

## Wilson Area School District Planned Course Guide

**Title of planned course:** 8th Grade Mathematics

**Subject Area:** Mathematics

**Grade Level:** 8th

**Course Description:** Prerequisites: Complete 7th Grade Math

The course is the study of Transformational Geometry, Linear Equations and Applications, Relationships and Functions, Statistics and Probability, Real Numbers and the Pythagorean Theorem, and Exponents, Scientific Notation, and Volume.

Applications of real-world problems will be included. Course requirements include: tests, quizzes, projects, note-taking, daily homework, and usage of calculators. It is recommended that each student have a calculator, however a classroom supply is available for in-class use.

**Time/Credit for this Course:** One full academic year / 1.0

**Curriculum Writing Committee:** Victoria Hanus

## Curriculum Map

**August:** Real Numbers (10-13 class periods)

**September:** Real Numbers (cont.)  
Exponents and Scientific Notation (20-24 class periods)

**October:** Linear Equations and Applications (10-12 class periods)  
Geometry (18-22 class periods)

**November:** Geometry (cont.)  
Transformational Geometry (18-20 class periods)

**December:** Transformational Geometry (cont.)

**January:** Relationships and Functions (32-34 class periods)

**February:** Relationships and Functions (cont.)

**March:** Statistics and Probability (16-18 class periods)

**April:** Statistics and Probability (cont.)  
Inequalities (10-12 class periods)

**May:** Systems of Equations (14-16 class periods)  
Applications/Prior Topics (7-9 class periods)

**June:** Applications/Prior Topics (cont.)

## Planned Course Materials

**Course Title:** Mathematics

**Textbook:** Into Math Grade 8  
Houghton Mifflin Harcourt © 2020

**Supplemental Books:** Larson/Houghton Mifflin © 2012

**Teacher Resources:**

- Textbooks
- Worksheets
- Internet
- Teacher created worksheets
- Additional worksheets and cooperative learning books

## Curriculum Scope & Sequence

**Planned Course:** 8th Grade Mathematics

**Unit 1:** Real Numbers

**Time frame:** 10-13 class periods

**State Standards:** CC.2.1.8.E.1; CC.2.1.8.E.4

**Anchor(s) or adopted anchor:** A1.1.1.1, A1.1.1.1.1, A1.1.1.1.2, M08.A-N.1.1, M08.A-N.1.1.1, M08.A-N.1.1.3, M08.A-N.1.1.4, M08.A-N.1.1.5

**Essential content/objectives:** At end of the unit, students will be able to:

- Understand rational numbers
- Understand irrational numbers
- Identify perfect squares
- Investigate/evaluate/estimate square and cube roots
- Order real numbers

**Core Activities:** Students will complete/participate in the following:

- Module 10: Real Numbers
  - Lesson 1: Understand Rational and Irrational Numbers
    - Complete guided note sheet
    - Create the real number system venn diagram
    - Small group activities (pg. 337C – teacher manual)
  - Lesson 2: Investigate Roots
    - Complete guided note sheet
    - Create a table of the perfect square roots and perfect cube roots
    - Center options (pg. 345C – teacher manual)
  - Lesson 3: Order Real Numbers
    - Sharpen Vocabulary Skills activity (pg. 353B – teacher manual)
    - Pizzazz worksheets as seen fit

**Extensions:**

- Eliminate technology to estimate non-perfect roots
- Work through more difficult problems
- “Track the Distance” textbook activity
  - Have students plot the distances the friends ran on a number line.
  - Have students determine how much further each friend would need to run to equal the distance Julius ran
- Challenge 10.1
- Converting repeating decimals to fractions
- Explain in writing how to solve equations of the form  $x^2 = a$  and  $x^3 = a$

**Remediation:**

- Additional practice problems
- Create a perfect square chart
- Peer/teacher tutoring

**Instructional Methods:**

- Spiral review/warm-ups
- Teacher guided examples
- Individual, pair, and small group practice
- Higher order questioning
- Define key vocabulary terms relating to the unit
- Complete guided practice problems in class
- Complete Study Island assignments
- Order rational and irrational numbers on a number line

**Materials & Resources:**

- Warm-ups
- Guided note sheets
- Textbook
- Projector/Mimio
- Worksheets
- Calculators

