**Moon Area School District Curriculum Map**

**Course: Academic Math 8**
**Grade Level: 8**
**Content Area: Mathematics**
**Frequency:** Full-Year Course

## Big Ideas

1. Real Numbers
2. Analyze and Solve Linear Equations
3. Use Functions to Model Relationships
4. Investigate Bivariate Data
5. Analyze and Solve Systems of Linear Equations
6. Congruence and Similarity
7. Understand and apply the Pythagorean Theorem
8. Solve Problems Involving Surface Area and Volume

## Essential Questions

9. What are real numbers? How are real numbers used to solve problems?
10. How can we analyze connections between linear equations, and use them to solve problems?
11. How can you use functions to model linear relationships?
12. How can you represent the relationship between paired data and use the representation to make predictions?
13. What does it mean to solve a system of linear equations?
14. How can you show that two figures are either congruent or similar to one another?
15. How can you use the Pythagorean Theorem to solve real-world problems?
16. What is volume? How can you find volumes of three-dimensional figures?

**Primary Resource(s) & Technology:**
envision Mathematics Common Core, iXL online software,
Microsoft Teams, Promethean Boards, Student Laptops, Graphing Calculators

**Pennsylvania and/or focus standards referenced at:**
www.pdesas.org
www.education.pa.gov

| Big Ideas/ EQs | Focus Standard(s) | Assessed Competencies (Key content and skills) | Timeline |
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| 1, 9 | CC.2.2.8.B.1<br><br>CC.2.1.8.E.1<br><br>CC.2.1.8.E.4<br><br>M08.A-N.1.1.1<br><br>M08.A-N.1.1.2<br><br>M08.A-N.1.1.3<br><br>M08.A-N.1.1.4<br><br>M08.A-N.1.1.5<br><br>M08.B-E.1.1.1<br><br>M08.B-E.1.1.2<br><br>M08.B-E.1.1.3<br><br>M08.B-E.1.1.4 | • Rational Numbers as Decimals<br>• Understand Irrational Numbers<br>• Compare and Order Real Numbers<br>• Evaluate Square Roots and Cube Roots<br>• Solve Equations Using Square Roots and Cube Roots<br>• Use Properties of Integers Exponents<br>• More Properties of Exponents<br>• Use Powers of 10 to Estimate Quantities<br>• Understand Scientific Notation<br>• Operations with Numbers in Scientific Notation | August/ September<br><br>(5 weeks) |
| 2, 10 | CC.2.2.8.B.2<br><br>CC.2.2.8.B3<br><br>M08.B-E.2 | • Combine Like Terms to Solve Equations<br>• Solve Equations with Variables on Both Sides<br>• Solve Multistep Equations<br>• Equations with No Solutions or Infinitely Many Solutions<br>• Compare Proportional Relationships | October/ November<br><br>(7 weeks) |

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| | M08.B-E.2.1<br>M08.B-E.2.1.1<br>M08.B-E.2.1.2<br>M08.B-E.2.1.3<br>M08.B-E.3<br>M08.B-E.3.1<br>M08.B-E.3.1.1<br>M08.B-E.3.1.2 | • Connect Proportional Relationships and Slope<br>• Analyze Linear Equations: y=mx<br>• Understand the y-intercept of a Line<br>• Analyze Linear Equations y = mx + b | |
| 3, 11 | CC.2.2.8.C.1<br>CC.2.2.8.C.2<br>M08.B-F.1.1.1<br>M08.B-F.1.1.2<br>M08.B-F.1.1.3<br>M08.B-F.2.1.1<br>M08.B-F.2.1.2 | • Understand Relations and Functions<br>• Connect Representations of Functions<br>• Compare Linear and Nonlinear Functions<br>• Construct Functions to Model Linear Relationships<br>• Intervals of Increase and Decrease<br>• Sketch Functions from Verbal Descriptions | December<br>(3-4 weeks) |
| 4, 12 | CC.2.4. 8. B. 1<br>CC.2.4. 8. B. 2<br>M08. D-S. 1.1.1<br>M08. D-S. 1.1.2<br>M08. D-S. 1.1.3<br>M08. D-S. 1.2.1 | • Construct and Interpret Scatter Plots<br>• Analyze Linear Associations<br>• Use Linear Models to Make Predictions<br>• Interpret Two-Way Frequency Tables<br>• Interpret Two-Way Relative Frequency Tables | January<br>(4 weeks) |

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| 5, 13 | CC.2. 2. 8. B. 3<br>M08.B-E.3.1.4<br>M08.B-E.3.1.3 | • Estimate Solutions by Inspection<br>• Solve Systems by Graphing<br>• Solve Systems by Substitution<br>• Solve System by Elimination | February/ March<br>(8 weeks) |
| 6, 14 | CC.2.3.8.A.2<br>M08.C-G.1<br>M08.C-G.1.1<br>M08.C-G.1.1.1<br>M08.C-G.1.1.2<br>M08.C-G.1.1.3<br>M08.C-G.1.1.4 | • Analyze Translations<br>• Analyze Reflections<br>• Analyze Rotations<br>• Compose Transformations<br>• Understand Congruent Figures<br>• Describe Dilations<br>• Understand Similar Figures | April/May<br>(6 weeks) |
| 7, 15 | CC.2.3.8.A.3<br>M08.C-G.2.1 | • Understand the Pythagorean Theorem | |

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| | M08.C-G.2.1.1<br>M08.C-G.2.1.2<br>M08.C-G.2.1.3 | • Understand the Converse of the Pythagorean Theorem<br>• Apply the Pythagorean Theorem to Solve Problems<br>• Find Distance in the Coordinate Plane | |
| 8, 16 | CC.2. 3. 8. A. 1<br>M08.C-G.3.1.1.1 | • Find Volume of Cylinders<br>• Find Volume of Cones<br>• Find Volume of Spheres | |