EAST PENN SCHOOL DISTRICT

Course Name Math Course 1-2

Approved: August 26, 2024

Unit Title Unit A: Expressions and Equations: Area, Algebraic Expressions, and Exponents

STAGE 1 | DESIRED RESULTS

Context and relevance for student learning

Standards

CC.2.1: Numbers and Operations

CC.2.1.6.E.3

Develop and/or apply number theory concepts to find common factors and multiples.

CC.2.2: Algebraic Concepts

CC.2.2.6.B.1

Apply and extend previous understandings of arithmetic to algebraic expressions.

CC.2.3: Geometry

CC.2.3.6.A.1

Apply appropriate tools to solve real-world and mathematical problems involving area, surface area,

Transfer

Students will be able to independently use their learning to...

- ❑ Develop the ability to apply expressions and equations involving area, algebraic expressions, and exponents to solve practical real-world problems across diverse fields, fostering analytical thinking and informed decision-making.

Meaning

UNDERSTANDINGS

Students will understand that...

- ❑ You can use what you know about the area of a rectangle to find the area of other two-dimensional figures and to find the surface-area of three-dimensional figures.
- ❑ You can use what you know about writing, interpreting, and evaluating numerical

ESSENTIAL QUESTIONS

Students will keep considering...

- ❑ How can I use what I know to find the area/surface area of 2 and 3 dimensional figures?
- ❑ How can I write, interpret, and evaluate algebraic expressions?
- ❑ How can I use my understanding of factors/multiples and exponents in expressions?

and volume.	expressions to understand how to work with algebraic expressions. ❑ You can apply your understanding of multiplication to evaluate expressions that include exponents and to find the greatest common factor and least common multiple of two whole numbers.	
	Acquisition	
	Students will know... ❑ I understand numerical and algebraic expressions.	*Students will be skilled at...* ❑ I can develop and/or apply number theory concepts to find common factors and multiples. ❑ I can apply and extend previous understandings of arithmetic to algebraic expressions. ❑ I can apply appropriate tools to solve real-world and mathematical problems involving area and surface area. ❑ I can apply number theory concepts to show relationships between real numbers in problem solving settings

		(specifically, factors and multiples). ❑ I can compute multi-digit numbers and find common factors and multiples. ❑ I can write and evaluate numerical and algebraic expressions. ❑ I can find area and surface area by applying formulas and using various strategies.

EAST PENN SCHOOL DISTRICT

Course Name	Math Course 1-2
Unit Title	Unit B: Decimals and Fractions: Base-Ten Operations, Division with Fractions, and Volume

STAGE 1 | DESIRED RESULTS

Context and relevance for student learning

Standards

CC.2.1: Numbers and Operations

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

CC.2.1.6.E.2
Identify and choose appropriate processes to compute fluently with multi-digit numbers.

CC.2.3: Geometry

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

Transfer

Students will be able to independently use their learning to...

- ❑ confidently and accurately apply decimals and fractions in various real-world scenarios such as cooking, measuring, and consumer mathematics.

Meaning

UNDERSTANDINGS
Students will understand that...

- ❑ Knowing about place value and operations with whole numbers will help you understand how to add, subtract, multiply, and divide with decimals.
- ❑ You can use what you know about area models and parietal quotients to make sense of an algorithm for dividing whole numbers and decimals.

ESSENTIAL QUESTIONS
Students will keep considering...

- ❑ How do I use place value to add, subtract, multiply, and divide with whole numbers, decimals and fractions?
- ❑

and volume.	❑ Division of fractions and mixed numbers can be thought of as forming equal groups to find the number or size of the groups. Knowing about the relationship between	
	Acquisition	
	Students will know... ❑ I understand appropriate processes to compute fluently with multi-digit numbers.	*Students will be skilled at...* ❑ I can apply and extend previous understandings of multiplication and division to divide fractions by fractions. ❑ I can choose appropriate processes to compute fluently with multi-digit numbers. ❑ I can apply appropriate tools to solve real-world and mathematical problems involving volume with fractional edge lengths. ❑ I can solve real-world and mathematical problems involving division of fractions. ❑ I can compute multi-digit numbers using the four arithmetic operations with or without a calculator.

