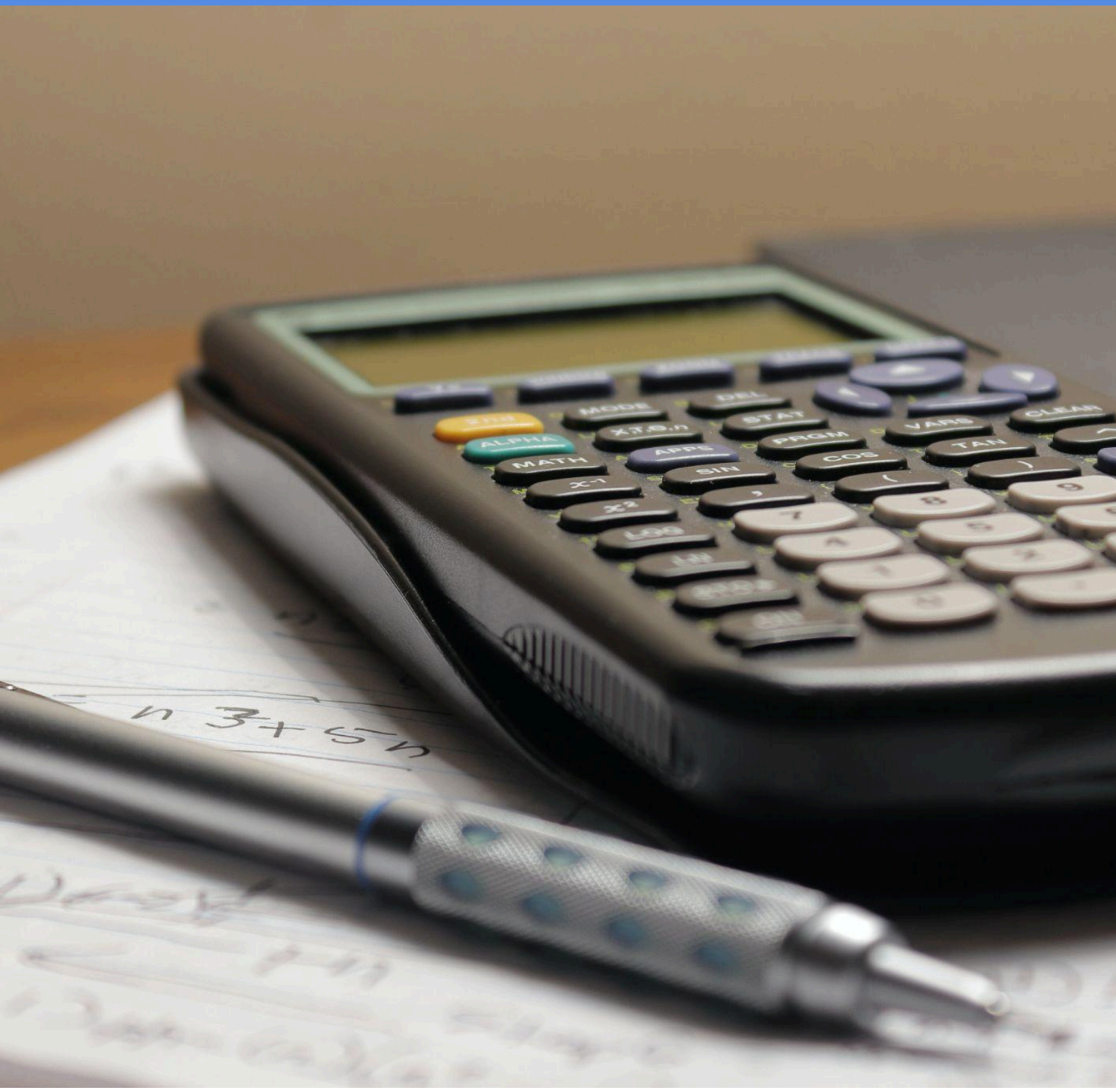
ACCELERATED MATH 7

Course Overview Documents



A+ EDUCATION PARTNERSHIP

A Program of the A+ Education Partnership
In partnership with the Alabama State Dept. of Education

