

Portales Municipal Schools
CURRICULUM MAP

Subject: Mathematics	May 2009	Grade Level: Sixth Grade
-----------------------------	-----------------	---------------------------------

Calendar	Strand/Standard/ Benchmark	Performance Standard/ Essential Question	Suggested Student Activities/Assessments	Resources/Materials
1 st Nine Weeks	<p>Strand: NUMBER AND OPERATIONS Standard: Students will understand numerical concepts and mathematical operations.</p> <p>I.B.5-8 Benchmark: Understand the meaning of operations and how they relate to one another.</p> <p><i>Show and explain the importance of using the order of operations and what happens if not followed.</i></p> <p><i>What is the difference between a prime number and a composite number?</i></p>	<p>I.B.1. Calculate multiplication and division problems using contextual situations. (Review)</p> <p>Order of Operations (Parentheses, Multiply, Divide, Add, Subtract) (Review)</p> <p>FACTORS/MULTIPLES</p> <p>I.B.2. Factor a whole number into a product of its primes. (Intro/Master)</p>	<p>Composing word problems: The students will compose their own word problem using multiplication or division. (Half the students will be assigned multiplication and half the students will be assigned division by random.) The word problem should be creative and should be based on purchases they could make at the grocery store. Then the students will exchange their word problem with a student who wrote the inverse operation and solve. If time allows, students will share their word problems in class. (Prob.Sol., Con., Rep.) ASSESSMENT: Students correctly write and solve multiplication & division word problems.</p> <p>Role Playing: Six to eight students will be given a number or mathematical symbol [+ , - , X , ÷ , () , =] at random. The teacher will give the class an answer, and the remaining students in the class will manipulate the order to generate an expression that produces the correct answer using the rules of operation. The students will use logical deduction to verbally describe why and how the expression works. Students will be rotated in and out of positions so that each student participates in the problem solving role at least three times. (Prob.Sol., R&P, Comm.) ASSESSMENT: Students will rearrange the symbols the students are holding to correctly solve the equations using the order of operations and verbally explain how it works.</p> <p>FACTORS/MULTIPLES</p> <ul style="list-style-type: none"> • Construct factor trees for given numbers and write the prime factorization using Classzone.com or Mathgoodies.com. (Rep.) ASSESSMENT: Students will correctly factor given numbers using the factor tree method and circling primes. 	<p>Materials for random selection of students to indicate the type of problem they will write.</p> <p>McDougal Littell Math Course 1 (Lesson 1.1 - p.3)</p> <p>Various numbers and symbols printed individually on printer paper.</p> <p>Teacher needs an answer sheet of pre-worked problems using the order of operations.</p> <p>McDougal Littell Math Course 1 (Lesson 1.4 - p.21)</p> <p>FACTORS/MULTIPLES</p> <p>http://www.classzone.com/books/msm_ath_1_na/animations/chapter_5/html/g6_5_1.html (create a factor tree using any factors & check steps as they are entered)</p> <p>http://www.mathgoodies.com/factors/factor_tree.asp (create a factor tree. Must be able to distinguish between prime & composite numbers.)</p> <p>McDougal Littell Math Course 1 (Lesson 5.1 – p.230)</p>

Portales Municipal Schools
CURRICULUM MAP

Subject: Mathematics	May 2009	Grade Level: Sixth Grade
-----------------------------	-----------------	---------------------------------

Calendar	Strand/Standard/ Benchmark	Performance Standard/ Essential Question	Suggested Student Activities/Assessments	Resources/Materials
1st Nine Weeks	<p>I.A. 5-8 Benchmark: Understand numbers, ways of representing numbers, relationships among numbers, and number systems</p> <p>II. Strand: ALGEBRA</p> <p>Standard: Students will understand algebraic concepts and applications.</p> <p>II. C. 5-8 Benchmark: Use mathematical models to represent and understand quantitative relationships.</p> <p style="color: purple;"><i>Explain what happens when you multiply and divide (do the increase or decrease?).</i></p>	<p>I.A.4. Identify greatest common factor and least common multiples for a set of whole numbers. (Master)</p> <p>II.C.2. Create, explain, and use mathematical models such as:</p> <ul style="list-style-type: none"> • Venn diagrams to show the relationships between the characteristics of two or more sets (Review) <p>FRACTIONS</p> <p>I.A.1. Compare and order rational numbers. (Master)</p> <p>I.A.2. Use equivalent representations for rational numbers (e.g., integers, decimals, fractions, percents, ratios, numbers with whole-number exponents). (Master)</p> <p>I.A.3. Use appropriate representations of positive rational numbers in the context of real-life applications. (Master)</p>	<ul style="list-style-type: none"> • Finding the GCF: Describe the two different ways to find the greatest common factors (listing factors method and prime factorization method) and list greatest common factors of given numbers. (Con., Rep.) ASSESSMENT: Students will correctly list GCFs and demonstrate both methods to find GCF. • Finding the LCM: Problem Solving #41, p.253 (Two timers set at different time intervals. After how much time will they ring simultaneously?) (Prob. Sol., Con.) ASSESSMENT: Students will accurately find the least common multiple for any given pair of numbers . • Venn Diagram using GCF, LCM: Students will construct a Venn diagram for specific sets of numbers (GCF and LCM). (Rep.) <p>FRACTIONS</p> <ul style="list-style-type: none"> • Comparing Fractions Game: Compare fractions with inequality symbols (game) using website. Three different types of games to choose from. (Prob.Sol.) ASSESSMENT: Students will perform at 70% or above and will print scores for evaluation. • Multiplying/Dividing Fractions: Demonstrate concept of multiplying/dividing fractions by modifying a recipe to serve a given amount of people (half, double, 50 people, one serving, etc.) (Prob.Sol., R&P, Con.) ASSESSMENT: Students will accurately calculate new measurements for all ingredients in the recipe. 	<p>http://nlvm.usu.edu/en/nav/frames_asid_202_g_3_t_1.html</p> <p>Create factor trees (choose 1 or 2). May choose for computer to choose values, or user may choose values.</p> <p>McDougal Littell Math Course 1 (Lesson 5.2 – p.236)</p> <p>McDougal Littell Math Course 1 (Lesson 5.4 – p. 250) (Skills Review – p.756)</p> <p>FRACTIONS</p> <p>www.321know.com/fra43cx2.htm (Comparing fractions using <, >, =. Three games: Countdown, Give Me Time, 20 Questions)</p> <p>McDougal Littell Math Course 1 (Lesson 5.5 – p.254)</p>

Portales Municipal Schools
CURRICULUM MAP

Subject: Mathematics	May 2009	Grade Level: Sixth Grade
-----------------------------	-----------------	---------------------------------

Calendar	Strand/Standard/ Benchmark	Performance Standard/ Essential Question	Suggested Student Activities/Assessments	Resources/Materials
1st Nine Weeks	<p>I.B. 5-8 Benchmark: Understand the meaning of operations and how they relate to one another.</p> <p>I.C. 5-8 Benchmark: Compute fluently and make reasonable estimates.</p> <p>I.A. 5-8 Benchmark: Understand numbers, ways of representing numbers, relationships among numbers, and number systems</p>	<p>I.B.5. Explain and perform:</p> <ul style="list-style-type: none"> • whole number division and express remainders as decimals or appropriately in the context of the problem • addition, subtraction, multiplication, and division with decimals • addition and subtraction with integers • addition, subtraction, and multiplication with fractions and mixed numerals <p>(Intro/Master)</p> <p>I.B.6. Determine the least common multiple and the greatest common divisor of whole numbers and use them to solve problems with fractions. (Master)</p> <p>I.C.7. Compute and perform multiplication and division of fractions and decimals and apply these procedures to solving problems. (Intro/Master)</p> <p>NUMBER LINE</p> <p>I.A.1. Compare and order rational numbers. (Review)</p> <p>I.A.5. Identify and represent on a number line decimals, fractions, mixed numbers, and positive and negative integers. (Intro/Master)</p>	<p>*See Activity Previous Page</p> <p>NUMBER LINE</p> <ul style="list-style-type: none"> • Write a paragraph to summarize the concept of a number line involving positive and negative numbers and describe how it relates to the game of football, with the line of scrimmage represented with zero. (Prob.Sol., Comm., Con.) <p>ASSESSMENT: Student work will be evaluated using the two-point rubric given by the State for the NMSBA.</p>	<p>NUMBER LINE</p>

