CARLISLE AREA SCHOOL DISTRICT

Carlisle, PA 17013

MATH

GRADE 6

Date of Board Approval: February 19, 2015

CARLISLE AREA SCHOOL DISTRICT

PLANNED INSTRUCTION COVER PAGE

TITLE OF COURSE:	Math Course 1	**SUBJECT:**	Mathematics	**GRADE LEVEL:**	6
COURSE LENGTH:	1 year	**DURATION:**	45 minutes	**FREQUENCY:**	5/week
PREREQUISITES:	5th Grade Math	**CREDIT:**	N/A	**LEVEL:**	N/A

Course Description/Objectives: This course offers a focused, coherent curriculum with an emphasis on conceptual understanding as well as fluency with skills. The curriculum covers every sixth grade Pennsylvania Common Core Standard and stresses the Pennsylvania assessment anchors. The objective of the course is for each student to reach the understandings outlined for each unit. This mathematics course uses multiple representations of concepts so that deeper understandings by students with a variety of learning styles can be achieved. The representations include concrete, visual, and symbolic. Problem solving is pervasive throughout each unit. Students develop problem solving skills through working with multi-step and non-routine problems which also connect to algebra.

Text: Math in Focus, Singapore Math by Marshall Cavendish

Curriculum Writing Committee: Whitney Baker, Kelly Brent, Stephanie Brown, Thalia Mitsios, Jamie Morrow

COURSE TIME LINE

Unit 1: Number Representations and the Number Line **21 days**

- The Number line
- Prime Factorization
- Common Factors and Multiples
- Squares and Cubes
- Negative Numbers
- Absolute Value

Unit 2: Multiplying and Dividing Fractions and Decimals **17 days**

- Multiplying Fractions
- Dividing Fractions
- Multiplying Decimals
- Dividing Decimals
- Solving Real-World problems involving fractions and decimals

Unit 3: Rates and Ratios **21 days**

- Comparing Quantities
- Equivalent Ratios
- Solving Real-World problems involving ratios
- Rates and Unit Rates
- Solving real-world problems involving rates

Unit 4: Percents **16 days**

- Understanding Percent
- Conversions – percent-decimal-fraction
- Percent of a quantity
- Real-world problem involving percents

Unit 5: Algebraic Expressions **19 days**

- Writing Algebraic Expressions
- Evaluating Algebraic Expressions
- Simplifying Algebraic Expressions
- Expanding and Factoring Algebraic Expressions
- Solving Real-world problems involving Algebraic Expressions

Unit 6: Equations and Inequalities **14 days**

- Solving Algebraic Equations
- Writing Equations
- Solving Inequalities
- Solving Real-World Problems involving Equations and Inequalities

Unit 7: The Coordinate Plane **11 days**

- Points on the Coordinate Plane
- Length of Line Segments on the Coordinate Plane
- Graphing an Equation on a Coordinate Plane
- Solving Real-World Problems using a Coordinate Plane

Unit 8: Area of Polygons **14 days**

- Area of Triangles
- Area of Parallelograms and Trapezoids
- Area of Other Polygons
- Area of Composite Figures

Unit 9: Surface Area and Volume of Solids **14 days**

- Nets of Solids
- Surface Area of Solids
- Volume of Prisms
- Solving Real-World Problems involving Surface Area and Volume

Unit 10: Statistics and Measures of Central Tendency **21 days**

- Collecting Data
- Dot Plots and Histograms
- Measures of Central Tendency – Mean, Median and Mode
- Box and Whisker Plots
- Real-World Problems involving Data Displays and Measures of Central Tendency

TOTAL: **168 days**

KNOW, UNDERSTAND, DO

COURSE: Math Course 1 **TIME FRAME:** 21 days

UNIT # 1: Number Representations and the Number Line **GRADE:** 6

STANDARDS:

