Wilson Area School District
Planned Course Guide

Title of planned course: Mathematics Grade 6

Subject Area: Math

Grade Level: 6th

Course Description: This course is designed to extend a student's knowledge of mathematics within the areas of numbers and operations, algebraic concepts, geometry, measurement, and data and probability. Students will gain an opportunity to cultivate positive mathematical practices including problem-solving skills and the ability to reason through the implementation of lessons, instruction, and assessments aligned with the Pennsylvania Common Core Standards, real-life applications, and the integration of technology.

Time/Credit for this Course: One Full Academic Year

Curriculum Writing Committee: Kristen Altimare

Wilson Area School District
Planned Course Materials
(Aligned to the PA Common Core Standards)

Course Title: Mathematics Grade 6

Textbook:

enVisionMATH
Pearson Education, Inc.
2012
http://www.pearsonschool.com/

Supplemental Books:

Holt Mathematics: Course 1
Holt, Reinhart, and Winston
2007
http://go.hrw.com/gopages/ma-msm.html

Buckle Down Grade 6 Mathematics
2008
http://www.buckledown.com/

Teacher Resources:

Holt Mathematics: Course 1
Holt, Reinhart, and Winston
2007
http://go.hrw.com/gopages/ma-msm.html

Buckle Down Grade 6 Mathematics
2008
http://www.buckledown.com/

Discovery Education
http://streaming.discoveryeducation.com/

Curriculum Map

(2012 - 2014)

August: Numbers and Operations/Algebraic Concepts
- Review of Whole Number Operations
- Patterns and Functions

September: Numbers and Operations/Algebraic Concepts
- Patterns and Functions
- Variables, Expressions, and Equations
- The Coordinate Plane

October: Numbers and Operations/Algebraic Concepts
- Numeration
- Operations with Decimals

November: Numbers and Operations/Algebraic Concepts
- Operations with Decimals
- Number and Fraction Concepts

December: Numbers and Operations
- Fractions, Decimals, Percents

January: Numbers and Operations/Algebraic Concepts
- Operations with Fractions and Mixed Numbers

February: Data Analysis and Probability/Geometry

March: Geometry/PSSA Review/PSSA Math Assessment

April: Measurement

May: Measurement/Integers

June: Integers

*****Objective marked with an asterisk (*) are required in 2014 with the integration of Common Core Standards. From 2012 – 2014 these objectives will be extensions of the curriculum.

Curriculum Map

(Aligned to the PA Common Core Standards Beginning in August, 2014)

August: Numbers and Operations/Algebraic Concepts
- Review of Whole Number Operations
- Expressions and Equations

September: Numbers and Operations/Algebraic Concepts
- Expressions and Equations
- Properties of Operations
- Graphing Equations
- Inequalities

October: Numbers and Operations/Algebraic Concepts
- Numeration
- Operations with Decimals

November: Numbers and Operations
- Number Theory
- Fractions, Decimals, and Percents

December: Numbers and Operations
- Operations with Fractions and Mixed Numbers

January: Numbers and Operations/Ratios and Proportional Relationships
- Operations with Fractions and Mixed Numbers
- Ratios, Rates, and Proportions

February: Statistics and Probability/Geometry
- Data and Graphs
- Geometric Figures
- Perimeter, Area, Volume, and Surface Area

March: Integers/State Assessment Review

April: State Assessment Review/State Assessment/Integers

May: Measurement/Geometry Extension

June: End-of-Year Review

Curriculum Scope & Sequence

Planned Course: Mathematics Grade 6

Unit: Numbers and Operations/Algebraic Concepts
- Review of Whole Number Operations
- Expressions and Equations
- Properties of Operations
- Graphing Equations
- Inequalities

Time frame: 6 weeks

State Standards: 2.2.6.B.1, 2.2.6.B.2, 2.2.6.B.3

Anchor(s) or adopted anchor: M06.B-E.1.1.1, M06.B-E.1.1.2, M06.B-E.1.1.3, M06.B-E.1.1.4, M06.B-E.1.1.5, M06.B-E.2.1.1, M06.B-E.2.1.2, M06.B-E.2.1.3, M06.B-E.2.1.4, M06.B-E.3.1.1, M06.B-E.3.1.2