Portales Municipal Schools
CURRICULUM MAP

Subject: Mathematics	May 2009	Grade Level: Sixth Grade
-----------------------------	-----------------	---------------------------------

Calendar	Strand/Standard/ Benchmark	Performance Standard/ Essential Question	Suggested Student Activities/Assessments	Resources/Materials
1st Nine Weeks	<p>Measurement</p> <p>IV Students will understand measurement systems and applications.</p> <p>IV.A Understand measurable attributes of objects and the units, systems, and processes of measurement.</p> <p>IV.B Apply appropriate techniques, tools, and formulas to determine measurements.</p>	<p>IV.A.1 Perform multi-step conversions of measurement units to equivalent units within a given system</p> <p>IV.A.2 Estimate measurement in both U.S. customary and metric units.</p> <p>IV.A.4 Use standard units of linear measurement to the nearest sixteenth of an inch; metric measurements to the nearest millimeter.</p> <p>IV.B.1 Apply various measurement techniques and tools, units of measure, and degree of accuracy to find accurate rational number representations for length, liquid, weight, perimeter, temperature, and time.</p> <p>IV.B.3 Select and use strategies to estimate measurements including angle measure and capacity</p> <p>IV.B.4 Select and justify the selection of measurement tools, units of measure and degrees of accuracy appropriate to the given situation.</p>	<p><u>Local Map Activity:</u> Students will apply concepts of graphing on the coordinate plane to finding location on a map. They will be given a local map with labeled grid lines. They will be given certain coordinates or locations to find on the map. The coordinates will form squares or rectangles. Students will be required to create formulas and perform correct methods to find perimeter and area of given locations. (Prob.Sol., Con., Rep.)</p> <p>ASSESSMENT: Students will accurately graph the points and find perimeter and area of location using their created formulas.</p> <p>Possible Unit on measurement from web address in resources.</p> <p>Give additional practice using coordinate planes using maps, pictures, and just plotting the points.</p>	<p>McDougal Littell Math Course 1 Chapter 2</p> <p>2.1, 2.2, 2.3, 10.1, 9.2</p> <p>http://illuminations.nctm.org/LessonDetail.aspx?ID=U148</p>

Portales Municipal Schools
CURRICULUM MAP

Subject: Mathematics		May 2009	Grade Level: Sixth Grade
-----------------------------	--	-----------------	---------------------------------

Calendar	Strand/Standard/ Benchmark	Performance Standard/ Essential Question	Suggested Student Activities/Assessments	Resources/Materials
2 nd Nine Weeks	<p>II. C. 5-8 Benchmark: Use mathematical models to represent and understand quantitative relationships.</p> <p>V. Strand: DATA ANALYSIS AND PROBABILITY Standard: Students will understand how to formulate questions, analyze data, and determine probabilities.</p> <p>V.A. 5-8 Benchmark: Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them.</p> <p>V. B. 5-8 Benchmark: Select and use appropriate statistical methods to analyze data.</p>	<p>GRAPHS</p> <p>II.C.2. Create, explain, and use mathematical models such as:</p> <ul style="list-style-type: none"> • graphs, tables, and charts to interpret and analyze data (Master) <p>V.A.2. Draw and compare different graphical representations of the same data. (Intro/Master)</p> <p>V.A.4. Sketch circle graphs to display data. (Introduce) (Mastered in 8th)</p> <p>V.A.5. Solve problems by collecting, organizing, displaying and interpreting data. (Master)</p> <p>V.A.10. Explain advantages and disadvantages of using various display formats for a specific data set. (Intro/Master)</p> <p>V.B.1. Choose an appropriate graphical format to organize and represent data. (Intro/Master)</p>	<p>GRAPHS</p> <p><u>M&M's Graphing Activity:</u> The students will categorize M&M's according to color and compare totals with other students using a frequency table (e.g. number of M&M's each color, total number in bag, etc.). Then graph their results in at least three forms on the data worksheet. Use data collected to write in fraction form for each color (individual bags & class totals). (Extension: Students will discuss the various ratio combinations in a bag of M&M's and teacher will guide the class to convert data into percentages.) Students will use deductive reasoning to make predictions of number of each color in the teacher's bag. Compare predictions to actual M&M's. (Prob.Sol., R&P, Comm., Con., Rep)</p> <p>ASSESSMENT: Student will accurately complete a frequency table, three or more graphs on the data worksheet, and create fractions from data collected.</p>	<p>GRAPHS</p> <p>Individual packages of M&M's for each student in the class.</p> <p>Teacher-created data worksheet (various blank graphs including pie graph, bar graph, line graph, etc.)</p> <p>McDougal Littell Math Course 1 (Lesson 2.4 – p.76) (Lesson 2.5 – p. 83) (Lesson 2.6 – p. 88) (Lesson 2.7 – p.94)</p> <p>http://www.classzone.com/books/msmath_1_na/animations/chapter_2/html/g6_2_6.html (Create a line graph using given information. Student must be able to choose correct scale.)</p> <p>http://illuminations.nctm.org/ActivityDetail.aspx?ID=63 (Bar Grapher with predetermined sets of info. Can input own information to graph also.)</p> <p>http://illuminations.nctm.org/ActivityDetail.aspx?ID=60 (Circle Grapher with same predetermined sets of info as above. Can input own info to graph as well.)</p> <p>http://illuminations.nctm.org/ActivityDetail.aspx?grade=3 (Various kinds of graphs.)</p>

Portales Municipal Schools
CURRICULUM MAP

Subject: Mathematics	May 2009	Grade Level:	Sixth Grade
-----------------------------	-----------------	---------------------	-------------

Calendar	Strand/Standard/ Benchmark	Performance Standard/ Essential Question	Suggested Student Activities/Assessments	Resources/Materials
2 nd Nine Weeks	<p>I.C.5-8 Benchmark: Compute fluently and make reasonable estimates.</p> <p>I.A.5-8 Benchmark: Understand numbers, ways of representing numbers, relationships among numbers, and number systems.</p> <p>I.B.5-8 Benchmark: Understand the meaning of operations and how they relate to one another.</p> <p>I.C.5-8 Benchmark: Compute fluently and make reasonable estimates.</p>	<p>I.C.4. Compare and order positive and negative fractions, decimals, and place them on a number line. (Master)</p> <p>DECIMALS</p> <p>I.A.3. Use appropriate representations of positive rational numbers in the context of real-life applications. (Master)</p> <p>I.B.5. Explain and perform:</p> <ul style="list-style-type: none"> • whole number division and express remainders as decimals or appropriately in the context of the problem • addition, subtraction, multiplication, and division with decimals • addition and subtraction with integers • addition, subtraction, and multiplication with fractions and mixed numerals <p>(Intro/Master)</p> <p>I.C.1. Estimate quantities involving rational numbers using various estimations. (Intro/Master)</p> <p>I.C.2. Use estimates to check reasonableness of results and make predictions in situations involving rational numbers. (Intro/Master)</p>	<p>DECIMALS</p> <p><u>Utilizing Decimal Numbers & Estimating Cost:</u> Given a budget of \$100, groups of 3-4 will use local menus to order food for a class party. (Teacher will pay the tax but will be figured at 15% by students.) After menus are randomly drawn, the class will vote on which restaurant they predict will have the best food choice for their money. Next, they will estimate the cost per student. (e.g. \$100 divided by 20 students = \$5 each) Then, they will select the food items within budget and calculate the true cost of the food. Present findings to the class so they can defend their math, justify the reason behind their menu choices, and the class will vote on the best meal option. (Prob.Sol., R&P, Comm., Con.)</p> <p>ASSESSMENT: Rubric-based on correct mathematical procedures, active role in group participation, and presentation.</p>	<p>DECIMALS</p> <p>Menus from various local restaurants</p> <p>McDougal Littell Math Course 1 (Lesson 3.5 – p. 143) (Lesson 4.3 – p. 181) (Lesson 4.6 – p. 198)</p> <p>Supplemental practice (if needed): http://www.pbs.org/teachers/math_line/concepts/space2/activity2.shtm (Multiply simple decimal numbers to weight to determine, “How much would you weigh on other planets?”)</p>

