**COURSE DESCRIPTION**

**Course Title:** Pre-Algebra 8

**Course Number:** 00201

**Course Prerequisites:** Completion of Mathematics – Grade 7

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| **Course Description:** | This course builds upon computational, problem solving, graphing, and algebraic concepts previously learned in mathematics. Pre-Algebra provides learning experiences required for Algebra I such as linear equations, functions, graphing, geometry, systems of equations and bivariate data. It will provide students with problem-solving, reasoning skills and mathematical concepts necessary to be successful learners in future mathematics courses. |

**Suggested Grade Level**: Grade 8

**Length of Course:** Two Semesters

**Units of Credit:** None

**PDE Certification and Staffing Policies and Guidelines (CSPG) Required Teacher Certifications:**

CSPG #53 Middle Level Mathematics, CSPG#50 Mathematics (7-12) CSPG #70 Grades 4-8 (All subjects 4-6, Mathematics 7-8)

To find the CSPG information, go to [CSPG Information](https://www.education.pa.gov/Educators/Certification/Staffing%20Guidelines/Pages/default.aspx)

**Certification verified by the WCSD Human Resources Department:** Yes No

**WCSD STUDENT DATA SYSTEM INFORMATION**

**Course Level:** Academic

**Mark Types:** Check all that apply.

F – Final Average MP – Marking Period EXM – Final Exam

**GPA Type**:  GPAEL-GPA Elementary  GPAML-GPA for Middle Level  NHS-National Honor Society

UGPA-Non-Weighted Grade Point Average  GPA-Weighted Grade Point Average

**State Course Code**: 02051

To find the State Course Code, go to [State Course Code](https://nces.ed.gov/forum/sced.asp), download the Excel file for *SCED*, click on SCED 6.0 tab, and chose the correct code that corresponds with the course.

**TEXTBOOKS AND SUPPLEMENTAL MATERIALS**

**Board Approved Textbooks, Software, and Materials:**

**Title:**  enVision Math 2.0 Grade 8

**Publisher:** Pearson

**ISBN #:**  9780328952588

**Copyright Date:** 2017

**WCSD Board Approval Date:** 06/29/2020

**Supplemental Materials:** Click or tap here to enter text.

**Curriculum Document**

**WCSD Board Approval:**

**Date Finalized:** 6/5/2020

**Date Approved:**  6/29/2020

**Implementation Year:** 2020-2021

**SPECIAL EDUCATION, 504, and GIFTED REQUIREMENTS**

The teacher shall make appropriate modifications to instruction and assessment based on a student’s Individual Education Plan (IEP), Chapter 15 Section 504 Plan (504), and/or Gifted Individual Education Plan (GIEP).

**SCOPE AND SEQUENCE OF CONTENT, CONCEPTS, AND SKILLS**

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| **Performance Indicator** | **PA Core Standard and/or Eligible Content** | **Month Taught and Assessed for Mastery** |
| Write Repeating Decimals as Fraction | CC.2.1.8.E.1 | September  Choose an item. |
| Write Repeating Decimals with Non-Repeating Digits as Fractions | CC.2.1.8.E.1 | September  Choose an item. |
| Write Repeating Decimals with Multiple Repeating Digits as Fractions | CC.2.1.8.E.1 | September  Choose an item. |
| Identify Irrational Numbers | CC.2.1.8.E.1 | September  Choose an item. |
| Identify Square Roots and Irrational Numbers | CC.2.1.8.3.4 | September  Choose an item. |
| Classify Numbers as Rational or Irrational | CC.2.1.8.E.4 | September  Choose an item. |
| Approximate an Irrational Number | CC.2.1.8.E.4 | September  Choose an item. |
| Compare Irrational Numbers | CC.2.1.8.E.4 | September  Choose an item. |
| Compare and Order Rational and Irrational Numbers | CC.2.1.8.E.4 | September  Choose an item. |
| Evaluate Cube Roots to Solve Problems | CC.2.2.8.B.1 | September  Choose an item. |
| Evaluate Perfect Squares and Perfect Cubes | CC.2.2.8.B.1 | September  Choose an item. |
| Evaluate Square Roots to Solve Problems | CC.2.2.8.B.1 | September  Choose an item. |
| Solve Equations Involving Perfect Squares | CC.2.2.8.B.1 | September  Choose an item. |
| Solve Equations Involving Perfect Cubes | CC.2.2.8.B.1 | September  Choose an item. |
| Solve Equations Involving Imperfect Squares and Cubes | CC.2.2.8.B.1 | September  Choose an item. |
| Multiply Exponential Expressions: Same Base | CC.2.2.8.B.1 | September  Choose an item. |
| Multiply Exponential Expressions: Different Base | CC.2.2.8.B.1 | September  Choose an item. |
| Find the Power of a Power | CC.2.2.8.B.1 | September  Choose an item. |
| Divide Exponential Expressions: Same Base | CC.2.2.8.B.1 | September  Choose an item. |
| The Zero Exponent Property | CC.2.2.8.B.1 | September  Choose an item. |
| The Negative Exponent Property | CC.2.2.8.B.1 | September  Choose an item. |
| Expressions with Negative Exponents | CC.2.2.8.B.1 | September  Choose an item. |
| Estimate Very Large Quantities | CC.2.2.8.B.1 | September  Choose an item. |

