

Curriculum Map: Math 6A

Course: MATH 6

Grade(s): 6

Course Description: In Grade 6, instructional time should focus on four critical areas: (1) connecting ratio and rate to whole number multiplication and division and using concepts of ratio and rate to solve problems; (2) completing understanding of division of fractions and extending the notion of number to the system of rational numbers, which includes negative numbers; (3) writing, interpreting, and using expressions and equations; and (4) developing understanding of statistical thinking.

Resource: PA Core Standards PK 12 Curriculum Overview Grade 6 Overview

RESOURCES

[Grade 6 Formulas](#)

Unit: Quarter 1

Unit Description: Students build on their prior knowledge of adding, subtracting, multiplying, and dividing whole numbers, decimals, and fractions. They will write, interpret and use expressions and equations to solve real-life mathematical problems.

STANDARDS

STATE: PA Common Core Anchors and Eligible Content (May 2012)

M06.A-N.1.1.1 (Advanced) Interpret and compute quotients of fractions (including mixed numbers), and solve word problems involving division of fractions by fractions. Example 1: Given a story context for $(2/3) \div (3/4)$, explain that $(2/3) \div (3/4) = 8/9$ because $3/4$ of $8/9$ is $2/3$. (In general, $(a/b) \div (c/d) = (a/b) \times (d/c) = ad/bc$.) Example 2: How wide is a rectangular strip of land with length $3/4$ mi and area $1/2$ square mi? Example 3: How many $2\ 1/4$ -foot pieces can be cut from a $15\ 1/2$ -foot board?

M06.A-N.2.1.1 (Advanced) Solve problems involving operations (+, −, ×, and ÷) with whole numbers, decimals (through thousandths), straight computation, or word problems.

M06.A-N.2.2.1 (Advanced) 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 (Advanced) 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. Example: Express $36 + 8$ as $4(9 + 2)$.

M06.B-E.1.1.1 (Advanced) Write and evaluate numerical expressions involving whole-number exponents.

- M06.B-E.1.1.2 (Advanced)** Write algebraic expressions from verbal descriptions.
Example: Express the description "five less than twice a number" as $2y - 5$.
- M06.B-E.1.1.3 (Advanced)** Identify parts of an expression using mathematical terms (e.g., sum, term, product, factor, quotient, coefficient, quantity). Example: Describe the expression $2(8 + 7)$ as a product of two factors.
- M06.B-E.1.1.4 (Advanced)** Evaluate expressions at specific values of their variables, including expressions that arise from formulas used in real-world problems. Example: Evaluate the expression $b^2 - 5$ when $b = 4$.
- M06.B-E.1.1.5 (Advanced)** Apply the properties of operations to generate equivalent expressions. Example 1: Apply the distributive property to the expression $3(2 + x)$ to produce the equivalent expression $6 + 3x$. Example 2: Apply the distributive property to the expression $24x + 18y$ to produce the equivalent expression $6(4x + 3y)$. Example 3: Apply properties of operations to $y + y + y$ to produce the equivalent expression $3y$.
- M06.B-E.2.1.2 (Advanced)** Write algebraic expressions to represent real-world or mathematical problems.

(* standards consolidated from Topic level)

Topic: Review of Whole Numbers and Decimal Operations

Skills /

Competencie Review and solve whole number and decimal operations
s:

Content / Add, subtract, multiply, and divide whole numbers
Concepts: Add, subtract, and multiply decimals

Vocabulary: sum
difference
product
quotient

STANDARDS

STATE: PA Common Core Anchors and Eligible Content (May 2012)

M06.A-N.2.1.1 Solve problems involving operations (+, −, ×, and ÷)
(Advanced) with whole numbers, decimals (through thousandths), straight computation, or word problems.

