

CHAPTER	LESSON	DESCRIPTION
I. Decimals, Integers, Factors, and Exponents	Calculating with Decimals	This lesson focuses on calculating with decimals. Students practice written calculations to add, subtract, and multiply decimals as well as to divide a decimal by both an integer and a decimal.
	Comparing and Ordering Decimals	This lesson focuses on comparing and ordering decimals. Students begin by identifying the greater or smaller decimal for length measurements. They then complete pairs of related inequality statements. Students then use number lines to compare, order, and plot both positive and negative decimals.
	Comparing Decimals	This lesson focuses on comparing and ordering decimals. Students name the place value of digits in both whole numbers and decimals. They also compare and order whole numbers and decimals, both with and without a number line.
	Converting Fractions to Repeating Decimals	This lesson focuses on converting fractions to repeating decimals. Students first convert fractions and mixed numbers to terminating decimals. They then work with writing fractions as non-terminating decimals and examine repeating periods of 1, 2, and more terms. Finally, students write some repeating decimals as fractions.
	Integers	This lesson introduces negative integers, using a number line. Students work with opposite integer pairs and practice adding and subtracting integers on a number line. They apply these skills in real-world applications such as finding water levels and bank balances.
	Multiplying and Dividing by 0.1 and 0.01	This lesson focuses on multiplying and dividing integers and decimals by 0.1 and 0.01. Students begin by reviewing powers of 10, including writing large and small numbers using powers of 10. They multiply and then divide integers by 0.1 and 0.01, followed by multiplying and dividing decimals by 0.1 and 0.01.
	Operations with Integers	This lesson focuses on adding, subtracting, multiplying, and dividing positive and negative integers. Students begin by adding integers on a number line. They then add larger 3- and 4-digit integers, and subtract negative integers by adding the opposite. Students then multiply and divide positive and negative integers and end the lesson by examining patterns for integer operations.
	Powers of Ten with Integer Exponents	This lesson focuses on powers of ten with integer exponents. Students translate between powers of ten written in exponential or decimal form and explore the meaning of a negative exponent of ten. They also multiply and divide powers of ten.
	Powers, Roots, and Scientific Notation	This lesson focuses on squares and square roots, and cubes and cube roots. Students use area to relate squares and square roots, and volume to relate cubes and cube roots. Students learn to recognize which numbers cannot be squared integers, and find cubes of negative integers. The lesson ends with an introduction to scientific notation.
	Prime Factorization, GCF, and LCM	This lesson focuses on finding the prime factorization for composite numbers, and using it to find the GCF, LCM, and LCD. Students begin by identifying prime and composite numbers. They find prime factorizations and write them in exponential form. Students then find the greatest common factor (GCF) and least common multiple (LCM) of two composite numbers. Students end the lesson by using the GCF to simplify fractions and to find the lowest common denominator (LCD) to write equivalent fractions.
Prime Factorization, the GCF, and the LCD	This lesson focuses on prime factorization and the GCF and LCD. Students begin by distinguishing between prime and composite numbers. They then find the divisors and prime factorization of composite numbers. Next, they find the greatest common factor (GCF) of two or more numbers and the least common denominator (LCD) for two fractions. The lesson concludes by using factors to simplify fractions.	

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	Rounding Decimals	This lesson focuses on rounding decimals. Student first round natural numbers before rounding decimals to the nearest integer and to the nearest tenth and hundredth place. They then write natural numbers in expanded form and as a sum of powers of 10. Students also write decimals in expanded form as a sum of negative powers of 10.	
	Rounding Decimals and Accuracy	This lesson extends rounding decimals to any place value and examines the accuracy of rounding to different decimal places when compared to the actual value. Students first round decimals to a given number of decimal places. They then identify rounded numbers that are more and less accurate. Students end the lesson by identifying decimals that round to equivalent numbers.	
	Rounding Numbers	This lesson focuses on rounding counting numbers and decimals. Students round numbers to the nearest ones, tens, hundreds, thousands, tenths, and hundredths place. Students conclude the lesson by examining the reasonableness of rounded numbers.	
	Terminating and Repeating Decimals	This lesson focuses on terminating and repeating decimals. Students begin by using a calculator to convert fractions into decimals and identify if the decimals are terminating. Students then use long division to convert fractions and mixed numbers into terminating and then repeating decimals. They conclude the lesson by identifying whether a product of fractions is a terminating or repeating decimal.	
	Triangular Numbers, Squares, and Square Roots	This lesson explores triangular numbers to introduce squares and square roots. Students begin with number patterns made of dots that form a square or a triangle to learn about perfect squares. Students then square integers and find the square roots of perfect square whole numbers.	
	II. Fractions, Ratios, Proportions, and Percents	Adding and Subtracting Fractions	This lesson focuses on adding and subtracting fractions or mixed numbers with unlike denominators. Students start by writing equivalent fractions using the least common denominator (LCD). They then add and subtract fractions, and extend their work to mixed numbers with unlike denominators. Finally, students solve real-world applications by adding and subtracting fractions or mixed numbers with unlike denominators.
