New Paltz Central School District
Mathematics
Sixth Grade

TIME	CONTENT	SKILLS	ASSESSMENTS
September	**UNIT 1: Number Concepts** • Why do certain properties only work with certain operations? --- • Relationships between numbers and operations • Properties are "rules" that apply to numbers and operations	• Read and write whole numbers to trillions • Define and identify the commutative and associative properties of addition and multiplication • Define and identify the distributive property of multiplication over addition • Define and identify the zero property of multiplication	• Quizzes • Tests
October	**UNIT 2: Data Collection** • How can statistics and graphs be misleading? • How can mean, median, and mode be used to describe and compare data? • What is the best method for collecting data for a particular question? --- • Sampling when collecting data from a population • Which measure of central tendency and which type of graph is most appropriate for a given set of data	• Calculate and use range, mean, median, and mode to describe and compare data • Interpret graphs • Record data in a frequency table • Justify predictions made from data	• Quizzes • Tests • Data collection and graphing activity (Frost Valley)

New Paltz Central School District
Mathematics
Sixth Grade

TIME	CONTENT	SKILLS	ASSESSMENTS
October - November	**UNIT 3: Problem Solving** • What steps are necessary for solving problems? • What general strategies can be used for solving problems? --- • Some ways of representing a problem are more efficient than others • Understand when a solution is reasonable in the context of the original problem • Basic language of logic in mathematical situations (and, or, and not)	• Determine whether information is relevant or irrelevant • Use the steps: understand, plan, solve, examine to solve problems • Apply the following strategies to solve multi-step word problems: draw a picture/diagram, use trial and error, find a pattern, make a chart, work backwards	• Quizzes • Tests • Problem solving assessments
November	**UNIT 4: Exponents and Order of Operations** • How can exponential form be used to represent numbers? • How does the order in which operations are performed effect the answer to a problem? --- • The order in which operations are performed effects the answer to a problem • Exponential form represents repeated multiplication	• Evaluate numerical expressions using order of operations (PEMDAS) • Represent repeated multiplication in exponential form • Represent exponential form as repeated multiplication • Evaluate expressions having exponents where the power is an exponent of one, two, or three	• Journal entry: Will a power of an even number always be an even number? Will a power of an odd number always be an odd number? Explain your reasoning. • Quizzes

New Paltz Central School District
Mathematics
Sixth Grade

TIME	CONTENT	SKILLS	ASSESSMENTS
December	**UNIT 5: Perimeter, Area, and Volume** • How can we use what we know about the area of rectangles to help us find the area of other geometric shapes? --- • Area and volume can be used to describe geometric shapes	• Evaluate formulas for given input values (circumference, area, volume, distance, temperature, interest, etc.) • Determine the area of triangles and quadrilaterals (squares, rectangles, rhombi, and trapezoids) and develop formulas • Use a variety of strategies to find the area of regular and irregular polygons • Determine the volume of rectangular prisms by counting cubes and develop the formula • Measure capacity and calculate volume of a rectangular prism • Estimate volume, area, and circumference	• Quizzes • Tests • Problem solving assessments: The Fence Problem The Box Problem
December	**UNIT 6: Circles** • What is the relationship between the circumference and diameter of a circle? • What is the relationship between the diameter and radius of a circle? --- • Understand the relationship between the diameter and radius of a circle • Understand the relationship between the circumference and diameter of a circle	• Identify radius, diameter, chords, and central angles of a circle • Calculate the area and circumference of a circle, using the appropriate formula • Calculate the area of a sector of a circle, given the measure of a central angle and the radius of the circle • Estimate volume, area, and circumference	• Quizzes • Tests