Accelerated Math 7

Course Overview

1ST 9-WEEKS

Unit 1: The Real Number System

Unit 2: Operations on Expressions

Unit 3: Equations & Inequalities

**Unit 3 may be started at the end of the 1st 9-Weeks **

2ND 9-WEEKS

Unit 3: Equations & Inequalities

Unit 4: Ratios and Proportions

Unit 4 Part II: Linear Functions

Unit 5: Percents

**Unit 5 may be started at the end of the 2nd 9-Weeks **

3RD 9-WEEKS

Unit 5: Percents

Unit 6: Statistics

Unit 7: Probability

Unit 8: 2D Figures

Unit 8 Part II: Transformations

**Unit 8 Part II may be started at the end of the 3rd 9-Weeks **

4TH 9-WEEKS

Unit 8 Part II: Transformations

Unit 9: Angle and Triangle Relationships

Unit 10: 3D Applications

Unit 11: Exponent Operations and Scientific Notation

STANDARDS CHECKLIST					
ALCOS	**1ST 9-WEEKS**	**2ND 9-WEEKS**	**3RD 9-WEEKS**	**4TH 9-WEEKS**	**UNITS**
1		X			4
2		X			4
3			X		5
4		X			4
5		X			4, 4 Pt 2
6		X			4 Pt 2
7		X			4, 4 Pt 2
8	X				1
9	X				1
10	X				1
11	X				1
12	X				2
13	X				2
14				X	11
15	X				1
16				X	11
17	X	X	X		1, 3, 5
18	X	X			2, 3, 4
19		X			4 Pt 2
20	X		X		3, 8
21		X		X	3, 9
22		X			4 Pt 2
23		X			4 Pt 2

STANDARDS CHECKLIST					
ALCOS	**1ST 9-WEEKS**	**2ND 9-WEEKS**	**3RD 9-WEEKS**	**4TH 9-WEEKS**	**UNITS**
24		X			4 Pt 2
25		X			4
26			X		6
27			X		6
28			X		6
29			X		7
30			X		7
31			X		7
32			X		7
33			X		8
34				X	9
35				X	10
36			X		8
37				X	9
38				X	9
39			X	X	10
40				X	10
41				X	10
42			X	X	8 Pt 2
43			X	X	8 Pt 2
44				X	8 Pt 2

ACCELERATED MATH 7

Scope and Sequence – 1st 9 Weeks

UNIT 1: The Real Number System	UNIT 2: Operations on Expressions	UNIT 3: Equations and Inequalities

	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
WEEK 1	Course Introduction, Expectations, & Group Norms	[1] Understanding Additive Inverse	[2] Adding & Subtracting Integers	[2] Adding & Subtracting Integers	[2] Adding & Subtracting Integers
WEEK 2	[2] Adding & Subtracting Integers	[3] Adding & Subtracting Rational Numbers	[4] Multiplying & Dividing Rational Numbers	[4] Multiplying & Dividing Rational Numbers	[4] Multiplying & Dividing Rational Numbers
WEEK 3	[5] Four Operations with Rational Numbers	[5] Four Operations with Rational Numbers			[6] Decimal Expansion of Fractions
WEEK 4	[7] Converting from Decimals to Fractions	[8] Classifying the Real Number System	[9] Perfect Squares & Perfect Cubes	[9] Perfect Squares & Perfect Cubes	[10] Approximating Square Roots
WEEK 5	[10] Approximating Square Roots	[11] Classifying & Ordering Real Numbers			[1] Identify & Combine Like Terms
WEEK 6	[2] Equivalent Expressions Using Properties & Manipulatives	[2] Equivalent Expressions Using Properties & Manipulatives	[2] Equivalent Expressions Using Properties & Manipulatives	[3] Equivalent Expressions Practice	[3] Equivalent Expressions Practice
WEEK 7	[3] Equivalent Expressions Practice	[4] Applications of Equivalent Expressions			[1] Solving Equations Using Manipulatives & Models
WEEK 8	[1] Solving Equations Using Manipulatives & Models	[2] Solving Equations Algebraically	[2] Solving Equations Algebraically	[2] Solving Equations Algebraically	[3] Solving Equations with Real-World Applications
WEEK 9	[3] Solving Equations with Real-World Applications	[3] Solving Equations with Real-World Applications	[3] Solving Equations with Real-World Applications		

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Scope and Sequence – 2nd 9 Weeks

UNIT 3: Equations and Inequalities	UNIT 4: Ratios and Proportions	UNIT 4 Part 2: Linear Functions	UNIT 5: Percents

