational numbers
- ◊ Know and apply the properties of integer exponents to simplify expressions containing exponents with like bases. Ex $3^2 \times 3^4 = 3^6$
- ◊ Solve algebraic equations containing exponents, square roots, or cube roots
- ◊ Express and interpret numbers in scientific notation
- ◊ Perform operations with numbers expressed in scientific notation
- ◊ Graph proportional relationships interpreting the unit rate as the slope of the graph.
- ◊ Compare two different proportional relationships represented in different ways
- ◊ Solve 2- step linear equations with one variable including equations whose solutions require combining like terms and using the distributive property
- ◊ Understand that solutions to a system of linear equations in two variables correspond to the points of intersection of their graphs
- ◊ Solve systems of two linear equations algebraically and estimate by graphing both equations
- ◊ Understand that a function is a rule that assigns to each input exactly one output. The graph of the function is the set of ordered pairs
- ◊ Interpret the equation $y = mx + b$ as a linear function whose graph is a straight line.
- ◊ Determine if an equation is linear or non-linear
- ◊ Graph linear equation and determine linear equation given graph
- ◊ Verify the properties of translations, reflections, rotations, and dilations
- ◊ Given image and pre-image describe the transformations or series of transformations that may have occurred
- ◊ Describe the effect of dilations, translations, rotations, and reflections on figures using coordinates
- ◊ Determine if transformations create a similar or congruent figure to the original
- ◊ Find angle sum of polygons
- ◊ Use angle relationships when two parallel lines are cut by a transversal (corresponding, alternate interior, alternate exterior, vertical)
- ◊ Find missing side in a triangle using Pythagorean theorem and its converse
- ◊ Use Pythagorean Theorem to solve real-world problems
- ◊ Use Pythagorean Theorem to find distance between two points on coordinate plane
- ◊ Know and use formulas for volumes of prisms, pyramids, cones, cylinders, spheres and use to solve real-world and mathematical problems
- ◊ Construct and interpret scatter plots and determine correlation, outliers, and if linear or not linear
- ◊ Find the line of best fit for a scatter plot if it exists
- ◊ Use line of best fit to solve problems of bivariate measurement data using slope and y-intercept

Mental Math

- ◊ Compute common square roots and cube roots
- ◊ Estimate value of uncommon square roots and cube roots
- ◊ Evaluate 10 to any power (positive or negative)
- ◊ Determine if number is rational or irrational

Computation skills

(with Pen and paper)

- ◊ Multiply and divide mixed numbers
- ◊ Solve problems applying the order of operations including multiple grouping symbols

Common Core Standards 8th Grade Overview:

- **The Number System**
- **Expressions and Equations**
- **Functions**
- **Geometry**
- **Statistics and Probability**
- **Mathematical Practices**