Essential content/objectives: At end of the unit, students will be able to:
- Add, subtract, multiply, and divide whole numbers.
- Write powers as products and evaluate, write expressions in exponential form, and write numbers in expanded form using exponents.
- Evaluate numeric or algebraic expressions with three or more numbers and up to three variables using the correct order of operations.
- Apply the properties of operations to generate equivalent expressions.
- Use the distributive property to evaluate expressions.
- Identify parts of an expression using mathematical terms (e.g., sum, term, product, factor, quotient, coefficient, quantity).
- Write algebraic expressions from verbal descriptions.
- Write algebraic expressions to represent real-world or mathematical problems.
- Evaluate algebraic expressions using substitution, including expressions that arise from formulas used in real-world problems.
- Identify missing numbers in a pattern and write an algebraic expression to describe the pattern.
- Solve one-step equations using inverse operations.
- Solve two-step equations using inverse operations.*****
- Use substitution to determine whether a given number in a specified set makes an equation or inequality true.*****
- Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q, and x are all non-negative rational numbers.
- Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem and/or represent solutions of such inequalities on number lines.*****
- Write an equation to express the relationship between the dependent and independent variables.*****
- Analyze the relationship between the dependent and independent variables using graphs and tables, and/or relate these to an equation.*****

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

- Spiral review/warm-up
- Direct instruction/note-taking
- Guided practice with skills
- Partner practice with skills
- Independent practice with skills
- Utilization of manipulatives
- Centers/stations
- Read together A Grain of Rice and instruct students to calculate the amount of rice at the end of the story using exponents
- Instruct students to develop a rap, rhyme, skit, or poster to recall the order of operations
- Using flashcards facilitate an equation matching game where the students must match sides of a balanced equation (can be used to review mathematical properties)

Extensions:

- Integrate technology for further exploration of mathematical concepts (interactive Mimio lessons/games, laptops, web quests).
- Solve two-step equations using inverse operations.

Remediation:

- Integration of manipulatives
- Additional small-group instruction
- Differentiated materials, assignments, and assessments
- Use of a multiplication chart

Instructional Methods:

- Incorporation of manipulatives within cooperative learning groups
- Small and large-group direct instruction
- Modeling
- Differentiated instruction
- Small and large-group discussion

Materials & Resources:

- enVisionMATH
  Pearson Education, Inc.
  2012
  http://www.pearsonschool.com/

- Holt Mathematics: Course 1
  Holt, Reinhart, and Winston
  2007
  http://go.hrw.com/gopages/ma-msm.html

- Buckle Down Grade 6 Mathematics
  2008
  http://www.buckledown.com/

- Teacher-generated guided notesheets
- Practice book and masters
- Calculators
- Manipulatives
- Flashcards

Assessments:

- **Diagnostic:**
  - Questioning
  - Small and large group discussion
  - Student observation
- **Formative:**
  - Observation of student work
  - Quizzes
  - Practice worksheets
  - Exit tickets
- **Summative**:
  - End-of-unit assessment

Curriculum Scope & Sequence

Planned Course: Mathematics Grade 6

Unit: Numbers and Operations/Algebraic Concepts
- Numeration
- Operations with Decimals

Time frame: 4 weeks

State Standards: 2.1.6.E.2, 2.2.6.B.1, 2.6.B.2

Anchor(s) or adopted anchor: M06.A-N.2.1.1, M06.B-E.1.1.4, M06.B-E.2.1.3

Essential content/objectives: At end of the unit, students will be able to:
- Identify the place value of a given digit in a decimal number.
- Read and write decimals in standard, word, and expanded form.
- Compare and order whole numbers and decimals using place value.
- Differentiate between a terminating and repeating decimal.
- Compare and order whole numbers and decimals.
- Use estimation to solve problems using whole numbers and decimals.
- Add, subtract, multiply, and divide whole numbers and decimals by whole numbers and decimals.
- Evaluate expressions with whole numbers and decimals using the order of operations.*****
- Evaluate equations and inequalities containing decimals.*****

