CARNEGIE LEARNING

1 Factors, Multiples, Primes, and Composites

This chapter reviews factors, multiples, primes, composites, and divisibility rules.

Standards: 6.7D, 6.2A, 6.3D, 6.7A, 6.8D

CARNEGIE LEARNING

2 Prime Factorization and the Fundamental Theorem of Arithmetic

This chapter demonstrates how least common multiples and greatest common factors are used to solve real-world problems.

Standards: 6.3D, 6.7A, 6.8D

CARNEGIE LEARNING

3 Fractions

This chapter begins with a review of how to model parts of a whole and various fractional representations. Students create their own fraction strips and use them to model operations with fractions. The focus then shifts to the relationship between multiplication and division to understand the procedures for dividing fractions. An emphasis is placed on estimation skills throughout the chapter.

Standards: 6.2C, 6.2D, 6.4F, 6.4G, 6.5C

CARNEGIE LEARNING

Lesson	Lesson Title / Subtitle	Lesson Subtitle	TEKS	Key Math Objectives	Key Terms
3.6	**Trail Mix**	Adding and Subtracting Fractions with Like and Unlike Denominators	5.3.H 5.3.K	• Write number sentences to represent • Create models to represent addition and subtraction of fractions. • Add and subtract fractions with common denominators. • Add and subtract fractions with unlike denominators.	• Common denominator • Least common denominator (LCD)
3.7	**Trail Mix Extravaganza**	Improper Fractions and Mixed Numbers	5.3.H 5.3.K	• Create models to represent mixed numbers. • Write mixed numbers as improper fractions. • Write improper fractions as mixed numbers.	• Mixed number • Improper fraction
3.8	**Pizzas By the Slice—or the Rectangle!**	Parts of Parts	6.3B 6.3E 6.4F	• Create models to represent parts of parts. • Analyze various methods for multiplying fractions. • Multiply fractions.	
3.9	**Yours Is to Reason Why!**	Parts in a Part	6.2A 6.2E 6.3A 6.3E	• Determine how many groups of a certain size are in a number. • Create a representation for division problems. • Divide fractions.	• Reciprocal • Multiplicative Inverse Property • Multiplicative inverse
3.10	**Divide Your Time Well, and Your Trail Mix, and Your . . .**	Mixed Number Division	6.2E 6.3A 6.3B 6.3E	• Determine how many groups of a certain size are in a number. • Create a representation for division problems involving mixed numbers. • Divide fractions involving mixed numbers.	
Learning Individually with MATHia or Skills Practice			6.2E 6.3A 6.3B	In the MATHia software, students reason about how fraction multiplication increases or decreases a quantity. They model fraction division and relate fraction division to fraction multiplication to solve problems. Students develop an understanding of the algorithm for fraction division before calculating products and quotients of fractions.	

CARNEGIE LEARNING

4 Decimals

This chapter begins with a comprehensive review of decimals. Models are used to develop the conceptual understanding of operations with decimals. Estimation is emphasized throughout.

Standards: 6.2C, 6.2D, 6.3E, 6.3D, 6.4F, 6.4G, 6.5C

Lesson	Lesson Title / Subtitle	Lesson Subtitle	TEKS	Key Math Objectives	Key Terms
4.6	**Organized Estimation**	Long Division of Whole Numbers	6.3D	• Estimate quotients. • Develop an algorithm for dividing whole numbers.	• Dividend • Divisor • Quotient
4.7	**Los Angeles Commute Didn't Top the List?**	Dividing Decimals	6.3E	• Estimate quotients of division of decimals. • Divide decimals.	
Learning Individually with MATHia or Skills Practice			6.3E 6.4G	In the MATHia software, students convert fractions to decimals. They operate with decimals to solve problems by examining worked examples, completing partially-completed worked examples, analyzing patterns, and using a standard algorithm.	

CARNEGIE LEARNING

5 Ratios

This chapter focuses on the concept of ratios and the ratio relationship between two quantities. Ratio reasoning is developed through the use of tables, double number lines, and graphs. Rate and ratio reasoning is used to solve various real-world problems.

Standards: 6.3E, 6.4A, 6.4B, 6.4C, 6.4D, 6.4E, 6.4G, 6.4H, 6.5A

Lesson	Lesson Title / Subtitle	Lesson Subtitle	TEKS	Key Math Objectives	Key Terms
5.7	**Water Is a Precious Resource**	Using Multiple Ratio Representations to Solve Problems	6.4A 6.4B 6.4C 6.4E 6.5A	• Read and interpret ratios from graphs, double number lines, and tables. • Use multiple ratio models to solve problems. • Determine equivalent ratios using multiple representations.	
5.8	**What Is the Better Buy?**	Introduction to Unit Rates	6.3E 6.4B 6.4D	• Use unit rates to solve problems. • Use unit rates to calculate the best buy. • Calculate unit rates.	• Unit rate
Learning Individually with MATHia or Skills Practice			6.4A 6.4D 6.5A	In the MATHia software, students write part-to-part and part-to-whole ratios using different notations. They use tables, double number lines, and graphs to solve real-world and mathematical problems involving equivalent ratios and rates.	