Topic: Variables and Expressions

- Skills / Competencies:**
- Write and evaluate numerical expressions involving exponents
 - Apply properties of operations to generate equivalent expressions
 - Write and evaluate numerical expressions using order of operations
 - Write, evaluate, simplify and apply numerical and algebraic expressions

Content / Concepts: Algebraic Expressions

Vocabulary:

- exponential form
- base
- exponent
- power
- Commutative Property of Addition and Multiplication
- Associative Property of Addition and Multiplication
- Identity Property of Addition and Multiplication
- order of operations
- Distributive Property
- variable
- algebraic expression
- coefficient
- term
- evaluate
- substitution
- input/output table
- like terms
- equivalent expressions

STANDARDS

STATE: PA Common Core Anchors and Eligible Content (May 2012)

- M06.A-N.2.2.2
(Advanced) 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. Example: Express $36 + 8$ as $4(9 + 2)$.
- M06.B-E.1.1.1
(Advanced) Write and evaluate numerical expressions involving whole-number exponents.
- M06.B-E.1.1.2
(Advanced) Write algebraic expressions from verbal descriptions. Example: Express the description "five less than twice a number" as $2y - 5$.
- M06.B-E.1.1.3
(Advanced) Identify parts of an expression using mathematical terms (e.g., sum, term, product, factor, quotient, coefficient, quantity). Example: Describe the expression $2(8 + 7)$ as a product of two factors.
- M06.B-E.1.1.4
(Advanced) Evaluate expressions at specific values of their variables, including expressions that arise from formulas used in

M06.B-E.1.1.5
(Advanced)

real-world problems. Example: Evaluate the expression $b^2 - 5$ when $b = 4$.

Apply the properties of operations to generate equivalent expressions. Example 1: Apply the distributive property to the expression $3(2 + x)$ to produce the equivalent expression $6 + 3x$. Example 2: Apply the distributive property to the expression $24x + 18y$ to produce the equivalent expression $6(4x + 3y)$. Example 3: Apply properties of operations to $y + y + y$ to produce the equivalent expression $3y$.

M06.B-E.2.1.2
(Advanced)

Write algebraic expressions to represent real-world or mathematical problems.

Topic: Dividing Fractions

**Skills /
Competencies:**

Apply number theory concepts to find factors and multiples

s:

Interpret and compute quotients of fractions and solve real world problems

**Content /
Concepts:**

Division of fractions

Vocabulary:

common multiple
greatest common factor
least common multiple

STANDARDS

STATE: PA Common Core Anchors and Eligible Content (May 2012)

M06.A-N.1.1.1
(Advanced)

Interpret and compute quotients of fractions (including mixed numbers), and solve word problems involving division of fractions by fractions. Example 1: Given a story context for $(\frac{2}{3}) \div (\frac{3}{4})$, explain that $(\frac{2}{3}) \div (\frac{3}{4}) = \frac{8}{9}$ because $\frac{3}{4}$ of $\frac{8}{9}$ is $\frac{2}{3}$. (In general, $(\frac{a}{b}) \div (\frac{c}{d}) = (\frac{a}{b}) \times (\frac{d}{c}) = \frac{ad}{bc}$.) Example 2: How wide is a rectangular strip of land with length $\frac{3}{4}$ mi and area $\frac{1}{2}$ square mi? Example 3: How many $2\frac{1}{4}$ -foot pieces can be cut from a $15\frac{1}{2}$ -foot board?

Topic: Review of Fraction Concepts

**Skills /
Competencies:**

Review addition, subtraction, and multiplication of fractions

Convert mixed numbers to improper fractions

Review simplifying fractions

Content /

Add, subtract, and multiply fractions

Concepts:

Vocabulary: numerator
denominator
common denominator
mixed number
improper fraction
simplify

STANDARDS

STATE: PA Common Core Anchors and Eligible Content (May 2012)

M06.A-N.2.2.1
(Advanced) 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.

Unit: Quarter 2

Unit Description: Students create, solve, and interpret one-variable equations or inequalities in real-world and mathematical problems. Students will also analyze the relationships between dependent and independent variables in real-world problems. Students build on prior knowledge of adding, subtracting, multiplying, and dividing decimals. They will apply and extend previous understandings of numbers to the system of rational numbers and plot on a coordinate plane.