**Assessments:**

- Teacher observation of student work
- Daily homework assignments
- Tests/quizzes
- Graded practice
- Exit tickets

## Curriculum Scope & Sequence

**Planned Course:** 8th Grade Mathematics

**Unit 2:** Exponents and Scientific Notation

**Time frame:** 20-24 class periods

**State Standards:** CC.2.2.8.B.1

**Anchor(s) or adopted anchor:** M08.B-E.1.1.1, M08.B-E.1.1.3, M08.B-E.1.1.4

**Essential content/objectives:** At end of the unit, students will be able to:

- Use and apply integer properties of exponents
- Use/compare scientific notation to describe very large or very small quantities
- Convert values in scientific notation from one unit to another
- Compute with scientific notation
- Choose appropriate units for real-world quantities

**Core Activities:** Students will complete/participate in the following:

- Module 12: Exponents and Scientific Notation
  - Lesson 1: Know and Apply Properties of Exponents
    - Complete guided note sheet
    - Create tables to look for patterns of the product of powers property, quotient of powers property, and power of a power property of exponents
    - Small group activities (pg. 403C – teacher manual)
  - Lesson 2: Understand Scientific Notation
    - Complete guided note sheet
    - Discussions about similarities between numbers written in scientific notation and the same numbers written in standard form
    - Video tutorials and interactive examples online
  - Lesson 3: Compute with Scientific Notation
    - Complete guided note sheet
    - Students find and correct errors in solved problems
    - Complete “On Your Own” problems in textbook (pg. 422-424 – student textbook)

**Extensions:**

- “A-Mazing Expressions” textbook activity
  - Have students determine all possible routes through the maze.
  - Have students change an expression in a single block to make at least one additional route through the maze.
- Demonstrate multi-step operations on numbers in scientific notation with no calculator

**Remediation:**

- Review and revisit exercises/concepts from within the unit

- Peer/teacher tutoring

**Instructional Methods:**

- Spiral review/warm-ups
- Teacher guided examples
- Individual, pair, and small group practice
- Higher order questioning
- Define key terms relating to the unit
- Complete guided practice problems in class
- Explore zero and negative exponents

**Materials & Resources:**

- Warm-ups
- Guided note sheets
- Textbook
- Projector/Mimio
- Worksheets
- Calculators

**Assessments:**

- Teacher observation of student work
- Daily homework assignments
- Tests/quizzes
- Graded practice
- Exit tickets

## Curriculum Scope & Sequence

**Planned Course:** 8th Grade Mathematics

**Unit 3:** Linear Equations and Applications

**Time frame:** 10-12 class periods

**State Standards:** CC.2.2.8.B.2; CC.2.2.8.B.3

**Anchor(s) or adopted anchor:** A1.2.1.2.1, A1.1.2.1, A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, M08.B-E.3.1, M08.B-E.3.1.1, M08.B-E.3.1.2

**Essential content/objectives:** At end of the unit, students will be able to:

- Solve linear equations with integer and rational number coefficients
- Recognize linear equations that have one solution, no solutions, or infinitely many solutions
- Determine whether all the solutions of an equation with infinitely many solutions makes sense in real-world context
- Interpret the meaning of an equation with no solution in a real-world context

**Core Activities:** Students will complete/participate in the following:

- Module 3: Linear Equations and Applications
  - Lesson 1: Solve Multi-Step Linear Equations
    - Complete guided note sheet
    - Turn and Talk: Students explain how they prefer to solve an equation, either by isolating the variable or by using a least common denominator
    - Small group options for activities (pg. 79C – teacher manual)
  - Lesson 2: Examine Special Cases
    - Complete guided note sheet
    - Turn and Talk activities (pg. 87-89 – student textbook)
    - Students will use algebra tiles to model various situations
  - Lesson 3: Apply Linear Equations
    - “Own Your Own” problems (pg. 98-100 – student textbook)
    - Center options for student self-directed activities (pg. 95C – teacher manual)

**Extensions:**

- Solve equations that involve nested expressions
- Students “teach” a practice problem to their seat partner and walk them through the process of solving the equation
- “Rent a Tent” textbook activity
  - Have students suppose that each friend rented their own tent for an extra day, and ask them to determine which friend would spend the least per day.
  - Have students determine how many days they could rent each tent if they had a budget of \$50. Tell students to assume that a tent can only be rented in half-day increments.
- Interactive Challenge 3.2 (online resource – Special Cases)