PSSA Eligible Content/Assessment Anchors

M06.A-N-2.1.1	• Solve problems involving operations (+, –, ×, ÷) with whole numbers, decimals (through thousandths), straight computation, or word problems.
M06.A-N-2.2.1	• Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12.
M06.A-N-2.2.2	• 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.
M06.A-N-3.1.1	• Represent quantities in real-world contexts using positive and negative numbers, explaining the meaning of 0 in each situation (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge).
M06.A-N-3.1.2	• 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.
M06.A-N-3.1.3	• 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.
M06.A-N-3.2.1	• Write interpret and explain statements of order for rational numbers in real-world contexts.
M06.B-E.1.1.1	• Write and evaluate numerical expressions involving whole-number exponents.
M06.B-E-1.1.5	• Apply properties of operations to generate equivalent expressions.

PA Common Core Standards for Mathematics

CC.2.1.6.E.2	• Identify and choose appropriate processes to compute fluently with multi-digit numbers.
CC.2.1.6.E.3	• Develop and/or apply number theory concepts to find common factors and multiples.
CC.2.1.6.E.4	• Apply and extend previous understandings of numbers to the system of rational numbers.

KNOW, UNDERSTAND, DO

COURSE: Math Course 1 **TIME FRAME:** 21 days

UNIT # 1: Number Representations and the Number Line **GRADE:** 6

Standards of Mathematical Practice

1 • Make sense of problems and persevere in solving them

2 • Reason abstractly and quantitatively

3 • Construct viable arguments and critique the reasoning of others

4 • Model with Mathematics

6 • Attend to Precision

7 • Look for and make use of structure

8 • Look for and make sense of regularity in repeated reasoning

KNOW, UNDERSTAND, DO

COURSE: Math Course 1 **TIME FRAME:** 21 days

UNIT # 1: Number Representations and the Number Line **GRADE:** 6

UNDERSTANDINGS

Numbers can be represented in different ways such as decimals and fractions. Every number has a unique placement on the number line. Negative numbers are to the left of zero on the number line, the same distance from zero as their corresponding opposite positive number. The distance a number is from zero on the number line, regardless of direction is its absolute value.

COMMON ASSESSMENTS/CULMINATING ACTIVITY

KNOW

- Understand inequality symbols <, >
- Define composite number
- Define prime number
- Define negative number
- Define factor
- Define multiple
- Define greatest common factor
- Define least common multiple
- Define exponent
- Define square of a number
- Define cube of a number
- Know the place value of each digit in a whole number or decimal

DO

- Represent numbers on a number line
- Compare numbers using an inequality symbol (<, >, =)
- Compare numbers in different forms (decimal, fraction, mixed number, improper fraction)
- Write a composite number as a product of its primes
- Identify common factors of given whole numbers
- Identify the greatest common factor of given whole numbers
- Identify common multiples of given whole numbers
- Identify the least common multiple of given whole numbers
- Determine when a least common multiple or greatest common factor would be used in a real life application.
- Find the square of a whole number
- Find the cube of a whole number
- Recognize the use of positive and negative numbers in real life situations
- Interpret and explain the order of positive and negative numbers in real-life situation.
- Write the absolute value of a number
- Use absolute value to interpret real life situations

KNOW, UNDERSTAND, DO

COURSE: Math Course 1 **TIME FRAME:** 17 days

UNIT # 2: Multiplying and Dividing Fractions and Decimals **GRADE:** 6

STANDARDS:

PSSA Eligible Content/Assessment anchors

M06.A-N.1.1.1	• Interpret and compute quotients of fractions (including mixed numbers), and solve word problems involving division of fractions by fractions.
M06.A-N.2.1.1.1	• Solve problems involving operations (+, –, ×, ÷) with whole numbers, decimals (through thousandths), straight computation, or word problems.
M06.A-N.3.1.3	• 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.

PA Common Core Standards for Mathematics

CC.2.1.6.E.1	• Apply and extend previous understandings of multiplication and division to divide fractions by fractions.