		Applying Ratios and Proportions	This lesson focuses on applying ratios and proportions to solve real-world problems. Students first write ratios for recipe ingredients and for different currencies. They identify ratios of like and unlike units such as weight, time, length, and capacity, and find unit rates. Students also use cross multiplication to solve proportions and convert measurements.
		Exploring Fractions	The lesson explores the meaning of fractions including parts of a unit, as the quotient resulting from dividing two numbers, and as a place on a number line. Students practice the skills of identifying equivalent fractions on a number line and reducing fractions. Finally, students find equivalent fractions using a common denominator as preparation for adding fractions.
Exploring Percent		This lesson relates percent to parts per hundred, and shows two methods for finding percent: rewriting a fraction so that the denominator is 100 or multiplying the fraction by 100%. Students find percent as a decimal by dividing the part by the whole and expressing the result as a percent. These skills are then applied to solve real-world problems.	
Fractions, Decimals, and Percents		This lesson focuses on fractions whose denominators are factors of 10, 100, or 1000. Students identify and rewrite equivalent fractions with a denominator that is a power of 10. They also order decimals and rewrite fractions and decimals as percents.	

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	Multiplying and Dividing Integers by Fractions	This lesson focuses on multiplying and dividing integers by fractions or mixed numbers. Students start by multiplying fractions by integers in real-world context such as recipes. They then multiply mixed numbers by integers. Next, students relate division of integers by fractions to multiplication by the reciprocal of the fraction. They then divide both positive and negative integers by fractions, and then by mixed numbers.
	Operations Involving Fractions and Decimals	The lesson focuses on operations with fractions and decimals. Students add, subtract, multiply, and divide a fraction and a decimal. They then apply these skills to solve a real-world problem.
	Order of Operations	This lesson focuses on the order of operations. Students learn the order of operations systematically by extending the operations from addition and subtraction to include: multiplication, division, exponents, and finally parentheses. Students apply the order of operations to simplify number expressions that include natural numbers, decimals, and fractions.
	Percent Increase and Decrease	The lesson focuses on finding percent increase and percent decrease. Students apply the percent equation (percent times whole equals part) to various real-world problems including working with a percent greater than 100%. They find percent, sale price, discount, original price, and use these to find percent increase and decrease. Students also solve problems involving reading bar graphs and line graphs.
	Ratios and Proportions	This lesson focuses on ratios and proportions. Students write the ratio of two perimeters and of two parts of a line segment. They also write ratios for various mixtures. They end the lesson by finding three parts of a given number so that the parts are in specified ratios.
	Scale Drawings and Maps	This lesson explores scale drawings and maps. Students practice reading scale drawings and maps, and translate map distance into actual distance. They then make scale drawings and locate a position on a map from a description of actual distances. The lesson concludes with a comparison of two differently-sized copies of the same map.
	Solving Ratio and Proportion Applications	The lesson focuses on applying ratios and proportions to solve applications. Students begin by dividing a whole (such as a candy bar, amount of money, or group of people) into parts with given ratios. They then extend ratios to 3 and 4 terms, and use ratios to find percents. Next, students write and use proportions to solving real-world problems, including currency exchange.
III. Algebra: Expressions and Equations	Exploring Quadratic Equations	This lesson explores quadratic equations. Students begin by reviewing algebraic expressions, the commutative and associative properties, and the distributive property. They also review solving and checking simple linear equations. Students then practice evaluating expressions with exponents. Next, they look at quadratic equations that have no real roots and solve by inspection quadratic solutions with integer roots. The lesson ends by comparing a linear equation with a quadratic equation, and relating the quadratic equation as a representation of a quadratic function.
	Linear Equations and Their Graphs	The lesson examines linear equations in two variables and their graphs. Students begin by writing linear equations and learning the general form of the equation $y = ax + b$. Students see how a table of values for the two variables leads to graphing the equation as a straight line. They see the relationship between the coordinates of points on the graph of a straight line and the pairs of values that satisfy the equation of that line. Students also examine the equation and graph of horizontal and vertical lines. Finally, students identify equations of lines from their graphs.

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	Monomials and Combining Like Monomials	This lesson focuses on monomials and combining like term monomials. Students begin by identifying monomials and like monomial terms. They then combine like monomial terms and multiply monomials by integers. Students then work with the commutative property to add and multiply like monomials.
	Multiplying Linear Expressions	This lesson focuses on multiplying linear expressions or binomials. Students see several different methods to multiply two binomial expressions, including a mental method similar to FOIL. They also use area models for multiplying two binomials, similar to using algebra tiles. Students then solve quadratic equations (with a constant term of zero) by factoring out an x and setting each factor equal to zero. Students conclude the lesson by finding the Greatest Common Factor (GCF) of several numbers and of several algebraic expressions with exponents.
