Grade 7 Math

Diary map is based on the 2017-2018 school year. Information may change year to year. Months are guidelines and items may be done at different times of the year.

Month	Essential Questions	Content	Skills	Assessment	Resources	Technology

<table>
<tr><td colspan="4">Common Core Standards for Mathematical Content</td><td colspan="3">Common Core Standards for Mathematical Practice</td></tr>
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Common Core Standards for Mathematical Content

Ratios and Proportional Relationships

7.RP.A   Analyze proportional relationships and use them to solve real-world and mathematical problems.

The Number System

7.NS.A   Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

Expressions and Equations

7.EE.A   Use properties of operations to generate equivalent expressions.

7.EE.B   Solve real-life and mathematical problems using numerical and algebraic expressions and equations.

Geometry

7.G.A   Draw, construct and describe geometrical figures and describe the relationships between them.

7.G.B   Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.

Statistics and Probability

7.SP.A   Use random sampling to draw inferences about a population.

7.SP.B   Draw informal comparative inferences about two populations.

7.SP.C   Investigate chance processes and develop, use, and evaluate probability models.

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Common Core Standards for Mathematical Practice

MP.1   Make sense of problems and persevere in solving them.

MP.2   Reason abstractly and quantitatively.

MP.3   Construct viable arguments and critique the reasoning of others.

MP.4   Model with mathematics.

MP.5   Use appropriate tools strategically.

MP.6   Attend to precision.

MP.7   Look for and make use of structure.

MP.8   Look for and express regularity in repeated reasoning.

*Practice standards are ongoing all year.

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Ongoing **Standards:** All	**ALEKS** How are math skills practiced and applied?	**ALEKS** -Grade level math topics and prerequisites	**ALEKS** -Apply math skills to solve problems that are individualized based on level of readiness	**ALEKS** -Mastery of individualized topics		**ALEKS** -ALEKS program -iPads
Aug.-Sept. **Standards:** 7.NS.A	**Roman Numerals** How are Roman numerals used?	**Roman Numerals** -Roman numerals -History of Roman numerals	**Roman Numerals** -Apply Roman numerals to everyday -Discuss the history of Roman numerals -Solve Roman numeral problems	**Roman Numerals** -Worksheets (teacher created) -Quiz (teacher created)	**Roman Numerals** -Worksheets (teacher created)	**Roman Numerals** -Elmo -SMART Board -iPads -Computer -Online games and apps

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	Integers How are integers applied in the real world?	**Integers** -Integers and Absolute Value -Adding integers -Subtracting integers -Multiplying integers -Dividing integers -Order of Operations -Expressions -Exponents	**Integers** -Identify and represent integers -Order and compare integers -Identify and describe absolute value of integers -Use and justify the rules for addition, subtractions, multiplication, and division of integers -Add, subtract, multiply, and divide integers	**Integers** -Worksheets (teacher created) -Quiz (teacher created) -Test (teacher created) -Flashcards	**Integers** Big Ideas Learning LLC *Big Ideas Math* Course 2 (2014) -textbook -Resources and Assessment book	**Integers** -Elmo -SMART Board -iPads -Calculators -Websites -Online games and apps
Oct. **Standards:** 7.RP.A 7.NS.A	**Consumer Education** Why is budgeting important? How can math skills be applied to real life situations?	**Consumer Education** -Jobs/income -Budgets -Better buy/coupons -Checking -Savings -Investments -Taxes -Wages/hourly/salary -Tips -Commission -Loans -Interest -Credit cards -Debit cards -Real world bills (ex: Electric/cell bill)	**Consumer Education** -Research a job/career and the approximate amount made per month -Create a budget based on take home pay -Discuss checking, savings, debit cards, credit cards, investments, tips, interest, commission, etc. -Use the skills to write checks, bills, debits, and credits into a check ledger -Find ways to "cut back" and save money each month	**Consumer Education** -Worksheets (teacher created) -Quiz (teacher created) -Credit Union National Association *Mad City Money* workbook	**Consumer Education** -Worksheets (teacher created) -Mercantile Bank field trip - Mad City Money field trip -Credit Union activity	**Consumer Education** -Elmo -SMART Board -iPads -Calculators -Websites -BrainPOP: checking, taxes, credit cards
November **Standards:** 7.NS.A	**Rational Numbers** How are operations used to solve rational numbers?	**Rational Numbers** -Rational numbers	**Rational Numbers** -Add and subtract fractions with like and unlike denominators	**Rational Numbers** -Worksheets (teacher created) -Quiz (teacher created)	**Rational Numbers** Big Ideas Learning LLC *Big Ideas Math* Course 2 (2014)	**Rational Numbers** -Elmo -SMART Board -iPads

