| Grade 6 Math | Unit 1: Whole Numbers, Algebra, and Statistics | | Suggested Length: 5 weeks |
|---|---|---|--|
| Essential Question | Program of Studies and Core Content | Key Terms and Vocabulary | Classroom Instruction and <u>Assessment</u> Student will: |
| | Program of Studies | | |
| What are exponents and how are they used? How can you use prime factorization? How are mean | NC-1 continue to develop number sense including fractions, decimals, and percents (including percents greater than 100% and improper fractions). NC-5 explore exponents (e.g., squares, cubes). NC-6 determine prime numbers, composite numbers, factors, multiples, greatest common factors, and least common multiples. NC-11 use prime numbers, composite | Factor Prime number Composite number Prime factorization Exponent Numerical expression Order of operations Algebra Variable Evaluate | Construct & interpret divisibility patterns in order to determine if a given number is divisible by 2,3,5,6,9, or 10. <u>Divisibility quiz</u> (write divisibility rules for 2,3,5,6,9,10). Determine prime numbers by examining the factors of a number. Construct factor trees to break down composite numbers into prime factors. Express powers & exponents by writing the numbers out |
| median, and mode related? | numbers, factors, multiples, and divisibility to solve problems. | Area Interval Curch | as a product and then evaluate. Evaluate expressions using order of operations by using the D last D la |
| 4. 4. How do yo decide which graph to use t | PS-1 collect, organize, analyze, and interpret data in a variety of graphical methods, including line plots, line graphs, bar graphs, and stem and leaf plots. | Graph Bar graph Line graph Circle graph | and add and subtract) One way to remember this is "Please Excuse My Dear Aunt Sally". 1.3.1 DOK 2 Evaluating algebraic expressions by substituting a |
| display your data? | PS-2 made predictions, draw conclusions, and verify results from statistical data and probability experiments. | Stem-and-leaf plot Measure of central tendency | number in for the variable used and using the order of operations once it is substituted. 1.3.1 DOK 2 Determine area of objects using formula (A= L x W). |
| | PS-3 select an appropriate graph to represent given data. | MeanOutlier | Review Number Pattern & Algebra by observing students working out problems on board visually. |
| | □ <i>PS-4 compare data from various types of</i> | □ Median | <u>Test Number Patterns & Algebra</u> Open response: Cathy's Number (use divisibility rules) |
| | PS-5 investigate solutions to probability problems, using counting techniques, tree | □ Range | & you have to explain, think and explain why Cathy's number is what it is). |
| | diagrams, charts, and tables. PS-6 recognize the role of probability in decision making. | | Using data collected by a class survey (favorite kind of vehicle), the students will construct a frequency table. 1.1.2 DOK 3 |
| | PS-7 apply range and measures of central tendency (mean, median, mode). | | Student will also collect data and construct own frequency table using data collected. 1.1.2 DOK 3 |
| | A-3 write and solve equations with one variable, using concrete and/or informal methods that model everyday situations. | | Interpret circle graphs by using data given and deciding what data is most popular, least popular, etc. 1.1.2 DOK 3 |
| | □ A-4 explore the concept of variable, expression, and equation. | | □ Interpret bar and line graphs by taking data and finding the scale and intervals, labeling graph, drawing bars or |
| | $\square A-5 solve problems involving simple formulas (i.e., A = Iw, P = 2I + 2w)$ | | Ines. 4.1.2 DOK 2 Construct and interpret stem-and-leaf plots by ordering |