Standards of Mathematical Practice

1	• Make sense of problems and persevere in solving them
2	• Reason abstractly and quantitatively
3	• Construct viable arguments and critique the reasoning of others
4	• Model with Mathematics
5	• Use appropriate tools strategically.
8	• Look for and make sense of regularity in repeated reasoning

KNOW, UNDERSTAND, DO

COURSE: Math Course 1 **TIME FRAME:** 17 days

UNIT # 2: Multiplying and Dividing Fractions and Decimals **GRADE:** 6

UNDERSTANDINGS

Whole number concepts can be extended to fractions and decimals when more precise calculations are necessary.

COMMON ASSESSMENTS/CULMINATING ACTIVITY

Enrichment Chapter 3 in cooperative groups

Chapter 3 Project

Cumulative Review Chapters 1 - 3

KNOW

- Define reciprocal
- Recognize that terminating or repeating decimals can be written as fractions
- Recognize that the place value of the factors determines the place value of the product
- Define division

DO

- Divide a whole number by a fraction
- Divide a whole number by a mixed number
- Divide a fraction by a fraction
- Divide a fraction by a mixed number
- Divide a mixed number by a fraction
- Divide a mixed number by a mixed number
- Determine when division by fractions would be necessary in real life
- Multiply a whole number by a decimal
- Multiply a decimal by a decimal
- Divide a whole number by a decimal
- Divide a decimal by a decimal
- Solve problems involving fractions and decimals
- Explain how to divide any number by a fraction

KNOW, UNDERSTAND, DO

COURSE: Math Course 1 **TIME FRAME:** 21 days

UNIT # 3: Rates and Ratios **GRADE:** 6

STANDARDS:

PSSA Eligible Content/Assessment anchors

M06.A-N.2.1.1	• Solve problems involving operations (+, –, ×, ÷) with whole numbers, decimals (through thousandths), straight computation, or word problems.
M06.A-R.1.1.1	• Use ratio language and notation (such as 3 to 4,3:4, 3/4) to describe a ratio relationship between two quantities.
M06.A-R.1.1.2	• Find the unit rate a/b associated with a ratio $a:b$ (with $b \neq 0$), and use rate language in the context of a ratio relationship.
M06.A-R.1.1.3	• 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. Use tables to compare ratios.
M06.A-R.1.1.4	• Solve unit rate problems including those involving unit pricing and constant speed.

PA Common Core Standards for Mathematics

CC.2.1.6.D.1	• Understand ratio concepts and use ratio reasoning to solve problems.

Standards of Mathematical Practice

1	• Make sense of problems and persevere in solving them
2	• Reason abstractly and quantitatively
3	• Construct viable arguments and critique the reasoning of others
4	• Model with Mathematics
6	• Attend to Precision
8	• Look for and make sense of regularity in repeated reasoning

KNOW, UNDERSTAND, DO

COURSE: Math Course 1 **TIME FRAME:** 21 days

UNIT # 3: Rates and Ratios **GRADE:** 6

UNDERSTANDINGS

A ratio compares two or more numbers or quantities with the same units (girls to boys). A rate compares two quantities with different units (miles per hour).

COMMON ASSESSMENTS/CULMINATING ACTIVITY

Unit 3 Assessment

KNOW

- Recognize that ratios are represented in multiple ways (3 to 4, 3:4, ¾)
- Define ratio
- Define rate
- Distinguish the terms of a ratio
- Find equivalent ratios
- Define unit rate

DO

- Write ratios to compare two quantities
- Interpret ratios
- Write ratios in simplest form
- Compare ratios
- Solve real-world problems involving ratios
- Find the missing term of a pair of equivalent ratios
- Explain the difference between a ratio and a rate
- Apply the concept of rates and unit rates to real-world problems

KNOW, UNDERSTAND, DO

COURSE: Math Course 1 **TIME FRAME:** 16 days

UNIT # 4: Percent **GRADE:** 6

STANDARDS:

PSSA Eligible Content/Assessment anchors

M06.A-N.2.1.1	• Solve problems involving operations (+, –, ×, and ÷) with whole numbers, decimals (through thousandths), straight computation, or word problems.
M06.A-R.1.1.5	• Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percentage.