CARNEGIE LEARNING

6 Percents

This chapter extends ratio reasoning to include percents. Estimation and benchmark percents are emphasized to continue the development of number sense. Various strategies are presented to help students think about efficiency when solving problems.

Standards: 6.2D, 6.3E, 6.4B, 6.4C, 6.4E, 6.4F, 6.4G, 6.5A, 6.5B, 6.5C

CARNEGIE LEARNING

7 Introduction to Expressions

This chapter reviews numerical expressions that lead to algebraic expressions. A variable is introduced as a representation of a quantity that varies. An emphasis is placed on writing and representing expressions in multiple ways.

Standards: 6.6A, 6.6C, 6.7A, 6.7B, 6.7C, 6.8D, 6.11A

Lesson	Lesson Title / Subtitle	Lesson Subtitle	TEKS	Key Math Objectives	Key Terms
7.6	**There's More than One Way**	Using Multiple Representations of Problems	6.6C	• Use multiple representations to analyze and solve problems.	
Learning Individually with MATHia or Skills Practice			6.7A	In the MATHia software, students rewrite and evaluate expressions using the Order of Operations and properties, including expressions with parentheses and exponents.	

CARNEGIE LEARNING

8 Algebraic Expressions

This chapter develops an understanding of the Distributive Property through real-world situations, manipulatives, and analysis of student work. An emphasis is placed on extending and applying properties of operations to generate equivalent expressions, and to determine when two expressions are equivalent.

Standards: 6.6C, 6.7A, 6.7B, 6.7D, 6.7C, 6.7D

Lesson	Lesson Title / Subtitle	Lesson Subtitle	TEKS	Key Math Objectives	Key Terms
Learning Individually with MATHia or Skills Practice			6.7A 6.7C 6.7D	In the MATHia software, students identify parts of simple algebraic expressions. They write and evaluate algebraic expressions with multiple variables for real-world and mathematical problems. Students create and identify equivalent expressions.	

CARNEGIE LEARNING

9 Inequalities and Equations

This chapter introduces algebraic equations and inequalities. A pan balance model is used to develop the conceptual understanding of solving equations involving one step. Equations, tables, and graphs are used to represent and solve real-world problems.

Standards: 6.2A, 6.2B, 6.2E, 6.3E, 6.4A, 6.4B, 6.4D, 6.6A, 6.6B, 6.6C, 6.7B, 6.7D, 6.9A, 6.9B, 6.9C, 6.10A, 6.10B

Lesson	Lesson Title / Subtitle	Lesson Subtitle	TEKS	Key Math Objectives	Key Terms
9.6	**Variables and More Variables**	The Many Uses of Variables in Mathematics	6.6B 6.6C 6.9A	• Examine the many different uses of variables in mathematics.	• Homonyms
9.7	**Quantities that Change**	Independent and Dependent Variables	6.4B 6.4D 6.6A 6.6B 6.6C 6.9A	• Identify and define independent and dependent variables and quantities.	• Dependent quantity • Independent quantity • Independent variable • Dependent variable
Learning Individually with MATHia or Skills Practice			6.2B 6.6A 6.6B 6.6C 6.9A 6.9B 6.10A 6.10B	In the MATHia software, students solve one-step equations in the form p + x = q and px = q. They determine which given values for a variable are solutions to an equation. Students represent simple inequalities on a number line and identify solutions. They use substitution to identify solutions to inequalities. Students interpret the model of a one-step linear equation in the context of a scenario. They use multiple representations to represent problem scenarios.	

CARNEGIE LEARNING

10 Signed Numbers

This chapter develops the concept of negative numbers and moves toward the broader understanding of the rational number system including order and absolute value.

Standards: 6.2A, 6.2B, 6.2C, 6.2D, 6.3C, 6.6C

11 Addition and Subtraction with Rational Numbers

This chapter uses models to develop a conceptual understanding of addition and subtraction with respect to the set of integers. These strategies are formalized through questioning, and then extended to operations with respect to the set of rational numbers.

Standards: 6.2B, 6.2C, 6.3C, 6.3D, 6.6A, 6.6B, 6.6C, 6.7B, 6.7D

12 Multiplication and Division with Rational Numbers

This chapter use models to develop a conceptual understanding of multiplication and division with respect to the set of integers. These strategies are formalized, and then extended to operations with respect to the set of rational numbers.