		❑ I can find volume with fractional edge lengths by applying formulas and using various strategies.

EAST PENN SCHOOL DISTRICT

Course Name Math Course 1-2

Unit Title Unit C: Ratio Reasoning: Ratio Concepts and Equivalent Ratios

STAGE 1 | DESIRED RESULTS

Context and relevance for student learning

Standards

CC.2.1: Numbers and Operations

CC.2.1.6.D.1

Understand ratio concepts and use ratio reasoning to solve problems.

Transfer

Students will be able to independently use their learning to...

- ❑ Develop an understanding of ratio reasoning, including ratio concepts and equivalent ratios, and apply this knowledge to real-world scenarios.

Meaning

UNDERSTANDINGS

Students will understand that...

- ❑ A ratio is a way to compare two quantities when there are a units of one quantity and b units of the other.
- ❑ Equivalent ratios make the same comparison. You can use what you know about multiples and factors to find equivalent ratios.

ESSENTIAL QUESTIONS

Students will keep considering...

- ❑ How can I compare and reason using ratios?

	❑ Reasoning about equivalent ratios can help you find the amount of one quantity when you know the amount of the other quantity.	
	Acquisition	
	Students will know... ❑ I understand ratio concepts.	*Students will be skilled at...* ❑ I can use ratio reasoning to solve problems. ❑ I can represent and/or solve real world and mathematical problems using rates, ratios, and/or percents.

EAST PENN SCHOOL DISTRICT

Course Name Math Course 1-2

Unit Title Unit D: Ratio Reasoning: Unit Rates and Percent

STAGE 1 | DESIRED RESULTS

Context and relevance for student learning

Standards

CC.2.1: Numbers and Operations

CC.2.1.6.D.1

Understand ratio concepts and use ratio reasoning to solve problems.

Transfer

Students will be able to independently use their learning to...

- ❑ Develop a solid understanding of unit rates and percentages and apply this knowledge to real-world situations such as budgeting (finances, travel, groceries).

Meaning

UNDERSTANDINGS

Students will understand that...

- ❑ A rate is a ratio that tells how many units of one quantity there for every 1 unit of a second quantity. Knowing about rates can help you solve problems involving equivalent ratios.
- ❑ You can use a unit rate to find the amount of one quantity in a ratio

ESSENTIAL QUESTIONS

Students will keep considering...

- ❑ How can I use a rate/unit rate to solve problems in ratio relationships (specifically percents)?

	relationship when you know the amount of the other quantity. ❑ A percent is a way of expressing a rate per 100. You can use what you know about ratios and rates to solve problems about percents.	
	Acquisition	
	Students will know... ❑ I understand ratio concepts.	*Students will be skilled at...* ❑ I can use ratio reasoning to solve problems. ❑ I can represent and/or solve real world and mathematical problems using rates, ratios, and/or percents.

Course Name Math Course 1-2

Unit Title Unit E: Algebraic Thinking: Equivalent Expressions and Equations with Variables

STAGE 1 | DESIRED RESULTS

Context and relevance for student learning

Standards

CC.2.2: Algebraic Concepts

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

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.

Transfer

Students will be able to independently use their learning to...

- ❑ Develop an understanding of equivalent expressions and equations involving variables and apply this knowledge to real-world scenarios.

Meaning

UNDERSTANDINGS

Students will understand that...

- ❑ Writing expressions in different, but equivalent, forms can help you make sense of problems.
- ❑ You can perform the same operation on both sides of an equation and the two sides will still be equal.
- ❑ Solving an equation means finding a value

ESSENTIAL QUESTIONS

Students will keep considering...

- ❑ How can I write and use equivalent expressions to understand and solve equations/inequalities?

	of the variable that makes the equation true. You can use what you know about inverse operations to help you solve equations. ❑ Knowing about patterns can help you describe how two quantities vary with each other.	
	Acquisition	
	Students will know... ❑ I understand the process of solving a one-variable equation or inequality. ❑ I understand numerical and algebraic expressions.	*Students will be skilled at...* ❑ I can apply and extend previous understandings of arithmetic to algebraic expressions. ❑ I can understand the process of solving a one-variable equation or inequality and apply it to real-world and mathematical problems. ❑ I can represent and analyze quantitative relationships between dependent and independent variables. ❑ I can write and evaluate numerical and algebraic expressions.