Portales Municipal Schools
CURRICULUM MAP

Subject: Mathematics	May 2009	Grade Level: Sixth Grade
-----------------------------	-----------------	---------------------------------

Calendar	Strand/Standard/ Benchmark	Performance Standard/ Essential Question	Suggested Student Activities/Assessments	Resources/Materials
2 nd Nine Weeks	<p>I.B.5-8 Benchmark: Understand the meaning of operations and how they relate to one another.</p> <p>I.C 5-8 Benchmark: Compute fluently and make reasonable estimates.</p> <p>II. Strand: ALGEBRA Standard: Students will understand algebraic concepts and applications.</p> <p>A. 5-8 Benchmark: Understand patterns, relations, and functions.</p> <p><i>Compare ratios and explain which is greater and why. Relate the ratios to percents or decimals if needed.</i></p>	<p>RATIOS/PROPORTIONS</p> <p>I.B.4. Use proportions to solve problems. (Introduce) <i>(Mastered in 8th)</i></p> <p>I.C.6. Interpret and use ratios in different contexts. (Introduce) <i>(Mastered in 8th)</i></p> <p>II.A.4. Explain and use the relationships among ratios, proportions, and percents. (Introduce) <i>(Mastered in 8th)</i></p>	<p>RATIOS/PROPORTIONS</p> <p><u>Three-day activity involving ratio, proportion, and estimation (“Snack Bar Activity”):</u> Simulated school snack bar will be organized and run by students. Groups of 3-4 students are responsible for ordering food and supplies based upon the different group sizes,(e.g. a class with 25 students, a grade level with 100 students, the entire school body with 800 students). Students will also have to analyze the cost of purchasing the food and supplies, applying concepts of ratios and proportions. Students will summarize their thought processes on paper and evaluate decisions so that the snack bar makes a profit. (Prob.Sol., R&P, Comm., Con., Rep.)</p> <p>ASSESSMENT: Students will complete a chart, worksheet, and data table to:</p> <ul style="list-style-type: none"> • demonstrate an understanding of using ratios to describe a proportional situation and use that information to solve a real-life problem. • effectively communicate his/her ideas about the problem situation. 	<p>RATIOS/PROPORTIONS</p> <p>http://www.mathcantakeyouplace.org/pdf/Patterns-Lesson16.pdf (Making a snack bar, ordering the food, cost. . .)</p> <ul style="list-style-type: none"> • Write serving or package sizes where they are visible to all students or bring in packages of each item and set up stations around the room. (The “Foods, Condiments, and Supplies Descriptions” list also has mock prices and serving sizes, if needed.) • Hot dogs/franks • Hot dog buns • 2-liter soft drinks • Styrofoam or paper cups • Mustard (squeeze bottle) • Ketchup • Relish or other condiments • Napkins • Snacks • chart paper, markers and a meter stick to each group • two activity/recording sheets per student <p>McDougal Littell Math Course 1 (Lesson 8.2 – p.402) (Lesson 8.3 – p.412)</p>

Portales Municipal Schools
CURRICULUM MAP

Subject: Mathematics	May 2009	Grade Level:	Sixth Grade
-----------------------------	-----------------	---------------------	-------------

Calendar	Strand/Standard/ Benchmark	Performance Standard/ Essential Question	Suggested Student Activities/Assessments	Resources/Materials
2 nd Nine Weeks	<p>I. Strand: NUMBER AND OPERATIONS Standard: Students will understand numerical concepts and mathematical operations.</p> <p>I.B. 5-8 Benchmark: Understand the meaning of operations and how they relate to one another.</p> <p>II. Strand: ALGEBRA Standard: Students will understand algebraic concepts and applications.</p> <p>II.A. 5-8 Benchmark: Understand patterns, relations, and functions.</p>	<p>PERCENTS</p> <p>I.B.3. Demonstrate the relationship and equivalency among ratios and percents. (Introduce) <i>(Mastered in 8th)</i></p> <p>II.A.4. Explain and use the relationships among ratios, proportions, and percents. (Introduce) <i>(Mastered in 8th)</i></p> <p>II.A.5. Make generalizations based on observed patterns and relationships. (Introduce) <i>(Mastered in 7th)</i></p>	<p>PERCENTS</p> <p><u>Extension of “Three-day activity involving ratio, proportion, and estimation (‘Snack Bar Activity’)” to involve percents:</u> (Refer to previous activity): Students will reconstruct the ratios/proportions into percentages. (Prob.Sol., Con.)</p> <p>ASSESSMENT: The students will correctly relate the equivalency of percents to ratios, indicating the calculated percentages on the data table next to the ratios.</p>	<p>PERCENTS</p> <p>Students’ Data sheets from the “Snack Bar Activity”</p> <p>McDougal Littell Math Course 1 (Lesson 8.5 – p. 425)</p>

Portales Municipal Schools
CURRICULUM MAP

Subject: Mathematics	May 2009	Grade Level: Sixth Grade
-----------------------------	-----------------	---------------------------------

Calendar	Strand/Standard/ Benchmark	Performance Standard/ Essential Question	Suggested Student Activities/Assessments	Resources/Materials
2nd Nine Weeks	<p>V.A. 5-8 Benchmark: Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them.</p> <p>V. D. 5-8 Benchmark: Understand and apply basic concepts of probability.</p>	<p>DATA ANALYSIS/ PROBABILITY V.A.1. Use statistical representations to analyze data. (Introduce) <i>(Mastered in 7th)</i> V.A.5. Solve problems by collecting, organizing, displaying and interpreting data. (Master) V.A.6. Compare different samples of a population with the entire population and determine the appropriateness of using a sample. (Introduce) <i>(Mastered in 7th)</i> V.A.7. Conduct and explain sampling techniques such as observations, surveys, and random sampling for gathering data. (Introduce) <i>(Mastered in 8th)</i> V.A.11. Formulate and solve problems by collecting, organizing, displaying, and interpreting data. (Introduce) <i>(Mastered in 8th)</i> V.D.4. Represent all possible outcomes for compound events in an organized way (e.g., tables, grids, tree diagrams) and express the theoretical probability of each outcome. (Intro) <i>(Mastered in 8th)</i></p>	<p>DATA ANALYSIS/ PROBABILITY</p> <p><u>Student Survey Activity:</u> Students will develop a student-oriented, high-interest survey question (approved by the teacher) with no more than five choices for answers, including the option of “other,” “not given,” etc. and survey anyone they encounter (classmates, teachers, family, etc. - minimum number 35.) Represent the data in a frequency table. Then create two different graphs showing the same data. (Extension: They will also create a graph using the same data, but misrepresenting the information in some way.) Finished graphs will be hung around the classroom for student viewing. (Comm., Con., Rep.) ASSESSMENT: Rubric-based on accuracy, neatness, number of people surveyed, grammar/punctuation, labeling of graphs and quality of questions.</p> <p><u>Students Experiment with Probability:</u> Student will make predictions on which event they think will happen the most often and why. (Experiment with a number cube, coin, spinner, colored objects in a bag, etc.) Students will then execute the experiment 20 times each and record results on a frequency table. <i>Connection Question: Are games that involve rolling dice fair? Why or why not? Are other “chance” games fair? Why or why not?</i> (R&P, Comm., Con., Rep.) ASSESSMENT: Students will write a paragraph about their predictions for one event, whether it proved to be true, why or why not, if they would change their prediction, and if so, what evidence supports the change.</p>	<p>DATA ANALYSIS/ PROBABILITY</p> <p>McDougal Littell Math Course 1 (Chapter 2 – pp.56-115)</p> <ul style="list-style-type: none"> • Number cubes • Coins • Spinners • Bags • Colored objects <p>McDougal Littell Math Course 1 (Lesson 13.1 – p.682) http://nlvm.usu.edu/en/nav/frames_asid_186_g_3_t_1.html?open=activities Interactive spinner, can change proportions of sections and record results</p>