	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
WEEK 1	[4] Working with Formulas	[5] Solving Equations with Variables on Both Sides	[5] Solving Equations with Variables on Both Sides	[6] One Solution, No Solution, Infinitely Many Solutions	[6] One Solution, No Solution, Infinitely Many Solutions
WEEK 2	[7] Solving Inequalities	[7] Solving Inequalities	[7] Solving Inequalities	[7] Solving Inequalities	
WEEK 3		[1] Interpreting Distance Graphs	[2] All Aboard	[2] All Aboard	[3] Interpreting Rate Graphs
WEEK 4	[4] Match My Run	[4] Match My Run	[5] Unit Rates & Proportional Relationships	[5] Unit Rates & Proportional Relationships	[5] Unit Rates & Proportional Relationships
WEEK 5	[5] Unit Rates & Proportional Relationships	[5] Unit Rates & Proportional Relationships	[5] Unit Rates & Proportional Relationships	[6] Metric & Customary Measurements Part 1	
WEEK 6	[1] Dependent and Independent Variables	[2] Goodyear Walks Using the Rule of Four	[3] Linear Functions	[3] Linear Functions	[4] Slope
WEEK 7	[4] Slope	[5] Graphing Linear Equations	[5] Graphing Linear Equations	[6] Translations of Linera Functions	[6] Translations of Linera Functions
WEEK 8	[6] Translations of Linera Functions	[7] Rule of Four	[7] Rule of Four	[8] Use Tables and Graphs to Determine the Better Deal	
WEEK 9		[1] Percents	[1] Percents		

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Scope and Sequence – 3rd 9 Weeks

UNIT 5: Percents	UNIT 6: Statistics	UNIT 7: Probability	UNIT 8: 2D Figures	UNIT 8 Part 2: Transformations

	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
WEEK 1	[2] Applications of Percents	[2] Applications of Percents	[2] Applications of Percents	[2] Applications of Percents	[2] Applications of Percents
WEEK 2	[2] Applications of Percents	[3] Minimizing Debt			[1] Samples, Population, and Bias
WEEK 3	[2] Getting to Know You	[2] Getting to Know You	[3] Mean Absolute Deviation	[3] Mean Absolute Deviation	[4] Counting Ursus Arctos Horribilis, the Grizzly Bear
WEEK 4	[4] Counting Ursus Arctos Horribilis, the Grizzly Bear	[5] Stem-and-Leaf Plots	[6] Box and Whisker Plots	[7] Comparing Data Displays	
WEEK 5		[1] Intro to Probability	[1] Intro to Probability	[2] Free French Fries	[3] Sample Space, Tree Diagrams, Fundamental Counting Principle
WEEK 6	[4] Family Fun – Binomial Probability	[4] Family Fun – Binomial Probability	[5] Bull's Eye	[5] Bull's Eye	[6] Using Area to Estimate Probability
WEEK 7			[1] State the Area	[2] A Shoe Print, Trapezoids, and Area	[3] Scale Drawings
WEEK 8	[4] Finding Pi	[5] Deriving the Area of a Circle	[6] Discovering Area	[7] Circumference and Area of a Circle	[8] Playground Project Assessment
WEEK 9	[8] Playground Project Assessment		[1] Introduction to Transformations	[1] Introduction to Transformations	[2] Translations & Reflections in the Coordinate Plane

ACCELERATED MATH 7

Scope and Sequence – 4th 9 Weeks

UNIT 8 Part 2: Transformations	UNIT 9: Angle and Triangle Relationships	UNIT 10: 3D Applications	UNIT 11: Exponent Operations & Scientific Notation