| Grade 6 Math | Unit 1: Whole Numbers, Algebra, and Statistics | | Suggested Length: 5 weeks |
|-------------------------------------|--|--------------------------|--|
| Essential Questions | Program of Studies and Core Content | Key Terms and Vocabulary | Classroom Instruction and <u>Assessment</u> |
| Grade 6 Math Essential Questions | Unit 1: Whole Numbers, Algebra, and Statistics <i>Program of Studies</i> and Core Content A-6 interpret relationships between tables and graphs. A-7 organize data into tables and plot points onto the first quadrant of a coordinate (Cartesian) system/grid. Core Content MA-06-1.1.1 Students will provide examples of and identify fractions, decimals and percents. DOK 1 MA-06-1.1.2 Students will describe and provide examples of representations of numbers (whole numbers, fractions in simplest form, mixed numbers, decimals, percents) and operations in a variety of equivalent forms using models, diagrams, and symbols (e.g., number lines, 10 by 10 grids, rectangular arrays, number sentences), based on real-world and/or mathematical situations. MA-06-1.1.3 Students will convert between any two of the following numbers: fractions, decimals, and percents (less than or equal to 100%); and will compare and | Key Terms and Vocabulary | Suggested Length: 5 weeks Classroom Instruction and Assessment Student will: data from least to greatest, drawing a vertical line and writing the ten's digit from least to greatest on the left of the line, and the unit digits in order to the right of the line with the corresponding stem. 4.1.2 DOK 2 Find the mean of a set of data by adding the numbers together and dividing by the number of data. Students will also evaluate the data and decide what measure of central tendency best describes the data by remembering that mean is best when outliers are there, mode is best when several numbers are the same, and median is best when there is outliers in the data. 4.2.1 DOK 2 Find the median of a set of data by ordering the data from least to greatest and finding the number in the middle and finding the range by subtracting the smallest number in the data by the largest. Also, find the mode by observing the data to see if any number is written more than the other data given. 4.2.1 DOK 2 Review Statistics and Graphs by observing students. Open Response: Students will take given test scores and make a stem-and-leaf plot and then analyze the data in sentence form. They will also list any outliers and how it affects the mean in sentence form, and finally write several sentences stating what measure of central |
| | fractions, decimals, and percents (less than or equal to 100%); and will compare and order these numbers. DOK 2 MA-06-1.3.1 Students will add, subtract, multiply and divide, whole numbers, fractions and decimals to solve real-world problems and apply order of operations to simplify numerical expressions. DOK 2 MA-06-1.3.2 Students will explain how operations (addition and subtraction; multiplication and division) are inversely related. MA-06-1.5.1 Students will identify and apply prime numbers, composite numbers, prime factorization, factors, multiples and | | affects the mean in sentence form, and finally write several sentences stating what measure of central tendency that best describes the data and why? |

| Grade 6 Math | Unit 1: Whole Numbers, Algebra, and Statistics | | Suggested Length: 5 weeks |
|---------------------|---|--------------------------|--------------------------------------|
| Essential Questions | Program of Studies and Core Content | Key Terms and Vocabulary | Classroom Instruction and Assessment |
| | | | Student will: |
| | mathematical problems (e.g., prime | | |
| | factorization to determine a least common | | |
| | multiple [LCM] or greatest common factor | | |
| | [GCF]). DOK 2 | | |
| | □ MA-06-2.1.1 Students will measure lengths | | |
| | (to the nearest eighth of an inch or the | | |
| | nearest centimeter) and will determine and | | |
| | use in real-world and mathematical | | |
| | producting. | | |
| | \square area and perimeter of quadrilaterals | | |
| | (rectangles squares). (using the | | |
| | Pythagorean theorem will not be | | |
| | required as a strategy) and | | |
| | □ area and perimeter of compound | | |
| | figures composed of triangles and | | |
| | quadrilaterals. DOK 2 | | |
| | □ MA-06-4.1.1 Students will analyze and | | |
| | make inferences from data displays | | |
| | (drawings, tables/charts, pictographs, bar | | |
| | graphs, circle graphs, line plots, Venn | | |
| | diagrams, line graphs, stem-and-leaf plots). | | |
| | | | |
| | □ MA-06-4.1.2 Students will explain how | | |
| | different representations of data (e.g., tables, | | |
| | \square MA 06 4.1.4 Students will determine and | | |
| | construct appropriate data displays (bar | | |
| | granhs line plots. Venn diagrams tables | | |
| | line graphs), and will explain why the type | | |
| | of display is appropriate for the data. DOK | | |
| | 2 | | |
| | □ MA-06-4.2.1 Students will determine and | | |
| | apply the mean, median, mode, and range | | |
| | of a set of data. DOK 2 | | |
| | □ MA-06-4.4.2 Students will determine single | | |
| | event probabilities based on the results of | | |
| | an experiment and will make inferences | | |
| | based on the data. DOK 3 | | |