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		Operations with rational numbers: -Addition -Subtraction -Multiplication -Division	-Add, subtract, multiply, and divide fractions fluently -Describe quantities of positive and negative numbers -Use fraction skills to add, subtract, multiply, and divide rational numbers -Apply properties of operations as strategies to perform operations with rational numbers -Convert a rational number to a decimal using long division	-Test (teacher created)	-textbook -Resources and Assessment book	-Calculators -Websites -Online games and apps
December **Standards:** 7.EE.A 7.EE.B	**Expressions and Equations** How are expressions used?	**Expressions and Equations** -Algebraic expressions -Adding and subtracting linear expressions -Equations using addition or subtraction -Equations using multiplication or division -Two- step equations	**Expressions and Equations** -Use parenthesis, brackets, or braces in numerical expressions and evaluate expressions with these symbols -Add, subtract, factor, and expand linear expressions with rational coefficients -Understand that rewriting expressions in different forms can show how the quantities are related -Write, graph, and solve one-step equations (includes negative numbers) -Solve one and two-step	**Expressions and Equations** -Worksheets (teacher created) -Quiz (teacher created) -Test (teacher created)	**Expressions and Equations** Big Ideas Learning LLC *Big Ideas Math* Course 2 (2014) -textbook -Resources and Assessment book	**Expressions and Equations** -Elmo -SMART Board -iPads -Calculators -Websites -Online games and apps

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			equations -Compare algebraic solutions to arithmetic solutions			
January **Standards:** 7.EE.A 7.EE.B	**Inequalities** How are inequalities used with all operations?	**Inequalities** -Writing and graphing inequalities -Solving inequalities using addition and subtraction -Solving inequalities using multiplication and division -Solving two-step inequalities	**Inequalities** -Use and interpret simple equations -Determine if a value is a solution of an inequality -Recognize infinite solutions -Solve one step and two step inequalities using integers and rational numbers	**Inequalities** -Worksheets (teacher created) -Quiz (teacher created) -Test (teacher created)	**Inequalities** Big Ideas Learning LLC *Big Ideas Math* Course 2 (2014) -textbook -Resources and Assessment book	**Inequalities** -Elmo -SMART Board -iPads -Calculators -Websites -Online games and apps
February-March **Standards:** 7.G.A 7.G.B	**Geometry: Construction and Scale Drawings** What conclusions can be made about the angles formed by two intersecting lines? How are two angles classified as complementary or supplementary? How are triangles constructed? How are missing measures of angles found using the algebra formula? How are quadrilaterals classified?	**Geometry: Construction and Scale Drawings** -Acute angles -Obtuse angles -Straight angles -Right angles -Protractors -Arrowheads -Parallel lines -Transversal lines -Alternate interior angles -Alternate exterior angles -Lines -Rays -Line segments -Endpoints -Vertex -Supplementary -Complementary -Planes -Symmetry	**Geometry: Construction and Scale Drawings** -Classify and measure all angles -Measure angles in whole number degrees using a protractor -Draw rays, angles, etc. and identify these in two-dimensional figures -Identify and solve for angles without the use of protractor -Use the skills from vocabulary of angles and lines to find the measures of all angles in a plane -Use facts about vertical and adjacent angles in a multi-step problem to write and solve simple	**Geometry: Construction and Scale Drawings** -Worksheets (teacher created) -Quiz (teacher created) -Test (teacher created)	**Geometry: Construction and Scale Drawings** Big Ideas Learning LLC *Big Ideas Math* Course 2 (2014) -textbook -Resources and Assessment book	**Geometry: Construction and Scale Drawings** -Elmo -SMART Board -iPads -Calculators -Websites -Online games and apps