STANDARDS

STATE: PA Common Core Anchors and Eligible Content (May 2012)

M06.A-N.2.1.1 (Advanced) Solve problems involving operations (+, −, ×, and ÷) with whole numbers, decimals (through thousandths), straight computation, or word problems.

M06.A-N.3.1.1 (Advanced) 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 (Advanced) Determine the opposite of a number and recognize that the opposite of the opposite of a number is the number itself (e.g., $-(-3) = 3$; 0 is its own opposite).

M06.A-N.3.1.3 (Advanced) 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 (Advanced) Write, interpret, and explain statements of order for rational numbers in real-world contexts. Example: Write $-3^{\circ}\text{C} > -7^{\circ}\text{C}$ to express the fact that -3°C is warmer than -7°C .

M06.A-N.3.2.2 (Advanced) 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. Example: For an account balance of -30 dollars, write $|-30| = 30$ to describe the size of the debt in dollars, and recognize

that an account balance less than -30 dollars represents a debt greater than 30 dollars.

- M06.A-N.3.2.3 (Advanced) 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.
- M06.B-E.2.1.1 (Advanced) Use substitution to determine whether a given number in a specified set makes an equation or inequality true.
- M06.B-E.2.1.3 (Advanced) 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 (Advanced) 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 (Advanced) Write an equation to express the relationship between the dependent and independent variables. Example: In a problem involving motion at a constant speed of 65 units, write the equation $d = 65t$ to represent the relationship between distance and time.
- M06.B-E.3.1.2 (Advanced) Analyze the relationship between the dependent and independent variables using graphs and tables and/or relate these to an equation.
- M06.C-G.1.1.4 (Advanced) 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.

(* standards consolidated from Topic level)

Topic: Equations and Inequalities

Skills / Competencies: Solve real-world and mathematical problems by writing and solving equations
Use substitution to determine whether a given number in a specified set makes an equation or inequality true
Write an inequality to represent a real-world or mathematical problem

Content / Concepts: One-variable equations and inequalities

Vocabulary: equation
Addition Property of Equality
Subtraction Property of Equality
Multiplication Property of Equality
Division Property of Equality
inequality
inverse relationship

reciprocal

STANDARDS

STATE: PA Common Core Anchors and Eligible Content (May 2012)

M06.B-E.2.1.1

(Advanced)

Use substitution to determine whether a given number in a specified set makes an equation or inequality true.

M06.B-E.2.1.3

(Advanced)

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

(Advanced)

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.

Topic: Patterns and Equations

Skills /

Competencies:

Analyze the relationship between the dependent and independent variables using graphs and tables

Use equations to relate dependent and independent variables.

Content /

Concepts:

Relationships between dependent and independent variables

Vocabulary:

dependent variable
independent variable

STANDARDS

STATE: PA Common Core Anchors and Eligible Content (May 2012)

M06.B-E.3.1.1

(Advanced)

Write an equation to express the relationship between the dependent and independent variables. Example: In a problem involving motion at a constant speed of 65 units, write the equation $d = 65t$ to represent the relationship between distance and time.

M06.B-E.3.1.2

(Advanced)

Analyze the relationship between the dependent and independent variables using graphs and tables and/or relate these to an equation.

Topic: Adding, Subtracting, and Multiplying Decimals

Skills /

Competencies:

Solve problems involving operations (add, subtract, and multiply) with decimals through thousandths

Write and evaluate expressions and equations with decimals

Content / Concepts: Add, subtract, and multiply decimals

Vocabulary: compatible numbers
estimate

STANDARDS

STATE: PA Common Core Anchors and Eligible Content (May 2012)

M06.A-N.2.1.1 Solve problems involving operations (+, −, ×, and ÷) with whole numbers, decimals (through thousandths), straight computation, or word problems.

Topic: Dividing Whole Numbers and Decimals

Skills / Competencies: Solve problems involving division with whole numbers and decimals through thousandths

Write and evaluate expressions and equations with decimals

Content / Concepts: Divide whole numbers and decimals

STANDARDS

STATE: PA Common Core Anchors and Eligible Content (May 2012)

M06.A-N.2.1.1 Solve problems involving operations (+, −, ×, and ÷) with whole numbers, decimals (through thousandths), straight computation, or word problems.