		❑ I can interpret and solve one-variable equations and inequalities. ❑ I can create, solve, and interpret one variable equations or inequalities in real-world and mathematical problems. ❑ I can use variables to represent two quantities in a real-world problem that change in relationship to one another.

EAST PENN SCHOOL DISTRICT

Course Name Math Course 1-2

Unit Title Unit F: Proportional Relationships: Ratios, Rates, and Circles

STAGE 1 | DESIRED RESULTS

Context and relevance for student learning

Standards

CC.2.1: Numbers and Operations

CC.2.1.7.D.1

Analyze proportional relationships and use them to model and solve real-world and mathematical problems.

CC.2.3: Geometry

CC.2.3.7.A.1

Solve real-world and mathematical problems involving angle measure, area, surface area, circumference, and volume.

CC.2.3.7.A.2

Visualize and represent geometric figures and describe the relationships

Transfer

Students will be able to independently use their learning to...

- ❏ Analyze proportional relationships in real-world situations such as price analysis.

Meaning

UNDERSTANDINGS

Students will understand that...

- ❏ You can use what you know about unit rates and dividing fractions to explore ratios that compare fractions.
- ❏ A proportional relationship is a relationship in which one quantity is a constant multiple of another. Knowing about ratios will help you explore proportional relationships.
- ❏ For any circle, the distance around the

ESSENTIAL QUESTIONS

Students will keep considering...

- ❏ How do proportional relationships compare quantities?

<table>
<tr><td rowspan="4">between them.</td><td>circle divided by the distance across the circle through its center is always the same, a number called pi.</td><td></td></tr>
<tr><td colspan="2">Acquisition</td></tr>
<tr><td>Students will know...
❑ You can use what you know about unit rates and dividing fractions to explore ratios that compare fractions.
❑ A proportional relationship is a relationship in which one quantity is a constant multiple of another. Knowing about ratios will help you explore proportional relationships.
❑ For any circle, the distance around the circle divided by the distance across the circle through its center is always the same, a number called pi.</td><td>Students will be skilled at...
❑ How do proportional relationships compare quantities?</td></tr>
<tr><td colspan="2">Acquisition</td></tr>
<tr><td></td><td>Students will know...
❑ the use of scale factors
❑ ratios as related to proportions</td><td>Students will be skilled at...
❑ I can analyze proportional relationships and use them to model and solve</td></tr>
</table>

	❑ unit rate/constant of proportionality ❑ parts of a circle	real-world and mathematical problems. ❑ I can solve real-world and mathematical problems involving area and circumference. ❑ I can visualize and represent geometric figures.

EAST PENN SCHOOL DISTRICT

Course Name	Math Course 1-2
Unit Title	Unit G: Positive and Negative Numbers: Absolute Value, Inequalities, and the Coordinate Plane

STAGE 1 | DESIRED RESULTS

Context and relevance for student learning

Standards

CC.2.1: Numbers and Operations

CC.2.1.6.E.4

Apply and extend previous understandings of numbers to the system of rational numbers.

CC.2.2: Algebraic Concepts

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.2.3: Geometry

CC.2.3.6.A.1

Apply appropriate tools to solve real-world and

Transfer

Students will be able to independently use their learning to...

- ❑ Develop an understanding of positive and negative numbers and apply this knowledge to real-world scenarios such as debt management, temperature tracking and elevation and geographical data.

Meaning

UNDERSTANDINGS

Students will understand that...

- ❑ You can use positive and negative numbers to describe quantities with opposite values. Every positive and negative number has both a distance and a direction from 0. A number's distance from 0 is called its absolute value.

ESSENTIAL QUESTIONS

Students will keep considering...