Portales Municipal Schools
CURRICULUM MAP

Subject: Mathematics	May 2009	Grade Level: Sixth Grade
-----------------------------	-----------------	---------------------------------

Calendar	Strand/Standard/ Benchmark	Performance Standard/ Essential Question	Suggested Student Activities/Assessments	Resources/Materials
2 nd Nine Weeks	<p>V.A. 5-8 Benchmark: Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them.</p>	<p>V.D.6. Represent probabilities as ratios, proportions, decimals between 0 and 1, and percentages between 0 and 100 and verify that the probabilities computed are reasonable; know that if P is the probability of an event, 1- P is the probability of the event not occurring. (Introduce) <i>(Mastered in 8th)</i> <i>Is the event impossible, unlikely, likely, or certain?</i></p> <p>MEAN/ MEDIAN/ MODE/ RANGE</p> <p>V.A.3. Use mean, median, mode, and range to describe data. (Master) V.A.8. Determine the median for a rational number data set containing an odd number of data points. (Intro/Master) V.A.9. Calculate and explain the median for a whole number data set containing an even number of data points. (Intro/Master)</p>	<p>(See Activity Previous Page)</p> <p>MEAN/ MEDIAN/ MODE/ RANGE</p> <p>Students will analyze a set of data (in table form & stem plot form) based on the number of movies watched in a given period of time. They will use the information to calculate the mean, median, mode, and range for the given data. Next, the students will make predictions about how the calculations will change when different numbers are added to the data (one large outlier, eight small numbers, etc.). They will find true calculations and compare their predictions to the new information. Their findings will be summarized in sentence form. (Prob.Sol., R&P, Comm., Con., Rep.) ASSESSMENT: The students make correct computations and will demonstrate understanding of measures of central tendency by generating valid sentences and showing reasoning skills.</p>	<p>http://muweb.millersville.edu/~gymat/hed/2002/The%20Spinner%20Game.htm (Template for spinner) *Note: Students can make spinners with the template, a paper clip (as the spinner) and a pencil (paper clip spins around the end of the pencil, which is pressed to the center of the template.</p> <p>http://www.nsa.gov/teachers/es/prob31.pdf (Template for a blank spinner) Includes an activity for students to use probability, create a spinner that is “fair” and explain why it is fair, etc.</p> <p>www.maricopa.edu/opsp/Data%20Analysis%20Course/activities.htm Various probability activities to print out and use in the classroom.</p> <p>MEAN/ MEDIAN/ MODE/ RANGE</p> <p>Data About Us – Statistics (Connected Mathematics 2) (Lesson 3.3 – p.54)</p> <p>McDougal Littell Math Course 1 (Lesson 2.4 – p.76) (Lesson 2.8 – p.99) (Lesson 13.5 – p.709)</p>

Portales Municipal Schools
CURRICULUM MAP

Subject: Mathematics	May 2009	Grade Level: Sixth Grade
-----------------------------	-----------------	---------------------------------

Calendar	Strand/Standard/ Benchmark	Performance Standard/ Essential Question	Suggested Student Activities/Assessments	Resources/Materials
3 rd Nine Weeks	<p>II. Strand: ALGEBRA Standard: Students will understand algebraic concepts and applications.</p> <p>II.A. 5-8 Benchmark: Understand patterns, relations, and functions.</p> <p>II.B. 5-8 Benchmark: Represent and analyze mathematical situations and structures using algebraic symbols.</p> <p>II. D. 5-8 Benchmark: Analyze changes in various contexts.</p> <p>II.B. 5-8 Benchmark: Represent and analyze mathematical situations and structures using algebraic symbols.</p>	<p>EQUATIONS</p> <p>II.A.3. Explain and use symbols to represent unknown quantities and variable relationships. (Review)</p> <p>II.B.2. Use letters to represent an unknown in an equation. (Review)</p> <p>II.B.4. Demonstrate that a variable can represent a single quantity that changes. (Master)</p> <p>II.B.5. Demonstrate how changes in one variable affect other variables. (Introduce) <i>(Mastered in 7th)</i></p> <p>II.D.1. Represent and explain changes using one-step equations with one variable. (Introduce) <i>(Mastered in 7th)</i></p> <p>II. B. 3. Solve one-step linear equations and inequalities in one variable with positive whole-number solutions. (Introduce) <i>(Mastered in 8th)</i></p>	<p>EQUATIONS</p> <p><u>Real-Life Application:</u></p> <p>Mark paid \$70 for a shirt and two pairs of the same style of jeans. The shirt cost \$18. What was the price of one pair of jeans? Explain how you found your answer and write an equation to justify. Create a real-life word problem similar to the one above and write an equation to solve the problem. (Prob.Sol., R&P, Comm., Con., Rep)</p> <p>ASSESSMENT: Student will write a brief explanation of problem solving process required to complete the word problem. They will required to define what the variable represents and will demonstrate understanding by writing an equation ($\\$18 + 2x = \\70) and solve. Students will restructure the word problem into a new problem with a different equation and solve.</p>	<p>EQUATIONS</p> <p>(McDougal Littell Math Course 1 p.54 Standardized Test Practice #9)</p> <p>McDougal Littell Math Course 1 (Lesson 1.5 – p.29) (Lesson 1.6 – p.34)</p> <p>http://www.classzone.com/books/msmath_1_na/animations/chapter_1/html/g6_1_5.html Interactive game where student races the computer by evaluating expressions correctly.</p> <p>Note: Access to equation balance scale.</p>

Portales Municipal Schools
CURRICULUM MAP

Subject: Mathematics	May 2009	Grade Level: Sixth Grade
-----------------------------	-----------------	---------------------------------

Calendar	Strand/Standard/ Benchmark	Performance Standard/ Essential Question	Suggested Student Activities/Assessments	Resources/Materials
3rd Nine Weeks	<p>I. Strand: NUMBER AND OPERATIONS Standard: Students will understand numerical concepts and mathematical operations. I.C. 5-8 Benchmark: Compute fluently and make reasonable estimates.</p> <p>II. Strand: ALGEBRA Standard: Students will understand algebraic concepts and applications. II.A. 5-8 Benchmark: Understand patterns, relations, and functions. II.B. 5-8 Benchmark: Represent and analyze mathematical situations and structures using algebraic symbols. II.D. 5-8 Benchmark: Analyze changes in various contexts.</p>	<p>PATTERNS & FUNCTIONS</p> <p>I.C.6. Interpret and use ratios in different contexts. (Introduce) <i>(Mastered in 8th)</i></p> <p>II.A.1. Solve problems involving proportional relationships. (Introduce) <i>(Mastered in 8th)</i></p> <p>II.B.1. Solve problems involving proportional relationships. (Introduce) <i>(Mastered in 8th)</i></p> <p>II.D.2. Solve problems that involve change using proportional relationships. (Intro) <i>(Mastered in 8th)</i></p> <p>II.D.3. Use ratios to predict changes in proportional situations. (Introduce) <i>(Mastered in Alg I)</i></p> <p>II.D.4. Use tables and symbols to represent and describe proportional and other relationships involving conversions, sequences, and perimeter. (Introduce) <i>(Mastered in 8th)</i></p>	<p>PATTERNS & FUNCTIONS</p> <p><u>Shadow Proportion Activity:</u> Students will work in partners to measure one person's height and shadow to find the height of an unknown (flagpole, tree, building, etc.) using the unknown object's shadow in proportion to the student. Students in the class will work cooperatively with the teacher to complete the first proportion. Then they will work in pairs to find the height of other outdoor objects and solve proportions. The students will illustrate the proportions they found to model the proportions. (Prob.Sol., Comm., Con., Rep.)</p> <p>ASSESSMENT: Data table showing correct measurements, Student work showing method of solving proportions, Illustrations of proportions, Answers (unknown height of objects) reasonable (to nearest foot).</p> <p><i>Extension Question: How will the time of day (length of shadow) affect the results of the proportions?</i></p>	<p>PATTERNS & FUNCTIONS</p> <p>One measuring tape for each pair of students, recording sheet for data</p> <p>McDougal Littell Math Course 1 (Lesson 8.3 – p.412) (Lesson 8.4 – p. 417)</p>