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	How are polygons classified based on sides and degrees?	-Perpendicular lines -Intersecting lines -Skew lines -Vertical angles -Adjacent angles -Corresponding angles -Interior angles of a triangle -Exterior angles of a triangle -Convex -Concave -Classification of triangles -Equilateral triangles -Scalene triangles -Isosceles triangles -Quadrilaterals -Regular polygons -Degrees of regular and irregular polygons -Scale drawing	equations for an unknown angle in a figure. -Find measures of angles formed by parallel and transversal lines -Measure and identify relationships among vertical, adjacent, supplementary, and complementary angles -Find interior and exterior angle measures of triangles -Classify angles as complementary and supplementary -Know how to classify two-dimensional figures based on properties, draw polygons, and draw angles -Classify and construct triangles -Write and solve simple equations for an unknown angle in a figure -Be familiar with plane figures such as quadrilaterals and polygons sides 3 through 10			
April **Standards:** 7.G.A 7.G.B	**Geometry: Circle, Perimeter, and Area** How are the parts of a circle identified?	**Geometry: Circle, Perimeter, and Area** -Radius -Diameter -Chord	**Geometry: Circle, Perimeter, and Area** -Understand the parts of a circle -Know how to construct	**Geometry: Circle, Perimeter, and Area** -Worksheets (teacher created) -Quiz (teacher created)	**Geometry: Circle, Perimeter, and Area** Big Ideas Learning LLC *Big Ideas Math* Course 2 (2014)	**Geometry: Circle, Perimeter, and Area** -Elmo -SMART Board -iPads

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	How is circle graph constructed using percents, decimals, and degrees? How is the perimeter of regular and irregular polygons found? How is the area and circumference of a circle found? How is the perimeter of a composite figure found? How is the area of a composite figure found?	-Arc -Semicircle -Pi -Formula for a diameter and radius -Perimeter formulas of squares, rectangles, parallelograms, and irregular polygons -Area formulas for squares, rectangles, parallelograms, trapezoids, triangles, and circles -Area of circumference of circles	a circle graph using data, decimals, percent, degrees, and a protractor -Understand pi and its estimates -Use values of pi to estimate and calculate the circumference and area of circles -Find the perimeter of composite two-dimensional figures -Find the area of composite two-dimensional figures, including semi-circle	-Test (teacher created) -Survey circle graph -Bubble Experiment: area and circumference of circles	-textbook -Resources and Assessment book	-Calculators -Websites -Online games and apps
May **Standards:** 7.RP.A 7.EE.A 7.EE.B 7.SP.A 7.SP.B 7.SP.C	**Percents** How does the decimal point move when moving between percent and decimal forms? How can numbers written as fractions, decimals, and percents be ordered? How can an equivalent form of the percent proportion be used to solve a percent problem? What is percent of decrease and increase?	**Percents** -Percents and decimals -Comparing and ordering fractions, decimals, and percents -Percent proportion -Percent equation -Percent of increase and decrease -Discounts and markups -Simple Interest	**Percents** -Convert between percents and decimals -Solve multi-step problems with positive and negative rational numbers in any form -Apply properties of operations to calculate with numbers in any form -Compare and order less common fractions, decimals, and percents -Use proportional relationships to solve multistep ratio and percent problems -Find percents using the	**Percents** -Worksheets (teacher created) -Quiz (teacher created) -Test (teacher created)	**Percents** Big Ideas Learning LLC *Big Ideas Math* Course 2 (2014) -textbook -Resources and Assessment book	**Percents** -Elmo -SMART Board -iPads -Calculators -Websites -Online games and app

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			percent proportion -Use the percent of change formula to solve problems			
	Probability and Statistics How is the possible number of results in an experiment determined? How is the likelihood of an event described? How are relative frequencies use to find probabilities? How are the number of possible outcomes of one or more events found? What is the difference between dependent and independent events?	**Probability and Statistics** -Outcomes and events -Probability -Experimental and theoretical probability -Compound events -Independent and dependent events	**Probability and Statistics** -Identify the favorable outcomes of an event -Find the probability of an event -Find the experimental and theoretical probability of an event -Use sample spaces and the total number of possible outcomes to find probabilities of compound events -Identify and find probabilities of independent and dependent events	**Probability and Statistics** -Worksheets (teacher created) -Quiz (teacher created) -Test (teacher created)	**Probability and Statistics** Big Ideas Learning LLC *Big Ideas Math* Course 2 (2014) -textbook -Resources and Assessment book	**Probability and Statistics** -Elmo -SMART Board -iPads -Calculators -Websites -Online games and apps