**Remediation:**

- Additional guided practice
- Chunk problems to help students understand intermediate steps
- Peer/teacher tutoring

**Instructional Methods:**

- Spiral review/warm-ups
- Teacher guided examples
- Individual, pair, and small group practice
- Higher order questioning
- Projects
- Define key terms relating to the unit
- Complete guided practice problems in class
- Teacher created groups to practice solving equations

**Materials & Resources:**

- Warm-ups
- Guided note sheets
- Textbook
- Projector/Mimio
- Worksheets
- Calculators

**Assessments:**

- Teacher observation of student work
- Daily homework assignments
- Tests/quizzes
- Graded practice
- Exit tickets
- Project

## Curriculum Scope & Sequence

**Planned Course:** 8th Grade Mathematics

**Unit 4:** Geometry

**Time frame:** 18-22 class periods

**State Standards:** CC.2.3.8.A.1; CC.2.3.8.A.2; CC.2.3.8.A.3

**Anchor(s) or adopted anchor:** G.2.3.1, G.2.3.1.2, G.2.3.1.3, M08.C-G.3, M08.C-G.3.1, M08.C-G.3.1.1, G.1.2.1, G.1.2.1.1, G.1.2.1.3, G.2.2.1, G.2.2.1.1, G.2.2.1.2, M08.C-G.2, M08.C-G.2.1, M08.C-G.2.1.1, M08.C-G.2.1.2

**Essential content/objectives:** At end of the unit, students will be able to:

- Find an unknown angle measurement in a triangle
- Use angle-angle similarity to test triangles for similarity
- Identify relationships between angle pairs as congruent or supplementary
- Use formulas to calculate the area and circumference of circles
- Use formulas to calculate the volume of spheres, cylinders, and cones
- Use the Pythagorean Theorem to find the missing side lengths of a right triangle
- Use the converse of the Pythagorean Theorem to determine whether or not a triangle is a right triangle

**Core Activities:** Students will complete/participate in the following:

- Module 4: Angle Relationships
  - Lesson 1: Developing Angle Relationships for Triangles
    - Complete guided note sheet
    - Students will use interactive glossary to record their understanding during Task 1 (pg. 108)
  - Lesson 2: Investigate Angle-Angle Similarity
    - Complete guided note sheet
    - Small group activity options (pg. 115C – teacher manual)
    - Answer the “I’m in a Learning Mindset” question (pg. 120 – student textbook)
  - Lesson 3: Explore Parallel Lines Cut by a Transversal
    - Complete guided note sheet
    - Complete the “Build Understanding” activity (pg. 124 – student textbook) to define angles cut by transversals
    - Small group activities (pg. 123C – teacher manual)
- Module 13: Volume
  - Lesson 1: Find Volume of Spheres, Cylinders, and Cones
    - Complete guided note sheet
    - Students will solve for volume in various problems and either leave their answer in terms of pi, or use 3.14 as an approximation
    - Students should bring in examples of spheres, cylinders, cones, and prisms from home to use in class to practice finding volume
    - Small group/center options for applying volume (pg. 455C – teacher manual)

- Module 11: The Pythagorean Theorem
  - Lesson 1: Prove the Pythagorean Theorem
    - Complete guided note sheet
    - Students will identify patterns about the squares and side lengths that form a right triangle (pg. 365 – student version)
    - Students can use a cut-out of an equilateral triangle and an isosceles triangle to see that the Pythagorean Theorem only applies to right triangles.
  - Lesson 2: Prove the Converse of the Pythagorean Theorem
    - Complete guided note sheet
    - Students will draw non-right triangles and investigate whether or not the Pythagorean Theorem still holds true
    - Small group activities (pg. 373C – teacher manual)

### **Extensions:**

- Find missing values of various space figures given the volume
- “A Fox From Any Angle” textbook activity
  - Have students determine the measures of at least 3 other angles in the design without using a protractor. Ask students to explain how they determined each measure.
- Each student draws a triangle on a sheet of paper and labels 2 of the 3 angles with specific measures. Students exchange papers with a partner. Each student then writes and solves an equation to find the unknown angle measure on their partner’s paper. Furthermore, have students estimate the angle measure before using a protractor.
- Cake icing volume activity
- “Try Your Angle” textbook activity
  - Challenge students to design as many different non-equilateral triangles as they can using the given side lengths

