

Hampden Academy Math Standards REGIONAL SCHOOL UNIT #22

RSU #22 is committed to the optimal learning of all students. As RSU 22 continues to move towards meeting 2018 graduation expectations, we have elected to look at proficiency learning targets K-12. Rather than only the high school being responsible to report student proficiency, we have created some initial targets at each grade level. We know that some children may be able to meet standards beyond the targets listed at the grade level. We also know that some students will need more time to meet the expectations. This brochure is meant to be clear and transparent for RSU 22's content standards. While content is important, we will also report on Guiding Principles (sometimes labeled 21st century learning standards). RSU 22 is striving to add rigor to our learning experiences using skills such as explicit instruction using complex reasoning strategies.

Standards to be met before or during High School years

Algebra Standards

Building Functions Standards

- Understands the relationship between independent and dependent variables as representative of real-life situations.
- Understands the connection between independent and dependent variables with equations.
- Understands new functions can be created from existing functions.

Interpreting Functions Standards

- Knows a function can be represented algebraically, graphically, numerically, or by verbal description.
- Understands the functional relationship between two linear functions with the same representation.
- Is skilled at constructing and interpreting scatter plots between two sets of linked data. Is skilled at solving problems using the linear model to interpret the slope and intercept.
- Understands the relationship between the equations and the graphs of linear and absolute value functions.
- Understands the relationship between the equations and the graphs of quadratic and square root function.
- Understands the relationship between the equations and the graphs of exponential growth and decay functions.

Expressions, Equations, and Inequalities Standards

- Understands the solution to an inequality results in an infinite set of answers as plotted on a number line.
- Is skilled at solving one step equations using integers. Is skilled at solving one step inequalities using integers.
- Is skilled at adding, subtracting, factoring (numbers) and expanding

(distributive property) linear expressions with rational coefficients using the properties of operations. (i.e. commutative, associative, etc.)

- Understands the process for solving multi-step equations.
- Is skilled at solving systems of two linear equations through substitution or cancellation (elimination) with one solution, no solution, or infinitely many solutions.
- Is skilled at performing operations on polynomials (add, subtract, multiply)
- Is skilled at constructing a quadratic equation and using it to solve (through factoring, quadratic formula, and technology) a real-life situation.

Geometry Standards

Attributes and Equations Standards

- Understands supplementary, complementary, vertical, and adjacent angles. Understands angle relationships: parallel lines cut by transversal, angle sum, and exterior angles of a triangle.
- Understands that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations.
- Is skilled at using trigonometric ratios, ratios for special right triangles, and the Pythagorean Theorem to solve right triangles in applied problems.

Coordinate Systems Standards

- Is skilled at drawing polygons in the coordinate plane given coordinates for the vertices.
- Understands using coordinates to find perimeter of polygons and areas of triangles and rectangles.
- Understands using simple geometric theorems on a coordinate plane.

Measurement Standards

- Understands reproducing a scale drawing at a different scale of a geometric shape or drawing.
- Is skilled at finding surface area of triangular and rectangular prisms, triangular and rectangular pyramids.
- Is skilled at finding volume of triangular and rectangular prisms, triangular and rectangular pyramids.
- Is skilled at finding volume of cones, cylinders, and spheres.

Number Systems Standards

- Understands the rules of exponents (i.e. power of product, product of power). Understands the relationship between multiplication and positive exponents. Understands the relationships between multiplication and negative exponents.
- Understands the properties of rational exponents.
- Understands there is a number system beyond the real number system.
- Understands what an imaginary number is.

Statistics and Probability Standards

Data Analysis Standards

- Understands data can be represented and interpreted using histograms.
- Is skilled at constructing and interpreting scatter plots between two sets of linked data.

Probability Standards

- Understands the rules for computing probabilities of compound events.
- Understands when two events, A and B, are independent.