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| Estimate Very Small Quantities | CC.2.2.8.B.1 | September  Choose an item. |
| Find How Many Times as Much | CC.2.2.8.B.1 | September  Choose an item. |
| Write Large Numbers in Scientific Notation | CC.2.2.8.B.1 | September  Choose an item. |
| Write Small Numbers in Scientific Notation | CC.2.2.8.B.1 | September  Choose an item. |
| Convert Scientific Notation to Standard Form | CC.2.2.8.B.1 | September  Choose an item. |
| Add or Subtract Numbers in Scientific Notation | CC.2.2.8.B.1 | September  Choose an item. |
| Multiply Numbers in Scientific Notation | CC.2.2.8.B.1 | September  Choose an item. |
| Divide Numbers in Scientific Notation | CC.2.2.8.B.1 | September  Choose an item. |
| Combine Like Terms to Solve Addition Equations | CC.2.2.8.B.3 | September  October |
| Combine Like Terms to Solve Subtraction Equations | CC.2.2.8.B.3 | September  October |
| Combine Like Terms with Negative Coefficients to Solve Equations | CC.2.2.8.B.3 | September  October |
| Solve Equations with Fractional Coefficients | CC.2.2.8.B.3 | September  October |
| Solve Equations with Decimal Coefficients | CC.2.2.8.B.3 | September  October |
| Solve Equations with Negative Coefficients | CC.2.2.8.B.3 | September  October |
| Use the Distributive Property to Solve a Multi-Step Equation | CC.2.2.8.B.3 | September  October |
| Distribute a Negative Coefficient to Solve Equations | CC.2.2.8.B.3 | September  October |
| Use the Distributive Property on Both Sides of the Equation | CC.2.2.8.B.3 | September  October |
| Solve an Equation with Infinitely Many Solutions | CC.2.2.8.B.3 | September  October |
| Solve an Equation with One Solution | CC.2.2.8.B.3 | September  October |
| Solve an Equation with No Solutions | CC.2.2.8.B.3 | September  October |
| Determine the Number of Solutions By Inspection | CC.2.2.8.B.3 | September  October |
| Compare Proportional Relationships Represented By Tables and Graphs | CC.2.2.8.B.2 | September  October |
| Compare Proportional Relationships Represented By Graphs and Equations | CC.2.2.8.B.2 | September  October |
| Compare Proportional Relationships Represented By Graphs and Verbal Descriptions | CC.2.2.8.B.2 | September  October |
| Understand Slope | CC.2.2.8.B.2 | September  October |
| Find the Slope From Two Points | CC.2.2.8.B.2 | September  October |

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| Interpret Slope | CC.2.2.8.B.2 | September  October |
| Relate Constant of Proportionality to Slope | CC.2.2.8.B.2 | September  October |
| Write a Linear Equation From Two Points | CC.2.2.8.B.2 | September  October |
| Graph an Equation of the Form y=mx | CC.2.2.8.B.2 | September  October |
| Determine the y-Intercept of a Relationship | CC.2.2.8.B.2 | September  October |
| Understand the y-Intercept of a Proportional Relationship | CC.2.2.8.B.2 | September  October |
| Identify the y-Intercept | CC.2.2.8.B.2 | September  October |
| Write the Equation of a Line | CC.2.2.8.B.2 | September  October |
| Write a Linear Equations Given It’s Graph | CC.2.2.8.B.2 | September  October |
| Graph a Given Linear Equation | CC.2.2.8.C.1 | September  October |
| Identify Functions with Arrow Diagrams | CC.2.2.8.C.1 | October  November |
| Use Tables to Identify Functions | CC.2.2.8.C.1 | October  November |
| Interpreting Functions | CC.2.2.8.C.1 | October  November |
| Represent a Linear Function with an Equation and a Graph | CC.2.2.8.C.1 | October  November |
| Represent a Nonlinear Function with a Graph | CC.2.2.8.C.1 | October  November |
| Identify Functions from Graphs | CC.2.2.8.C.1 | October  November |
| Compare Two Linear Functions | CC.2.2.8.C.1 | October  November |
| Compare a Linear and a Nonlinear Function | CC.2.2.8.C.1 | October  November |
| Compare Properties of Linear Functions | CC.2.2.8.C.1 | October  November |
| Write a Function From a Graph | CC.2.2.8.C.2 | October  November |
| Write a Function from Two Values | CC.2.2.8.C.2 | October  November |
| Interpret a Function From a Graph | CC.2.2.8.C.2 | October  November |
| Interpret a Qualitative Graph | CC.2.2.8.C.2 | October  November |
| Interpret the Graph of a Nonlinear Function | CC.2.2.8.C.2 | October  November |
| Describe the Relationship of Quantities | CC.2.2.8.C.2 | October  November |
| Sketch the Graph of a Linear Function | CC.2.2.8.C.2 | October  November |

