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# 8th Grade Common Core

Curriculum Guide

Scranton School District

Scranton, PA



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Curriculum Guide**

**8th Grade Common Core**

**Prerequisites:**

- Successful completion of Common Core Math 7

**Course Description**

- Students will demonstrate an understanding of the connections between the various branches of mathematics by applying computational skills, mathematical reasoning, and introductory algebraic and geometric principles to model and solve real life problems.
- Students will understand the relationship between lines and linear equations and be able to represent such.
- Students will be able to define, recognize, and evaluate functions.
- Students will demonstrate a proficient understanding of rational and irrational numbers.
- Students will be able to use and understand the Pythagorean Theorem.
- Students will describe the dilations, translations, reflections, and rotations on two-dimensional figures.
- Use statistics and probability to investigate patterns in bivariate data.
- After successfully completing this course, students will be allowed to enroll in Algebra 1 K/CC or Intro to Algebra Part A

**Scranton School District  
Curriculum Guide**

**1<sup>st</sup> Quarter**

Topic	Resources	CCSS
Linear Equations: One Variable	Big Ideas Math Blue, Ch. 1 Lesson 1-4	8.EE 7a,b
Graphing linear Equations	Big Ideas Math Blue, Ch. 4 Lessons 1-2	8. EE 7a
Proportional Relationships	Big Ideas Math Blue, Ch. 4 Lessons 3	8.EE 5

**Scranton School District  
Curriculum Guide**

2<sup>nd</sup> Quarter

Topic	Resources	CCSS
Slope/ linear Equations	Big Ideas Math Blue, Ch. 4 Lessons 4-7	8.EE.6 8.EE.7b 8.F.3
Systems of Equations	Big Ideas Math Blue Ch. 5 lessons 1-4	8.EE.8a, 8EE.8b, 8EE. 8bc
Functions	Big Ideas Math Blue Ch. 6 lessons 1-2	8.F.1, 8.F.2

**Scranton School District  
Curriculum Guide**

3<sup>rd</sup> Quarter

Topic	Resources	CCSS
Functions & Linear Relationships	Big Ideas Math Blue Ch. 6 lessons 3-5	8.F 4,5
Rational & Irrational Numbers, Pythagorean Theorem	Big Ideas Math Blue Ch. 7 Lessons 1-5	8.NS 1,2 8.G 6,7,8
Volume	Big Ideas Math Blue Ch. 8 Lessons 1-4	8.G 9
Statistics & Probability	Big Ideas Math Blue Ch. 9 Lessons 1-4	8.SP 1,2,3,4
Exponents & Scientific Notation	Big Ideas Math Blue Ch. 10 Lessons 1-7	8.EE 1,2,3,4

**Scranton School District  
Curriculum Guide**

4<sup>th</sup> Quarter

Topic	Resources	CCSS
Geometry	Big Ideas Math Blue, Ch 2, Lessons 1-7	8.G.1, 8.G.2, 8.G.3,8.G.4
Angle Relationship	Big Ideas Math Blue, Ch 3, Lesson 1-4	8.G.5
<b>**All topics above this line should be completed prior to PSSA testing. If time allows, new topics can be added.</b>		
Linear Equations/Slope (Review)	Big Ideas Math Blue Ch. 4 Lessons 4-7	8.EE.6,7b 8.F.3
Systems of Equations (Review)	Big Ideas Math Blue Ch. 5 Lessons 1-4	8.EE.8 a,b,c
Final Exam Review	Big Ideas Math Blue	All

**Scranton School District  
Curriculum Guide**

\* When Common Core becomes fully implemented, the suggested timeline should be adjusted accordingly.

<b>General Topic</b>	<b>Academic Standard(s)</b>	<b>Essential Knowledge, Skills &amp; Vocabulary</b>	<b>Resources &amp; Activities</b>	<b>Best Practices</b>	<b>Suggested Time *</b>
<b>Solving Linear Equations</b>	<b>8.EE 7a,b</b>	<b>One-Step, Multi-Step, Variables on Both Sides Solutions</b> <ul style="list-style-type: none"> <li>One Solution</li> <li>Infinite Solutions</li> <li>No Solutions</li> </ul>	<ul style="list-style-type: none"> <li>Big Ideas Math Blue, 1.1-1.4</li> <li>Bigideasmath.com</li> <li>Triumph Learning CC Coach</li> <li>Study Island</li> </ul>	Use of real-life word problems  Use partially solved problems.  Use incorrectly solved problems and compare to correctly solved ones.	<b>18 days</b>