	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
WEEK 1	[3] Reflections & Rotations on the Coordinate Plane	[3] Reflections & Rotations on the Coordinate Plane	[4] Dilations	[4] Dilations	[5] Representing & Combining Transformations
WEEK 2	[5] Representing & Combining Transformations			[1] Triangle Inequality Investigation	[2] Triangle Investigation with Sides and Angles
WEEK 3	[2] Triangle Investigation with Sides and Angles	[3] Angle Relationships- Comp, Supp., Adj., & Vertical	[3] Angle Relationships- Comp, Supp., Adj., & Vertical	[3] Angle Relationships- Comp, Supp., Adj., & Vertical	[4] Using Angle Relationships to Solve Problems
WEEK 4	[4] Using Angle Relationships to Solve Problems	[5] Parallel Lines, Transversals, and Angles	[5] Parallel Lines, Transversals, and Angles		
WEEK 5	[1] Slicing Solids	[1] Slicing Solids	[2] Surface Area	[2] Surface Area	[3] Volume of Prisms & Cylinders
WEEK 6	[3] Volume of Prisms & Cylinders	[4] Volume of Cones & Spheres	[5] Solids of Revolution	[5] Solids of Revolution	[6] Surface Area and Volume in Real-World Applications
WEEK 7	[6] Surface Area and Volume in Real-World Applications			[1] Properties of Exponents	[1] Properties of Exponents
WEEK 8	[1] Properties of Exponents	[2] Scientific Notation	[3] Adding & Subtracting with Scientific Notation	[4] Multiplying & Dividing with Scientific Notation	[5] Scientific Notation in Context
WEEK 9					

ACCELERATED MATH 7

Unit Overview

UNIT 1: The Real Number System	RECOMMENDED TIME FRAME: 23 DAYS

UNIT OVERVIEW

In this unit, students will build upon their understanding of operations with fractions to add, subtract, multiply, and divide rational numbers. The unit starts with students learning to add, subtract, multiply, and divide integers. Since this is the first experience students have with this, it is important to build a conceptual understanding before developing the rules. Students then extend their knowledge to include all rational numbers. From there, students explore the conversions between decimals and fractions to understand when fractions will have terminating or repeating decimals. Students then classify numbers in the real number system including rational and irrational numbers. Students must understand perfect squares and perfect cubes in order to approximate nonperfect square roots which result in irrational numbers. The unit culminates in an activity in which students compare the types of numbers within the real number system and order them on a number line.

STANDARDS

4. Apply and extend knowledge of operations of whole numbers, fractions, and decimals to add, subtract, multiply, and divide rational numbers including integers, signed fractions, and decimals.
   a. Identify and explain situations where the sum of opposite quantities is 0 and opposite quantities are defined as additive inverses.
   b. Interpret the sum of two or more rational numbers, by using a number line and in real-world contexts.
   c. Explain subtraction of rational numbers as addition of additive inverses.
   d. Use a number line to demonstrate that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.
   e. Extend strategies of multiplication to rational numbers to develop rules for multiplying signed numbers, showing that the properties of the operations are preserved.
   f. Divide integers and explain that division by zero is undefined. Interpret the quotient of integers (with a non-zero divisor) as a rational number.
   g. Convert a rational number to a decimal using long division, explaining that the decimal form of a rational number terminates or eventually repeats.
5. Solve real-world and mathematical problems involving the four operations of rational numbers, including complex fractions. Apply properties of operations as strategies where applicable.
8. Solve multi-step real-world and mathematical problems involving rational numbers (integers, signed fractions and decimals), converting between forms as needed. Assess the reasonableness of answers using mental computation and estimation strategies.

STANDARDS

9. Solve real-world problems involving the four operations of rational number, including complex fractions. Apply properties of operations as strategies where applicable.
10. Define the real number system as composed of rational and irrational numbers.
    a. Explain that every number has a decimal expansion; for rational numbers, the decimal expansion repeats in a pattern or terminates.
    b. Convert a decimal expansion that repeats in a pattern into a rational number.
11. Locate rational approximations of irrational numbers on a number line, compare their sizes, and estimate the values of irrational numbers.
15. Use square root and cube root symbols to represent solutions to equations.
    a. Evaluate square roots of perfect squares (less than or equal to 225) and cube roots of perfect cubes (less than or equal to 1000).
    b. Explain that the square root of a non-perfect square is irrational.

RESOURCES

Unit 1 Student Progress Monitoring Document

Unit 1 Proficiency Scale

Unit 1 Sample Summative Assessment

Unit 1 Sample Summative Assessment Key

ACCELERATED MATH 7

Unit Overview

UNIT 2: Operations on Expressions	RECOMMENDED TIME FRAME: 10 DAYS

UNIT OVERVIEW

In 6th grade, students write equivalent expressions using properties of operations and combining like terms. In 7th grade, students will extend this knowledge to include all rational numbers. Students will also be exposed to distributive property and factoring with variable expressions.