Topic: Integers and Other Rational Numbers

Skills / Competencies: Represent quantities in real-world contexts using positive and negative numbers

Determine the opposite of a number

Interpret the absolute value of a rational number as its distance from zero on a number line

Content / Concepts: Integers and Rational Numbers

Vocabulary: opposites
integers
absolute value
rational number

STANDARDS

STATE: PA Common Core Anchors and Eligible Content (May 2012)

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., $-(-3) = 3$; 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. Example: Write $-3^{\circ}\text{C} > -7^{\circ}\text{C}$ to express the fact that -3°C is warmer than -7°C .

M06.A-N.3.2.2

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. Example: For an account balance of -30 dollars, write $|-30| = 30$ to describe the size of the debt in dollars, and recognize that an account balance less than -30 dollars represents a debt greater than 30 dollars.

Topic: Coordinate Geometry

Skills / Competencies: 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

Solve real-world and mathematical problems by plotting points in all four quadrants of a coordinate plane

Use the coordinates to find side lengths and area of a polygon on a coordinate plane (triangles and special quadrilaterals)

Make a T-table to graph linear equations

Content / Concepts: Plotting points on a coordinate plane

Vocabulary: coordinate plane
x-axis

y-axis
quadrants
ordered pair
origin
T-table
linear equation

STANDARDS

STATE: PA Common Core Anchors and Eligible Content (May 2012)

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.

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.

Unit: Quarter 3

Unit Description: Students will be learning about ratios, rates and proportions, percents, area, surface area and volume. They will also learn about collection, displaying, and analysis of data.

STANDARDS

STATE: PA Common Core Anchors and Eligible Content (May 2012)

M06.A-R.1.1.1 Use ratio language and notation (such as 3 to 4, 3:4, $\frac{3}{4}$) to describe a ratio relationship between two quantities. Example 1: "The ratio of girls to boys in a math class is 2:3 because for every 2 girls there are 3 boys." Example 2: "For every five votes candidate A received, candidate B received four votes."

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. Example 1: "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is $\frac{3}{4}$ cup of flour for each cup of sugar." Example 2: "We paid \$75 for 15 hamburgers, which is a rate of \$5 per hamburger."

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. Example: If it took 7 hours to mow 4

M06.A-R.1.1.5

lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?

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.

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. Example: Find the area of a room in the shape of an irregular polygon by composing and/or decomposing.

M06.C-G.1.1.3

Determine the volume of right rectangular prisms with fractional edge lengths. Formulas will be provided.

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.

M06.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.

M06.D-S.1.1.1

Determine quantitative measures of center (e.g., median, mean, mode) and variability (e.g., range, interquartile range, mean absolute deviation).

M06.D-S.1.1.2

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.1.1.3

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.

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.

(* standards consolidated from Topic level)

Topic: Ratios

Skills / Competencies: Use ratio language and notation to describe a ratio relationship between two quantities.

Construct tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on a coordinate plane.

Use tables to compare ratios.

Content / Concepts:

Understanding Ratios and Proportional Relationships

Vocabulary: ratio
terms
proportion

STANDARDS

STATE: PA Common Core Anchors and Eligible Content (May 2012)

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.

Example 1: "The ratio of girls to boys in a math class is 2:3 because for every 2 girls there are 3 boys." Example 2: "For every five votes candidate A received, candidate B received four votes."

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.

Topic: Rates

Skills / Competencies: Find the unit rate associated with a ratio and use rate language in the context of a ratio relationship.

Solve unit rate problems including those involving unit pricing and constant speed.

Content / Concepts: Understand Ratios and Proportional Relationships

Vocabulary: rate
unit rate
unit price
constant speed
formula

STANDARDS

STATE: PA Common Core Anchors and Eligible Content (May 2012)

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. Example 1: "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is $3/4$ cup of flour for each cup of sugar." Example 2: "We paid \$75 for 15 hamburgers, which is a rate of \$5 per hamburger."