- ❑ How can I use positive and negative numbers to understand the world around me?

mathematical problems involving area, surface area, and volume.	❑ You can extend the number line to show and compare positive and negative rational numbers or their absolute values. ❑ An inequality with a variable can have infinitely many solutions. You can show the solutions on a number line. ❑ You can extend the coordinate plane to plot points with negative coordinates. Knowing about absolute value can help you find the distance between points.	
	Acquisition	
	Students will know... ❑ I understand that positive and negative numbers are used together to describe quantities having opposite directions or values and locations on the number line and coordinate plane.	*Students will be skilled at...* ❑ I can apply and extend previous understandings of numbers to the system of rational numbers. ❑ I understand the process of solving a one-variable equation or inequality and apply it to real-world

	❑ I understand the ordering and absolute value of rational numbers.	and mathematical problems. ❑ I can apply appropriate tools to solve real-world and mathematical problems involving area, surface area, and volume. ❑ I can interpret and solve one-variable equations and inequalities. ❑ I can create, solve, and interpret one variable equations or inequalities in real-world and mathematical problems. ❑ I can find area, surface area, and volume by applying formulas and using various strategies.

EAST PENN SCHOOL DISTRICT

Course Name Math Course 1-2

Unit Title Unit H: Numbers and Operations: Add and Subtract Rational Numbers

STAGE 1 | DESIRED RESULTS

Context and relevance for student learning

Standards

CC.2.1: Numbers and Operations

CC.2.1.7.E.1

Apply and extend previous understandings of operations with fractions to operations with rational numbers.

CC.2.2: Algebraic Concepts

CC.2.2.7.B.3

Model and solve real-world and mathematical problems by using and connecting numerical, algebraic, and/or graphical representations.

Transfer

Students will be able to independently use their learning to...

- ❏ use integers in their daily lives such as balancing bank accounts, temperature changes, etc.

Meaning

UNDERSTANDINGS

Students will understand that...

- ❏ You can use what you know about positive and negative numbers and about addition on the number line to help you add with positive and negative numbers.
- ❏ Knowing how addition and subtraction are related will help you subtract with positive

ESSENTIAL QUESTIONS

Students will keep considering...

- ❏ How do negative integers impact change?

	and negative numbers.	
	Acquisition	
	Students will know... ❑ how to identify zero pairs ❑ what a negative number represents ❑ the meaning of opposite integers ❑ the meaning of absolute value	*Students will be skilled at...* ❑ I can compare and order integers. ❑ I can model and solve real-world and mathematical problems by using and connecting numerical, algebraic, and/or graphical representations. ❑ I can rewrite subtraction problems as addition of the opposite. ❑ I can solve real-world and mathematical problems involving the four operations with rational numbers. ❑ I can solve real-world and mathematical problems using numerical and algebraic expressions, equations, and inequalities. ❑ I can solve multi-step real-world and mathematical problems posed with positive and negative rational numbers.

Course Name Math Course 1-2

Unit Title Unit I: Numbers and Operations: Multiply and Divide Rational Numbers

STAGE 1 | DESIRED RESULTS

Context and relevance for student learning

Standards

CC.2.1: Numbers and Operations

CC.2.1.7.E.1

Apply and extend previous understandings of operations with fractions to operations with rational numbers.

CC.2.2: Algebraic Concepts

CC.2.2.7.B.3

Model and solve real-world and mathematical problems by using and connecting numerical, algebraic, and/or graphical representations.

Transfer

Students will be able to independently use their learning to...

- ❑ use integers in their daily lives for repeating circumstances such as average changes, rates of descent, etc.

Meaning

UNDERSTANDINGS

Students will understand that...

- ❑ Extending the properties of operations to include operations with negative numbers can help you understand how to multiply and divide with signed numbers.
- ❑ You can divide an integer by any integer except 0, and the quotient is a rational

ESSENTIAL QUESTIONS

Students will keep considering...