**Scranton School District  
Curriculum Guide**

<b>Graphing linear Equations</b>	<b>8.EE 7a 8.EE 5 8 EE.6</b>	<ul style="list-style-type: none"> <li>• Using the Coordinate Plane</li> <li>• Using an x/y chart to graph</li> <li>• Concept of x-intercept</li> <li>• Concept of y-intercept</li> <li>• Independent and dependent variables</li> <li>• Graphing proportional relationships and comparing relationships in different ways</li> <li>• Unit Rate</li> <li>• Interpreting unit rate as the slope of a graph</li> </ul>	<ul style="list-style-type: none"> <li>• Big Ideas Math Blue, Ch 4 Lessons 1-2</li> <li>• Bigideasmath.com</li> <li>• Study Island</li> </ul>	<b>Using graphs</b>  <b>Naming Coordinates</b>  <b>x/y charts</b>  <b>Graphing Calculators on-line</b>	<b>18 days</b>
<b>Proportional Relationships</b>			<ul style="list-style-type: none"> <li>• Chapter 4 Big Ideas Math Blue lesson 4.3</li> </ul>	<b>Study Island Built Tests</b>	<b>5 days</b>

**Scranton School District  
Curriculum Guide**

General Topic	Academic Standard(s)	Essential Knowledge, Skills & Vocabulary	Resources & Activities	Assessments	Suggested Time
Slope/Linear Equations	8.EE 6 8.EE 7b 8. F 3	<b>Determine slope:</b> <ul style="list-style-type: none"> <li>• Visually</li> <li>• Formula: given two points</li> <li>• Use to derive <math>y = mx + b</math></li> <li>• Writing equations in slope-intercept form</li> <li>• Writing equations in Point-Slope form</li> </ul>	<ul style="list-style-type: none"> <li>• Big Ideas Math Blue, 4.4-4.7 Promethean Board etc.</li> <li>• Bigideasmath.com</li> <li>• Study Island</li> <li>• Khan Academy</li> </ul>	Teacher prepared tests, quizzes, etc	18

**Scranton School District  
Curriculum Guide**

<b>General Topic</b>	<b>Academic Standard(s)</b>	<b>Essential Knowledge, Skills &amp; Vocabulary</b>	<b>Resources &amp; Activities</b>	<b>Assessments</b>	<b>Suggested Time</b>
<b>Systems of Equations</b>	<b>8.EE 8 a,b,c</b>	<b>Types of Solutions</b> <b>Solve by</b> <ul style="list-style-type: none"> <li>• Graphing,</li> <li>• Substitution</li> <li>• Elimination</li> </ul> <b>Real Life Applications</b>	<ul style="list-style-type: none"> <li>• Big Ideas Math Blue, 5.1-5.4</li> <li>• Triumph learning CC Support Coach Lesson 7</li> <li>• Triumph Learning CC Coach Lesson 10</li> <li>• Study Island</li> <li>• Khan Academy</li> </ul>	<b>Teacher created tests and quizzes</b>	<b>18 days</b>

**Scranton School District  
Curriculum Guide**

<b>General Topic</b>	<b>Academic Standard(s)</b>	<b>Essential Knowledge, Skills &amp; Vocabulary</b>	<b>Resources &amp; Activities</b>	<b>Assessments</b>	<b>Suggested Time</b>
<b>Functions &amp; Linear Relationships</b>	<b>8.F 1,2 8.F 4,5</b>	<b>Definition and Graph</b> <b>Determine function rule</b> <ul style="list-style-type: none"> <li>• from table of values</li> <li>• from a graph</li> </ul> <b>Rate of Change and Initial Value</b> <b>Linear and Nonlinear Functions</b> <ul style="list-style-type: none"> <li>• Increasing/decreasing</li> <li>• Linear/nonlinear</li> </ul>	<ul style="list-style-type: none"> <li>• Big Ideas Math Blue, 6.1-6.5</li> <li>• Triumph learning CC Support Coach Lesson 8, 9</li> <li>• Triumphlearning CC Coach Lesson 13-17</li> <li>• Promethean Board etc.</li> <li>• Study Island</li> </ul>	<b>Teacher created tests and quizzes</b>	<b>18 days</b>

**Scranton School District  
Curriculum Guide**

<b>General Topic</b>	<b>Academic Standard(s)</b>	<b>Essential Knowledge, Skills &amp; Vocabulary</b>	<b>Resources &amp; Activities</b>	<b>Assessments</b>	<b>Suggested Time</b>
<b>Rational &amp; Irrational Numbers</b>	<b>8.NS 1,2 8.G 6,7,8 8.EE 6</b>	<b>Classify real numbers</b> <b>Irrational Numbers</b> <ul style="list-style-type: none"> <li>Estimate the value</li> <li>Comparing and ordering all real numbers</li> </ul> <b>Square roots &amp; Cube roots</b> <b>Pythagorean Theorem</b> <ul style="list-style-type: none"> <li>Proof and Converse</li> <li>Applications in Two and Three Dimensions</li> <li>Explain slope using similar triangles</li> </ul>	<ul style="list-style-type: none"> <li>Big Ideas Math Blue, 7.1-7.4</li> <li>Triumph learning CC Support Coach Lesson 1</li> <li>Crosswalk Coach Lesson 1-4</li> <li>Triumphlearning CC Coach Lesson 1-2</li> <li>Promethean Board etc</li> <li>Study Island</li> </ul>	<b>Teacher created tests and quizzes</b>	<b>5 days</b>
<b>Volume</b>	<b>8.G 9</b>	<b>Volumes of Cones, Cylinders, Spheres</b> <ul style="list-style-type: none"> <li>Formulas</li> <li>Applications</li> </ul>	<ul style="list-style-type: none"> <li>Big Ideas Math Blue, 8.1-8.4</li> <li>Triumph learning CC Support Coach Lesson 17</li> <li>Triumphlearning CC Coach Lesson 28</li> <li>Promethean Board etc.</li> <li>Study Island</li> </ul>	<b>Teacher created tests and quizzes</b>	<b>5 days</b>
<b>General Topic</b>	<b>Academic Standard(s)</b>	<b>Essential Knowledge, Skills &amp; Vocabulary</b>	<b>Resources &amp; Activities</b>	<b>Assessments</b>	<b>Suggested Time</b>