Core Activities: Students will complete/participate in the following:
- Spiral review/warm-up
- Direct instruction/note-taking
- Guided practice with skills
- Partner practice with skills
- Independent practice with skills
- Utilization of manipulatives
- Centers/stations
- Instruct students to create models for decimals using base-ten blocks
- Assign a decimal (written in a large font on cardstock) to each student in the class and instruct the students to order the decimals from least to greatest and greatest to least
- Calculate change using whole-dollar amounts to review subtraction with decimals
- Using restaurant menus, instruct students to calculate their bill using the four main operations with decimals

Extensions:
- Integrate technology for further exploration of mathematical concepts (interactive Mimio lessons/games, laptops, web quests).
- Evaluate expressions with whole numbers and decimals using the order of operations.
- Evaluate equations and inequalities containing decimals.

- Explore the associative, commutative, distributive, and identity properties with decimals.
- Use decimals to solve complex real-world applications involving money.

Remediation:

- Integration of manipulatives
- Additional small-group instruction
- Differentiated materials, assignments, and assessments
- Use of a multiplication chart

Instructional Methods:

- Incorporation of manipulatives within cooperative learning groups
- Small and large-group direct instruction
- Modeling
- Differentiated instruction
- Small and large-group discussion

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Assessments:

- **Diagnostic:**
  - Questioning
  - Small and large group discussion
  - Student observation
- **Formative**
  - Observation of student work
  - Quizzes
  - Practice worksheets
  - Exit tickets
- **Summative:**
  - End-of-unit assessment

Curriculum Scope & Sequence

Planned Course: Mathematics Grade 6

Unit: Numbers and Operations
- Number Theory
- Fractions, Decimals, and Percents

Time frame: 4 weeks

State Standards: 2.1.6.E.2, 2.1.6.E.3, 2.1.6.D.1

Anchor(s) or adopted anchor: M06.A-N.2.1.1, M06.A-N.2.2.1, M06.A-N.2.2.2, M06.A-R.1.1.5

Essential content/objectives: At end of the unit, students will be able to:
- Use divisibility rules to find factors and multiples of whole numbers.
- Identify numbers as prime or composite.
- Write the prime factorization of a number using factor trees.
- Find common factors and the greatest common factor (GCF) of two whole numbers less than or equal to 100.
- Find common multiples and the least common multiple (LCM) of two whole numbers less than or equal to 12.
- Apply the distributive property to express a sum of two whole numbers, 1 through 100, with a common factor as a multiple of a sum of two whole numbers with no common factor.
- Describe fractions as parts of regions or sets or as locations on a number line.
- Write equivalent fractions.
- Simplify fractions, expressing them in lowest terms.
- Use fractions to represent division.
- Find, identify, and write equivalent forms of fractions/mixed numbers, decimals, and percents.
- Write improper fractions as mixed numbers and mixed numbers as improper fractions and then place them on a number line.
- Change terminating decimals to fractions and mixed numbers.
- Interpret percents as parts of a hundred.
- Find a percent of a number and determine what percent one number is of another.*****
- Find the whole in problems when given the percent and a corresponding part. *****
- Interpret percents greater than 100 and less than 1 as part of a hundred and express them in equivalent decimal and fraction form.*****
- Use compatible numbers to estimate percents of numbers and to determine what percent one number is of another.*****

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

- Spiral review/warm-up
- Direct instruction/note-taking
- Guided practice with skills
- Partner practice with skills
- Independent practice with skills
- Utilization of manipulatives
- Centers/stations
- Introduce and use the Sieve of Eratosthenes to identify prime and composite numbers and number patterns through 100
- Distribute bags of small multi-colored materials (marbles, bingo chips, etc.) and instruct the students to calculate the fraction, decimal, and percent of each contained in the bag
- Instruct students to find the fraction, decimal, and percent of students in the classroom that meet a certain criteria (play a certain sport, share a favorite color, have a certain color hair, are wearing a particular color, etc.)
- Using fraction, decimal, and percent flashcards, instruct the students to match the equivalent fraction, decimal, and percent forms

Extensions:

- Integrate technology for further exploration of mathematical concepts (interactive Mimio lessons/games, laptops, web quests).
- Identify and use uncommon divisibility rules.
- Find the greatest common factor (GCF) of three or more whole numbers less than, equal to, or greater than 100.
- Find the least common multiple (LCM) of three or more whole numbers less than, equal to, or greater than 12.