STANDARDS

12. Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
13. Generate expressions in equivalent forms based on context and explain how the quantities are related.
18. Use variables to represent quantities in real-world or mathematical problems and construct algebraic expressions, ~~equations, and inequalities~~ to solve problems by reasoning about the quantities.

RESOURCES

Unit 2 Student Progress Monitoring Document

Unit 2 Proficiency Scale

Unit 2 Sample Summative Assessment

Unit 2 Sample Summative Assessment Key

ACCELERATED MATH 7

Unit Overview

UNIT 3: Equations and Inequalities	RECOMMENDED TIME FRAME: 22 DAYS

UNIT OVERVIEW

In 6th grade, students are only asked to solve 1 step equations and inequalities and only with positive solutions. Students should extend this learning to include solving multi-step equations and inequalities with variables on both sides by combining like terms and using the Distributive Property. Rational number coefficients should be used. Any of the Performance Tasks could be used as an assessment during the unit. Depending on your students, you may need more practice on different types of equations or inequalities.

STANDARDS

18. Use variables to represent quantities in real-world or mathematical problems and construct algebraic expressions, equations, and inequalities to solve problems by reasoning about the quantities.
    a. Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.
    b. Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality, and interpret it in the context of the problem.
20. Represent constraints by equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. Limit to contexts arising from linear.
21. Solve multi-step linear equations in one variable, including rational number coefficients, and equations that require using the distributive property and combining like terms.
    a. Determine whether linear equations in one variable have one solution, no solution, or infinitely many solutions of the form $x = a$, $a = a$, or $a = b$ (where a and b are different numbers).
    b. Represent and solve real-world and mathematical problems with equations and interpret each solution in the context of the problem.

RESOURCES

Unit 3 Student Progress Monitoring Document

Unit 3 Proficiency Scale

Unit 3 Sample Summative Assessment

Unit 3 Sample Summative Assessment Key

ACCELERATED MATH 7

Unit Overview

UNIT 4: Ratios and Proportions	RECOMMENDED TIME FRAME: 14 DAYS

UNIT OVERVIEW

Building from the development of rate and unit concepts in Grade 6, applications now need to focus on solving unit-rate problems with more sophisticated numbers. Proportional relationships are further developed through the analysis of graphs, tables, equations and diagrams. Students are required to interpret the meanings of values in relationship to the graphs, tables, equations and diagrams. Students graph proportional relationships and understand the unit rate informally as a measure of the steepness of the related line.

STANDARDS

1. Calculate unit rates of length, area, and other quantities measured in like or different units that include ratios or fractions.
2. Represent a relationship between two quantities and determine whether the two quantities are related proportionally.
   a. Use equivalent ratios displayed in a table or in a graph of the relationship in the coordinate plane to determine whether a relationship between two quantities is proportional.
   b. Identify the constant of proportionality (unit rate) and express the proportional relationship using multiple representations including tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.
   c. Explain in context the meaning of a point (x, y) on the graph of a proportional relationship, with special attention to the points $(0,0)$ and $(1, r)$ where r is the unit rate.
4. Determine whether a relationship between two variables is proportional or non-proportional.
7. Compare proportional and non-proportional linear relationships represented in different ways (algebraically, graphically, numerically in tables, or by verbal descriptions) to solve real-world problems.
18. Use variables to represent quantities in real-world or mathematical problems and construct ~~algebraic expressions~~, equations, ~~and inequalities~~ to solve problems by reasoning about the quantities.
25. Find approximate solutions by graphing the functions, making tables of values, or finding successive approximations, using technology where appropriate.

RESOURCES
Unit 4 Student Progress Monitoring Document
Unit 4 Proficiency Scale
Unit 4 Sample Summative Assessment
Unit 4 Sample Summative Assessment Key

ACCELERATED MATH 7

Unit Overview

UNIT 4 Part 2: Linear Functions	RECOMMENDED TIME FRAME: 16 DAYS

UNIT OVERVIEW

Expanding on the understanding of proportional relationships discussed in Unit 4, students will explore the connection to linear functions. Students will learn important terminology related to functions. They will create tables and graphs of relationships to identify patterns and recognize features of functions. Students will also compare functions to see which represents the better deal and compare graphs of different functions. They will also develop an understanding of what functions truly are and how to determine what is or is not a function.