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| Analyze the Sketch of a Nonlinear Function | CC.2.2.8.C.2 | October  November |
| Sketch the Graph of a Nonlinear Function | CC.2.2.8.C.2 | October  November |
| Construct a Scatter Plot | CC.2.4.8.B.1 | November  December |
| Interpret a Scatter Plot | CC.2.4.8.B.1 | November  December |
| Construct and Interpret a Scatter Plot | CC.2.4.8.B.1 | November  December |
| Analyze Linear Associations | CC.2.4.8.B.1 | November  December |
| Analyze the Strength of Linear Associations | CC.2.4.8.B.1 | November  December |
| Recognize Nonlinear Associations | CC.2.4.8.B.1 | November  December |
| Use the Slope to Make a Prediction | CC.2.4.8.B.1 | November  December |
| Use a Scatter Plot to Make a Prediction | CC.2.4.8.B.1 | November  December |
| Interpret the Slope and y-Intercept | CC.2.4.8.B.1 | November  December |
| Construct a Two-Way Frequency Table | CC.2.4.8.B.2 | November  December |
| Interpret a Two-Way Frequency Table | CC.2.4.8.B.2 | November  December |
| Construct and Interpret a Two-Way Frequency Table | CC.2.4.8.B.2 | November  December |
| Construct a Two-Way Relative Frequency Table | CC.2.4.8.B.2 | November  December |
| Compare Relative Frequency By Rows | CC.2.4.8.B.2 | November  December |
| Compare Relative Frequency By Columns | CC.2.4.8.B.2 | November  December |
| Relate Solutions of Linear Systems | CC.2.4.8.B.2 | December  Choose an item. |
| Estimate Solutions of Systems By Inspection | CC.2.2.8.B.3 | December  Choose an item. |
| Estimate More Solutions of Systems By Inspection | CC.2.2.8.B.3 | December  Choose an item. |
| Solve a System By Graphing | CC.2.2.8.B.3 | December  Choose an item. |
| Graph a System of Equations With No Solutions | CC.2.2.8.B.3 | December  Choose an item. |
| Graph a System of Equations With Infinitely Many Solutions | CC.2.2.8.B.3 | December  Choose an item. |
| Use Substitution to Solve a System of Equations with One Solution | CC.2.2.8.B.3 | December  Choose an item. |
| Use Substitution to Solve a System of Equations with No Solution | CC.2.2.8.B.3 | December  Choose an item. |
| Use Substitution to Solve a System of Equations with Infinitely Many Solutions | CC.2.2.8.B.3 | December  Choose an item. |

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| Solve a System of Equations By Adding | CC.2.2.8.B.3 | December  Choose an item. |
| Solve a System of Equations By Subtracting | CC.2.2.8.B.3 | December  Choose an item. |
| Solve a System of Equations By Multiplying | CC.2.2.8.B.3 | December  Choose an item. |
| Understand Translations | CC.2.3.8.A.2 | December  January |
| Translate a Figure on a Coordinate Plane | CC.2.3.8.A.2 | December  January |
| Describe a Translation | CC.2.3.8.A.2 | December  January |
| Understand Reflections | CC.2.3.8.A.2 | December  January |
| Reflect a Figure on a Coordinate Plane | CC.2.3.8.A.2 | December  January |
| Describe a Reflection | CC.2.3.8.A.2 | December  January |
| Understand Rotations | CC.2.3.8.A.2 | December  January |
| Complete a Rotation | CC.2.3.8.A.2 | December  January |
| Describe Rotation | CC.2.3.8.A.2 | December  January |
| Understand a Sequence of Transformations | CC.2.3.8.A.2 | December  January |
| Complete a Sequence of Transformations on a Coordinate Plane | CC.2.3.8.A.2 | December  January |
| Describe a Sequence of Transformations | CC.2.3.8.A.2 | December  January |
| Understand Congruence | CC.2.3.8.A.2 | December  January |
| Identify Congruent Figures | CC.2.3.8.A.2 | December  January |
| Understand Dilations | CC.2.3.8.A.2 | December  January |
| Dilate to Enlarge a Figure on a Coordinate Plane | CC.2.3.8.A.2 | December  January |
| Understand Similarity | CC.2.3.8.A.2 | December  January |
| Complete a Similarity Transformation | CC.2.3.8.A.2 | December  January |
| Identify Similar Figures | CC.2.3.8.A.2 | December  January |
| Identify Angles Created By Parallel Lines Cuts By a Transversal | CC.2.3.8.A.2 | December  January |
| Find Unknown Angle Measures | CC.2.3.8.A.2 | December  January |
| Use Algebra to Find Unknown Angle Measures | CC.2.3.8.A.2 | December  January |
| Reason about Parallel Lines | CC.2.3.8.A.2 | December  January |