Portales Municipal Schools
CURRICULUM MAP

Subject: Mathematics	May 2009	Grade Level: Sixth Grade
-----------------------------	-----------------	---------------------------------

Calendar	Strand/Standard/ Benchmark	Performance Standard/ Essential Question	Suggested Student Activities/Assessments	Resources/Materials
3 rd Nine Weeks	<p>II. Strand: ALGEBRA Standard: Students will understand algebraic concepts and applications. II.A. 5-8 Benchmark: Understand patterns, relations, and functions.</p> <p>III. Strand: GEOMETRY Standard: Students will understand geometric concepts and applications. III.B. 5-8 Benchmark: Specify locations and describe spatial relationships using coordinate geometry and other representational systems.</p>	<p>GEOMETRY</p> <p>II.A.2. Graph ordered pairs in the coordinate plane. (Intro/Master)</p> <p>III.B.1. Use coordinate geometry to describe location on a plane. (Intro/Master)</p>	<p>GEOMETRY</p> <p><u>Graphing on a Coordinate Plane Activity:</u> Students will apply given coordinates to a four-quadrant coordinate plane to construct a picture graph. Then they will design their own picture on a coordinate plane, writing down the coordinates needed to construct the picture. They will exchange coordinates with another student to analyze whether the coordinates produce the desired picture. (R&P, Comm., Rep.) ASSESSMENT: Correct completed four-quadrant coordinate plane pictures. Valid coordinates for created coordinate plane picture.</p> <p style="text-align: center;">Give added practice for graphing on a coordinate plane.</p> <p><u>Local Map Activity:</u> Students will apply concepts of graphing on the coordinate plane to finding location on a map. They will be given a local map with labeled grid lines. They will be given certain coordinates or locations to find on the map. The coordinates will form squares or rectangles. Students will be required to create formulas and perform correct methods to find perimeter and area of given locations. (Prob.Sol., Con., Rep.) ASSESSMENT: Students will accurately graph the points and find perimeter and area of location using their created formulas.</p>	<p>GEOMETRY</p> <p>McDougal Littell Math Course 1 (Lesson 2.6 – p.88)</p> <p>Picture graphs Blank four-quadrant coordinate planes</p> <p>Local maps with grid lines (one for each student)</p> <p>McDougal Littell Math Course 1 (Lesson 2.2 – p.66)</p>

Portales Municipal Schools
CURRICULUM MAP

Subject: Mathematics	May 2009	Grade Level: Sixth Grade
-----------------------------	-----------------	---------------------------------

Calendar	Strand/Standard/ Benchmark	Performance Standard/ Essential Question	Suggested Student Activities/Assessments	Resources/Materials
3 rd Nine Weeks	<p>III. Strand: GEOMETRY Standard: Students will understand geometric concepts and applications.</p> <p>III.A. 5-8 Benchmark: Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematics arguments about geometric relationships.</p> <p><i>(Using the Short Story activity)</i> <i>What is the difference between a square, rectangle, rhombus and parallelogram?</i></p> <p><i>Describe the difference between triangles using angles and sides.</i></p>	<p>III.A.1. Identify, describe, and classify the properties of, and the relationships between, plane and solid geometric figures:</p> <ul style="list-style-type: none"> • measure, identify, and draw angles, perpendicular and parallel lines, rectangles, and triangles by using appropriate tools (e.g., straightedge, ruler, compass, protractor, drawing software) • understand that the sum of angles of any triangle is 180 degrees and the sum of the angles of any quadrilateral is 360 degrees and use this information to solve problems • visualize and draw two-dimensional views of three-dimensional objects made from rectangular solids <p>(Intro/Master)</p> <p>III.A.2. Classify angles as right, obtuse, or straight. (Intro/Master)</p> <p>III.A.3. Describe the properties of geometric figures that include regular polygons, circles, ellipses, cylinders, cones, spheres, and cubes. (Master)</p> <p>III.A.4. Classify polygons as regular or irregular. (Intro/Master)</p>	<p><u>Short Story Activity:</u> The students will compose a short story (at least three paragraphs) describing geometric figures using a list of terms given by the teacher (polygons, ellipses, angles, lines, rays, skew lines, parallel, perpendicular, etc.) based on things they see in the community (e.g. on the way to school, in town, going to Wal-Mart). They must ascertain what distinguishes one shape from another within the context of the story based on characteristics. (R&P, Comm., Con., Rep.)</p> <p>ASSESSMENT: Graded on a rubric: Story must be at least three paragraphs long and must use correct punctuation and capitalization. Students must use all terms in the list and writing must contain accurate descriptions of geometric terms.</p> <p><u>Angles of a Triangle Activity:</u> The students will draw a triangle on a piece of paper. (Each side must be at least 3 inches long.) Next, they will cut out the triangle and number the angles 1, 2, 3. They will tear the corners off the triangle and arrange the three corners to make a straight angle. Then they will summarize their observations and describe how the activity relates to the sum of the interior angles of a triangle. (Prob.Sol., Comm., Con., Rep.)</p> <p>ASSESSMENT: Given a variety triangles with missing angles, students will be able to demonstrate their understanding of the activity by concluding what the missing angle is.</p> <p><i>Extension: Students will construct a quadrilateral model similar to the triangle model above. Students will label angles 1, 2, 3, 4. They will repeat the process as described with the triangles. Students will describe how the activity relates to the sum of the interior angles of a quadrilateral.</i></p>	<p>Rubric List of geometric terms</p> <p>McDougal Littell Math Course 1 (Chapter 9, pp.452-509)</p> <p>Source: McDougal Littell Math Course 1 (p. 470 Investigation)</p> <p>Ruler Scissors Missing Angles Worksheet</p>

Portales Municipal Schools
CURRICULUM MAP

Subject: Mathematics	May 2009	Grade Level: Sixth Grade
-----------------------------	-----------------	---------------------------------

Calendar	Strand/Standard/ Benchmark	Performance Standard/ Essential Question	Suggested Student Activities/Assessments	Resources/Materials
3rd Nine Weeks	<p>III.B. 5-8 Benchmark: Specify locations and describe spatial relationships using coordinate geometry and other representational systems.</p> <p>III. D. 5-8 Benchmark: Use visualization, spatial reasoning, and geometric modeling to solve problems.</p> <p>III. A. 5-8 Benchmark: Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematics arguments about geometric relationships.</p>	<p>III.A.5. Classify triangles as scalene, isosceles, or equilateral and by angles (i.e., right, acute, and obtuse). (Intro/Master)</p> <p>III.A.6. Identify angle, line, segment, and ray and use the symbols for each. (Intro/Master)</p> <p>III.B.2. Recognize skewed lines in space. (Introduce) (<i>Mastered in Geo. .</i>)</p> <p>III.D.1. Use appropriate technology, manipulatives, constructions, or drawings to recognize or compare geometric figures (Master)</p> <p>III.A.1. Identify, describe, and classify the properties of, and the relationships between, plane and solid geometric figures: <ul style="list-style-type: none"> • measure, identify, and draw angles, perpendicular and parallel lines, rectangles, and triangles by using appropriate tools (e.g., straightedge, ruler, compass, protractor, drawing software) </p>	<p>Angles of a Triangle Extension Activity: Each student will classify his or her own triangle from the activity on the previous page. Then students will compare/contrast/graph result with the entire class. (Comm., Rep.)</p> <p>ASSESSMENT: Student will be graded on demonstration of correctly identifying/classifying types of triangles.</p> <p>Angles of Quadrilaterals Activity: Students use protractors to determine the angles of four-sided figures. After measuring figure 1, students will make conjectures about the interior angles of the quadrilateral. Students will then experiment with other quadrilaterals to prove their conjecture to be true or false. Students then graph the information on a chart to organize data. Once data is gained, students calculate the total degree of all angles of the multi-sided figures. Based on the table created, students will write a rule of the sum of the angle measures of a four-sided figure. They will also describe any other angle relationships they notice in their angle table. (Prob.Sol., R&P, Comm., Rep.)</p> <p>ASSESSMENT: Students will accurately measure the angles in each quadrilateral. They will correctly complete provided table. They will give an analysis of findings in paragraph form.</p>	<p>http://mathworld.wolfram.com/SkewLines.html Website provides an interactive visual to portray ways that Skew Lines may be manipulated.</p> <p>Hang string from the room to demonstrate skew. See Kristi for an explanation.</p> <p>Source: McDougal Littell Math Course 1 (p. 479 Investigation)</p>