	Simplifying Algebraic Expressions	This lesson focuses on simplifying algebraic expressions. Students begin by factoring out the greatest common factor (GCF) in numeric and algebraic expressions. They then apply the Distributive Property to multiply algebraic expressions and combine like terms. Next, students add and subtract algebraic expressions. The lesson concludes with practice in identifying and combining like terms for algebraic expressions.
	Simplifying and Factoring Expressions	This lesson focuses on simplifying and factoring algebraic expressions. Students first identify and combine like terms for algebraic expressions with terms of that contain variables. They then identify and factor out the greatest common factor to rewrite a sum as the product of a common factor times an expression in parentheses. The lesson also applies the Multiplication Property of -1 to show the effect of removing or adding parentheses preceded by a negative sign.
	Solving Linear and Non-Linear Equations	This lesson focuses on solving linear and non-linear equations. Students begin by identifying equations as either linear or non-linear (quadratic or with the variable in the denominator), and determining whether they have no solution or more than one solution. Students apply several methods for solving equations with the variable on both sides, including one involving mental math and transposition. They then use two methods for solving linear equations that contain fractions. Students apply these skills to real-world problems.
	Solving Multi-Step Equations	This lesson focuses on writing and solving multi-step linear equations. Students first solve equations by collecting like terms and undoing the operations that have been done to the variable. Students solve equations that have the unknown on one side, and then with equations that have the variable on both sides. Finally, students solve equations with parentheses by apply the Distributive Property before simplifying and solving the equation as they have previously practiced. Students conclude the lesson by writing and solving multi-step equations to solve word problems.
	Substituting Values into Formulas	This lesson explores formulas and substituting values into formulas. Students apply a formula to find the area of convex polygons using the lattice points, or intersections. They apply the Pythagorean Theorem to find the hypotenuse of a right triangle, and use the results to find the perimeter of that triangle. Students also use formulas for the area of a triangle, and the perimeter and area of a rectangle.
	Using Formulas and Exploring Binomials	This lesson focuses on using formulas including formulas for binomials. Students first convert temperatures between Centigrade and Fahrenheit measurements using formulas. They then use a formula for the square of binomials such as $(a + b)$ or $(a - b)$ and a formula for the difference of two squares.
	Writing an Equation to Solve Word Problems	This lesson focuses on writing equations to solve word problems. Students translate the facts in real-world problems by selecting a variable, stating what it represents, and choosing an equation that describes the relationship in the problem. The many different types of applications use skills in solving equations, using proportions and ratio, using percents, and apply the GCF and LCM.

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	Writing and Evaluating Algebraic Expressions	This lesson focuses on algebraic expressions. Students translate word phrases into algebraic expressions and represent real-world problems with algebraic expressions. They write multiplication expressions without using a multiplication symbol, and evaluate algebraic expressions by substituting values for the variables.
	Writing and Solving Equations	This lesson focuses on writing and solving linear equations with variables on both sides of the equation. Students write and solve equations for a variety of real-world situations starting with one-step and two-step equations before applications with the variable on both sides of the equation. Students also check their solutions.
	Writing and Solving Simple Equations	This lesson focuses on writing and solving simple equations in one variable. Students begin by identifying and writing equations that represent a balanced scale. They then solve one-step addition and subtraction equations, and check their solution. Students then solve one-step multiplication and division equations. The lesson ends with students using equations to solve application problems.
IV. Algebraic Relationships: Functions and Sequences	Finding Terms and Sums of Sequences	This lesson focuses on finding terms and sums of sequences expressed in tables. Students find terms in arithmetic and geometric sequences and compare them. They then find the n th term of an arithmetic and a geometric sequence and proceed to find partial sums for geometric sequences related to investments and interest.
	Formulas for Arithmetic Sequences	This lesson focuses on using formulas for the general term of an arithmetic sequence. Students begin by finding the n th term of an arithmetic sequence. Next, they find n for both increasing and decreasing arithmetic sequences when they are given the value of the n th term. Students end with identifying the formula for the n th term of an arithmetic sequence when they are given a number sequence.
	Functions	This lesson introduces functions with mapping diagrams, tables, and function rules. Students read and make mapping diagrams for a variety of real-world situations. They read functions represented in tables and identify and use function rules described in words. Students translate between function representations of mapping diagrams, tables, and word rules.
	Generating Sequences from Rules	This lesson focuses on using the n th term of a sequence to generate terms of a sequence and finding first- and second-difference sequences. Students write terms of sequences from pictorial and word descriptions and by using a given formula for the n th term, including formulas with quadratic rules and with variables in the denominator. Students conclude the lesson by finding the first- and the second-difference sequence for a sequence with a quadratic rule.
	Graphing Linear Functions	This lesson focuses on graphing linear functions of the form $y = ax$, $y = ax + b$, and $y = a$. Students first complete tables and plot ordered pairs to graph linear functions. They then find and plot a convenient pair of points to graph linear functions. Next, students graph constant functions of the form $y = a$. The lesson concludes with students identifying linear functions from their graphs and identifying the general function rule for their graphs.