PA Common Core Standards for Mathematics

CC.2.1.6.E.2	• Identify and choose appropriate processes to compute fluently with multi-digit numbers.
CC.2.1.6.D.1	• Understand ratio concepts and use ratio reasoning to solve problems.

Mathematical Practices

1	• Make sense of problems and persevere in solving them
2	• Reason abstractly and quantitatively
3	• Construct viable arguments and critique the reasoning of others
4	• Model with Mathematics
5	• Use appropriate tools strategically
7	• Look for and make use of structure
8	• Look for and make sense of regularity in repeated reasoning

KNOW, UNDERSTAND, DO

COURSE: Math Course 1 **TIME FRAME:** 16 days

UNIT # 4: Percent **GRADE:** 6

UNDERSTANDINGS

Percent is a part-whole comparison in which the whole is divided into 100 equal parts.A percent can be represented as a fraction or a decimal. There are many real-world applications of percent.

COMMON ASSESSMENTS/CULMINATING ACTIVITY

KNOW

- Recognize percent notation
- Define percent
- Define sales tax

DO

- Write a percent as a decimal
- Write a decimal as a percent
- Write a percent as a fraction or mixed number
- Write a fraction or mixed number as a percent
- Write equivalent fractions, decimals and percents
- Find a given percent of a given number
- Solve problems such as 12 is 15% of what number?
- Use percentages to solve real-world situations
- Explain what it means to have more than 100% of something

KNOW, UNDERSTAND, DO

COURSE: Math Course 1 **TIME FRAME:** 19 days

UNIT # 5: Algebraic Expressions **GRADE:** 6

STANDARDS:

PSSA Eligible Content/Assessment anchors

M06.B-E.1.1.1	• Write and evaluate numerical expressions involving whole-number exponents.
M06.B-E.1.1.2	• Write algebraic expressions from verbal descriptions.
M06.B-E.1.1.3	• Identify parts of an expression using mathematical terms (e.g., sum, term, product, factor, quotient, coefficient, quantity).
M06.B-E.1.1.4	• Evaluate expressions at specific values of their variables, including expressions that arise from formulas used in real-world problems..
M06.B-E.1.1.5	• Apply the properties of operations to generate equivalent expressions.

PA Common Core Standards for Mathematics

CC.2.2.6.B.1	• Apply and extend previous understandings of arithmetic to algebraic expressions.

Mathematical Practices

1	• Make sense of problems and persevere in solving them
2	• Reason abstractly and quantitatively
3	• Construct viable arguments and critique the reasoning of others
4	• Model with Mathematics
6	• Attend to Precision
8	• Look for and make sense of regularity in repeated reasoning

KNOW, UNDERSTAND, DO

COURSE: Math Course 1 **TIME FRAME:** 19 days

UNIT # 5: Algebraic Expressions **GRADE:** 6

UNDERSTANDINGS

A variable in an algebraic expression represents an unknown number. Algebraic expressions can be used to describe situations and solve real-world problems.

COMMON ASSESSMENTS/CULMINATING ACTIVITY

KNOW

- Define variable
- Define algebraic expression
- Define factor
- Identify terms of an expression
- Define simplify
- Define like terms
- Define coefficient
- Recognize equivalent expressions

DO

- Use variables to write algebraic expressions.
- Evaluate algebraic expressions for given values of the variable.
- Simplify algebraic expressions for given values of the variable.
- Simplify algebraic expressions with one variable.
- Recognize that the expression obtained after simplifying is equivalent to the original expression.
- Expand simple algebraic expressions.
- Factor simple algebraic expressions.
- Solving real-world problems involving algebraic expressions

KNOW, UNDERSTAND, DO

COURSE: Math Course 1 **TIME FRAME:** 14 days

UNIT # 6: Equations and Inequalities **GRADE:** 6

STANDARDS:

PSSA Eligible Content/Assessment anchors

M06.B-E.2.1.1	• Use substitution to determine whether a given number in a specified set makes an equation or inequality true.
M06.B-E.2.1.2	• Write algebraic expressions to represent real-world or mathematical problems.
M06.B-E.2.1.3	• 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.
M06.B-E.2.1.4	• 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.
M06.B-E.3.1.1	• Write an equation to express the relationship between the dependent and independent variables.
M06.B-E.3.1.2	• Analyze the relationship between the dependent and independent variables using graphs and tables and/or relate these to an equation.