Portales Municipal Schools
CURRICULUM MAP

Subject:	Mathematics	May 2009	Grade Level:	Sixth Grade
-----------------	-------------	-----------------	---------------------	-------------

Calendar	Strand/Standard/ Benchmark	Performance Standard/ Essential Question	Suggested Student Activities/Assessments	Resources/Materials
3rd Nine Weeks		<ul style="list-style-type: none"> • understand that the sum of angles of any triangle is 180 degrees and the sum of the angles of any quadrilateral is 360 degrees and use this information to solve problems • visualize and draw two-dimensional views of three-dimensional objects made from rectangular solids (Introduce/Master) <p>III.A.4. Classify polygons as regular or irregular. (Intro/Master)</p> <p>III.A.7. Describe the relationship between radius, diameter, and circumference of a circle. (Intro)</p> <p>(Mastered in 7th)</p> <p>)</p>	<p>Identify Regular and Irregular Polygons: With a preplanned sheet with drawings of both regular and irregular polygons, students will identify what type of polygon each drawing is. Students will write descriptions as to why polygons were either “regular” or “irregular.” Students will then draw a regular four-sided polygon, tell what shape was made, and classify characteristics that determine why this shape is “regular.” Students will categorize objects around them as “regular” or “irregular.” (Prob.Sol., R&P, Comm., Con., Rep.)</p> <p>ASSESSMENT: Students will be graded on correct responses to drawings, ability to reason determinations, create personal “regular” polygon, and justification for characteristics of work.</p> <p>Circumference, Radius, Diameter Activity With Bubbles: Using the Online Bubble Activity as a guide, students will work in pairs to capture 5 bubbles on sheets of construction paper. Once soap image is captured, students will measure the circumference (using yarn and a ruler), the diameter, and radius of the image and determine the relationships among them. Students will be instructed to write an analysis of relationships between circumference, diameter, and radius using their measurement to prove their analysis. (Prob.Sol., R&P, Comm., Con., Rep.)</p> <p>ASSESSMENT: Students will be assessed using rubric based on active participation in experiment; correct measurements of circumference, diameter, and radius; and written analysis of relationships.</p> <p><i>Extension Question: How will units of measurement (inches or centimeters) affect the relationships? Explain.</i></p>	<p>Source: Teacher made handout of regular and irregular polygons.</p> <p>http://www.roveracademy.com/lessonplans/grade5/realdeal.htm Website provides a visual as to the relationship between radius, circumference, and diameter. Provides in-depth definitions and descriptions.</p> <p>http://www.lessonplanspage.com/MathBubbleCircumferenceDiameterRadiusMania34.htm Website provides guidelines for an activity utilizing “Bubbles.”</p> <p>Supplies needed:</p> <ul style="list-style-type: none"> • Bottles of Bubbles with wands • Yarn • Rulers • Construction Paper • Bubble Print Activity Sheet <p>http://www.roveracademy.com/lessonplans/grade6/polygon_people.htm Website provides guidelines and rubric for creating “Polygon People.”</p>

Portales Municipal Schools
CURRICULUM MAP

Subject:	Mathematics	May 2009	Grade Level:	Sixth Grade
-----------------	-------------	-----------------	---------------------	-------------

Calendar	Strand/Standard/ Benchmark	Performance Standard/ Essential Question	Suggested Student Activities/Assessments	Resources/Materials
4 th Nine Weeks	<p>IV. A. 5-8 Benchmark: Understand measurable attributes of objects and the units, systems, and processes of measurement.</p> <p>IV. B. 5-8 Benchmark: Apply appropriate techniques, tools, and formulas to determine measurements.</p>	<p>MEASUREMENT</p> <p>IV. A. 4. Use standard units of linear measurement to the nearest sixteenth of an inch; metric measurements to the nearest millimeter. (Master)</p> <p>IV. A. 2. Estimate measurement in both U.S. customary and metric units. (Intro/Master)</p> <p>IV. A. 1. Perform multi-step conversions of measurement units to equivalent units within a given system (e.g., 36 inches equals 3 feet or 1 yard). (Intro/Master)</p> <p>IV. A. 3. Select and use units of appropriate size and type to measure angles (e.g., degrees, radians), perimeter, area, and capacity in both U.S. customary and metric systems. (Master)</p> <p>IV. B. 1. Apply various measurement techniques and tools, units of measure, and degrees of accuracy to find accurate rational number representations for length, liquid, weight, perimeter, temperature, and</p>	<p>MEASUREMENT</p> <p><u>Measurements of Length and Weight Activity:</u> Following the online guide, students will create their personal references of measurements to length and weight through a variety of activities. Students will relate “actual” measures to “personal” measures. Students will demonstrate understanding of relative measures by completing a chart of how long each of their body parts are relative to standard measures. (For example, a hand is approximately 6 inches.) Next, students will compare different units of measurements (e.g., one meter is the same as 100 centimeters). Finally, the students will devise a method to convert a chocolate chip cookie recipe from metric units to US units. Students will bake the cookies using the converted recipe to prove their measurements are accurate. (Prob.Sol., R&P, Comm., Con., Rep.)</p> <p><u>Extension:</u> Students will record personal analysis of procedures to expand recipe from 100 cookies to 1,000 cookies. (Multi-step conversion)</p> <p>ASSESSMENT: Rubric- based on completeness of measurements chart and demonstration of understanding of units of measurements through generation of comparisons and conversions.</p>	<p>MEASUREMENT</p> <p>http://www.funbrain.com/measure/index.html Website provides a ruler that students determine the accurate measurement defined.</p> <p>McDougal Littell Math Course 1 (Lesson 2.1- page 59)</p> <p>http://www.classzone.com/books/msmath1_na/animations/chapter_2/html/g6_2_1.html Interactive website that allows students to chose appropriate units of measurement for various objects.</p> <p>http://asd-www.larc.nasa.gov/edu_act/measure.html Online guide to provide students with actual measurements as compared to references to familiar objects as measuring tools.</p> <p>Supplies Needed:</p> <ul style="list-style-type: none"> • Butcher paper • Scientific scale (weight) • Paperclips • Pennies, BBs, other small items • Rulers • Recipe and charts from website <p>http://nlvm.usu.edu/en/nav/frames_asid_272_g_3_4.html?open=instructions use unit multipliers to convert any type</p>

Portales Municipal Schools
CURRICULUM MAP

Subject: Mathematics	May 2009	Grade Level: Sixth Grade
-----------------------------	-----------------	---------------------------------

	time. (Intro/Master)	of measurement into another scale
--	-----------------------------	-----------------------------------

Calendar	Strand/Standard/ Benchmark	Performance Standard/ Essential Question	Suggested Student Activities/Assessments	Resources/Materials
4 th Nine Weeks	<p>I. Strand: NUMBER AND OPERATIONS Standard: Students will understand numerical concepts and mathematical operations.</p> <p>I.A. 5-8 Benchmark: Understand numbers, ways of representing numbers, relationships among numbers, and number systems.</p> <p>I.B.5-8 Benchmark: Understand the meaning of operations and how they relate to one another.</p>	<p>EXPONENTS</p> <p>I.A.2. Use equivalent representations for rational numbers (e.g., integers, decimals, fractions, percents, ratios, numbers with whole-number exponents). (Master)</p> <p>I.B.2. Factor a whole number into a product of its primes. (Introduce/Master)</p>	<p>EXPONENTS</p> <p><u>Power & Exponents Card Game:</u> Building on prior knowledge, students will participate in a class discussion as to the usage of exponents. Students will role-play the concept of a phone tree when an initial student is responsible for contacting 2 other students, those two students contact 2 each, and the process is continued until all students have been “contacted.” (Based on Example 3-page 16) Following role-playing, students will be given a set of game cards (see Activity Generator). Students will play in groups of 3 to 4, matching like values of the cards (e.g., 7^3, $7 \times 7 \times 7$, and 343). The first person to match two sets of three like values wins. After playing the game, students will make their own deck of playing cards using the same concept. (Prob.Sol., Comm., Con., Rep.)</p> <p>ASSESSMENT: Appropriate representations of powers and exponents as shown on cards each student creates. Verbal explanation of understanding by answering open-ended questions (see Activity Generator).</p>	<p>EXPONENTS</p> <p>www.classzone.com/books/msmath_1/na/animations/chapter_1/html/g7_1_3.html Interactive website showing the concept of exponents by multiplying rabbits.</p> <p>McDougal Littell Middle School Math Activity Generator (Lesson 1.3 – Brain Game: Using Powers and Exponents)</p> <p>McDougal Littell Math Course 1 (Lesson 1.3 – p.15) (Lesson 5.1 – p.230)</p>