	Graphs of Linear Functions	This lesson focuses on graphs of linear functions of the form $y = ax$, where a is positive. Students translate among tables, graph, and equations of linear functions of the form $y = ax$. For example, students find the equation of a linear function from its graph, and identify equations given two points and its graph. Students also relate the steepness of slope of a linear function to the value of the coefficient a in $y = ax$.

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	Inverse Linear Functions	This lesson focuses on finding inverse functions and their graphs. Students begin by using inverse operations to isolate the variable and solve an equation. They then find the input of a function that gives a certain output. Next, they identify the inverse function (reversing the mapping) for various linear functions, as well as finding the inverse of the general linear equation $y = ax + b$ by exchanging the variables and solving for y . They proceed to identify and graph linear functions and their inverses on the same coordinate grid.
	Line and Distance vs Time Graphs	This lesson examines line graphs and, in particular, Distance vs. Time graphs. Students begin by examining how the various possible relationships between two variables are expressed in line graphs. They then make a line graph and make and interpret Distance vs. Time graphs for real-world situations. The lesson concludes comparing Distance vs. Time line graphs.
	Rules and Graphs of Linear Functions	This lesson focuses on linear function rules and graphs. Students begin by reviewing the meaning of a function, and that a function can be represented by a table, a graph, a formula, or in words. They then explore the relationship between a function and the coordinates of the points on its graph. They examine the effect of changing the value of a in $y = ax$, and look at the slope of a road defined as the change in y divided by the change in x . They observe the changes in the graph of $y = ax + b$ as the values of a and b change and see what happens to the y -intercept and the slope. They end by making an observation about parallel lines.
	Sequences	This lesson introduces arithmetic and geometric sequences. Students begin by observing the patterns for various arithmetic sequences and geometric sequences, relating each to its rule, or equation. They examine increasing and decreasing patterns for both arithmetic and geometric sequences. The lesson concludes with the Fibonacci sequence and the Collatz problem, which is a sequence that applies two different rules, one for even numbers and one for odd numbers.
	Sequences with Term Numbers	This lesson focuses on sequences with explicit term numbers. Students practice identifying term numbers and relating each to its matching term of a sequence. Students construct some basic sequences, extend sequences, and find non-sequential terms.
	Solving Applications with Linear Functions	This lesson focuses on linear functions and their graphs in real-world situations. Students begin by identifying graphs of linear functions and relating the equation form $y = mx + b$ with the slope and y -intercept. Students then solve a wide variety of real-world applications that involve the equation of a linear function, linear graphs, and particular x - and y -values of a function.
	The nth Term of an Arithmetic Sequence	This lesson focuses on the n th term of an arithmetic sequence. Given the general formula for an arithmetic sequence, students find the value for specified terms. They then identify the first five terms for a sequence given the general formula and given pictorial representations. Students conclude the lesson by finding the formula for a given arithmetic sequence.
	Working with Variables	The lesson examines letter variables in expressions, equations, formulas, and function rules. Students evaluate expressions for values of the variables, and solve equations for the variable. They then substitute values for variables in formulas, and rewrite formulas by solving them for one of their variables. The lesson concludes with substituting into a function rule to make a table.
	Writing Real-World Functions	This lesson focuses on writing linear functions for real-world situations. Students begin by using function notation to identify a function from a word description. Next, they write functions for equations. Students then identify the independent variable in a word description and exchange the dependent and independent variables to write a new function. Students conclude the lesson by relating a linear function rule to its graph, and reading information from a graph.

CHAPTER	LESSON	DESCRIPTION
V. Geometry	Angles and Angles in Polygons	This lesson focuses on acute, obtuse, and reflex angles, and the sum of the interior angles of polygons. Students begin by naming and visually estimating angle measures. They then compare angle measures and use multiples of 45° and 60° angles to build polygons. Students conclude the lesson by applying the sum of the interior angle measures of a quadrilateral and then the sum of angle measures of a polygon to find unknown angle measures.
	Angles Formed by Two Lines and a Transversal	This lesson focuses on the angles formed by a transversal intersecting two lines. Students name the various pairs of angles formed by a transversal including: corresponding angles, alternate angles, and interior and exterior angles. Student learn the angle measure relationships when the two lines are parallel and apply them find missing angle measures. Students conclude the lesson by examining the converse relationship, where knowing about a pair of angle measures implies that the lines forming the angles are indeed parallel.
	Angles in Triangles	This lesson focuses on angles in triangles. Students find missing angle measures for vertical, supplementary, corresponding, and alternate interior angles. They then apply the sum of the angle measures of a triangle to equilateral, isosceles, and right triangles. Next, students extend the sum of angle measures of a triangle to quadrilaterals. Lastly, they examine the measure of an exterior angle of a triangle.
