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Grade 8 Math

Geometry

Essential Skill: Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

Warm Up	Build Background	Think and Do	Assess	Explore More Topics
Pre-Assessment What everyday objects are examples of cylinders?	**Volume of Cylinders Movie** Discover how to find the area of circles and the volume of cylinders.	**Make-a-Movie** Show how to calculate the volume of soda in a can with a height of 5 inches and a base diameter of 3 inches.	**Quiz** What did you learn about finding the volume of cylinders?	**Circles** **Surface Area**

Expressions and Equations

Essential Skill: Solve linear equations with one variable.

Warm Up	Build Background	Think and Do	Assess	Explore More Topics
Pre-Assessment: Class Discussion Display this problem: *Chris needs an extension cord to set up his new video game. How many 2-meter cords will he need to reach 7 meters?* Ask: *How can we write an equation that represents this problem?*	**Equations with Variables Movie** Learn how to simplify and solve algebraic equations with variables.	**Make a Concept Map** Diagram the process of isolating and solving for the variable in the equation 5y-13=12.	**Challenge** Use critical thinking to show what you know about solving equations with variables.	**Division** **Multiplication** **Graphing Linear Equations**

Functions

Essential Skill: Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line

Warm Up	Build Background	Think and Do	Assess	Explore More Topics
Pre-Assessment What does each variable in a linear equation represent?	**Slope and Intercept Movie** Learn how to plot the x- and y-intercepts of a line and calculate its slope.	**Make-a-Movie** Explain what the slope of a line is and how you find it.	**Quiz** What did you learn about slope and intercept?	**Graphing Linear Equations** **Coordinate Plane**

The Number System

Essential Skill: Identify prime numbers.

Warm Up	Build Background	Think and Do	Assess	Explore More Topics
Pre-Assessment	**Prime Numbers Movie**	**Play a Sorting Game**	**Quiz**	**Factoring**

What is a prime number?	Learn how every whole number greater than 1 is either a prime number or formed by multiplying prime numbers together.	Use what you know about prime numbers and prime factorization to sort numbers.	What did you learn about prime numbers?	**Rational and Irrational Numbers**

Essential Skill: Write a number using exponents.

Warm Up	Build Background	Think and Do	Assess	Explore More Topics
Pre-Assessment: Class Discussion Ask: *Where have you seen exponents before? How are they useful in expressing really large or really small numbers?*	**Exponents Movie** Learn to use exponents to express really big (or really small) numbers.	**Make a Concept Map** Break down the expression 5^5 + 3^2 from exponential form into standard form, and solve.	**Quiz** What did you learn about exponents?	**Square Roots** **Multiplying and Dividing Exponents** **Standard and Scientific Notation**

Essential Skill: Find the equivalent values of a fraction, decimal, and percent.

Warm Up	Build Background	Think and Do	Assess	Explore More Topics
Pre-Assessment Compare a fraction, decimal, and percent.	**Converting Fractions to Decimals Movie** Learn how to convert fractions into decimals, and back again.	**Make a Concept Map** Identify the steps to converting fractions into decimals, and decimals into fractions.	**Quiz** What did you learn about converting fractions to decimals?	**Decimals**

Essential Skill: Find the square root of a given number.

Warm Up	Build Background	Think and Do	Assess	Explore More Topics
Pre-Assessment: Quiz What do you know about square roots?	**Square Root Movie** Learn how to find the root of a square by measuring one of its sides.	**Make-a-Movie** Explain why it's easier to find the square root of a perfect number that's not a perfect square.	**Challenge** Use critical thinking skills to show what you know about square roots.	**Exponents**

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Essential Skill: Determine the greatest common factor of a given set of numbers.

Warm Up	Build Background	Think and Do	Assess	Explore More Topics
Pre-Assessment What is a greatest common factor?	**Factoring Movie** Find out what factors and multiplication have to do with breaking prime numbers into smaller pieces.	**Make a Concept Map** Use factor trees to find the greatest common factor of 9, 12, and 21.	**Quiz** What did you learn about factoring?	**Prime Numbers** **Exponents**

Statistics and Probability

Essential Skill: Determine the probability of an event.

Warm Up	Build Background	Think and Do	Assess	Explore More Topics
Pre-Assessment: Class Discussion Show a coin. Ask: *If we flip this three times, what are the chances that we will get*	**Basic Probability Movie** Learn how to calculate and express basic probability.	**Make-a-Movie** Explain how to determine the probability of picking a green shirt out of a bag containing two green	**Challenge** Use critical thinking to show what you know about probability.	**Compound Events**

three heads in a row?		shirts, three red shirts, and four white shirts.	

Essential Skill: Use tables to solve word problems.

Warm Up	Build Background	Think and Do	Assess	Explore More Topics
Pre-Assessment Examine a table to determine what we can learn from it.	**Problem Solving Using Tables Movie** Learn to solve problems using rows, columns and data.	**Make-a-Movie** Describe a situation where it would be helpful to use a table to organize information.	**Quiz** What did you learn about problem solving using tables?	**Word Problems** **Graphs**