Remediation:

- Integration of manipulatives
- Additional small-group instruction
- Differentiated assignments and assessments
- Use of a factor list

Instructional Methods:

- Incorporation of manipulatives within cooperative learning groups
- Small and large-group direct instruction
- Modeling
- Differentiated instruction
- Small and large-group discussion

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- Flashcards

Assessments:

- **Diagnostic:**
  - Questioning
  - Small and large group discussion
  - Student observation
- **Formative**
  - Observation of student work
  - Quizzes
  - Practice worksheets
  - Exit tickets
- **Summative:**
  - End-of-unit assessment

Curriculum Scope & Sequence

Planned Course: Mathematics Grade 6

Unit: Numbers and Operations
- Operations with Fractions and Mixed Numbers

Time frame: 6 weeks

State Standards: 2.1.6.E.1, 2.1.6.E.2, 2.2.6.B.2

Anchor(s) or adopted anchor:M06.A-N.1.1.1, M06.A-N.2.1.1, M06.B-E.2.1.3

Essential content/objectives: At end of the unit, students will be able to:
- Add and subtract fractions with like and unlike denominators and give the answer in simplest form.
- Estimate sums and differences of fractions and mixed numbers by rounding to the nearest whole number.*****
- Add and subtract mixed numbers.
- Multiply fractions, whole numbers, and mixed numbers by fractions, whole numbers, and mixed numbers.
- Use compatible numbers and rounding to estimate with fractions.*****
- Make and use models to divide by fractions and to divide fractions.
- Estimate quotients of mixed numbers using compatible numbers and rounding.*****
- Divide fractions, whole numbers, and mixed numbers by fractions, whole numbers, and mixed numbers.
- Solve one-step linear equations in one variable involving fractions and mixed numbers.*****

Core Activities: Students will complete/participate in the following:
- Spiral review/warm-up
- Direct instruction/note-taking
- Guided practice with skills
- Partner practice with skills
- Independent practice with skills
- Utilization of manipulatives
- Centers/stations
- Use the four main operations to interpret and solve real-world math word problems.
- Use the four main operations with fractions and mixed numbers to calculate recipes (i.e. determine the amount of ingredients needed if a recipe is doubled, tripled, reduced by half, etc.)
- Play Math 24 using the fraction edition of the game

Extensions:
- Integrate technology for further exploration of mathematical concepts (interactive Mimio lessons/games, laptops, web quests).

Remediation:

- Integration of manipulatives
- Additional small-group instruction
- Differentiated assignments and assessments
- Use of a factor list

Instructional Methods:

- Incorporation of manipulatives within cooperative learning groups
- Small and large-group direct instruction
- Modeling
- Differentiated instruction
- Small and large-group discussion

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Assessments:

- **Diagnostic:**
  - Questioning
  - Small and large group discussion
  - Student observation
- **Formative**
  - Observation of student work
  - Quizzes
  - Practice worksheets
  - Exit tickets
- **Summative:**
  - End-of-unit assessment

Curriculum Scope & Sequence

Planned Course: Mathematics Grade 6

Unit: Ratios and Proportional Relationships
- Ratios, Rates, and Proportions

Time frame: 2-3 weeks

State Standards: 2.1.6.D.1

Anchor(s) or adopted anchor: M06.A-R.1.1.1, M06.A-R.1.1.2, M06.A-R.1.1.3, M06.A-R.1.1.4, M06.A-R.1.1.5

Essential content/objectives: At end of the unit, students will be able to:
- Express comparisons as ratios using ratio language and notation (such as a to b, a:b, a/b) to describe the relationship between the two quantities.
- Find equal ratios and determine if two ratios form a proportion.
- Find the unit rate for a given rate and use rate language in the context of a ratio relationship.
- Compare and use rates to identify the better buy or lower rate.
- Use a formula to solve problems involving distance, rate, and time.
- Solve unit rate problems including those involving unit pricing and constant speed.
- Use tables and graphs to represent equivalent ratios and to compare ratios.
- Construct tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and/or plot the pairs of values on the coordinate plane.