New Paltz Central School District
Mathematics
Sixth Grade

TIME	CONTENT	SKILLS	ASSESSMENTS
January	**<u>UNIT 7: Decimals, Fractions, and Percents</u>** • How are decimals, fractions, and percents similar? --- • Decimals, fractions, and percents are multiple representations of rational numbers	• Read, write, and identify percents of a whole (0% to 100%) • Represent fractions as terminating or repeating decimals • Find multiple representations of rational numbers (fractions, decimals, and percents 0 to 100)	• Quizzes • Tests
January - February	**<u>UNIT 8: Operations With Fractions</u>** • How is adding and subtracting fractions similar to adding and subtracting whole numbers? • How are the processes for adding and subtracting fractions different than the processes for multiplying and dividing fractions? --- • Why like denominators are necessary for adding and subtracting fractions and mixed numbers. • The role of the multiplicative inverse in division of fractions	• Add and subtract fractions with unlike denominators • Multiply and divide fractions with unlike denominators • Add, subtract, multiply, and divide mixed numbers with unlike denominators • Identify the multiplicative inverse (reciprocal) of a number	• Quizzes • Tests

New Paltz Central School District
Mathematics
Sixth Grade

TIME	CONTENT	SKILLS	ASSESSMENTS
March	**UNIT 9: Ratio, Rate, and Proportion** • How can ratios and proportions be used as problem solving tools? • How are ratios and rates similar and different? --- • Ratio • Rate • Proportion	• Express equivalent ratios as a proportion • Distinguish the difference between rate and ratio • Solve proportions using equivalent fractions • Verify the proportionality using the product of the means equals the product of the extremes • Solve percent problems involving percent, rate, and base	• Quizzes • Tests • Performance assessments
March	**UNIT 10: Customary Units of Capacity** • How are customary units of capacity similar to/different from metric units of capacity? --- • Customary units and metric units are both used for measuring capacity	• Identify customary units of capacity (cups, pints, quarts, and gallons) • Identify equivalent customary units of capacity (cups to pints, pints to quarts, and quarts to gallons) • Determine the tool and technique to measure with an appropriate level of precision: capacity • Determine personal references for capacity	• Quizzes • Performance assessment

New Paltz Central School District
Mathematics
Sixth Grade

TIME	CONTENT	SKILLS	ASSESSMENTS
April	**<u>UNIT 11: Integers</u>** • What characteristics do positive and negative integers have in common? • What role does the additive inverse have in the set of numbers? --- • Negative numbers • The absolute value of any number is the distance from that number to zero on a number line • Role of the additive inverse in the set of numbers (zero pairs)	• Define absolute value and determine the absolute value of rational numbers (including positive and negative) • Locate rational numbers on a number line (including positive and negative) • Order rational numbers (including positive and negative)	• Quizzes •
April	**<u>UNIT 12: Algebra</u>** • How is an equation like a balanced scale? --- • The role of the identity and inverse properties of addition and multiplication in solving algebraic equations	• Define and identify the identity and inverse properties of addition and multiplication • Translate two-step verbal sentences and expressions into algebraic equations • Use substitution to evaluate algebraic expressions (may include exponents of one, two, and three) • Solve and explain two-step equations involving whole numbers using inverse operations	• Quizzes

New Paltz Central School District
Mathematics
Sixth Grade

TIME	CONTENT	SKILLS	ASSESSMENTS
May	**<u>UNIT 13: Venn Diagrams</u>** • How can a Venn diagram be used to organize data and solve problems? --- • Data can have similar and different characteristics	• Construct Venn diagrams to sort data	• Quizzes
May	**<u>UNIT 14: Coordinate Geometry</u>** • What is the coordinate system? --- • The coordinate system is a method of representing points in a plane by means of numbers	• Identify and plot points in all four quadrants • Calculate the area of basic polygons drawn on a coordinate plane (rectangles and shapes composed of rectangles having sides with integer lengths)	• Quizzes
June	**<u>UNIT 15: Probability</u>** • How can an understanding of probability be used to make predictions? --- • Compound events • Dependent events	• List possible outcomes for compound events • Determine the probability of dependent events • Determine the number of possible outcomes for a compound event by using the fundamental counting principle and use this to determine the probabilities of events when the outcomes have equal probability	• Quizzes • Tests