Portales Municipal Schools
CURRICULUM MAP

Subject: Mathematics	May 2009	Grade Level: Sixth Grade
-----------------------------	-----------------	---------------------------------

Calendar	Strand/Standard/ Benchmark	Performance Standard/ Essential Question	Suggested Student Activities/Assessments	Resources/Materials
4th Nine Weeks	<p>V. Strand: DATA ANALYSIS AND PROBABILITY</p> <p>Standard: Students will understand how to formulate questions, analyze data, and determine probabilities.</p> <p>V. D. 5-8 Benchmark: Understand and apply basic concepts of probability.</p>	<p>7TH GRADE PRE-REQUISITES</p> <p>(PROBABILITY)</p> <p>V.D.2. Determine and compare experimental (empirical) and mathematical (theoretical) probabilities (e.g., flipping two color counters). (Introduce) <i>(Mastered in 8th)</i></p> <p>V.D.3. Determine theoretical and experimental probabilities and use them to make predictions about events. (Introduce) <i>(Mastered in 8th)</i></p> <p>V.D.5. Use data to estimate the probability of future events (e.g., batting averages). (Introduce) <i>(Mastered in 8th)</i></p>	<p>7TH GRADE PRE-REQUISITES</p> <p>(PROBABILITY)</p> <p><u>Experimental/Theoretical Probability Activity:</u> The students will conduct an experiment by tossing a coin 20 times and recording their results on a table. The students will identify the theoretical probability and compare it to the experimental probability of the experiment. The students will briefly explain the difference between experimental and theoretical probabilities. Based on their findings, students will predict the outcome of tossing a coin 100 times. (Prob.Sol., Comm., Con., Rep.)</p> <p>ASSESSMENT: Reasonable knowledge of difference between experimental & theoretical probabilities, as shown in their brief explanation. Reasonable prediction for tossing the coin 100 times.</p>	<p>7TH GRADE PRE-REQUISITES</p> <p>(PROBABILITY)</p> <p>Supplies needed:</p> <ul style="list-style-type: none"> • Coins • Frequency table (can easily make their own)

Portales Municipal Schools
CURRICULUM MAP

Subject:	Mathematics	May 2009	Grade Level:	Sixth Grade

Portales Municipal Schools
CURRICULUM MAP

Subject: Mathematics	May 2009	Grade Level: Sixth Grade
-----------------------------	-----------------	---------------------------------

Calendar	Strand/Standard/ Benchmark	Performance Standard/ Essential Question	Suggested Student Activities/Assessments	Resources/Materials
4th Nine Weeks	<p>V. D. 5-8 Benchmark: Understand and apply basic concepts of probability.</p> <p>V. C. 5-8 Benchmark: Develop and evaluate inferences and predictions that are based on data.</p>	<p>V. D. 1. List all possible outcomes for a compound event composed of two independent events and recognize whether an outcome is certain, impossible, likely, or unlikely. (Introduce) <i>(Mastered in 8th)</i></p> <p>V. D. 7. Describe the difference between independent and dependent events and identify situations involving independent or dependent events. (Introduce) <i>(Mastered in 8th)</i></p> <p>V.C.4. Compare expected results with actual results in a simple experiment. (Intro) <i>(Mastered in 8th)</i></p> <p>V.C.2. Conduct observations, surveys, experiments and/or simulations, record the results in charts, tables, or graphs, and use the results to draw conclusions and make predictions. (Intro) <i>(Mastered in 8th)</i></p>	<p><u>Compound, Dependent, Independent Probability</u> Activity: Utilizing accessible materials (i.e. markers, die, cards, coins, colored marbles), students will work in groups to predict possible combination outcomes. Students will identify and experiment with independent outcomes. Once students have demonstrated understanding, they will conduct like experiments using dependent events. (Example—independent, students pull marbles out of a bag, record data on a table, and replace marble in bag. Dependent, students pull marbles out of the bag, record data, and do not replace marbles in bag.) (Prob.Sol., Comm., Con., Rep.)</p> <p>ASSESSMENT: Students will explain to the class reasoning as to how independent and dependent events affect outcomes. Students will report what happened in their group experiments.</p>	<p>Materials:</p> <ul style="list-style-type: none"> • Markers • Die • Cards • Coins • Colored marbles • Container to hold items • Data recording sheet <p>McDougal Littell Math Course 1 (Chapter 2—pp. 56-115)</p> <p>http://nlvm.usu.edu/en/nav/frames_asid_117_g_3_t_2.html Website game gives students an opportunity to experiment with compound and dependent probability.</p>

Portales Municipal Schools
CURRICULUM MAP

Subject: Mathematics	May 2009	Grade Level: Sixth Grade
-----------------------------	-----------------	---------------------------------

Calendar	Strand/Standard/ Benchmark	Performance Standard/ Essential Question	Suggested Student Activities/Assessments	Resources/Materials
4th Nine Weeks	<p>V. B. 5-8 Benchmark: Select and use appropriate statistical methods to analyze data.</p> <p>V. C. 5-8 Benchmark: Develop and evaluate inferences and predictions that are based on data.</p>	<p>V.B.8. Identify claims based on statistical data and, in sample cases, evaluate the validity and usefulness of the claims. (Intro) <i>(Mastered in 8th)</i></p> <p>V.B.2. Describe the effects of missing or incorrect data. (Intro) <i>(Mastered in 8th)</i></p> <p>V.B.4. Use data samples of a population and describe the characteristics and limitations of the sample. (Intro) <i>(Mastered in 8th)</i></p> <p>V.B.5. Identify different ways of selecting a sample (e.g., convenience sampling, responses to a survey, random sampling) and which method makes a sample more representative for a population. (Intro) <i>(Mastered in 8th)</i></p> <p>V.B.6. Explain how the way a question is asked in a survey might influence the results obtained. (Intro) <i>(Mastered in 8th)</i></p> <p>V.B.7. Identify data that represent sampling errors and explain why the sample and the display might be biased. (Intro) <i>(Mastered in 8th)</i></p> <p>V.C.1. Identify claims based on statistical data and evaluate the validity of the claim. (Intro) <i>(Mastered in 8th)</i></p>	<p>Pizza Survey Activity: Students will be surveyed on the following questions:</p> <ol style="list-style-type: none"> 1. What is your favorite brand of pizza? 2. What is your favorite brand of pizza to be delivered to your home? 3. What is your favorite brand of pizza for carryout? <p>Students will be divided into three teams. The teams will each graph results from one of the questions above. Students will be shown claims made by major pizza chains (Pizza Hut, Dominos, Little Caesars's, etc.). Based on claims, students will discuss the validity of each claim. Questions that students may consider may be:</p> <ol style="list-style-type: none"> 1. Are students responsible for the purchase of pizza? 2. Do students have the means of obtaining the pizza? (transportation) 3. Were students influenced to answer survey because of the wording of the previous questions? 4. Were the chain claims useful? 5. Do you think companies left out information, skewed information, or provided incorrect information to justify making their claims? (R&P, Comm., Con., Rep.) <p>ASSESSMENT: Students will be assessed based on the implementation of finding their own statistical claim. They will be responsible for researching a specific claim from a company/corporation of their choice (teacher approved). Students will generate responses similar to the activity for the claim of their choice.</p>	<p>Resources: http://dominos.com "The World Leader in Pizza Delivery"</p> <p>http://www.pizzahut.com "America's favorite pizza"</p> <p>http://littlecaesars.com/news/in_the_news.asp "World's largest carry-out chain"</p> <p>Materials: Posterboard/Butcher paper for charting Access to Computer Lab/Library</p>