### **Remediation:**

- Use visual aids/hand-on materials
- Extra guided practice problems
- Peer/teacher tutoring

### **Instructional Methods:**

- Spiral review/warm-ups
- Teacher guided examples
- Individual, pair, and small group practice
- Higher order questioning
- Volume coloring sheet – solve various volume problems to determine which colors to use to fill in the picture
- Define key terms relating to the unit
- Complete guided practice problems in class
- Relate different formulas to each other

### **Materials & Resources:**

- Warm-ups
- Guided note sheets
- Textbook
- Projector/Mimio

- Worksheets
- Calculators
- Colored pencils
- Protractors

**Assessments:**

- Teacher observation of student work
- Daily homework assignments
- Tests/quizzes
- Graded practice
- Exit tickets
- Coloring sheet

## Curriculum Scope & Sequence

**Planned Course:** 8th Grade Mathematics

**Unit 5:** Transformational Geometry

**Time frame:** 18-20 class periods

**State Standards:** CC.2.3.8.A.2

**Anchor(s) or adopted anchor:** M08.C-G.1, M08.C-G.1.1, M08.C-G.1.1.1, M08.C-G.1.1.2, M08.C-G.1.1.3

**Essential content/objectives:** At end of the unit, students will be able to:

- Translate points and figures in the coordinate plane
- Reflect points and figures in the coordinate plane
- Rotate points and figures in the coordinate plane
- Dilate points and figures in the coordinate plane

**Core Activities:** Students will complete/participate in the following:

- Module 1: Transformations and Congruence
  - Lesson 2: Explore Translations
    - Complete guided note sheet
    - Tessellation project
  - Lesson 3: Explore Reflections
    - Complete guided note sheet
    - Students will apply a line of symmetry to various graphs to see if the given transformations are reflections
  - Lesson 4: Explore Rotations
    - Complete guided note sheet
    - Students will sketch a design of their choice on a graph that reappears every quarter of a full turn
    - Turn and Talk (pg. 29 – student textbook)
- Module 2: Transformations and Similarity
  - Lesson 2: Explore Dilations
    - Complete guided note sheet
    - Students will use knowledge of dilations to calculate scale factors of given figures
    - Center option activities for dilations (pg. 57C – teacher manual)

**Extensions:**

- Look for patterns to develop shortcuts/rules for transformations
- Identify which upper case letters look the same after a 180 degree rotation

**Remediation:**

- Additional practice exercises
- Visual/technological aids, such as videos
- Peer/teacher tutoring

**Instructional Methods:**

- Spiral review/warm-ups
- Teacher guided examples
- Individual, pair, and small group practice
- Higher order questioning
- Define key terms relating to the unit
- Complete guided practice problems in class
- Watch a rotations video that explains how to rotate a figure in the coordinate plane

**Materials & Resources:**

- Warm-ups
- Guided note sheets
- Textbook
- Projector/Mimio
- Worksheets
- Calculators

**Assessments:**

- Teacher observation of student work
- Daily homework assignments
- Tests/quizzes
- Graded practice
- Exit tickets

## Curriculum Scope & Sequence

**Planned Course:** 8th Grade Mathematics

**Unit 6:** Relationships and Functions

**Time frame:** 32-34 class periods

**State Standards:** CC.2.2.8.C.1; CC.2.2.8.C.2

**Anchor(s) or adopted anchor:** A1.1.2.1, A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.2.1.1, A1.2.1.1.1, A1.2.1.1.2, A1.2.1.1.3, A1.2.1.2, A1.2.1.2.1, A1.2.1.2.2, M08.B-F.1, M08.B-F.1.1, M08.B-F.1.1.1, M08.B-F.1.1.2, M08.B-F.1.1.3, A1.2.2.1, A1.2.2.1.1, A1.2.2.1.2, A1.2.2.1.3, A1.2.2.1.4, M08.B-F.2, M08.B-F.2.1, M08.B-F.2.1.1, M08.B-F.2.1.2