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| Relate Interior Angle Measures in Triangles | CC.2.3.8.A.2 | December  January |
| Find Exterior Angle Measures | CC.2.3.8.A.2 | December  January |
| Use Algebra to Find Unknown Angle Measures | CC.2.3.8.A.2 | December  January |
| Determine Whether Triangles are Similar | CC.2.3.8.A.2 | December  January |
| Solve Problems Involving Similar Triangles | CC.2.3.8.A.2 | December  January |
| Understand the Pythagorean Theorem | CC.2.3.8.A.3 | February  Choose an item. |
| Use the Pythagorean Theorem to Find the Length of the Hypotenuse | CC.2.3.8.A.3 | February  Choose an item. |
| Use the Pythagorean Theorem to Find the Length of a Leg | CC.2.3.8.A.3 | February  Choose an item. |
| Understand the Converse of the Pythagorean Theorem | CC.2.3.8.A.3 | February  Choose an item. |
| Apply the Converse of the Pythagorean Theorem to Identify Right Triangles | CC.2.3.8.A.3 | February  Choose an item. |
| Use the Converse of the Pythagorean Theorem to Analyze Shapes | CC.2.3.8.A.3 | February  Choose an item. |
| Apply the Pythagorean Theorem to Solve Problems | CC.2.3.8.A.3 | February  Choose an item. |
| Apply the Pythagorean Theorem to Triangles in Three Dimensions | CC.2.3.8.A.3 | February  Choose an item. |
| Apply the Converse of the Pythagorean Theorem to Solve Problems | CC.2.3.8.A.3 | February  Choose an item. |
| Apply the Pythagorean Theorem to Find the Distance Between Two Points | CC.2.3.8.A.3 | February  Choose an item. |
| Find the Perimeter of a Figure on a Coordinate Plane | CC.2.3.8.A.3 | February  Choose an item. |
| Use the Pythagorean Theorem to Solve Problems on a Coordinate Plane | CC.2.3.8.A.3 | February  Choose an item. |
| Find the Surface Area of a Cylinder | CC.2.3.8.A.1 | February  March |
| Find the Surface Area of Cone | CC.2.3.8.A.1 | February  March |
| Find the Surface Area of a Sphere | CC.2.3.8.A.1 | February  March |
| Relate Volumes of Rectangular Prisms and Cylinders | CC.2.3.8.A.1 | February  March |
| Find an Unknown Measure | CC.2.3.8.A.1 | February  March |
| Solve Problems Involving Volume of a Cylinder | CC.2.3.8.A.1 | February  March |
| Find the Volume of a Cone | CC.2.3.8.A.1 | February  March |
| Apply the Pythagorean Theorem to Solve Volume Problems | CC.2.3.8.A.1 | February  March |
| Find the Volume of a Cone Given the Circumference of the Base | CC.2.3.8.A.1 | February  March |

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| Relate Volumes of Cones and Spheres | CC.2.3.8.A.1 | February  March |
| Find the Volume of a Sphere Given the Surface Area | CC.2.3.8.A.1 | February  March |
| Find the Volume of a Composite Figure | CC.2.3.8.A.1 | February  March |

**ASSESSMENTS**

**PSSA Academic Standards, Assessment Anchors, and Eligible Content:** The teacher must be knowledgeable of the PDE Academic Standards, Assessment Anchors, and Eligible Content and incorporate them regularly into planned instruction.

**Formative Assessments:** The teacher will utilize a variety of assessment methods to conduct in-process evaluations of student learning.

**Effective formative assessments for this course include:** Suggested but not limited to: Bell Ringers, Worksheets, Cooperative Learning, Centers, Observations, Written work, Quizzes, Oral response, Self-evaluation, Peer-evaluation, Homework, Projects, and Exit tickets.

**Summative Assessments:** The teacher will utilize a variety of assessment methods to evaluate student learning at the end of an instructional task, lesson, and/or unit.

**Effective summative assessments for this course include:** Suggested but not limited to: Performance assessments, Chapter/Unit Tests, Quizzes, project, and final exam.