| Grade 6 Math | Unit 1: Whole Numbers, Algebra, and Statistics | | Suggested Length: 5 weeks |
|---------------------|--|--------------------------|--------------------------------------|
| Essential Questions | Program of Studies and Core Content | Key Terms and Vocabulary | Classroom Instruction and Assessment |
| | | | Student will: |
| | □ MA-06-5.2.1 Students will substitute values | | |
| | for variables (up to two different variables) | | |
| | and evaluate algebraic expressions. DOK 2 | | |
| | □ MA-06-5.2.2 Students will describe, define | | |
| | and provide examples of variables and | | |
| | expressions with a missing value based on | | |
| | real-world and mathematical problems. | | |
| | □ MA-06-5.3.1 Students will model and solve | | |
| | real-world and mathematical problems | | |
| | with simple equations and inequalities (e.g., | | |
| | 8x=4, x+2>5). DOK 2 | | |

| Gr | ade 6 Math | Unit 2: Decimals | | | Suggested Length: 5 weeks | |
|----|--|---|---|---|---------------------------|---|
| F | Essential Questions | Program of Studies and Core Content | K | Key Terms and Vocabulary | St | Classroom Instruction and <u>Assessment</u> udent will: |
| | | Program of Studies | | | | |
| 1. | What is the difference between standard form, word form, and an expanded form in dealing with decimals? | NC-1 continue to develop number sense including fractions, decimals, and percents (including percents greater than 100% and improper fractions) NC-2 extend understanding of operations (+, -, x, ÷) to include fractions and decimals. NC-4 develop place value of large and small numbers (include decimals). | | Equivalent decimals Perimeter Diameter Circumference Radius | | Represent decimals in word form, standard form and expanded form by using the Place Value chart for help. 1.1.1 DOK 1 Students will compare and order decimals by placing the correct symbol (\langle , \rangle , or =) where it belongs and by lining up the decimal before ordering two or more decimals. 1.1.1 DOK 1 Students will round decimals by first underlining the |
| 2. | How do you compare and order decimals? | NC-7 extend and apply addition, subtraction, multiplication, and division of common fractions and decimals with manipulatives and symbols (e.g., mental, pencil and paper, calculators). | | | | digit to be rounded, then looking at the number to the right to determine whether it will go up or stay the same. 1.1.1 DOK 1 Estimate sums and differences of decimals using front- end estimation (adding or subtracting front digits, then |
| 3. | How does estimating decimals help with adding and subtracting them? | NC-9 estimate with large and small quantities of objects. NC-10 estimate and mentally compute using fractions and decimals. NC-12 compare, order, and convert between whole numbers, fractions, and decimals, using concrete materials, drawings or | | | | rewrite problem, then add or subtract the next digit) or clustering (estimate by rounding a group of close numbers to the same number). 1.1.1 DOK 1 Evaluating two numbers or more by adding or subtracting decimals making sure the decimal is lined up. 1.1.1 DOK 1 Review adding and subtracting decimals by observing |

| Grade 6 Math | Unit 2: Decimals | | Suggested Length: 5 weeks |
|---------------------|--|--------------------------|--|
| Essential Questions | Program of Studies and Core Content | Key Terms and Vocabulary | Classroom Instruction and <u>Assessment</u> |
| 4 When adding | nistenes and with sweeting laws half () | | Student will: |
| 4. when adding | pictures, and mathematical symbols $(<, >, =,$ | | students working out problems on board visually. |
| and subtracting | order on a number line). | | Assess adding and subtracting decimals by testing |
| decimals, what | GM-1 find perimeter of regular and irregular | | students. |
| is the first step | polygons in metric and U.S. customary units. | | Students will find the product of decimals and whole |
| and the most | | | numbers (examplestudents will take a box of bolts |
| 1mportant step? | | | that cost .03 a piece and find out the cost if they bought |
| | <u>Core Content</u> | | 24). 1.3.1 DOK |
| | | | □ Students will find the product of decimals and decimals |
| | □ MA-06-1.1.1 Students will provide | | (examplestudents will be given a table in which |
| | examples of and identify fractions, | | certain meats (in decimal form) costs at Main Street. |
| | decimals and percents. DOK 1 | | They will be asked what the cost would be if they had to |
| | □ MA-06-1.1.3 Students will convert between | | go in and buy 2.5 pounds of each type). 1.3.1 DOK 2 |
| | any two of the following numbers: | | □ Students will divide decimals by whole numbers. To get |
| | fractions, decimals and percents (less than | | the lesson started, the students will be given \$3.75 in |
| | or equal to 100%); and will compare and | | play money and they will separate it so that each has the |
| | order these numbers. DOK 2 | | same amount. Without realizing, they have divided the |
| | □ MA-06-1.2.1 Students will estimate to solve | | decimal by 3. 1.2.1 DOK 2 |
| | real-world and mathematical problems | | Draw a garden on a white sheet of paper and construct a |
| | with whole numbers, fractions, decimals, | | fence around it. The garden is rectangular and the sides |
| | and percents, checking for reasonable and | | are 5 meters and 3 meters long. Finding the length of the |
| | appropriate computational results. DOK 2 | | fence will be the perimeter. 1.2.1 DOK 2 |
| | □ MA-06-1.3.1 Students will add, subtract, | | Using different size shapes of circles let the students |
| | multiply and divide, whole numbers, | | measure the distance from one side of the circle through |
| | fractions and decimals to solve real-world | | the center and to the other side. By doing this and using |
| | problems and apply order of operations to | | π (which is 3.14), the students will find the |
| | simplify numerical expressions. DOK 2 | | circumference of their circle. FormulaC= π d. 1.2.1 |
| | · · | | DOK 2 |
| | | | Review Multiplying and Dividing Decimals by |
| | | | observing students working problems on board visually. |
| | | | Assess students on multiplying and dividing decimals by |
| | | | testing students. |