- ❑ How do negative integers impact products and quotients?

	number. Rational numbers have decimal forms that either terminate or repeat. ❑ You can write any division problem as a fraction, including problems with negative numbers.	
	Acquisition	
	Students will know... ❑ the meaning of an undefined quantity	*Students will be skilled at...* ❑ I can model and solve real-world and mathematical problems by using and connecting numerical, algebraic, and/or graphical representations. ❑ I can solve real-world and mathematical problems involving the four operations with rational numbers. ❑ I can solve real-world and mathematical problems using numerical and algebraic expressions, equations, and inequalities. ❑ I can solve multi-step real-world and mathematical problems

		posed with positive and negative rational numbers. ❑ I can re-write fractions as decimals ❑ I can classify decimals as terminating or repeating

EAST PENN SCHOOL DISTRICT

Course Name Math Course 1-2

Unit Title Unit J: Algebraic Thinking: Expressions, Equations, and Inequalities

STAGE 1 | DESIRED RESULTS

Context and relevance for student learning

Standards

CC.2.2: Algebraic Concepts
CC.2.2.7.B.1
Apply properties of operations to generate equivalent expressions.

CC.2.2.7.B.3
Model and solve real-world and mathematical problems by using and connecting numerical, algebraic, and/or graphical representations.

Transfer

Students will be able to independently use their learning to...

- ❏ create and solve equations when there are unknowns in a real-world scenario

Meaning

UNDERSTANDINGS
Students will understand that...

- ❏ You can apply properties of operations to generate equivalent expressions that reveal different aspects of a problem.
- ❏ You can use what you know about solving one-step equations to solve multi-step equations and inequalities.

ESSENTIAL QUESTIONS
Students will keep considering...

- ❏ How can an equation be used to represent relationships?
- ❏ How can an equation be used to solve a real-world scenario?

	❑ Reasoning about the effect of multiplying by a negative number can help you make sense of why the inequality symbol sometimes changes when you solve an inequality.	
	Acquisition	
	Students will know... ❑ the meaning of the terms: variable, constant, coefficient ❑ the properties of equality ❑ the difference between equations and expressions ❑ the meaning of inequality symbols >, <, ≤, ≥ ❑ when to change inequality symbols while solving an equation	*Students will be skilled at...* ❑ I can apply properties of operations to generate equivalent expressions. ❑ I can model and solve real-world and mathematical problems by using and connecting numerical, algebraic, and/or graphical representations. ❑ I can use variables to represent quantities in a real-world or mathematical problem and construct simple equations and inequalities to solve problems. ❑ I can solve real-world and mathematical problems using numerical and algebraic

		expressions, equations, and inequalities.

EAST PENN SCHOOL DISTRICT

Course Name	Math Course 1-2
Unit Title	Unit K: Statistical Thinking: Data Distributions and Measures of Center and Variability

STAGE 1 | DESIRED RESULTS

Context and relevance for student learning

Standards

CC.2.4: Measurement, Data and Probability

CC.2.4.6.B.1

Demonstrate an understanding of statistical variability by displaying, analyzing, and summarizing distributions.

Transfer

Students will be able to independently use their learning to...

- ❑ Develop a comprehensive understanding of statistical thinking to encourage effective data analysis, informed decision-making, and interpretation of information across real-world scenarios such as healthcare analysis and scientific research.

Meaning

UNDERSTANDINGS

Students will understand that...

- ❑ Understanding data distributions can help you answer statistical questions. The data you collect to answer a statistical question are likely to vary.
- ❑ You can use what you know about the number line to organize a set of data. Graphs based on the number

ESSENTIAL QUESTIONS

Students will keep considering...

- ❑ How can I collect, analyze and describe data to summarize and display relationships and trends?

	line can help you make sense of the data. ❑ You can summarize a data set by using a single number to describe a typical value and a single number to describe how spread out the data are. ❑ The measures you use to describe a data set depend on the statistical question you are trying to answer and on the characteristics of the data set.	
	Acquisition	
	Students will know... ❑ I demonstrate an understanding of statistical variability.	*Students will be skilled at...* ❑ I can demonstrate an understanding of statistical variability by displaying, analyzing, and summarizing distributions. ❑ I can demonstrate understanding of statistical variability by summarizing and describing distributions. ❑ I can display, analyze, and summarize numerical data sets in relation to their context.