PA Common Core Standards for Mathematics

CC.2.2.6.B.2	• Understand the process of solving a one-variable equation or inequality and apply to real-world and mathematical problems.
CC.2.2.6.B.3	• Represent and analyze quantitative relationships between dependent and independent variables.

Mathematical Practices

1	• Make sense of problems and persevere in solving them
2	• Reason abstractly and quantitatively
3	• Construct viable arguments and critique the reasoning of others
4	• Model with Mathematics
6	• Attend to Precision
7	• Look for and make use of structure
8	• Look for and make sense of regularity in repeated reasoning

KNOW, UNDERSTAND, DO

COURSE: Math Course 1 **TIME FRAME:** 14 days

UNIT # 6: Equations and Inequalities **GRADE:** 6

UNDERSTANDINGS

Equations and inequalities can be used to describe situations and solve real-word problems. The solutions of an equation or inequality are the values of the variable that make the equation or inequality true. Equations and inequalities can be solved by using the inverse operation.

COMMON ASSESSMENTS/CULMINATING ACTIVITY

KNOW

- Define dependent variable
- Define independent variable
- Recognize an equation represented by a table or a graph
- Define inequality
- Define solution as it pertains to an equation or inequality
- The solutions of an inequality can be represented by a graph on a number line

DO

- Solve equations containing one variable
- Solve equations using the substitution method.
- Complete a table by identifying the pattern.
- Write an equation or inequality to represent a situation.
- Use substitution to determine whether a given number is a solution of the inequality.
- Represent the solution of an inequality on a number line.
- Write and solve real-word problems by writing equations or inequalities.

KNOW, UNDERSTAND, DO

COURSE: Math Course 1 **TIME FRAME:** 11 days

UNIT # 7: The Coordinate Plane **GRADE:** 6

STANDARDS:

PSSA Eligible Content/Assessment anchors

M06.A-N.3.1.1	• 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.
M06.A-N.3.1.3	• 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.
M06.A-N.3.2.3	• 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.

PA Common Core Standards for Mathematics

CC.2.3.6.A.1	• Apply appropriate tools to solve real-world and mathematical problems involving area, surface area, and volume.

Mathematical Practices

1	• Make sense of problems and persevere in solving them
2	• Reason abstractly and quantitatively
4	• Model with Mathematics
5	• Use appropriate tools strategically
6	• Attend to Precision
7	• Look for and make use of structure

KNOW, UNDERSTAND, DO

COURSE: Math Course 1 **TIME FRAME:** 11 days

UNIT # 7: The Coordinate Plane **GRADE:** 6

UNDERSTANDINGS

Identify the broad ideas, big understandings, enduring learning that you want students to remember 6 months or 10 years from now. These understandings are the foundation of the unit. Without this understanding, students would have "holes" in their learning.

COMMON ASSESSMENTS/CULMINATING ACTIVITY

KNOW

- Identify the 4 quadrants on a coordinate plane
- Identify the origin on a coordinate plane
- Identify the x-axis on the coordinate plane
- Identify the y-axis on the coordinate plane
- Recognize that points to the left of the y axis have negative coordinates.
- Recognize that points below the x axis have negative coordinates.
- Recognize that each point on a coordinate plane can be located by using an ordered pair (x, y).
- Recognize that the length of a line segment on a coordinate plane can be determined by counting units or by using subtraction.

DO

- Plot points on the coordinate plane given their ordered pair.
- Write an ordered pair for given points on a coordinate plane.
- Draw and identify polygons on the coordinate plane.
- Find lengths of horizontal and vertical line segments on a coordinate plane by counting units.
- Find lengths of horizontal and vertical line segments on a coordinate plane by subtracting the correct coordinates.
- Solve real word problems involving coordinates and a coordinate plane.