M06.A-R.1.1.4

Solve unit rate problems including those involving unit pricing and constant speed. Example: If it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?

Topic: Percents

Skills / Competencies: Find a percent of a quantity as a rate per 100.
Solve problems involving finding the whole, given a part and the percentage.

Content / Concepts: Ratios and Proportional Relationships

Vocabulary: percent

STANDARDS

STATE: PA Common Core Anchors and Eligible Content (May 2012)

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.

Topic: Geometric Area

Skills / Competencies: Apply a formula to calculate area of a triangle, square, rectangle, parallelogram, rhombus, and trapezoid.

Determine the area of an irregular or compound polygon.

Find the area of polygons on a coordinate plane.

Content / Concepts: Calculate area of given polygons

Vocabulary: trapezoid
kite
rhombus

STANDARDS

STATE: PA Common Core Anchors and Eligible Content (May 2012)

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. Example: Find the area of a room in the shape of an irregular polygon by composing and/or decomposing.

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.

Topic: Surface Area and Volume

Skills / Competencies: Calculate the volume of a rectangular prisms with fractional edges using a specified formula.

Construct a net to represent three-dimensional figures made of rectangles and triangles.

Determine surface area of cubes, rectangular prisms, and triangular prisms given a specified formula.

Content / Concepts: Calculate surface area and volume of given polyhedrons

Vocabulary: volume
polyhedron
faces
edge
vertex
prism
net

STANDARDS

STATE: PA Common Core Anchors and Eligible Content (May 2012)

M06.C-G.1.1.3 Determine the volume of right rectangular prisms with fractional edge lengths. Formulas will be provided.

M06.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.

Topic: Statistics

Skills / Competencies: Display numerical data in plots on a number line, including line plots, histograms, and a box-and-whisker plots.

Determine quantitative measures of center (mean, median, mode) and variability (range, inter-quartile range, mean absolute deviation).

Describe any overall pattern and any deviations from the overall pattern with reference to the context in which the data were gathered.

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.

Content / Concepts: Statistics and Probability

Vocabulary: statistical question
data distribution
outlier
mean
average
median
mode
range
frequency table
histogram
box plot
quartiles
absolute deviation
mean absolute deviation
inter-quartile range (IQR)

STANDARDS

STATE: PA Common Core Anchors and Eligible Content (May 2012)

- M06.D-S.1.1.1 Determine quantitative measures of center (e.g., median, mean, mode) and variability (e.g., range, interquartile range, mean absolute deviation).
- M06.D-S.1.1.2 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.1.1.3 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.
- 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.

Unit: Fluency

Unit Description: Fluency will be incorporated within each quarter. Students will be able to quickly and accurately solve multiplication and division problems through twelve.

Topic Standards Aligned for selected Maps:

Selected Maps: Math 6A

Filter: STATE: PA Common Core Anchors and Eligible Content (May 2012), Grades - 6; Subjects: Mathematics