Standards: 6.3C, 6.3D, 6.3E, 6.4G, 6.7D

CARNEGIE LEARNING

13 The Cartesian Coordinate Plane

This chapter extends plotting points to four quadrants and includes an introduction to coordinate geometry. Representations of algebraic expressions and equations are used to solve real-world problems.

Standards: 6.6A, 6.6C, 6.9A, 6.9C, 6.11A

Lesson	Lesson Title / Subtitle	Lesson Subtitle	TEKS	Key Math Objectives	Key Terms
13.1	**Four Quadrants**	Extending the Coordinate Plane	6.6A 6.11A	• Extend the coordinate system to four quadrants • Name points on the plane. • Graph ordered pairs on the Cartesian Coordinate Plane. • Calculate the distance between points on the coordinate plane which are on the same vertical or horizontal line.	• x-axis • y-axis • Origin • Quadrant • Ordered pair • Cartesian Coordinate Plane
13.2	**Geometry and Graphs**	Graphing Geometric Figures	6.11A	• Plot points to form geometric figures. • Identify points on the coordinate plane to form geometric figures. • Identify geometric figures plotted on the coordinate plane.	
13.3	**Water, Water Everywhere**	Solving Problems with Multiple Representations	6.9A 6.11A	• Analyze and solve problems with multiple representations.	
13.4	**Every Graph Tells a Story**	Interpreting Graphs	6.6C 6.9C	• Interpret information about a situation from a graphical representation. • Identify the graphs of situations.	
Learning Individually with MATHia or Skills Practice			6.11	In the MATHia software, students plot and interpret ordered pairs in all quadrants to answer questions in mathematical and real-world contexts. They create tables of values, write algebraic expressions with one operation, and create graphs to represent and answer questions about problem scenarios.	

CARNEGIE LEARNING

14 Financial Literacy: Accounts, Credit, and Careers

Standards: 6.14A, 6.14B, 6.14C, 6.14D, 6.14E, 6.14F, 6.14G, 6.14H

CARNEGIE LEARNING

15 Units of Measure

This chapter extends ratio reasoning to convert measurement units within and between Customary and Metric systems.

Standards: 6.4H, 6.5A

Lesson	Lesson Title / Subtitle	Lesson Subtitle	TEKS	Key Math Objectives	Key Terms
15.1	**Customary to Whom?**	Customary Measurement	6.4H	• Select appropriate types of customary measurement. • Select appropriate units for each type of customary measurement. • Convert from one unit of customary measurement to another.	• Standard units of measure • Measurement • Convert
15.2	**It's All Based on Powers of 10!**	Metric Measurement	6.4H	• Select appropriate types of metric measurement. • Select appropriate units for each type of metric measurement. • Convert from one metric unit to another.	• Meter (m) • Gram (g) • Liter (L) • Prefix
15.3	**They're Saying the Same Thing?**	Moving Between Measurement Systems	6.5A	• Select appropriate types of measurement between customary and metric measurement systems. • Select appropriate units for each type of measurement. • Convert from one unit to another in different systems.	
15.4	**Is That Appropriate?**	Choose Appropriate Measures	6.5A	• Select appropriate types of measurement. • Select appropriate units for each type of measurement. • Determine approximate measurement for a variety of objects. • Determine appropriate measures for area, perimeter, and volume.	
Learning Individually with MATHia or Skills Practice			6.4H	In the MATHia software, students use ratios and dimensional analysis to convert measurements within the Customary and metric measurement systems.	

16 Triangles

This chapter investigates the conditions that determine unique triangles.

Standards: 6.8A, 6.8D, 6.10A

Lesson	Lesson Title / Subtitle	Lesson Subtitle	TEKS	Key Math Objectives	Key Terms
16.1	**The Language of Geometry**	Sketching, Drawing, Naming, and Sorting Basic Geometric Figures	6.8A	• Classify geometric figures as polygons, triangles, quadrilaterals, pentagons, hexagons, heptagons, octagons, nonagons, and decagons. • Define consecutive sides and opposite sides. • Sort polygons into categories.	• Protractor • Compass • Straightedge • Sketch • Draw • Construct • Triangle • Equilateral triangle • Isosceles triangle • Scalene triangle • Equiangular triangle • Acute triangle • Right triangle • Obtuse triangle • Quadrilateral • Opposite sides • Consecutive sides • Square • Rectangle • Rhombus • Parallelogram • Kite • Trapezoid • Isosceles trapezoid • Polygon • Regular polygon • Irregular polygon • Pentagon • Hexagon • Heptagon • Octagon • Nonagon • Decagon
16.2	**Pulling a One-Eighty!**	Triangle Sum, Exterior Angle, and Exterior Angle Inequality Theorems	6.8A 6.8D 6.10A	• Prove the Triangle Sum Theorem. • Explore the relationship between the interior angle measures and the side lengths of a triangle. • Identify the remote interior angles of a triangle. • Identify the exterior angle of a triangle. • Explore the relationship between the exterior angle measures and two remote interior angles of a triangle. • Prove the Exterior Angle Theorem. • Prove the Exterior Angle Inequality Theorem.	• Triangle Sum Theorem • Remote interior angles of a triangle • Exterior Angle Theorem • Exterior Angle Inequality Theorem
16.3	**Triangle Construction 1**	Constructing Triangles	6.8A	• Construct triangles to determine uniqueness.	
16.4	**Triangle Construction 2**	Congruent Figures and Constructing Congruent Triangles	6.8A	• Define congruent figures. • Determine whether figures are congruent. • Determine whether triangles are congruent. • Construct congruent triangles.	• Geometric figures • Congruent geometric figures • Corresponding sides • Corresponding angles • Included angle • Included side