| Grade 6 Math | Unit 3: Fractions | | Suggested Length: 5 weeks |
|--|--|---|---|
| Essential Questions | Program of Studies and Core Content | Key Terms and Vocabulary | Classroom Instruction and <u>Assessment</u> Student will: |
| | Program of Studies | | |
| How can you use GCF's & LCM's to solve problems? | NC-1 continue to develop number sense including fractions, decimals, and percents (including percents greater than 100% and improper fractions). | Venn diagram Greatest common factor Least common multiple | Use factor tress to discover the GCF of two or more numbers. Also, begin lesson by using a Venn Diagram. to compare the common factors of two numbers. Continue to use factor tree to find the GCF in order to the USE factor tree to Find the GCF in order to the USE factor. |
| 2. How are whole numbers, fractions, | NC-6 determine prime numbers, composite numbers, factors, multiples, greatest common factors, and least common multiples. NC-8 simplify fractions with prime | | Simplify fractions. 1.5.1 DOK 2 By using modes, show students how to take a mixed number and change it to an improper fraction and vice versa. 1.1.1 DOK 1 |
| decimals, and percents related to one another? | factorization (numbers that divide exactly into a given number). NC-10 estimate and mentally compute using fractions and decimals. | | □ Find the LCM of two or more numbers by making a list of the multiples or by using the numbers prime factors (factor tree). Begin lesson by noting the high school marching band rehearses with either 6 or 10 members in |
| 3. What is the most important rule when adding or | NC-12 compare, order, and convert between whole numbers, fractions, and decimals, using concrete materials, drawings or pictures, and mathematical symbols (<, >, =, | | every line. What is the least number of people that can be in the marching band? 1.5.1 DOK 2 Ask students if 1/3 of their shoes are black and 2/5 are brown, what color do they have more of? Explain how |
| subtracting fractions? (common denominator) | order on a number line). A-1 recognize, create, and continue patterns (give an informal description for the continuance of the pattern and/or generalize | | to find the LCD, then rewrite each fraction having a common denominator and a new numerator and then compare the numerators to tell. 1.5.1 DOK 2 By recalling the place value chart, each student will |
| How does multiplying and dividing | patterns through a verbal rule). | | have to identify the place value of the last decimal place in order to write the decimal as a fraction using the place value as the denominator, then simplify if needed. 1.3.1 |
| fractions relate to one another? | MA-06-1.1.1 Students will provide examples of and identify fractions, | | Using a calculator, each student will determine the fraction as a decimal by dividing the numerator by the denominator. Begin lesson by taking a students |
| 5. What do you look for and try to recognize when extending | decimals and percents. DOK 1 MA-06-1.1.3 Students will convert between any two of the following numbers: fractions, decimals, and percents (less than | | homework paper and showing how this can determine the percent average of a fraction showing the number right over the number possible. Inform them they have to move the decimal two places to the right to go from a |
| a sequence? 6. | or equal to 100%; and will compare and order these numbers. DOK 2 MA-06-1.3.1 Students will add, subtract, | | decimal to a percent. 1.3.1 DOK 2 Review fractions and decimals by observing students working out problems on board. |
| | multiply and divide, whole numbers, fractions, and decimals to solve real-world problems and apply order of operations to | | Access students understanding of fractions and decimals by testing them. Open response: students will take 5 different players |