KNOW, UNDERSTAND, DO

COURSE: Math Course 1 **TIME FRAME:** 14 days

UNIT # 8: Area of Polygons **GRADE:** 6

STANDARDS:

PSSA Eligible Content/Assessment anchors

M06.C-G.1.1.1	• Determine the area of triangles and special quadrilaterals (i.e., square, rectangle, parallelogram, rhombus, and trapezoid). **Formulas will be provided.**
M06.C-G.1.1.2	• Determine the area of irregular or compound polygons.
M06.C-G.1.1.4	• 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.**

PA Common Core Standards for Mathematics

CC.2.3.6.A.1	• Apply appropriate tools to solve real-world and mathematical problems involving area, surface area, and volume.

Standards of Mathematical Practice

1	• Make sense of problems and persevere in solving them
3	• Construct viable arguments and critique the reasoning of others
4	• Model with Mathematics
6	• Attend to Precision
7	• Look for and make use of structure
8	• Look for and make sense of regularity in repeated reasoning

KNOW, UNDERSTAND, DO

COURSE: Math Course 1 **TIME FRAME:** 14 days

UNIT # 8: Area of Polygons **GRADE:** 6

UNDERSTANDINGS

The area of a polygon can be found by dividing it into smaller shapes such as triangles, rectangles, parallelograms, and trapezoids and then adding the area of those shapes.

COMMON ASSESSMENTS/CULMINATING ACTIVITY

KNOW

- Define base and height
- The base of a triangle is not always at the bottom
- The height of a triangle is not always a vertical distance
- The diagonal of a rectangle divides it into two congruent triangles
- Any polygon can be divided into triangles.
- A composite figure can be divided into shapes such as triangles, parallelograms and trapezoids.

DO

- Identify base and height for all polygons.
- Use a formula to find the area of a triangle.
- Find the height of a triangle given its area and base.
- Find the base of a triangle given its area and height.
- Use a formula to find the area of a parallelogram.
- Use a formula to find the area of a trapezoid.
- Find the area of a polygon (regular and irregular) by composing into rectangles or decomposing into triangles.
- Find the area of a shaded region by decomposing into triangles and other shapes.

KNOW, UNDERSTAND, DO

COURSE: Math Course 1 **TIME FRAME:** 14 days

UNIT # 9: Surface Area and Volume of Solids **GRADE:** 6

STANDARDS:

PSSA Eligible Content/Assessment anchors

M.06.C-G.1.1.3	• Determine the volume of right rectangular prisms with fractional edge lengths. **Formulas will be provided.**
M.06.C-G.1.1.5	• Represent three-dimensional figures using nets made of rectangles and triangles.
M06.C-G.1.1.6	• Determine the surface area of triangular and rectangular prisms (including cubes). **Formulas will be provided**

PA Common Core Standards for Mathematics

CC.2.3.6.A.1	• Apply appropriate tools to solve real-world and mathematical problems involving area, surface area, and volume.

Standards of Mathematical Practice

1	• Make sense of problems and persevere in solving them
2	• Reason abstractly and quantitatively
3	• Construct viable arguments and critique the reasoning of others
4	• Model with Mathematics
5	• Use appropriate tools strategically.
6	• Attend to Precision
8	• Look for and make sense of regularity in repeated reasoning

KNOW, UNDERSTAND, DO

COURSE: Math Course 1 **TIME FRAME:** 14 days

UNIT # 9: Surface Area and Volume of Solids **GRADE:** 6

UNDERSTANDINGS

Area is measured in square units and the surface area of a prism or pyramid is the sum of the area of its faces. Volume is measured in cubic units and the volume of a prism is the area of its base times its height.