	Angles in Triangles and Polygons	This lesson focuses on angle measures in triangles, quadrilaterals, and other polygons. Students begin by applying the sum of the angle measures in a triangle and in a quadrilateral to finding missing angle measures. They then apply the property that the largest angle lies opposite the largest side to find angle measures in triangles. Students also apply property about equilateral and right triangles as well as parallelograms and trapezoids to find missing angle measures. The lessons concludes with students finding the sum of the interior angle measures for various polygons.
	Circles and Inscribed Polygons	This lesson examines circles and inscribed polygons. Students first work with the vocabulary associated with circles including radius, chord, diameter, center, and minor and major circular arcs. They draw a square, hexagon, and triangle inscribed in a circle. Students conclude the lesson by finding the missing measures for various parts of figures that involve circles.
	Constructions Based on Angles	This lesson focuses on constructions made with a straightedge and compass that involve angle measures. Students begin by constructing a square and a rectangle. They then find the center of a given circle, bisect a given angle, and construct an angle congruent to a given angle. They conclude the lesson by constructing a rhombus given one side and an angle.
	Exploring Two-Dimensional Figures	This lesson explores two - dimensional or plane figures. Students name and identify polygons including squares, triangles, rhombuses, rectangles, trapezoids, and kites. They identify properties of specific polygons such as regular polygons and parallelograms. The lesson concludes by examining circles and ellipses.
	Identifying Congruent Triangles	This lesson focuses on congruent triangles. Students use properties of angles to find missing side lengths and angle measures in various figures such as isosceles and equilateral triangles. They then identify by observation pairs of congruent figures. Students then apply the SSS, SAS, and ASA theorems to identify congruent triangles.
	Interior and Exterior Angles in Polygons	This lesson focuses on angles in polygons. Students identify interior and exterior angles for triangles and other polygons. They then derive the formulas for the sums of the interior angles and the sum of the exterior angles of an n-sided polygon. Students conclude the lesson by matching descriptions of polygons with their names.

CHAPTER	LESSON	DESCRIPTION
VI. Coordinate and Solid (3-D) Geometry	Lines, Angles, Circles, and Disks	This lesson focuses on lines, angles, circles, and disks. The lesson begins with the basic elements of geometry: lines, rays, and line segments. Students then study angles and classify them by their measure. They also use a protractor to measure and draw angles of various measures. Finally, students contrast circles with disks.
	Parallel Lines, Perpendicular Lines, and Angle Measures	This lesson focuses on parallel and perpendicular lines, and angle measures on a line and about a point. Students learn to identify and draw parallel and perpendicular lines. They then find the shortest distance between a line and a point. Students identify and apply straight angles, vertical angles, and angles around a point to find missing angle measures. Finally, students examine the sum of the angle measures in a triangle.
	Properties of Polygons	This lesson focuses on polygons and their properties. Students begin by classifying and drawing triangles by side length and angle measures. They examine whether it is possible to build a triangle of given side lengths. Next, students examine quadrilaterals including squares, rectangles, rhombuses, trapezoids, and kites. Students differentiate between regular and irregular polygons and recognize polygons with reflectional and rotational symmetry.
	Straightedge-and-Compass Constructions	This lesson is about constructions make using only a straightedge and compass. Students learn to construct an isosceles triangle, an equilateral triangle, the perpendicular bisector of a line segment, and a line perpendicular or parallel to a given line.
	Symmetry and Congruence	This lesson focuses on symmetry and congruence. Students examine line symmetry for two triangles on a coordinate grid, and draw the reflection of a triangle with respect to a given line of symmetry on plain paper. They examine point symmetry and identify pairs of figures symmetric with respect to a given point. Students conclude the lesson by drawing a polygon that is congruent to one that is given.
	Combining Transformations	This lesson focuses on combined transformations. Students review transformations including translations, reflections, and rotations. They then examine equivalent transformations and proceed to combine reflections across parallel lines. They also combine point and line reflections, and reflections and rotations. Students conclude the lesson by apply these concepts to frieze patterns.
	Enlarging a Shape	This lesson focuses on enlargements of a shape. Students identify and use scale factors. They then enlarge a shape relative to a point called the center of enlargement. Students practice making enlargements on plain paper and a coordinate grid.
	Exploring Shapes Built from Cubes	The lesson explores building shapes from a given number of cubes. Students construct side and front views (or elevations) of various shapes built with cubes, as well as constructing the shape given various views. They also determine the number of cubes used to build a shape. They find the number of interior cubes for a large cube built of small ones by counting the cubes with no painted surfaces. Students end the lesson by building a shape with cubes from written directions.
	Faces and Edges of Polyhedrons	This lesson focuses on polyhedrons. Students begin with the definitions of face, vertex, and edge. They then work with nets, the parallel and perpendicular faces, and parallel and perpendicular edges for various prisms.
	Introducing Vectors	This lesson introduces vectors. Students begin by moving a point horizontally and vertically on a coordinate grid. They then use a line segment and arrowhead to represent a distance and direction on a coordinate grid. Next, students describe displacements on a coordinate grid using column vectors expressed in matrix notation. They conclude the lesson by adding vectors graphically to find the ending point of a mouse's journey.