| Grade 6 Math | Unit 3: Fractions | | Suggested Length: 5 weeks |
|---------------------|---|--------------------------|--|
| Essential Questions | Program of Studies and Core Content | Key Terms and Vocabulary | Classroom Instruction and <u>Assessment</u> Student will: |
| | simplify numerical expressions. DOK 2 MA-06-1.5.1 Students will identify and apply prime numbers, composite numbers, prime factorization, factors, multiples and divisibility to solve real-world and mathematical problems (e.g., prime factorization to determine a least common multiple [LCM] or greatest common factor [GCF]). DOK 2 MA-06-2.1.2 Students will estimate measurements in standard units including fractions and decimals. | | Student will: with their averages on free throws (example 17 out of 25, 15 out of 20, etc) and turns them into fractions (in simplest form), names them from least to greatest, decides who they would choose to shoot a technical at the end of a game and why, and takes the fractions to a decimal and a percent. Begin lesson on adding and subtracting fractions with like denominators with students by separating students into two groups (one who likes swimming and the other who does not). Explain how easy it is to total them when they are already separated. 1.1.2 DOK 2 Start lesson on adding and subtracting fractions with unlike denominators by writing the following on the board (3 pennies and 2 nickels). Ask students how they can describe the sum of this money using a common name only? (Converting 2 nickels to pennies 10+ 3 = 13). Explain the importance of finding a common denominator (LCD) before adding or subtracting. 1.1.2 DOK 2 Start lesson on subtracting fractions involving renaming by asking a student what they would do if they had to give someone 10 dollars but didn't have it. They will need to borrow from someone beside them giving them |
| | | | less than what they had. This way they can now pay the ten dollars that was needed. Explain when borrowing with fractions they have to rename the fraction and then subtract. 1.1.2 DOK 2 Assess students on adding and subtracting fractions by |
| | | | testing them. |

| Grade 6 Math | Unit 4: Algebra | | Suggested Length: 5 weeks |
|---|---|--|---|
| Essential Questions | Program of Studies and Core Content | Key Terms and Vocabulary | Classroom Instruction and <u>Assessment</u> |
| | Program of Studies | | |
| 1. How do adding, subtracting, multiplying, and | NC-1 continue to develop number sense including fractions, decimals, and percents | Integer Coordinate system X-coordinate | Begin lesson on integers by using red (positive) and blue (negative) counters. The counters are used as models to help understand the value of integers and how |

| Grade 6 Math | Unit 4: Algebra | | Suggested Length: 5 weeks |
|---|--|---|---|
| Essential Questions | Program of Studies and Core Content | Key Terms and Vocabulary | Classroom Instruction and <u>Assessment</u> Student will: |
| dividing integers related to each other? 2. How would understanding a coordinate system benefit you in everyday life? 3. How do adding, | (including percents greater than 100% and improper fractions). NC-13 explore how applications of properties (e.g., commutative, associative, inverse, identity) show relationships among numbers and operations. A-2 represent, interpret, and describe function relationships through tables, graphs, and verbal rules. A-3 write and solve equations with one variable, using concrete and/or informal methods that model everyday situations. | Y-coordinate Two-step equation Function Function table | Student will: to add, subtract, multiply, and divide them. Use overhead to start them off explaining how to work the problems, and then have students work in groups. 1.1.1 DOK 1 Present students with a map of a street and explain how a coordinate plan is used to help show the location of a particular place. Then explain to students how to use a coordinate system and how to graph an ordered pair. Show the 4 quadrants and how that can also be used to show location. 3.3.1 DOK 2 Have students use models (using 2 different colors) to find the area, working with a partner, to see how the |
| subtracting, multiplying, and dividing equations relate to each other? | A-7 organize data into tables and plot points onto the first quadrant of a coordinate (Cartesian) system/grid. | | distributive property works in an equation. 1.5.2 DOK Explain Adding and Subtracting Equations by letting students use positive and negative models. 5.3.1 DOK 2 Start off lesson on function rules by discussing a class rule and how it is put into effect if broken (av. Input |
| 4. How can graphing functions better represent | MA-06-1.1.1 Students will provide examples of and identify fractions, decimals and percents. DOK 1 | | being rule broken and output is the result). Then show how a function rule works with math (ex. X + 4list input numbers and show the output). 5.1.2 DOK 3 Access students on solving equations and graphing |
| information? | MA-06-1.1.2 Students will describe and provide examples of representations of numbers (whole numbers, fractions in simplest form, mixed numbers, decimals, percents) and operations in a variety of equivalent forms using models, diagrams, and symbols (e.g., number lines, 10 by 10 grids, rectangular arrays, number sentences), based on real-world and/or mathematical situations. MA-06-1.3.1 Students will add, subtract, multiply and divide, whole numbers, fractions and some sentences. | | functions by testing them. |
| | problems and apply order of operations to simplify numerical expressions. DOK 2 MA-06-1.5.2 Students will identify the use of properties (commutative properties of addition and multiplication, the associative | | |