**Essential content/objectives:** At end of the unit, students will be able to:

- Determine the slope of a line and use it to find additional points on a line
- Write the equation of a line given a graph or a table of values
- Graph proportional relationships from a table or equation
- Calculate unit rates
- Determine whether or not a graph is continuous or discrete
- Identify and compare proportional relationships
- Graph a function given a table
- Identify a function given a table or graph
- Derive an equation for a line in the form of  $y = mx + b$  given the slope of the line and a point
- Find and interpret an initial value and a rate of change
- Construct functions based on verbal descriptions, tables, and graphs
- Compare functions presented in equations, tables, and verbal descriptions
- Convert between a verbal description of a function and its graph and between a graph and a verbal description of a function (describe and sketch nonlinear functions)

**Core Activities:** Students will complete/participate in the following:

- Module 5: Proportional Relationships
  - Lesson 1: Explain Slope with Similar Triangles
    - Complete guided note sheet
    - Have students go to the stairwell and measure the rise/run to find the slope of the stairs
    - Have students define “unit” and “rate” in their own words, discuss, then have them use their definitions to create their own definition of what a “unit rate” is
  - Lesson 2: Derive  $y = mx$ 
    - Complete guided note sheet
    - Small group activity options (pg. 145C – teacher manual)
  - Lesson 3: Interpret and Graph Proportional Relationships
    - Complete guided note sheet
    - Complete “On Your Own” practice problems (pg. 157-158 – student textbook)
    - Students will graph real-world situations on graphs from data given in tables

- Lesson 4: Compare Proportional Relationships
  - Turn and Talk with a partner (pg. 161 – student textbook)
- Module 6: Understand and Analyze Functions
  - Lesson 1: Understand and Graph Functions
    - Complete guided note sheet
    - Small group/center options (pg. 173C – teacher manual)
  - Lesson 2: Derive and Interpret  $y = mx + b$ 
    - Complete guided note sheet
    - Students will look at multiple lines graphed on one coordinate plane and compare and contrast their similarities and differences
  - Lesson 3: Interpret Rate of Change and Initial Value
    - Complete guided note sheet
    - Brainstorm with a partner various unit rates and ratios that are present in students' everyday lives, such as in sports
    - Small group activities (pg. 189C – teacher manual)
  - Lesson 4: Construct Functions
    - Complete guided note sheet
    - Students will create models to represent situations to help them construct the correct function
  - Lesson 5: Compare Functions
    - Complete guided note sheet
    - Small group/center activities (pg. 205C – teacher manual)
  - Lesson 6: Describe and Sketch Nonlinear Functions
    - Complete guided note sheet
    - Students will create and write about their own nonlinear function scenario. They will give their scenario to a peer and have their peer graph the scenario from the verbal description.

### **Extensions:**

- Work with fractional and decimal values
- Discuss what happens when two linear equations come together
- “Proportional Smoothies” textbook activity
  - Have students graph the relationship between the number of fluid ounces and the price for their smoothie sizes. Ask them how their graph provides support that the relationship is proportional.
  - Have students determine the sale price of each smoothie with a 10% discount. Ask them whether the relationship between price and fluid ounces remains proportional.
- Explain slope with similar triangles
- Have students make graphs from equations, then compare and contrast graphs with a peer

### **Remediation:**

- Additional practice problems
- Peer/teacher tutoring
- Chunk problems into smaller parts
- Give more guidance on what process to use for particular problems
- Revisit modules in textbook for explanations

### **Instructional Methods:**

- Spiral review/warm-ups



- Teacher guided examples
- Individual, pair, and small group practice
- Higher order questioning
- Projects
- Define key terms relating to the unit
- Complete guided practice problems in class
- Whiteboard activities
- Physical activities to model slope

**Materials & Resources:**

- Warm-ups
- Guided note sheets
- Textbook
- Projector/Mimio
- Worksheets
- Calculators
- Rulers
- Colored pencils
- Graph Paper

**Assessments:**

- Teacher observation of student work
- Daily homework assignments
- Tests/quizzes
- Graded practice
- Exit tickets

## Curriculum Scope & Sequence

**Planned Course:** 8th Grade Mathematics

**Unit 7:** Statistics and Probability

**Time frame:** 16-18 class periods

**State Standards:** CC.2.4.8.B.1; CC.2.4.8.B.2

**Anchor(s) or adopted anchor:** A1.2.2.2, A1.2.2.2.1, M08.D-S.1, M08.D-S.1.1, M08.D-S.1.1.1, M08.D-S.1.1.2, M08.D-S.1.1.3, M08.D-S.1.2, M08.D-S.1.2.1