Core Activities: Students will complete/participate in the following:
- Spiral review/warm-up
- Direct instruction/note-taking
- Guided practice with skills
- Partner practice with skills
- Independent practice with skills
- Utilization of manipulatives
- Centers/stations
- Using sale flyers from the newspaper, determine where the best buy is located for common food items or particular products
- Determine the ratios of students within the classroom (i.e. the number of boys to girls, blondes to brunettes, football players to baseball players, graduates of Avona and/or Wilson Borough to Williams Township, etc.)

Extensions:
- Integrate technology for further exploration of mathematical concepts (interactive Mimio lessons/games, laptops, web quests).
- Instruct the students to research the prices of some of their favorite foods at different local supermarkets and determine where the better buy is available for each food.

Remediation:

- Integration of manipulatives
- Additional small-group instruction
- Differentiated assignments and assessments
- Use of a formula card or sheet

Instructional Methods:

- Incorporation of manipulatives within cooperative learning groups
- Small and large-group direct instruction
- Modeling
- Differentiated instruction
- Small and large-group discussion

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- Flashcards

Assessments:

- **Diagnostic:**
  - Questioning
  - Small and large group discussion
  - Student observation
- **Formative**
  - Observation of student work
  - Quizzes
  - Practice worksheets
  - Exit tickets
- **Summative:**
  - End-of-unit assessment

Curriculum Scope & Sequence

Planned Course: Mathematics Grade 6

Unit: Data Analysis and Probability
- Data and Graphs

Time frame: 2-3 weeks

State Standards: 2.4.6.B.1, 2.4.6.B.2

Anchor(s) or adopted anchor: M06.D-S.1.1.1, M06.D-S.1.1.2, M06.D-S.1.1.3, M06.D-S.1.1.4

Essential content/objectives: At end of the unit, students will be able to:
- Determine whether a question is a statistical question or not.*****
- Display numerical data in plots on a number line, including dot plots, histograms, and box-and-whisker plots.
- Describe data distributions by looking at their center, spread, and overall shape.*****
- Calculate the mean, median, mode, and range of data sets.
- Make and use frequency tables and histograms.
- Interpret and make a box plot.*****
- Use mean absolute deviation and interquartile range (IQR) to measure variability within a data distribution.*****
- Decide which measure of central tendency most accurately describes a given data set and recognize inappropriate use of statistical measures.*****
- Summarize data based on its center, spread, and overall shape.*****

****PSSA OBJECTIVES ONLY:**
- Analyze data in circle graphs, double bar and line graphs, or line plots.
- Choose the appropriate representation for a set of data.
- Display data in circle graphs, double bar and line graphs, or line plots.
- Define and/or find the probability of a simple event.
- Determine/show all possible combinations (no more than 20).

Core Activities: Students will complete/participate in the following:
- Spiral review/warm-up
- Direct instruction/note-taking
- Guided practice with skills
- Partner practice with skills
- Independent practice with skills
- Utilization of manipulatives
- Centers/stations
- Collect data about our classroom students and together represent the data in appropriate tables and/or graphs
- Find the mean, median, mode, and range using data
- Indentify errors in frequency tables based on a given set of data

Extensions:

- Integrate technology for further exploration of mathematical concepts (interactive Mimio lessons/games, laptops, web quests).
- Determine/show all possible combinations (more than 20).
- Instruct students to explore Microsoft Excel as a means of creating tables and graphs to represent sets of data.