| Grade 6 Math | Unit 4: Algebra | | Suggested Length: 5 weeks |
|---------------------|--|--------------------------|--|
| Essential Questions | Program of Studies and Core Content | Key Terms and Vocabulary | Classroom Instruction and <u>Assessment</u> Student will: |
| | properties of addition and multiplication and the identity properties for addition and multiplication) to simplify numerical expressions. DOK 1 MA-06-3.3.1 Students will identify and graph ordered pairs on a positive coordinate system (Quadrant I), correctly identifying the origin, axes and ordered pairs; and will apply graphing in the coordinate system to solve real-world and mathematical problems. DOK 2 MA-06-5.1.1 Students will extend, describe rules for patterns and find a missing term | | |
| | in a pattern from real-world and mathematical problems. DOK 3 MA-06-5.1.2 Students will create tables for functions and will apply the tables to solve real-world problems. DOK 2 | | |
| | MA-06-5.1.3 Students will describe, define, provide examples of and apply to real-world and mathematical problems functions using tables, graphs and verbal rules. | | |
| | MA-06-5.1.4 Students will explain how tables and graphs and patterns relate to each other. | | |
| | MA-06-5.1.5 Students will explain how the change in one quantity affects change in another quantity (e.g., in tables or graphs, input/output tables). | | |
| | □ MA-06-5.3.1 Students will model and solve real-world and mathematical problems with simple equations and inequalities (e.g., 8x=4, x+2>5). DOK 2 | | |

| Grade 6 Math | Unit 5: Patio and Proportion | | Suggested Length: 5 weeks |
|---|--|--|---|
| Essential Questions | Program of Studies and Core Content | Key Terms and Vocabulary | Classroom Instruction and <u>Assessment</u> Student will: |
| | Program of Studies | | |
| How do ratios, rates, and proportions compare to each other? How are percents expressed as | NC-1 continue to develop number sense including fractions, decimals, and percents (including percents greater than 100% and improper fractions). NC-3 develop meaning of ratio (describe and compare two sets of data using ratios and appropriate notations: 3:5, 3/5, 3 to 5). NC-9 estimate with large and small quantities of objects. | Ratio Theoretical probability Tree diagram Survey Population | Begin lesson by having 4 footballs and 6 tennis balls in front of the room. Ask students to compare the number of footballs to the number of tennis balls by using a fraction. Show the 3 ways to write and say a ratio. 1.4.1 DOK 2 Give a student 20 jelly beans and ask him/her to sort the jelly beans by color. Then have him/her <i>predict</i> how many of each color would be in a bag a 200. After the class has predicted, show how to set up the two ratios |
| fractions and decimals?3. What is difference between | GM-2 read and use measurement tools (e.g., rulers, scales). PS-2 made predictions, draw conclusions, and verify results from statistical data and probability experiments. PS-5 investigate solutions to probability | | and how to work the proportion (by cross product). 1.4.1 DOK 2 To introduce percents, have a grid with one hundred squares. Model how any amount shaded in will be the percent it is (since it is out of 100). 1.1.1 DOK 1 Have students separate into groups according to the |
| theoretical and experimental probability? | problems, using counting techniques, tree diagrams, charts, and tables. A-3 write and solve equations with one variable, using concrete and/or informal methods that model everyday situations. | | months in which they were born. Then have each group figure out what percent of the class their group represents. Have students express their results in both fraction and percent form. 4.1.2 DOK 2 Discuss probability by explaining that the probability of winning a basketball game differs from the probability of getting heads or tails when a coin is tossed. Most |
| | Core Content | | games are based on skill and the chance of getting a |
| | MA-06-1.1.1 Students will provide examples of and identify fractions, decimals and percents. DOK 1 | | heads or tails is strictly chance and the probability will come closer to matching the theoretical probability of 50% the more trials there are. 4.4.2 DOK 3 Have a spinner with several different colors on it. |
| | MA-06-1.4.1 Students will describe and apply ratios to solve real-world problems. DOK 2 MA-06-4.1.4 Students will determine and | | Discuss with students the theoretical probability of spinning a certain color and then see what happens by actually spinning (experimental probability). 4.4.2 DOK 3 |
| | construct appropriate data displays (bar graphs, line plots, Venn diagrams, tables, line graphs) and will explain why the type of display is appropriate for the data. DOK 2 MA-06-4.4.1 Students will describe or | | Draw on the board a green with a surrounding fairway and a sand trap. Show the square footage of the green and the sand trap with the width and length of the entire model. Ask students the probability of a golfer hitting the green if the shot is equally likely to hit anywhere in the area of the course shown. Then ask the probability |