STANDARDS

5. Graph proportional relationships.
   a. Interpret the unit rate of a proportional relationship, describing the constant of proportionality as the slope of the graph which goes through the origin and has the equation y = mx where m is the slope.
6. Interpret y = mx + b as defining a linear equation whose graph is a line with m as the slope and as the y-intercept.
   a. Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in a coordinate plane.
   b. Given two distinct points in a coordinate plane, find the slope of the line containing the two points and explain why it will be the same for any two distinct points on the line.
   c. Graph linear relationships, interpreting the slope as the rate of change of the graph and the y-intercept as the initial value.
   d. Given that the slopes for two different sets of points are equal, demonstrate that the linear equations that include those two sets of points may have different y-intercepts.
7. Compare proportional and non-proportional linear relationships represented in different ways (algebraically, graphically, numerically in tables, or by verbal descriptions) to solve real-world problems.

19. Create equations in two variables to represent relationships between quantities in context; graph equations on coordinate axes with labels and scales and use them to make predictions. Limit to contexts arising from linear functions.
22. Identify the effect on the graph of replacing f (x) by f (x) + k, k · f(x), f (kx), and f (x + k) for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and explain the effects on the graph using technology, where appropriate. Limit to linear functions.

STANDARDS

23. Construct a function to model the linear relationship between two variables.
    a. Interpret the rate of change (slope) and initial value of the linear function from a description of a relationship from two points in a table or graph.
24. Explain why the x-coordinates of the points where the graphs of the equations y = f(x) and y = g(x) intersect are the solutions of the equation f(x) = g(x). Limit to linear equations.

RESOURCES

Unit 4 Part 2 Student Progress Monitoring Document

Unit 4 Part 2 Proficiency Scale

Unit 4 Part 2 Sample Summative Assessment

Unit 4 Part 2 Sample Summative Assessment Key

ACCELERATED MATH 7

Unit Overview

UNIT 5: Percents	RECOMMENDED TIME FRAME: 11 DAYS

UNIT OVERVIEW

In 6th grade, students used ratio tables and unit rates to solve problems. Students expand their understanding of proportional reasoning to solve problems that are easier to solve with cross-multiplication. Students understand the mathematical foundation for cross-multiplication. The use of proportional relationships is also extended to solve percent problems involving tax, markups and markdowns, simple interest ($I = prt$, $I = interest$, $p = principle$, $r = rate$, $and\ t = time$), gratuities and commissions, fees, percent increase and decrease, and percent error.

STANDARDS

3. Solve multi-step percent problems in context using proportional reasoning, including simple interest, tax, gratuities, commissions, fees, markups and markdowns, percent increase, and percent decrease.
17. Solve multi-step real-world and mathematical problems involving rational numbers (integers, signed fractions and decimals), converting between forms as needed. Assess the reasonableness of answers using mental computation and estimation strategies.

RESOURCES

Unit 5 Student Progress Monitoring Document

Unit 5 Proficiency Scale

Unit 5 Sample Summative Assessment

Unit 5 Sample Summative Assessment Key

ACCELERATED MATH 7

Unit Overview

UNIT 6: Statistics	RECOMMENDED TIME FRAME: 12 DAYS

UNIT OVERVIEW

In Grade 6, students used measures of center and variability to describe data. Students continue to use this knowledge in Grade 7 as they use random samples to make predictions about an entire population and judge the possible discrepancies of the predictions. Providing opportunities for students to use real-life situations from science and social studies shows the purpose for using random sampling to make inferences about a population. This is the students' first experience with comparing two data sets and Mean Absolute Deviation (MAD). Students build on their understanding of graphs, mean, median, and interquartile range from 6th grade. (7 Flipbook Final CCSS 2014)

STANDARDS

26. Examine a sample of a population to generalize information about the population.
    a. Differentiate between a sample and a population.
    b. Compare sampling techniques to determine whether a sample is random and thus representative of a population, explaining that random sampling tends to produce representative samples and support valid inferences.
    c. Determine whether conclusions and generalizations can be made about a population based on a sample.
    d. Use data from a random sample to draw inferences about a population with an unknown characteristic of interest, generating multiple samples to gauge variation and make predictions or conclusions about the population.
    e. Informally explain situations in which statistical bias may exist.
27. Informally assess the degree of visual overlap of two numerical data distributions with roughly equal variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability.
28. Make informal comparative inferences about two populations using measures of center and variability and/or mean absolute deviation (MAD) in context.