Standard Code	Description	Frequency	Total Minutes	# Min Enforced
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. Example 1: Given a story context for $(2/3) \div (3/4)$, explain that $(2/3) \div (3/4) = 8/9$ because $3/4$ of $8/9$ is $2/3$. (In general $(a/b) \div (c/d) = (a/b) \times (d/c) = ad/bc$.) Example 2: How wide is a rectangular strip of land with length $3/4$ mi and area $1/2$ square mi? Example 3: How many $2\frac{1}{4}$ -foot pieces can be cut from a $15\frac{1}{2}$ -foot board?	1	0	0
M06.A-N.2.1.1	Solve problems involving operations (+, -, *, and \div) with whole numbers, decimals (through thousandths), straight computation, or word problems.	3	0	0
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.	1	0	0
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. Example: Express $36 + 8$ as $4(9 + 2)$.	1	0	0
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).	1	0	0
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., $-(-3) = 3$; 0 is its own opposite).	1	0	0
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.	2	0	0
M06.A-N.3.2.1	Write, interpret, and explain statements of order for rational numbers in real-world contexts. Example: Write $-3^{\circ}\text{C} > -7^{\circ}\text{C}$ to express the fact that -3°C is warmer than -7°C .	1	0	0
M06.A-N.3.2.2	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. Example: For an account balance of -30 dollars, write $ -30 = 30$ to describe the size of the debt in dollars, and recognize that an account balance less than -30 dollars represents a debt greater than 30 dollars.	1	0	0
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.	1	0	0
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. Example 1: "The ratio of girls to boys in a math class is 2:3 because for every 2 girls there are 3 boys." Example 2: "For every five votes candidate A received, candidate B received four votes."	1	0	0
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. Example 1: "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is $3/4$ cup of flour for each cup of sugar." Example 2: "We paid \$75 for 15 hamburgers, which is a rate of \$5 per hamburger."	1	0	0
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.	1	0	0
M06.A-R.1.1.4	Solve unit rate problems including those involving unit pricing and constant speed. Example: If it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?	1	0	0
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.	1	0	0
M06.B-E.1.1.1	Write and evaluate numerical expressions involving whole-number exponents.	1	0	0
M06.B-E.1.1.2	Write algebraic expressions from verbal descriptions. Example: Express the description "five less than twice a number" as $2y - 5$.	1	0	0
M06.B-E.1.1.3	Identify parts of an expression using mathematical terms (e.g., sum, term, product, factor, quotient, coefficient, quantity). Example: Describe the expression $2(8 + 7)$ as a product of two factors.	1	0	0
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. Example: Evaluate the expression $b^2 - 5$ when $b = 4$.	1	0	0
M06.B-E.1.1.5	Apply the properties of operations to generate equivalent expressions. Example 1: Apply the distributive property to the expression $3(2 + x)$ to produce the equivalent expression $6 + 3x$. Example 2: Apply the distributive property to the expression $24x + 18y$ to produce the equivalent expression $6(4x + 3y)$. Example 3: Apply properties of operations to $y + y + y$ to produce the equivalent expression $3y$.	1	0	0
M06.B-E.2.1.1	Use substitution to determine whether a given number in a specified set makes an equation or inequality true.	1	0	0
M06.B-E.2.1.2	Write algebraic expressions to represent real-world or mathematical problems.	1	0	0
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.	1	0	0
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.	1	0	0

M06.B-E.3.1.1	Write an equation to express the relationship between the dependent and independent variables. Example: In a problem involving motion at a constant speed of 65 units, write the equation $d = 65t$ to represent the relationship between distance and time.	1	0	0
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.	1	0	0
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.	1	0	0
M06.C-G.1.1.2	Determine the area of irregular or compound polygons. Example: Find the area of a room in the shape of an irregular polygon by composing and/or decomposing.	1	0	0
M06.C-G.1.1.3	Determine the volume of right rectangular prisms with fractional edge lengths. Formulas will be provided.	1	0	0
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.	2	0	0
M06.C-G.1.1.5	Represent three-dimensional figures using nets made of rectangles and triangles.	1	0	0
M06.C-G.1.1.6	Determine the surface area of triangular and rectangular prisms (including cubes). Formulas will be provided.	1	0	0
M06.D-S.1.1.1	Determine quantitative measures of center (e.g., median, mean, mode) and variability (e.g., range, interquartile range, mean absolute deviation).	1	0	0
M06.D-S.1.1.2	Describe any overall pattern and any deviations from the overall pattern with reference to the context in which the data were gathered.	1	0	0
M06.D-S.1.1.3	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.	1	0	0
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.	1	0	0

Topic Standards Coverage for selected Maps:

Selected Maps: Math 6A

Filter: STATE: PA Common Core Anchors and Eligible Content (May 2012); Grades -6; Subjects: Mathematics