| Grade 6 Math | Unit 5: Patio and Proportion | | Suggested Length: 5 weeks |
|---------------------|--|--------------------------|---|
| Essential Questions | Program of Studies and Core Content | Key Terms and Vocabulary | Classroom Instruction and Assessment |
| | | | Student will: |
| | determine (e.g., tables, tree diagrams) the | | of the ball going into the sand trap. 1.4.1 DOK 2 |
| | sample space of an event for a real-world | | □ Students will use the tree diagram to show the number |
| | or mathematical situation. DOK 2 | | of outcomes a concession stand has if it serves 4 kinds |
| | □ MA-06-4.4.2 Students will determine single | | of pop, 3 different ways to make a hamburger, and 3 |
| | event probabilities based on the results of | | different snacks. 4.4.1 DOK 2 |
| | an experiment and will make inferences | | • <u>Access students on ratio and proportion by testing them.</u> |
| | based on the data. DOK 3 | | |

| Grade 6 Math | | Unit 6: Measurement and Geometry | | Suggested Length: 5 weeks | | | |
|---------------------|-------------------------|----------------------------------|---|---------------------------|-------------------------|-----|---|
| Essential Questions | | | Program of Studies and Core Content | K | ey Terms and Vocabulary | Sti | Classroom Instruction and <u>Assessment</u> udent will: |
| | | Pro | ogram of Studies | | | | |
| 1. | Why is it | | <i>GM-2 read and use measurement tools (e.g.,</i> | | Metric system | | Begin lesson by having students use yardsticks or standard rulers to measure various items in the |
| | know how to | | GM-3 find area of plane figures composed of | | Acute angle | | classroom such as doors, chalk, chalkboards, pencils. |
| | measure in | | squares and rectangles through subdividing | | Obtuse angle | | Have them determine whether it is best to express each |
| | everyday life & | | and measuring and use square units | | Triangle | | measurement in inches, feet, or yards. 4.4.1 DOK 2 |
| | how to convert | | appropriately. | | Face | | Do an intrapersonal lesson by having students determine |
| | (change) units | | GM-4 estimate, compare, and convert units of measures for length weight/mass and | | Prisiii Pyramid | | now tail they are in centimeters. Then have them measure the length of their arms index fingers and feet |
| | capacity, and | | volume/capacity within the U.S. customary | | Cone | | in centimeters 4.4.1 DOK 2 |
| | weight? | | system and within the metric system: a) length | | Cylinder | | After discussing key terms (right, acute, and obtuse |
| | 0 | | (e.g., parts of an inch, inches, feet, yards, | | Sphere | | angles), have students classify various angles they see |
| 2. | How is it | | miles, millimeter, centimeter, kilometer); b) | | | | around the classroom. Since many of the angles that |
| | beneficial to | | weight/mass (e.g., pounds, tons, grams, | | | | they will see will be right angles, challenge students to |
| | understand how | | kilograms); and c) volume/capacity (e.g., | | | | find acute and obtuse angles. Then, have them state a |
| | to add and | | cups, pints, quarts, gallons, milliliters, liters). | | | | range of possible angle measures for each. 4.4.2 DOK 3 |
| | subtract measures of | | (The intent of this standard is for students to make hallpark comparisons and not to | | | | of four. For each of the following, have one group use |
| | time? | | make bullpark comparisons and not to memorize conversion | | | | masking tape to represent a line that would cut the |
| | | | factors between U.S. and metric units.) | | | | object in half: the classroom, the chalkboard, a desk, a |
| 3. | What are angles | | GM-5 estimate and find angle measurement | | | | bulletin board, a table, and a wastebasket. Ask each |
| | and how can | | and segment measurements. | | | | group to explain how they came up with their answers. |
| | you classify, | | GM-6 formulate the rule that the sum of angle | | | | 1.1.1 DOK 1 |
| | measure, & | | measurements is 180 degrees in a triangle | | | | Have students list everyday objects shaped like |
| | draw them? | | and 360 degrees in a quadrilateral. | | | | rectangular prisms (samplemany building, shoe box, |