RESOURCES

Unit 6 Student Progress Monitoring Document

Unit 6 Proficiency Scale

Unit 6 Sample Summative Assessment

Unit 6 Sample Summative Assessment Key

ACCELERATED MATH 7

Unit Overview

UNIT 7: Probability	RECOMMENDED TIME FRAME: 11 DAYS

UNIT OVERVIEW

This unit will cover the standards that address simple and compound probability. As this is the first time that students have been exposed to probability, they will need various, repeated exposure to hands-on probability simulations. Be sure to emphasize the differences between theoretical probability and experimental probability.

STANDARDS

29. Use a number between 0 and 1 to represent the probability of a chance event occurring, explaining that larger numbers indicate greater likelihood of the event occurring, while a number near zero indicates an unlikely event.
30. Define and develop a probability model, including models that may or may not be uniform, where uniform models assign equal probability to all outcomes and non-uniform models involve events that are not equally likely.
    a. Collect and use data to predict probabilities of events.
    b. Compare probabilities from a model to observe frequencies, explaining possible sources of discrepancy.
31. Approximate the probability of an event by using data generated by a simulation (experimental probability) and compare it to theoretical probability.
32. Find probabilities of simple and compound events through experimentation or simulation and by analyzing the sample space, representing the probabilities as percents, decimals, and fractions.
    a. Represent sample spaces for compound events using methods such as organized lists, tables, and tree diagrams, and determine the probability of an event by finding the fraction of outcomes in the sample space for which the compound event occurred.
    b. Design and use a simulation to generate frequencies for compound events.
    c. Represent events described in everyday language in terms of outcomes in the sample space which composed the event.

RESOURCES
Unit 7 Student Progress Monitoring Document
Unit 7 Proficiency Scale
Unit 7 Sample Summative Assessment
Unit 7 Sample Summative Assessment Key

ACCELERATED MATH 7

Unit Overview

UNIT 8: 2D Figures	RECOMMENDED TIME FRAME: 10 DAYS

UNIT OVERVIEW

In this unit, students will expand on their understanding of areas of basic shapes from previous grades by applying area formulas to solve problems in real-world contexts. Students will also extend their knowledge of area and proportional reasoning to solve problems involving scale drawings. Students solve problems about scale drawings by relating corresponding lengths between the objects or by using the fact that relationships of lengths within an object are preserved in similar objects. In addition, students will discover the formula for the area of a circle and solve real world problems involving circumference and area.

STANDARDS

33. Solve problems involving scale drawings of geometric figures including computation of actual lengths and areas from a scale drawing and reproduction of a scale drawing at a different scale.
36. Explain the relationships among circumference, diameter, area, and radius of a circle to demonstrate understanding of formulas for the area and circumference of a circle.
    a. Informally derive the formula for the area of a circle.
    b. Solve area and circumference problems in real-world and mathematical situations involving circles.
37. Use facts about supplementary, complementary, vertical, and adjacent angles in multi-step problems to write and solve simple equations for an unknown angle in a figure.
39. Solve real-world and mathematical problems involving area, volume, and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right rectangular prisms.

RESOURCES

Unit 8 Student Progress Monitoring Document

Unit 8 Proficiency Scale

Unit 8 Sample Summative Assessment

Unit 8 Sample Summative Assessment Key

ACCELERATED MATH 7

Unit Overview

UNIT 8 Part 2: Transformations	RECOMMENDED TIME FRAME: 11 DAYS

UNIT OVERVIEW

In this unit, students learn how to identify and perform four transformations: translations, reflections, rotations, and dilations. Students begin by practicing each of the three rigid transformations before applying them in a series of lessons. Included in these lessons are activities in which students identify the transformation or series of transformations that has been used to make a new figure from an original. Finally, students perform dilations and analyze what attributes of a shape change (area and perimeter) and what attributes remain the same (angles). By the end of this unit, students should be able to perform and identify all four transformations.