CHAPTER	LESSON	DESCRIPTION
	Position and Coordinate Systems	This lesson uses real-world examples to introduce the location of points in a coordinate system. Students name points on a grid and locate the position of a named point in all four quadrants of the coordinate plane, including points described with fractions and decimals.
	Prisms	This lesson focuses on prisms. Students match three-dimensional, or space figures, to complete a cube, and examine how a box is deconstructed to make its net. They rotate space figures to match a given view, and experiment with different nets for cubes. Students sort shapes into prisms and non-prisms, and match a solid with its net. They conclude the lesson by drawing a 3-D figure in a 2-D representation using graph paper.
	The Cartesian Coordinate System	This lesson explores the Cartesian coordinate system. Students begin by naming the location of points with an ordered pair and plotting points. They see and apply the formula for finding the midpoint of a segment using the coordinates of its two endpoints. Students also learn the equation of a vertical and horizontal lines, and how its corresponding inequality is graphed as a shaded region. The lesson concludes with identifying graphs of the intersection of a horizontal and vertical inequalities.
	Three-Dimensional Figures	This lesson introduces three-dimensional figures including cubes, right rectangular prisms, and pyramids, and discusses faces, edges, and vertices for these figures. Students draw various figures on isometric graph paper. They also use front, side, and top views to identify and draw figures, as well as nets for different space figures, such as prisms, pyramids, and cylinders. The lesson ends with traces of a space figure—the two-dimensional figures that represent the various faces of the three-dimensional figure.
	Transformations	This lesson focuses on transformations of points and figures including reflections, rotations, translations, and combined transformations. Students begin with mirror symmetry and identifying lines of symmetry. They then reflect points and figures, and play a symmetry game. Next, students rotate points and figures about a center of rotation in a grid. Finally, they perform translations of points and combine multiple transformations.
	Transformations of Figures	This lesson focuses on transformations of 2-D figures including translations, reflections, and rotations. Students first transform polygons using translations and reflections. They then transform 2-D figures using rotations about a point, and see that a single transformation can sometimes replace two or more transformations. Students then identify equivalent and combined transformations. They conclude the lesson by enlarging a polygon using a scale factor and a center point.
	Using Technology to Draw Shapes	This lesson is about using technology to draw and change shapes. Students use a computer drawing program called LOGO to draw various shapes. Students then use a graphing calculator to specify the coordinates of the points of a figure. They use this method to translate polygons on a grid by adding to the coordinates in the list. They can also enlarge a figure by multiplying the coordinates.
	Areas of Polygons	This lesson focuses on the area of polygons. Students reviews finding the area of rectangles and extends this to finding the area of any parallelogram. They then draw parallelograms and find the side lengths given information about the area. Next, students find the area of irregular figures that can be divided into parallelograms. They then solve triangle area problems and calculate the areas of various polygons including trapezoids.
VII. Perimeter, Area, and Volume	Circles: Circumference, Diameter, and Pi	This lesson focuses on circles and the number pi. Student finds the perimeter of squares and regular hexagons both inscribed in and circumscribed about a circle. They then use the radius and diameter to show that the circumference of a circle is a little more than 3 times the diameter, thus deriving an approximate value of pi. They then find that the ratio of circumference to diameter is always approximately 3.14. Students use an approximate value for pi (3.14) to calculate various measures for circles. They then solve real-world problems involving the distance traveled by a wheel and the perimeter of a slice of cake.

CHAPTER	LESSON	DESCRIPTION
	Circular Areas	This lesson focuses on finding the area of complex circular figures. Students begin by finding the area of a square both inscribed in and circumscribed about a circle to introduce the formula for the area of a circle. They then apply the formula, using approximate values for pi, to find the areas of various figures involving circles. Students then find exact values for areas of complex circular figures.
	Converting Metric Units of Area and Volume	This lesson focuses on area and volume, including metric conversions of area and volume. Student begin by finding areas of various polygons and converting between metric units of area. Students then find the volume of right rectangular prisms and convert between metric units of volume. The lessons ends with applications of these skills to solving real-world problems involving volume, rates, and ratios.
	Distance on Speed vs Time Graphs	This lesson focuses on finding distance from a Speed vs Time graph. Students first learn that distance can be represented as the area of a rectangle on a Speed vs Time graph. Students then examine variations on the Speed vs Time graph including holding each variable constant. In the last activity, students graph points for an inverse variation curve of a constant distance.
	Finding Surface Area and Volume	This lesson focuses on finding the surface area and volume of cubes and right rectangular prisms. Students find these measures in both the metric system and the customary system of measurement. They then solve real-world surface area and volume problems.
	Measuring Length and Area	This lesson focuses on measurements of length and area in both the customary and metric systems. Students begin by converting lengths within and between each measurement system. They then estimate lengths in each measurement system, and calculate and estimate areas.