| Grade 6 Math | Unit 6: Measurement and Geometry | | Suggested Length: 5 weeks | | |
|--|---|--------------------------|--|--|--|
| Essential Questions | Program of Studies and Core Content | Key Terms and Vocabulary | Classroom Instruction and <u>Assessment</u> | | |
| Essential Questions 4. How can you determine the difference between congruent and similar figures? 5. What is needed to find the area of a parallelogram, triangle, trapezoid, and circle? | Program of Studies and Core Content GM-7 identify properties and classify line segments, rays, planes, and points. GM-8 recognize regular polygons; special quadrilaterals including squares, rectangles, rhombuses, trapezoids, and parallelograms; and special triangles including acute, obtuse, scalene, and isosceles. GM-9 identify characteristics of lines (e.g., parallel, perpendicular). GM-10 use lines of symmetry and sketch plane figures with multiple lines of symmetry. Core Content MA-06-2.1.1 Students will measure lengths (to the nearest eighth of an inch or nearest centimeter) and will determine and use in real-world and mathematical problems: area and perimeter of triangles; area and perimeter of quadrilaterals (rectangles, squares); (using the Pythagorean theorem will not be required as a strategy) and area and perimeter of compound figures composed of triangles and quadrilaterals. DOK 2 MA-06-2.1.3 Students will estimate measurements in standard units including fractions and decimals. MA-06-2.1.3 Students will explain how measurements with measurement formulas are related or different (perimeter and area of rectangles). MA-06-2.2.1 Students will convert units within the same measurement system and use these units to solve real-world problems. | Key Terms and Vocabulary | Classroom Instruction and <u>Assessment</u> Student will: typical classroom). Ask them why it might be useful to know how much space is contained within an object or how much space an object takes up. 3.1.3 DOK 2 Have students observe two hanging figures in room. They will have same shape and design but differ in size. Students will explain that they are similar but not congruent. 3.1.4 DOK 2 Students will draw a figure and translate it across a vertical or horizontal line making it have a mirror image on the other side. 3.2.2 DOK 2 Students will take several given figures and label them as what figure they are and then relate them to figures they see in their everyday life. 3.1.2 DOK 2 Assess students on Measurement and Geometry by testing them. | | |
| | provide examples of the basic geometric | | | | |

| Grade 6 Math | Unit 6: Measurement and Geometry | | Suggested Length: 5 weeks |
|---------------------|--|--------------------------|--|
| Essential Questions | Program of Studies and Core Content | Key Terms and Vocabulary | Classroom Instruction and <u>Assessment</u> Student will: |
| | elements (points, rays, lines, segments, angles [acute, right, obtuse], planes, radius, diameter, circumference). DOK 1 MA-06-3.1.2 Students will describe and provide examples of the elements (e.g., sides, vertices, angles, congruent parts) of two-dimensional figures (circles, triangles, quadrilaterals, regular polygons) and will apply these elements and figures to solve real-world and mathematical problems. DOK 2 | | |
| | MA-06-3.1.3 Students will describe, provide examples of and identify elements (e.g., vertices, angles, faces, edges, congruent parts) of common three-dimensional figures (spheres, cones, cylinders, prisms, and pyramids). | | |
| | MA-06-3.1.4 Students will identify and describe congruent figures and will apply congruent figures to solve real-world and mathematical problems. DOK 2 | | |
| | MA-06-3.2.1 Students will describe, provide examples of and apply line symmetry to real world and mathematical situations. | | |
| | MA-06-3.2.2 Students will: reflect figures across horizontal or vertical line in the first quadrant; translate figures in a plane in the first quadrant and determine the coordinates of the image after transformation in the first | | |
| | quadrant. DOK 2 □ MA-06-3.2.3 Students will identify rotations of figures in the plane (90° and 180°). | | |