

**O'MALEY INNOVATION MIDDLE SCHOOL - SCOPE & SEQUENCE CHART: INTENDED UNITS OF STUDY, 2016-2017**

**CONTENT AREA: Math - GRADE LEVEL: 7th Grade Advanced Math**

UNIT	APPROXIMATE TIME FRAME	TEXT(S)/RESOURCES	TARGETED UNDERSTANDING (PURPOSE)	CONTENT STANDARD(S) (CCSS for Mass.)
Equations	<b>TERM 1</b>  8 days	Big Ideas! Math	<ul style="list-style-type: none"> <li>• Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.</li> <li>• Show that a linear equation in one variable has one solution, infinitely many solutions, or no solution by transforming the equation into simpler forms.</li> </ul>	8.EE.7a, 8.EE.7b, 8.EE.7
Transformations	<b>TERM 1</b>  12 days	Big Ideas! Math	<ul style="list-style-type: none"> <li>• Verify the properties of translations, reflections, and rotations.</li> <li>• Describe translations, reflections, rotations, and dilations using coordinates.</li> <li>• Understand that figures are congruent (or similar) when they can be related by a sequence of translations, reflections, and rotations (and dilations).</li> <li>• Describe a sequence that exhibits congruence or similarity between two figures</li> </ul>	8.G.1, 8.G.2, 8.G.3, 8.G.4
Angles & Triangles	<b>TERM 1 - TERM 2</b>  8 days	Big Ideas! Math	<ul style="list-style-type: none"> <li>• Classify and determine the measures of angles created when parallel lines are cut by a transversal.</li> <li>• Demonstrate that the sum of the interior angle measures of a triangle is <math>180^\circ</math> and apply this fact to find the unknown measures of angles and the sum of the angles of polygons.</li> <li>• Use similar triangles to solve problems that include height and distance.</li> </ul>	8.G.5
Graphing & Writing Linear Equations	<b>TERM 2</b>  12 days	Big Ideas! Math	<ul style="list-style-type: none"> <li>• Use similar triangles to explain why the slope is the same between any two points on a line.</li> <li>• Graph proportional relationships, interpreting the unit rate as the slope.</li> <li>• Compare proportional relationships represented in different ways.</li> <li>• Derive <math>y = mx</math> and <math>y = mx + b</math>.</li> </ul>	8.EE.5, 8.EE.6, 8.F.4

UNIT	APPROXIMATE TIME FRAME	TEXT(S)/RESOURCES	TARGETED UNDERSTANDING (PURPOSE)	CONTENT STANDARD(S) (CCSS for Mass.)
Systems of Linear Equations	<b>TERM 2</b>  8 days	Big Ideas! Math	<ul style="list-style-type: none"> <li>• Show that a linear equation in one variable has one solution, infinitely many solutions, or no solution by transforming the equation into simpler forms.</li> <li>• Solve multi-step equations.</li> <li>• Understand that the solution of a system of two linear equations in two variables corresponds to the point of intersection of their graphs.</li> <li>• Solve systems of two linear equations in two variables graphically and algebraically.</li> <li>• Solve real-world mathematical problems leading to systems of two linear equations in two variables.</li> </ul>	8.EE.8a, 8.EE.8b, 8.EE.8c, 8.EE.7
Functions	<b>TERM 2</b>  9 days	Big Ideas! Math	<ul style="list-style-type: none"> <li>• Understand the definition of a function.</li> <li>• Compare and write functions represented in different ways (words, tables, graphs).</li> <li>• Understand that <math>y = mx + b</math> is a linear function and recognize nonlinear functions.</li> <li>• Interpret the rate of change and initial value of a function.</li> </ul>	8.F.1, 8.F.2, 8.F.3, 8.F.4, 8.F.5
Real Numbers & The Pythagorean Theorem	<b>TERM 2</b>  10 days	Big Ideas! Math	<ul style="list-style-type: none"> <li>• Understand that every rational number has a decimal expansion that terminates or repeats.</li> <li>• Understand that numbers that are not rational are irrational.</li> <li>• Compare irrational numbers using rational approximations.</li> <li>• Evaluate square roots and cube roots, including those resulting from solving equations.</li> <li>• Explain a proof of the Pythagorean Theorem and its converse.</li> <li>• Use the Pythagorean Theorem to find missing measures of right triangles and distances between points in the coordinate plane.</li> </ul>	8.EE.2, 8.NS.1, 8.NS.2, 8.G.6, 8.G.7, 8.G.8,
Volume & Similar Solids	<b>TERM 2</b>  7 days	Big Ideas! Math	<ul style="list-style-type: none"> <li>• Know and apply the formulas for the volumes of cones, cylinders, and spheres.</li> <li>• Describe a sequence that exhibits similarity between two figures.</li> </ul>	8.G.9