**Essential content/objectives:** At end of the unit, students will be able to:

- Construct and interpret scatter plots and their associations
- Draw and interpret trend lines
- Use the equation of a line to solve problems in the context of bivariate measurement data, interpreting the slope and intercept
- Construct a two-way table summarizing data and interpret the data to determine whether there is an association between the two variables
- Calculate relative frequencies from two-way tables

**Core Activities:** Students will complete/participate in the following:

- Module 8: Scatter Plots
  - Lesson 1: Construct Scatter Plots and Examine Association
    - Complete guided note sheet
    - Students will come up with two variables, survey their classmates, and construct their own scatter plot and analyze the type of association their scatter plot shows
  - Lesson 2: Draw and Analyze Trend Lines
    - Complete guided note sheet
    - Students will use their own scatter plot they created in lesson 1 to now draw a trend line and analyze what it means in regards to their variables. Students will identify any outliers/clusters in their graphs and they will interpret their linear data in context.
- Module 9: Two-Way Tables
  - Lesson 1: Construct and Interpret Two-Way Frequency Tables
    - Complete guided note sheet
    - Small group and center options (pg. 307C – teacher manual)
  - Lesson 2: Construct Two-Way Relative Frequency Tables
    - Complete guided note sheet
    - Small group and center options (pg. 315C – teacher manual)
  - Lesson 3: Interpret Two-Way Relative Frequency Tables
    - Small group and center options (pg. 323C – teacher manual)

**Extensions:** Describe a real-world situation that is modeled by the data in a scatter plot

**Remediation:**

- Additional practice problems
- Peer/teacher tutoring
- Chunk relative frequency problems by row, column, and conditional

**Instructional Methods:**

- Spiral review/warm-ups
- Teacher guided examples
- Individual, pair, and small group practice
- Higher order questioning
- Define key terms relating to the unit
- Complete guided practice problems in class
- Connect trend lines to linear equations

**Materials & Resources:**

- Warm-ups
- Guided note sheets
- Textbook
- Projector/Mimio
- Worksheets
- Calculators
- Rulers

**Assessments:**

- Teacher observation of student work
- Daily homework assignments
- Tests/quizzes
- Graded practice
- Exit tickets

## Curriculum Scope & Sequence

**Planned Course:** 8th Grade Mathematics

**Unit 8:** Inequalities

**Time frame:** 10-12 class periods

**State Standards:** CC.2.2.8.B.3

**Anchor(s) or adopted anchor:** A1.1.2.1, A1.1.2.1.1

**Essential content/objectives:** At end of the unit, students will be able to:

- Graph inequalities
- Solve one-step inequalities with addition and subtraction
- Solve one-step inequalities with multiplication and division
- Solve multi-step inequalities
- Solve and graph compound inequalities

**Core Activities:** Students will complete/participate in the following:

- Lesson 1: Graphing Inequalities
  - Complete guided note sheet
  - Students will graph solution sets on whiteboards
- Lesson 2: Solving One-Step Inequalities
  - Complete guided note sheet
  - Students will complete teacher-made worksheets to practice solving and graphing inequalities
- Lesson 3: Solve Multi-Step Inequalities and Compound Inequalities
  - Complete guided note sheet
  - Students will work in groups to complete problems projected one at a time, then discuss their solutions as a group

**Extensions:**

- Have a class discussion while making connections between solving equations and solving inequalities
- Show alternate methods to solve multi-step and compound inequalities

**Remediation:**

- Additional practice problems
- Peer/teacher tutoring

**Instructional Methods:**

- Spiral review/warm-ups
- Teacher guided examples
- Individual, pair, and small group practice
- Higher order questioning
- Define key terms relating to the unit
- Complete guided practice problems in class
- Graphing on whiteboards

**Materials & Resources:**

- Warm-ups
- Guided note sheets
- Textbook
- Projector/Mimio
- Worksheets
- Calculators
- Whiteboards

**Assessments:**

- Teacher observation of student work
- Daily homework assignments
- Tests/quizzes
- Graded practice
- Exit tickets