Remediation:

- Integration of manipulatives
- Additional small-group instruction
- Differentiated assignments and assessments

Instructional Methods:

- Incorporation of manipulatives within cooperative learning groups
- Small and large-group direct instruction
- Modeling
- Differentiated instruction
- Small and large-group discussion

Materials & Resources:

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Assessments:

- **Diagnostic:**
  - Questioning
  - Small and large group discussion
  - Student observation
- **Formative**
  - Observation of student work
  - Quizzes
  - Practice worksheets
  - Exit tickets
- **Summative:**
  - End-of-unit assessment

Curriculum Scope & Sequence

Planned Course: Mathematics Grade 6

Unit: Geometry
- Geometric Figures
- Perimeter, Area, Volume, and Surface Area

Time frame: 2 weeks

State Standards: 2.3.6.A.1

Anchor(s) or adopted anchor:M06.C-G.1.1.1, M06.C-G.1.1.2, M06.C-G.1.1.3, M06.C-G.1.1.4, M06.C-G.1.1.5, M06.C-G.1.1.6

Essential content/objectives: At end of the unit, students will be able to:
- Identify examples of important geometric terms relating to two-dimensional figures.
- Measure and draw angles and classify them according to their measures.
- Identify and classify triangles using sides and angle measures.
- Identify and classify quadrilaterals using the relationships or sides and angle measures.
- Select and use appropriate units, tools, and/or formulas to measure and solve problems involving the perimeter of regular and irregular polygons. (Formulas will be provided.)
- Find the area of rectangles and irregular figures. (Formulas will be provided.)
- Develop and use the formulas for the areas of parallelograms and triangles.
- Classify polyhedrons and identify vertices, edges, and faces. Identify a polyhedron from its net and draw top, side, and front views.*
- Find the surface area of triangular and rectangular prisms (including cubes) by adding areas of faces or by using a formula.*
- Find the volume of right rectangular prisms with fractional edge lengths. (Formulas will be provided.)
- Given coordinates for the vertices of a polygon in the plane, use the coordinates to find side lengths and area of the polygon limited to triangles and special quadrilaterals. (Formulas will be provided.)*

****PSSA OBJECTIVES ONLY:**
- Identify, classify, and/or compare polygons (up to 10 sides).
- Identify and/or determine the measure of the diameter and/or radius of a circle.
- Identify and/or use the total number of degrees in a triangle, quadrilateral, and/or circle.

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

- Spiral review/warm-up
- Direct instruction/note-taking
- Guided practice with skills
- Partner practice with skills
- Independent practice with skills
- Utilization of manipulatives
- Centers/stations
- Drawing, modeling, and/or labeling various geometric terms and figures.
- Identifying various geometric terms and figures around the classroom/school or in picture (magazine or other photo).
- Calculate various dimensions of different-sized cereal boxes (volume, surface area, perimeter of faces, etc.).
- Instruct students to design their own sports pennant and calculate its dimensions.

Extensions:

- Integrate technology for further exploration of mathematical concepts (interactive Mimio lessons/games, laptops, web quests).
- Complete a word study for common prefixes used geometry (tri-, quad-, penta-, poly, etc.)
- Identify and model polygons with more than 10 sides.
- Create an original landscape plan for a backyard calculating materials needed and using various geometric formulas.

Remediation:

- Integration of manipulatives
- Additional small-group instruction
- Differentiated assignments and assessments
- Use of formula card or sheet

Instructional Methods:

- Incorporation of manipulatives within cooperative learning groups
- Small and large-group direct instruction
- Modeling
- Differentiated instruction
- Small and large-group discussion

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- Manipulatives
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Assessments:

- **Diagnostic:**
  - Questioning
  - Small and large group discussion
  - Student observation
- **Formative**
  - Observation of student work
  - Quizzes
  - Practice worksheets
  - Exit tickets
- **Summative:**
  - End-of-unit assessment

Curriculum Scope & Sequence

Planned Course: Mathematics Grade 6

Unit: Integers*

Time frame: 3 weeks

State Standards: 2.1.6.E.4

Anchor(s) or adopted anchor:M06.A-N.3.1.1, M06.A-N.3.1.2, M06.A-N.3.1.3, M06.A-N.3.2.1, M06.A-N.3.2.2, M06.A-N.3.2.3

Essential content/objectives: Objectives to be completed prior to the state assessment aligned with the PA Common Core: At end of the unit, students will be able to:

- Read, write, and use positive and negative numbers.
- Represent quantities in real-world contexts using positive and negative numbers, explaining the meaning of 0 in each situation (temperature, elevation, credits/debits, and positive/negative charges).
- Compare and order integers.
- Determine the opposite of a number and recognize that the opposite of the opposite of a number is the number itself (e.g., – (–3) = 3, and that 0 is its own opposite).
- Locate and plot integers and other rational numbers on a horizontal or vertical number line; locate and plot pairs of integers and other rational numbers on a coordinate plane.
- Write, interpret, and explain statements of order for rational numbers in real-world contexts.
- Compare and order absolute values.
- Interpret the absolute value of a rational number as its distance from 0 on the number line and as a magnitude for a positive or negative quantity in a real-world situation.
- Solve real-world and mathematical problems by plotting points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.

Objectives to be completed following the state assessment aligned with the PA Common Core: At end of the unit, students will be able to:

- Add and subtract integers using a number line and the rules for adding and subtracting integers.
- Multiply and divide integers using patterns and the rules for multiplying and dividing integers.

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

- Spiral review/warm-up
- Direct instruction/note-taking
- Guided practice with skills
- Partner practice with skills
- Independent practice with skills

- Utilization of manipulatives
- Centers/stations
- Identify various real-world scenarios where integers are used and express real-world situations in terms of integers.
- Creation of student's own personal number line to be used throughout the unit.
- Play the game Battleship to review plotting points on all four quadrants of the coordinate plane.

Extensions:

- Integrate technology for further exploration of mathematical concepts (interactive Mimio lessons/games, laptops, web quests).
- Determine the amount of money left in a bank account after numerous credit/debit transactions.

Remediation:

- Integration of manipulatives
- Additional small-group instruction
- Differentiated assignments and assessments
- Use of a number line

Instructional Methods:

- Incorporation of manipulatives within cooperative learning groups
- Small and large-group direct instruction
- Modeling
- Differentiated instruction
- Small and large-group discussion

Materials & Resources:

- enVisionMATH
  Pearson Education, Inc.
  2012
  http://www.pearsonschool.com/

- Holt Mathematics: Course 1
  Holt, Reinhart, and Winston
  2007
  http://go.hrw.com/gopages/ma-msm.html

- Buckle Down Grade 6 Mathematics
  2008
  http://www.buckledown.com/

- Teacher-generated guided notesheets
- Practice book and masters
- Calculators
- Manipulatives
- Flashcards
- Number lines

Assessments:

- **Diagnostic:**
  - Questioning
  - Small and large group discussion
  - Student observation
- **Formative**
  - Observation of student work
  - Quizzes
  - Practice worksheets
  - Exit tickets
- **Summative:**
  - End-of-unit assessment

Curriculum Scope & Sequence

Planned Course: Mathematics Grade 6

Unit: Measurement

Time frame: 2 weeks

(Note: This unit is eligible content for PSSA during school years 2012-2013 and 2013-2014 and should be completed prior to the PSSA state assessment. As of the 2014-2015 school year, this unit will be taught after the PSSA state assessment.)

Anchor(s) or adopted anchor: M6.B.1.1.1, M6.B.2.1.1, M6.B.2.1.2

Essential content/objectives: Objectives to be completed prior to the PSSA state assessment to meet the eligible content requirements: At end of the unit, students will be able to:

- Use and/or read a ruler to measure to the nearest 1/16 inch or millimeter.
- Choose the more precise measurement of a given object.
- Determine and/or compare elapsed time to the minute (time may cross a.m. to p.m. or more than one day).

Objectives to be completed following the PSSA state assessment that are not eligible content requirements: At end of the unit, students will be able to:

- Convert between customary units of length, weight, and capacity.
- Convert between metric units of length, mass, and capacity.
- Convert between customary and metric measures of length, capacity, and weight/mass.

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

- Spiral review/warm-up
- Direct instruction/note-taking
- Guided practice with skills
- Partner practice with skills
- Independent practice with skills
- Utilization of manipulatives
- Centers/stations
- Guide students in using various tools of measurement (customary and metric ruler, protractor) and allow time for them to practice with the tools.
- Instruct students to measure various items around the classroom.
- Ask students to select items from their desk/cubby and have the class determine the most precise unit of measurement to use when measuring the object.
- Instruct students to determine elapsed time for various aspects of the school day (length of a particular class, time between homeroom and lunch, time after lunch until dismissal, time spent in school, etc.).