COMMON ASSESSMENTS/CULMINATING ACTIVITY

KNOW

- Identify face, base, edge
- Define net
- Define pyramid
- Define prism
- Define surface area
- Define cross section
- Formula for area of rectangle (A = l x w)
- Formula for triangle (A = ½ b x h)
- Formula for trapezoid (A = ½ h x (b^1 + b^2)
- Formula for volume of cube (V = e x e x e or e^3)
- Formula for rectangular prism (V = l x w x h)

DO

- Match corresponding solids to their nets
- Classify solids as pyramids or prisms
- Use the area formulas to find the surface area of prisms and pyramids
- Compare surface area and volume of prisms and pyramids
- Compute the volume of prisms
- Solve problems involving surface area and volume

KNOW, UNDERSTAND, DO

COURSE: Math Course 1 **TIME FRAME:** 21 days

UNIT # 10: Statistics and Measures of Central Tendency **GRADE:** 6

STANDARDS:

PSSA Eligible Content/Assessment anchors

M06.D-S.1.1.1	• Display numerical data in plots on a number line, including line plots, histograms, and box-and whisker plots.
M06.D-S.1.1.2	• Determine quantitative measures of center (e.g.,median, mean, mode) and variability (e.g., range, inter-quartile range, mean absolute deviation).
M06.D-S.1.1.3	• Describe any overall pattern and any deviations from the overall pattern with reference to the context in which the data were gathered.
M06.D-S.1.1.4	• Relate the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.

PA Common Core Standards for Mathematics

CC.2.4.6.B.1	• Demonstrate an understanding of statistical variability by displaying, analyzing, and summarizing distributions.

Standards of Mathematical Practice

1	• Make sense of problems and persevere in solving them
2	• Reason abstractly and quantitatively
3	• Construct viable arguments and critique the reasoning of others
4	• Model with Mathematics
5	• Use appropriate tools strategically.
7	• Look for and make use of structure
8	• Look for and make sense of regularity in repeated reasoning

KNOW, UNDERSTAND, DO

COURSE: Math Course 1 **TIME FRAME:** 21 days

UNIT # 10: Statistics and Measures of Central Tendency **GRADE:** 6

UNDERSTANDINGS	
Measures of central tendency can be used to summarize data distribution. Statistics summarize data so information or decision can be gathered from data.	
COMMON ASSESSMENTS/CULMINATING ACTIVITY	
KNOW	**DO**
• Define mean • Define median • Define mode • Define frequency • Define dot plot • Define skewed • Define symmetrical • Define range • Define histogram • Define outlier	• Calculate the mean of a set of data and use the mean to solve real-world problems. • Calculate the median of a set of data and use the mean to solve real-world problems. • Calculate the mode of a set of data and use the mean to solve real-world problems. • Interpret a set of data and choose the appropriate measure of central tendency to best describe the data. • Collect, organize and tabulate sets of data. • Display and analyze data using a dot plot/line plot. • Display and analyze data using a histogram. • Display and analyze data using a box and whisker (supplement using other materials- not in book) • Mean absolute deviation (not in book)

Adaptations/Modifications for Students with I.E.P.s

Adaptations or modifications to this planned course will allow exceptional students to earn credits toward graduation or develop skills necessary to make a transition from the school environment to community life and employment. The I.E.P. team has determined that modifications to this planned course will meet the student's I.E.P. needs.

Adaptations/Modifications may include but are not limited to:

INSTRUCTION CONTENT

- Modification of instructional content and/or instructional approaches
- Modification or deletion of some of the essential elements

SETTING

- Preferential seating

METHODS

- Additional clarification of content
- Occasional need for one to one instruction
- Minor adjustments or pacing according to the student's rate of mastery
- Written work is difficult, use verbal/oral approaches
- Modifications of assignments/testing
- Reasonable extensions of time for task/project completion
- Assignment sheet/notebook
- Modified/adjusted mastery rates
- Modified/adjusted grading criteria
- Retesting opportunities

MATERIALS

- Supplemental texts and materials
- Large print materials for visually impaired students
- Outlines and/or study sheets
- Carbonless notebook paper
- Manipulative learning materials
- Alternatives to writing (tape recorder/calculator)