UNIT	APPROXIMATE TIME FRAME	TEXT(S)/RESOURCES	TARGETED UNDERSTANDING (PURPOSE)	CONTENT STANDARD(S) (CCSS for Mass.)
Data Analysis & Displays	<b>TERM 2</b>  7 days	Big Ideas! Math	<ul style="list-style-type: none"> <li>• Construct and interpret scatter plots.</li> <li>• Find and assess lines of fit for scatter plots.</li> <li>• Use equations of lines to solve problems and interpret the slope and the y-intercept.</li> <li>• Use two-way tables.</li> <li>• Choose appropriate data displays.</li> </ul>	8.SP.1, 8.SP.2, 8.SP.3, 8.SP.4
Exponents & Scientific Notation	<b>TERM 2</b>  11 days	Big Ideas! Math	<ul style="list-style-type: none"> <li>• Use the properties of integer exponents to generate equivalent expressions.</li> <li>• Use scientific notation to estimate very large or very small quantities.</li> <li>• Perform operations with numbers expressed in scientific notation and other forms.</li> <li>• Interpret scientific notation that has been generated by technology.</li> </ul>	8.EE.1, 8.EE.3, 8.EE.4
Inequalities	<b>TERM 3</b>  7 days	Big Ideas! Math	<ul style="list-style-type: none"> <li>• Solve one-step inequalities involving integers and rational numbers.</li> <li>• Solve two-step inequalities.</li> </ul>	7.EE.4b
Constructions & Scale Drawings	<b>TERM 3</b>  12 days	Big Ideas! Math	<ul style="list-style-type: none"> <li>• Use supplementary, complementary, vertical, and adjacent angles.</li> <li>• Draw geometric shapes with given conditions, focusing on triangles and quadrilaterals.</li> <li>• Reproduce a scale drawing at a different scale.</li> <li>• Represent proportional relationships with equations.</li> <li>• Use proportionality to solve ratio problems.</li> <li>• Use scale drawings to compute actual lengths and areas.</li> </ul>	7.G.1, 7.G.2, 7.G.5
Circles	<b>TERM 3</b>  7 days	Big Ideas! Math	<ul style="list-style-type: none"> <li>• Understand pi and its estimates.</li> <li>• Use values of pi to estimate and calculate the circumference and area of circles.</li> <li>• Find perimeters and areas of composite two-dimensional figures, including semi-circles.</li> </ul>	7.G.4, 7.G.6

UNIT	APPROXIMATE TIME FRAME	TEXT(S)/RESOURCES	TARGETED UNDERSTANDING (PURPOSE)	CONTENT STANDARD(S) (CCSS for Mass.)
Surface Area & Volume	<b>TERM 4</b>  <b>11 days</b>	Big Ideas! Math	<ul style="list-style-type: none"> <li>• Solve real-world problems involving surface areas and volumes of objects composed of prisms, pyramids, and cylinders.</li> <li>• Describe the cross sections that result from slicing three-dimensional figures.</li> </ul>	7.G.3, 7.G.4, 7.G.6
Probability & Statistics	<b>TERM 4</b>  <b>13 days</b>	Big Ideas! Math	<ul style="list-style-type: none"> <li>• Understand representative samples (random sampling) and populations.</li> <li>• Use samples to draw inferences about populations.</li> <li>• Compare two populations from random samples using measures of center and variability.</li> <li>• Understand that probability is the likelihood of an event occurring, expressed as a number from 0 to 1.</li> <li>• Develop probability models and use them to find probabilities.</li> <li>• Find the probabilities of compound events.</li> </ul>	7.SP.1, 7.SP.2, 7.SP.3, 7.SP.4, 7.SP.5, 7.SP.6, 7.SP.7a, 7.SP.7b, 7.SP.8a, 7.SP.8b, 7.SP.8c

Total: 143 days

Variance: 37 days