Extensions:

- Integrate technology for further exploration of mathematical concepts (interactive Mimio lessons/games, laptops, web quests).
- Have students keep a daily journal for 1-2 days over the weekend or a holiday where they track the time elapsed between various tasks/activities they do throughout the day.

Remediation:

- Integration of manipulatives
- Additional small-group instruction
- Differentiated assignments and assessments
- Use of an oversized clock manipulative

Instructional Methods:

- Incorporation of manipulatives within cooperative learning groups
- Small and large-group direct instruction
- Modeling
- Differentiated instruction
- Small and large-group discussion

Materials & Resources:

- enVisionMATH
  Pearson Education, Inc.
  2012
  http://www.pearsonschool.com/

- Holt Mathematics: Course 1
  Holt, Reinhart, and Winston
  2007
  http://go.hrw.com/gopages/ma-msm.html

- Buckle Down Grade 6 Mathematics
  2008
  http://www.buckledown.com/

- Teacher-generated guided notesheets
- Practice book and masters
- Calculators
- Manipulatives
- Flashcards
- Clocks
- Rulers
- Yard/meter stick

Assessments:

- **Diagnostic:**
  - Questioning
  - Small and large group discussion
  - Student observation
- **Formative**
  - Observation of student work
  - Quizzes
  - Practice worksheets
  - Exit tickets
- **Summative:**
  - End-of-unit assessment

Curriculum Scope & Sequence

Planned Course: Mathematics Grade 6

Unit: Geometry Enrichment

Time frame: 2-3 weeks

State Standards: 2.3.7.A.1, 2.3.7.A.2

Anchor(s) or adopted anchor: M07.C-G.2.1.1, M07.C-G.2.2.1

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

- Identify and find the measure of vertical, adjacent, complementary, and supplementary angles.
- Identify parts of a circle and the relationships among them.
- Determine whether figures are congruent and whether a pair of congruent figures is related by a transformation.
- Identify and make symmetrical figures and draw lines of symmetry.
- Calculate the circumference of a circle when given the diameter or radius.
- Calculate the area of a circle when given certain dimensions of a circle.

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

- Spiral review/warm-up
- Direct instruction/note-taking
- Guided practice with skills
- Partner practice with skills
- Independent practice with skills
- Utilization of manipulatives
- Centers/stations
- Illustrate the different types of transformations using geometric shapes.
- Identify different types of transformations and symmetry within the works of M.C. Escher.
- Calculate the number of lines of symmetry in the letters of the students' first and/or last name.
- Draw circles and calculate the circumference and area of the circle using appropriate tools of measurement and formulas.

Extensions:

- Integrate technology for further exploration of mathematical concepts (interactive Mimio lessons/games, laptops, web quests).
- Students will create their own original tessellation modeled after the works of M.C. Escher using geometric figures and concepts.

Remediation:

- Integration of manipulatives
- Additional small-group instruction
- Differentiated assignments and assessments
- Use of a formula card or sheet

Instructional Methods:

- Incorporation of manipulatives within cooperative learning groups
- Small and large-group direct instruction
- Modeling
- Differentiated instruction
- Small and large-group discussion

Materials & Resources:

- enVisionMATH
  Pearson Education, Inc.
  2012
  http://www.pearsonschool.com/

- Holt Mathematics: Course 1
  Holt, Reinhart, and Winston
  2007
  http://go.hrw.com/gopages/ma-msm.html

- Buckle Down Grade 6 Mathematics
  2008
  http://www.buckledown.com/

- Teacher-generated guided notesheets
- Practice book and masters
- Calculators
- Manipulatives
- Flashcards
- Measurement tools

Assessments:

- **Diagnostic:**
  - Questioning
  - Small and large group discussion
  - Student observation
- **Formative**
  - Observation of student work
  - Quizzes
  - Practice worksheets
  - Exit tickets
- **Summative:**
  - End-of-unit assessment