	Metric Units of Length and Area	This lesson focuses on the metric units of length. Students first explore historical units of length. They then estimate metric lengths, identify appropriate units of length, and convert lengths within the metric system. The lesson also provides activities on identifying and converting metric units of area.
	Perimeter and Area	This lesson focuses on perimeter and area. Students find the perimeter of squares and other rectangles, and solve problems involving perimeters. They then find the areas of irregular figures, and of squares and rectangles.
	Solving Geometric Word Problems	This lesson focuses on solving geometric word problems. Students apply the vocabulary and properties of geometric figures to solve challenging geometric word problems involving length, area, and volume. The lesson carefully steps students through the thought processes and calculations involved in solving these multistep application problems.
	Surface Area	This lesson focuses on surface area. Students are introduced to surface area with the painting of walls. They then learn to calculate the surface area of cubes and rectangular solids by using nets and adding the area of each face of a solid. Students solve real-world applications involving surface area and end by finding the area of irregular solids.
	Surface Area and Volume of Prisms	The lesson focuses on the surface area and volume of prisms. Students begin by identifying prisms and right prisms. They then define regular prisms and use the formula for the volume of a right rectangular prism. Students also apply the formula for the surface area of a right prism, using information about its net.
	Using the Coordinate Plane to Solve Problems	This lesson explores using the coordinate plane to solve word problems. Students begin the lesson by finding the area of a triangle drawn on a coordinate grid. Then they compare the perimeters and then the areas of rectangles on a coordinate grid. Students then draw a line graph to show the distance, rate, and time relationship of a hiking trip, both uphill and downhill

CHAPTER	LESSON	DESCRIPTION
VIII. Analyzing and Displaying Data	Comparing Two Sets of Data	This lesson focuses on comparing two sets of data using measures of central tendency and range. Students begin by comparing means in a double bar graph, and finding measures of central tendency for two groups of students from bar graphs. They also compare the two sets of data using the range. Students draw a double bar graph and compare the mean and range for two sets of data.
	Displaying Data with Graphs	This lesson focuses on graphical representations of data. Students begin by distinguishing between frequency tables and relative frequency tables, and between quantitative and qualitative data. Students then use data in frequency tables to make bar graphs, circle graphs, line graphs, and scatter plots.
	Frequency and Relative Frequency	This lesson focuses on frequency and relative frequency. Students first record data in lists. They then organize the data by grouping it into frequency tables. Next, students use a frequency table to find the relative frequency as a fraction and use the results to answer questions and draw conclusions.
	Mean, Median, Mode, and Range	This lesson focuses on finding the mean, median, mode, and range for a set of data. Students begin by creating frequency charts for real-world applications. They then find the arithmetic mean, median, mode, and range, for given sets of data.
	Measures of Central Tendency	This lesson focuses on measures of central tendency. Students find the median and mode for real-world applications, reading from a table of results from several throws of a number cube, and from a bar graph of temperatures. They then find the mode, arithmetic mean, and median for other real-world applications.
	More on Mean, Median, Mode, and Range	This lesson focuses on finding the mean, median, mode, and range and using them to compare two sets of data. Students read data presented in circle and bar graphs, tables, and lists, and use the data to find the median, mean, mode, and range. They then compare these measures of central tendency and range for two sets of real-world data.
	Organizing Data	This lesson focuses on organizing data into tables. Students record given data in lists, and order the data into tables. They find frequency of results from tables, bar graphs, and circle graphs. Students also perform basic analysis of the data including finding relative frequency.
	Reading Graphs and Misleading Graphs	The lesson focuses on reading graphs and misleading graphs. Students examine how data can be visually represented with bar graphs, tables, pictograms, circle graphs, and line graphs. They then study how a bar graph can be misleading, and make an accurate bar graph. Students conclude the lesson by reading data from various line graphs.
	Reading Tables and Graphs	This lesson focuses on reading tables and graphs. Students read tables, diagrams, and graphs to answer questions about the real-world data, including identifying which questions cannot be answered by the given data. The lesson then presents an example of the process of gathering data, ordering it, and organizing the data into a meaningful format.
	Scatter Plots and Lines of Best Fit	This lesson focuses on scatter plots and lines of best fit. Students begin by making a line graph to examine data over time. They then identify scatter plots as having positive, negative, and no correlation. They work with lines of best fit, or trend lines, and study cautions about their use when making predictions. Student conclude the lesson by drawing a line of best fit using the mean values of the variables as one point, and estimating an appropriate line through this point.
Secondary Data	This lesson contrasts primary data (that you collect) and secondary data (collected by other sources), and shows advantages and disadvantages associated with each kind of data. Students classify various sources of data, and evaluate the reliability of these sources. The lesson concludes with examples of combining secondary data from different sources.	

CHAPTER	LESSON	DESCRIPTION
	Visualizing and Organizing Data	This lesson focuses on interpreting data presented in tables and graphs. Students examine tables and bar graphs to answer questions, make new tables by regrouping the data, and make graphs. Students also read and make double bar graphs and double line graphs.