## Curriculum Scope & Sequence

**Planned Course:** 8th Grade Mathematics

**Unit 9:** Systems of Equations

**Time frame:** 14-16 class periods

**State Standards:** CC.2.2.8.B.3

**Anchor(s) or adopted anchor:** A1.1.2.2, A1.1.2.2.1, A1.1.2.2.2, M08.B-E.3, M08.B-E.3.1, M08.B-E.3.1.1, M08.B-E.3.1.2, M08.B-E.3.1.3, M08.B-E.3.1.4, M08.B-E.3.1.5

**Essential content/objectives:** At end of the unit, students will be able to:

- Graph a pair of linear equations and draw a conclusion from the graph
- Solve a system of linear equations by graphing and check that the solution is correct
- Solve a system of linear equations by substitution and check that the solution is correct
- Solve a system of linear equations by elimination and check that the solution is correct
- Identify the number of solutions to a system of linear equations in any form
- Write and solve a system of equations to solve real-world problems

**Core Activities:** Students will complete/participate in the following:

- Module 7: Systems of Linear Equations
  - Lesson 1: Represent Systems by Graphing
    - Complete guided note sheet
    - Small group and center options (pg. 225C – teacher manual)
  - Lesson 2: Solve Systems by Graphing
    - Complete guided note sheet
    - “Spark Your Learning” activity (pg. 233 – student textbook)
    - “Turn and Talk” discussion questions (pg. 233, 235)
  - Lesson 3: Solve Systems by Substitution
    - Complete guided note sheet
    - “Build Understanding” activity (pg. 242 – student textbook)
    - Practice solving systems by substitution (pg. 247 – student textbook)
  - Lesson 4: Solve Systems by Elimination
    - Complete guided note sheet
    - Small group and center options (pg. 249C – teacher manual)
  - Lesson 5: Examine Special Systems
    - “Spark Your Learning” activity/questions (pg. 257 – student textbook)
    - Investigate systems with no solution and infinite solutions through the “Step It Out” problems/questions (pg. 259 – student textbook)
  - Lesson 6: Apply Systems of Equations
    - Small group activity options (pg. 265C – teacher manual)

**Extensions:** Have students design a problem similar to the problems in this unit. The problem should include a given graph showing two straight lines and a description of the related real-world context. Once students have prepared the graph and the problem, have students trade papers with another student. Ask students to solve each other's problems and have them provide feedback on ways to make the problem clearer and/or more challenging.

**Remediation:**

- Use technology to assist in graphing systems and identifying solutions
- Module review exercises from textbook
- Peer/teacher tutoring

**Instructional Methods:**

- Spiral review/warm-ups
- Teacher guided examples
- Individual, pair, and small group practice
- Higher order questioning
- Define key terms relating to the unit
- Complete guided practice problems in class
- Graphing on whiteboards

**Materials & Resources:**

- Warm-ups
- Guided note sheets
- Textbook
- Projector/Mimio
- Worksheets
- Calculators
- Whiteboards

**Assessments:**

- Teacher observation of student work
- Daily homework assignments
- Tests/quizzes
- Graded practice
- Exit tickets

## Curriculum Scope & Sequence

**Planned Course:** 8th Grade Mathematics

**Unit 10:** Applications/Prior Topics

**Time frame:** 7-9 class periods

**State Standards:**

- CC.2.2.HS.D.9
- CC.2.2.7.B.3

**Anchor(s) or adopted anchor:** A1.1.1.4.1, A1.1.1.5.1, A1.1.2.1, A1.2.1.1, A1.2.1.2

**Essential content/objectives:** At end of the unit, students will be able to demonstrate proficiency on objectives throughout the year in order to prepare for Keystone testing.

**Core Activities:** Students will complete/participate in the following:

- Create flashcards of important vocabulary terms
- Complete teacher-created worksheets for practice of prior concepts
- Complete Pizzazz worksheets from prior concepts
- Create a presentation on previously learned topics and present the information to the class

**Extensions:** Students should use creativity to enhance their presentations

**Remediation:**

- Peer/teacher tutoring
- Group work to help those struggling more

**Instructional Methods:**

- Teacher guided examples
- Individual, pair, and small group practice
- Higher order questioning

**Materials & Resources:**

- Guided note sheets
- Textbook
- Projector/Mimio
- Worksheets
- Calculators

**Assessments:** Teacher observation of student work