**Scranton School District  
Curriculum Guide**

<b>Statistics &amp; Probability</b>	<b>8.SP 1,2,3,4</b>	<b>Scatter Plots</b> <ul style="list-style-type: none"> <li>Construct</li> <li>Interpret</li> <li>Lines of best fit (slope and Intercept)</li> </ul> <b>Stem and Leaf Plots</b> <b>Two Way Tables</b> <ul style="list-style-type: none"> <li>Construct</li> <li>Interpret</li> </ul>	<ul style="list-style-type: none"> <li>Big Ideas Math Blue, 9.1-9.3</li> <li>Triumph learning CC Support Coach Lesson 18-20</li> <li>Triumphlearning CC Coach Lesson 29-32</li> <li>Promethean Board etc.</li> <li>Study Island</li> </ul>	Teacher created tests and quizzes	15 days
<b>Exponents &amp; Scientific Notation</b>	<b>8 EE 1,2,3,4</b>	<b>Operations involving exponents</b> <ul style="list-style-type: none"> <li>Integer (positive/negative)</li> <li>Radical</li> </ul> <b>Scientific Notation</b> <ul style="list-style-type: none"> <li>Operations involving scientific notation</li> <li>Applications</li> </ul>	<ul style="list-style-type: none"> <li>Big Ideas Math Blue, 10.1-10.7</li> <li>Triumph learning CC Support Coach Lesson 2-3</li> <li>Triumphlearning CC Coach Lesson 3-6</li> <li>Promethean Board etc</li> <li>Study Island</li> </ul>	Teacher created tests and quizzes	18 days
<b>Geometry</b>	<b>8.G.1 a,b,c 2,3,4</b>	<b>Translations, Reflections, Rotations, Dilations</b> <ul style="list-style-type: none"> <li>Properties</li> <li>Congruence</li> <li>Effects</li> <li>Similarities</li> </ul>	<ul style="list-style-type: none"> <li>Big Ideas Math Blue 2.1-2.7</li> <li>Bigideasmath.com</li> <li>Triumph Learning Support Coach Lesson 10-14</li> <li>Triumph Learning Lesson 18-23</li> </ul>	Teacher created tests and quizzes	10 day

**Scranton School District  
Curriculum Guide**

<b>Angle Relationships</b>	<b>8.G.5</b>	<b>Parallel Lines</b> <b>Angles</b> <b>Angle Sums and Triangles</b> <ul style="list-style-type: none"> <li>• Interior Angles</li> <li>• Exterior Angles</li> <li>• Similarity</li> </ul> <b>Parallel lines cut by transversal</b> <b>Applications of Coordinate System</b>	<b>Big Ideas Math Blue</b> <b>3.1-3.4</b> <b>Triumph Learning</b> <b>Support Lessons</b> <b>15/16</b> <b>Triumph Learning</b> <b>Lesson 24-27</b>	<b>Teacher created tests and quizzes</b>	<b>4 days</b>
<b>Review of Linear Equations/Slope</b>	<b>8.EE.6,7b</b> <b>8.F.3</b>	<b>Review of these topics in preparation for Algebra 1 or Algebra Part A</b>	<ul style="list-style-type: none"> <li>• Big Ideas Math Blue, 4.4-4.7</li> <li>• Study Island</li> </ul>		<b>12 days</b>
<b>Systems of Equations</b>	<b>8.EE.8a,b,c</b>	<b>Review of topic in preparation for Algebra 1 or Algebra Part A</b>	<ul style="list-style-type: none"> <li>• Big Ideas Math Blue, 5.1-5.4</li> <li>• Study Island</li> </ul>		<b>9 days</b>
<b>Final Exam Review</b>	<b>All</b>	<b>Review of all topics for final exam</b>	<ul style="list-style-type: none"> <li>• Big Ideas Math Blue</li> <li>• Study Island</li> </ul>		<b>6 days</b>