Standard Code	Description	Covered
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. Example 1: Given a story context for $(2/3) \div (3/4)$, explain that $(2/3) \div (3/4) = 8/9$ because $3/4$ of $8/9$ is $2/3$. (In general, $(a/b) \div (c/d) = (a/b) \times (d/c) = ad/bc$.) Example 2: How wide is a rectangular strip of land with length $3/4$ mi and area $1/2$ square mi? Example 3: How many $2\frac{1}{4}$ -foot pieces can be cut from a $15\frac{1}{2}$ -foot board?	YES
M06.A-N.2.1.1	Solve problems involving operations (+, -, ×, and ÷) with whole numbers, decimals (through thousandths), straight computation, or word problems.	YES
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.	YES
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. Example: Express $36 + 8$ as $4(9 + 2)$.	YES
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).	YES
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., $-(-3) = 3$; 0 is its own opposite).	YES
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.	YES
M06.A-N.3.2.1	Write, interpret, and explain statements of order for rational numbers in real-world contexts. Example: Write $-3^\circ\text{C} > -7^\circ\text{C}$ to express the fact that -3°C is warmer than -7°C .	YES
M06.A-N.3.2.2	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. Example: For an account balance of -30 dollars, write $ -30 = 30$ to describe the size of the debt in dollars, and recognize that an account balance less than -30 dollars represents a debt greater than 30 dollars.	YES
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.	YES
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. Example 1: "The ratio of girls to boys in a math class is 2:3 because for every 2 girls there are 3 boys." Example 2: "For every five votes candidate A received, candidate B received four votes."	YES
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. Example 1: "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is $3/4$ cup of flour for each cup of sugar." Example 2: "We paid \$75 for 15 hamburgers, which is a rate of \$5 per hamburger."	YES
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.	YES
M06.A-R.1.1.4	Solve unit rate problems including those involving unit pricing and constant speed. Example: If it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?	YES
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.	YES

M06.B-E.1.1.1	Write and evaluate numerical expressions involving whole-number exponents.	YES
M06.B-E.1.1.2	Write algebraic expressions from verbal descriptions. Example: Express the description "five less than twice a number" as $2y - 5$.	YES
M06.B-E.1.1.3	Identify parts of an expression using mathematical terms (e.g., sum, term, product, factor, quotient, coefficient, quantity). Example: Describe the expression $2(8 + 7)$ as a product of two factors.	YES
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. Example: Evaluate the expression $b^2 - 5$ when $b = 4$.	YES
M06.B-E.1.1.5	Apply the properties of operations to generate equivalent expressions. Example 1: Apply the distributive property to the expression $3(2 + x)$ to produce the equivalent expression $6 + 3x$. Example 2: Apply the distributive property to the expression $24x + 18y$ to produce the equivalent expression $6(4x + 3y)$. Example 3: Apply properties of operations to $y + y + y$ to produce the equivalent expression $3y$.	YES
M06.B-E.2.1.1	Use substitution to determine whether a given number in a specified set makes an equation or inequality true.	YES
M06.B-E.2.1.2	Write algebraic expressions to represent real-world or mathematical problems.	YES
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.	YES
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.	YES
M06.B-E.3.1.1	Write an equation to express the relationship between the dependent and independent variables. Example: In a problem involving motion at a constant speed of 65 units, write the equation $d = 65t$ to represent the relationship between distance and time.	YES
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.	YES
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.	YES
M06.C-G.1.1.2	Determine the area of irregular or compound polygons. Example: Find the area of a room in the shape of an irregular polygon by composing and/or decomposing.	YES
M06.C-G.1.1.3	Determine the volume of right rectangular prisms with fractional edge lengths. Formulas will be provided.	YES
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.	YES
M06.C-G.1.1.5	Represent three-dimensional figures using nets made of rectangles and triangles.	YES
M06.C-G.1.1.6	Determine the surface area of triangular and rectangular prisms (including cubes). Formulas will be provided.	YES
M06.D-S.1.1.1	Determine quantitative measures of center (e.g., median, mean, mode) and variability (e.g., range, interquartile range, mean absolute deviation).	YES
M06.D-S.1.1.2	Describe any overall pattern and any deviations from the overall pattern with reference to the context in which the data were gathered.	YES
M06.D-S.1.1.3	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.	YES
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.	YES