CARNEGIE LEARNING

17 Area

This chapter connects the knowledge related to the areas of rectangles and squares to determine the areas of triangles, parallelograms, trapezoids, and rhombi. Formulas are used to solve real-world problems. Volume of rectangular prisms is introduced.

Standards: 6.3E, 6.5A, 6.5E, 6.8B, 6.8C, 6.8D, 6.10A

CARNEGIE LEARNING

Lesson	Lesson Title / Subtitle	Lesson Subtitle	TEKS	Key Math Objectives	Key Terms
17.7	**Backyard Barbecue, Anyone?**	Volume of Rectangular Prisms	6.8D	• Calculate the volume of rectangular prisms. • Use rectangular prisms to calculate the volume of composite solids.	
Learning Individually with MATHia or Skills Practice			6.8B 6.8C 6.8D	In the MAThia software, students calculate the areas of parallelograms, trapezoids, triangles, and composite figures in mathematical and real-world situations. They determine the volume of right prisms, including prisms with fractional edge lengths.	

CARNEGIE LEARNING

18 Collecting and Displaying Data

This chapter develops the understanding of statistics and variability. Various representations are used to summarize numerical data sets.

Standards: 6.12A, 6.12B, 6.12D, 6.13A

Lesson	Lesson Title / Subtitle	Lesson Subtitle	TEKS	Key Math Objectives	Key Terms
Learning Individually with MATHia or Skills Practice			6.12A 6.12B 6.13A	In the MATHia software, students are introduced to the statistical process and statistical questions. They interpret, create, and analyze stem-and-leaf plots, dot plots, and histograms. Students then summarize and describe the displays according to shape and numerical summaries.	

CARNEGIE LEARNING

19 Analyzing and Interpreting Data

This chapter reviews the measures of center with an emphasis on which measure is the most appropriate to describe a data set. Box-and- whisker plots are used to display numerical data and investigate variation. Graphing calculators and spreadsheets are used to determine mean absolute deviation and to construct box-and-whisker plots.

Standards: 6.12A, 6.12B, 6.12C, 6.12D, 6.13A

Lesson	Lesson Title / Subtitle	Lesson Subtitle	TEKS	Key Math Objectives	Key Terms
19.1	**In the Middle**	Analyzing Data Using Measures of Center	6.12B 6.12C 6.12D	• Review the meaning of mean, median, and mode. • Calculate and interpret the mean, the median, and the mode for a set of data.	• Measure of center • Mode • Median • Balance point • Mean
19.2	**Which Measure of Center Should I Use?**	Determining When to Use the Mean, Median, or Mode	6.12B 6.12C 6.12D	• Calculate the mean, median, and mode from a graphical display of data. • Determine when to use the mean, median, or mode to describe a data set.	
19.3	**Five Number Summary**	Analyzing Data Using the Five Number Summary	6.12A 6.12C 6.12D 6.13A	• Calculate and interpret the range, quartiles, and interquartile range as measures of variability for a data set. • Calculate and interpret the five number summary as a measure of variability for a data set.	• Range • Quartiles (Q) • Interquartile range (IQR) • Five number summary
19.4	**Box It Up!**	Displaying and Analyzing Data Using Box-and-Whisker Plots	6.12A 6.12B 6.12C 6.12D	• Construct and interpret a box-and-whisker plot for a data set. • Determine if a data set has outliers, and discuss how outliers affect the display and analysis of the data.	• Box-and-whisker plot • Outlier
Learning Individually with MATHia or Skills Practice			6.12A 6.12C 6.13A	In the MATHia software, students calculate, compare, and interpret mean, median, mode, and range for a variety of data sets. They create box-and-whisker plots and use them to understand the relationship between the shape of the display and the spread of the data set.	