	Working with Surveys and Survey Data	This lesson focuses on surveys and survey data. It begins with a problem, and then shows the process of finding the answer, including planning survey questions, collecting data, and drawing conclusions. Students work with four kinds of survey questions, and apply the process presented to a real-world situation.
IX. Probability	Experimental and Theoretical Probability	The lesson shows the meaning of relative frequency (or experimental probability) compared to the theoretical probability. Students calculate the experimental probability given various experimental results. They also recognize the differences between experiments with random outcomes and those that are not random. Student use relative frequency to estimate outcomes.
	Foundations of Probability	This lesson introduces probability. Students begin by identifying when a game can be won or lost. They then identify certain and impossible events. Students learn to identify equally likely events and find all the possible outcomes for various events. Finally, student find the favorable outcomes for an event and briefly touch upon the probability of an event.
	Probability of Events and Their Complements	This lesson explores the probability of events and their complements. Students begin by recording the outcome of two simple events using an ordered pair of numbers. They identify the sample space of all possible outcomes for various random experiments using this notation. Students explore sampling with and without replacement, and identify sets of favorable outcomes and their complement, or opposite.
	Probability of Simple Events	This lesson focuses on the probability of simple events. Students find probabilities for various events that involve random devices, such as number cubes, playing cards, and spinners. They are introduced to selecting items without replacement and find probabilities for these events.
	Probability With and Without Replacements	This lesson investigates sampling with and without replacement to find probabilities. Students use the definition of probability to find the probability of a given outcome in various real-world situations including games with number cubes. They find probabilities for events involving selecting items with replacement and without replacement. Students conclude the lesson with an informal introduction to the fundamental counting principle.
	The Language of Probability	This lesson focuses on the language associated with probability. Students examine various examples to clarify an event, an event whose outcome is certain, an outcome that is impossible, a random experiment, and the sample space.
	Money Math Using Euros	This lesson focuses on money calculations that a visitor to Europe might make. Student use euros to calculate and compare the cost of items by addition, subtraction, and multiplication. Students also calculate earnings in euros for various pay rates.
X. Problem Solving	Solving Distance, Rate, and Time Problems	This lesson focuses on solving distance, rate, and time word problems. Students begin by finding the rate needed to travel a certain distance in a specific amount of time. They then solve problems to find the distance traveled for a known rate and time. Finally, students find the time required for a trip of known speed and time.
	Solving Problems Step by Step	The lesson focuses on problem solving. Student first replace key words with mathematical symbols, and then factor and compare whole numbers. Throughout the lesson students solve real-world applications involving distance, rate, and time, as well as finding percent increase and decrease.

CHAPTER	LESSON	DESCRIPTION
XI. Mental, Written, and Calculator Computations	Solving Word Problems	This lesson focuses on solving word problems that ask 'how many' or 'how much.' Student practice solving a variety of real-world problems that include multiplication, divisibility, percents, and counting principles. Students conclude by solving multistep problems.
	Using Visual Aids to Solve Problems	This lesson focuses on solving visual problems involving geometric figures and graphs. Students begin by dividing squares and circles into equal parts. They then solve word problems involving circles. Students then read bar graphs and make and interpret line graphs.
	Work, Rate, and Divisibility Problems	This lesson focuses on multistep problems involving rate, time, and amount of work completed. Students solve many real-world problem that involve multiple operations, including filling a container, finding distance and portions, and a calendar problem.
	Doing Arithmetic Using Written Skills	The lesson focuses on written methods for arithmetic computations with natural numbers. Students see the intermediate steps for extensive addition, subtraction, multiplication and division problems. The apply the 'pencil and paper' methods to solve real-world applications.
	Fractions, Decimals, and Percents with Mental Math	This lesson focuses on mental math computations with fractions, decimals, and percents. Students begin by reviewing multiplication facts. They then mentally add or subtract fractions with numerators of one. Students then combine fractions with the same denominator or the same numerator. They conclude the lesson by applying mental math strategies to real-world problems involving decimals and percent.
	Solving Applied Problems with a Calculator	This lesson focuses on real-world applications that are solved using a calculator. Studentns first solve problems involving percents, percents of numbers, and percent increase. Students then use a calculator with parentheses to solve cost, mixture, and volume problems.
	Solving Arithmetic Problems with a Calculator	This lesson shows how to use a calculator to solve real-world problems. Applications involving adding, subtracting, multiplying, and dividing natural numbers and decimals. For example, students find the costs associated with various travel situations.
	Solving Arithmetic Problems with Writing	This lesson focuses on written calculations. Students begin with some practice in mental math and then extend calculations with counting numbers to adding, subtracting, multiplying, and dividing whole numbers greater than 100, as well as to decimals.
	Using a Calculator with Parentheses	This lesson focuses on using calculators . Students examine how to use a calculator to solve real-world applications for money and distance problems. They also work rounding answers to various decimal places and use the parentheses and square root keys.