STANDARDS

42. Verify experimentally the properties of rigid motions (rotations, reflections, and translations): lines are taken to lines, and line segments are taken to line segments of the same length; angles are taken to angles of the same measure; and parallel lines are taken to parallel lines.
    a. Given a pair of two-dimensional figures, determine if a series of rigid motions maps one figure onto the other, recognizing that if such a sequence exists the figures are congruent; describe the transformation sequence that verifies a congruence relationship.
43. Use coordinates to describe the effect of transformations (dilations, translations, rotations, and reflections) on two-dimensional figures.
44. Given a pair of two-dimensional figures, determine if a series of dilations and rigid motions maps one figure onto the other, recognizing that if such a sequence exists the figures are similar; describe the transformation sequence that exhibits the similarity between them.

RESOURCES

Unit 8 Part 2 Student Progress Monitoring Document

Unit 8 Part 2 Proficiency Scale

Unit 8 Part 2 Sample Summative Assessment

Unit 8 Part 2 Sample Summative Assessment Key

ACCELERATED MATH 7

Unit Overview

UNIT 9: Angle and Triangle Relationships	RECOMMENDED TIME FRAME: 12 DAYS

UNIT OVERVIEW

This unit is designed to introduce students to angle relationships. This unit also provides students an opportunity to explore applications of what they learned in the expressions and equations unit in the context of finding missing angle measures. Students will use the knowledge gained about angle relationships (properties of supplementary, complementary, vertical, adjacent, alternate interior, alternate exterior, and corresponding angles), along with what they already know about writing and solving equations, to master using angle relationships.

STANDARDS

34. Construct geometric shapes (freehand, using a ruler and a protractor, and using technology), given measurement constraints with an emphasis on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.

37. Use facts about supplementary, complementary, vertical, and adjacent angles in multi-step problems to write and solve simple equations for an unknown angle in a figure.

38a. Use informal arguments to establish that the sum of the interior angles of a triangle is 180 degrees.

RESOURCES

Unit 9 Student Progress Monitoring Document

Unit 9 Proficiency Scale

Unit 9 Sample Summative Assessment

Unit 9 Sample Summative Assessment Key

ACCELERATED MATH 7

Unit Overview

UNIT 10: 3D Applications	RECOMMENDED TIME FRAME: 13 DAYS

UNIT OVERVIEW

In this unit, students will discuss the shapes formed when cross sections parallel and perpendicular to the base are taken from right rectangular prisms and pyramids. Students will then explore mathematical and real-world problems involving surface area and volume. Students must understand the relationship between the volume of a) cylinders and cones and b) cylinders and spheres to the corresponding formulas. (8th Grade Flip Book 2014) Students will use formulas to find the volume of cones, cylinders and spheres while solving real-world problems.

STANDARDS

35. Describe the two-dimensional figures created by slicing three-dimensional figures into plane sections.
39. Solve real-world and mathematical problems involving area, volume, and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right rectangular prisms.
40. Informally derive the formulas for the volume of cones and spheres by experimentally comparing the volumes of cones and spheres with the same radius and height to a cylinder with the same dimensions.
41. Use formulas to calculate the volumes of three-dimensional figures to solve real-world problems.

RESOURCES

Unit 10 Student Progress Monitoring Document

Unit 10 Proficiency Scale

Unit 10 Sample Summative Assessment

Unit 10 Sample Summative Assessment Key

ACCELERATED MATH 7

Unit Overview

UNIT 11: Exponent Operations & Scientific Notation	RECOMMENDED TIME FRAME: 9 DAYS

UNIT OVERVIEW

In 6th grade, students demonstrate the meaning of exponents to write and evaluate numerical expressions with whole number exponents. The students should have been exposed to bases that are whole numbers, positive decimals, positive fractions, or variables. In this unit, the students will extend their knowledge of exponents to include properties of exponents. These properties are then applied to solving problems using scientific notation.

STANDARDS

14. Develop and apply properties of integer exponents to generate equivalent numerical and algebraic expressions.
15. Use square root and cube root symbols to represent solutions to equations.
    a. Evaluate square roots of perfect squares (less than or equal to 225) and cube roots of perfect cubes (less than or equal to 1000).
    b. Explain that the square root of a non-perfect square is irrational.
16. Express and compare very large or very small numbers in scientific notation.
    a. Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used, expressing answers in scientific notation.
    b. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities.
    c. Interpret scientific notation that has been generated by technology.

RESOURCES

Unit 11 Student Progress Monitoring Document

Unit 11 Proficiency Scale

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