Portales Municipal Schools
CURRICULUM MAP

Subject: Mathematics	May 2009	Grade Level: Sixth Grade
-----------------------------	-----------------	---------------------------------

Calendar	Strand/Standard/ Benchmark	Performance Standard/ Essential Question	Suggested Student Activities/Assessments	Resources/Materials
4 th Nine Weeks	<p>V. C. 5-8 Benchmark: Develop and evaluate inferences and predictions that are based on data.</p> <p>II. Strand: ALGEBRA Standard: Students will understand algebraic concepts and applications. II.B. 5-8 Benchmark: Represent and analyze mathematical situations and structures using algebraic symbols. II. C. 5-8 Benchmark: Use mathematical models to represent and understand quantitative relationships.</p>	<p>V.C.3. Find all possible combinations in a given set (e.g., the number of ways a set of books can be arranged on a shelf). (Introduce) <i>(Mastered in 8th)</i></p> <p>(ALGEBRA) II. B. 4. Demonstrate that a variable can represent a single quantity that changes. (Intro/Master) II. B. 5. Demonstrate how changes in one variable affect other variables. (Intro) <i>(Mastered in 7th)</i> II. C. 1 Develop and use mathematical models to represent and justify mathematical relationships found in a variety of situations. (Intro) <i>(Mastered in 7th)</i> II. C. 2 Create, explain, and use mathematical models such as: <ul style="list-style-type: none"> • equations and inequalities to model numerical relationships • graphs, tables, and charts to interpret and analyze data. (Intro) <i>(Mastered in 7th)</i> </p>	<p>Finding Outcomes for Meal Choices Activity: Students will explore the Classzone activity (see website) to find all possible outcomes for an outfit a man can choose (given 3 pants & 2 shoes, 3 pants & 3 shirts, etc.) and record data in a table. Then students will identify total possible combinations for the outfits. The students will demonstrate another effective way to show all possible outcomes. Students must justify that they have identified all combinations. (Prob.Sol., R&P, Comm., Con., Rep.) ASSESSMENT: Given: You have 3 entrée choices, 2 salad choices, and 3 dessert choices. If you can choose one of each, how many choices are there? Students will explain their method of finding the correct answer.</p> <p>(ALGEBRA) Perimeter Changes using Variables, Tables, Symbols, and Equations Activity: First students will review the concept of perimeter, including the formula to calculate the perimeter. Students will be introduced to the concept of a variable change to perimeter. (For example, when given a width of 3 units, students may calculate the length of a quadrilateral by using a specified expression such as “length is 4 more than the width.”) Students will draw a diagram and generate an expression would look like if the width of the quadrilateral was unknown. (width=x, length=x+4) Students will create a T-Chart to represent the changes in perimeter as x varies. Students will create a visual relating the activity to building property perimeter fences. (Prob.Sol., Comm., Con., Rep.) ASSESSMENT: Students will briefly answer the following questions using complete sentences: <ol style="list-style-type: none"> 1. As the width changed, how was the length of the quadrilateral affected? 2. What is the relationship between the width and the length? 3. How was the perimeter of the quadrilateral affected as a result of question 1? 4. How might the formula have changed if the measurement of the length was known and the width unknown? </p>	<p>http://www.classzone.com/books/msm_ath_1_na/animations/chapter_13/html/g6_13_2html Students create all possible outcomes of outfits (given 3 pants & 2 shoes, then 3 pants & 3 shirts, etc.)</p> <p>McDougal Littell Math Course 1 (Lesson 13.2 – p.691)</p> <p>Source for Assessment: “Daily Puzzler” p.692 – McDougal Littell</p> <p>(ALGEBRA) McDougal Littell Math Course 1 (Lesson 12.1-page 629)</p>

Portales Municipal Schools
CURRICULUM MAP

Subject: Mathematics	May 2009	Grade Level: Sixth Grade
-----------------------------	-----------------	---------------------------------

Calendar	Strand/Standard/ Benchmark	Performance Standard/ Essential Question	Suggested Student Activities/Assessments	Resources/Materials
4 th Nine Weeks	<p>II. D. 5-8 Benchmark: Analyze changes in various contexts.</p> <p>II. C. 5-8 Benchmark: Use mathematical models to represent and understand quantitative relationships.</p> <p>II. B. 5-8 Benchmark: Represent and analyze mathematical situations and structures using algebraic symbols.</p>	<p>II. D. 4 Use tables and symbols to represent and describe proportional and other relationships involving conversions, sequences, and perimeter. (Intro) <i>(Mastered in 8th)</i></p> <p>II. D. 5 Generate formulas to represent relationships involving changes in perimeter. (Intro) <i>(Mastered in Alg.)</i></p> <p>II. C. 2. Create, explain, and use mathematical models such as: • equations and inequalities to model numerical relationships (Intro) <i>(Mastered in Alg.)</i></p> <p>II. B. 3 Solve one-step linear equations and inequalities in one variable with positive whole-number solutions. (Intro) <i>(Mastered in 8th)</i></p>	<p>5. Write your own expression for perimeter. Use a variable to represent either the length or the width.</p> <p><i>Extension: Using two variables, $L=length$, $W=width$, students will develop a formula for the area of a rectangle</i></p> <p>Solving Inequalities Activity: Students will work with a partner to label Index Cards 0-9. Students will be provided a copy of the inequalities table and will evaluate whether each index card is a solution of the inequality. Students will record their data on the table. Students will then solve an equation similar to the inequality and write their solution on the table. Students will compare the inequality and the equation and write a solution for the inequality. (Prob.Sol., Rep.)</p> <p>ASSESSMENT: Using their observations, students will draw logical conclusions and accurately answer the following questions:</p> <ol style="list-style-type: none"> 1. When is the solution of the equation also a solution of the inequality? 2. When is the solution of the equation not a solution to the inequality? 3. Explain how to solve the inequality $x+8>15$. Then find the solution. <p>Finally, students will correctly solve specific inequalities.</p> <p><i>Extension: Students will correctly graph their solutions on a number line. Students will also examine a number line containing an inequality for which they must correctly produce the expression that correlates the data.</i></p>	<p>McDougal Littell Math Course 1 (Extension page 651)</p> <p>Source for Activity: McDougal Littell Middle School Math Activity Generator (Lesson 12.4 “Exploring Solutions to Inequalities”)</p> <p>Materials:</p> <ul style="list-style-type: none"> • Index Cards • Copy of Table

Portales Municipal Schools
CURRICULUM MAP

Subject: Mathematics	May 2009	Grade Level: Sixth Grade
-----------------------------	-----------------	---------------------------------

Calendar	Strand/Standard/ Benchmark	Performance Standard/ Essential Question	Suggested Student Activities/Assessments	Resources/Materials
4 th Nine Weeks	II. C. 5-8 Benchmark: Use mathematical models to represent and understand quantitative relationships.	II. C. 2 Create, explain, and use mathematical models such as: <ul style="list-style-type: none"> • three-dimensional geometric models (Intro) <i>(Mastered in Geo.)</i> PDSA (Plan/Do/Study/Act)	<u>Three-Dimensional Geometric Models Activity:</u> Students will be asked to find the volume and draw a 3 dimensional model of rectangular solid. Given the length, width, and height of a solid, students will label the parts of the model and calculate the volume. The students will associate the ideology of rectangular solid to concept and objects in a variety of disciplines (i.e. solid is similar to the bomb shelters being discussed in History). (Prob.Sol., Comm., Con., Rep.) ASSESSMENT: Using appropriate mathematical language, students will rationally explain the interrelatedness of the diagram, formula, and dimensions of the rectangular solid. <i>Extension: Students will use materials to construct an actual model of a geometrical design of their own. (i.e. toothpicks and gumdrops)</i> Students will review Plan/Do sections of their PDSA and assess their achievement of goals. Write a brief summary in the Study section of the PDSA of their performance throughout the past nine weeks (example: work ethic, asking questions, check work for careless mistakes) and if they met their goals.	McDougal Littell Math Course 1 (Lesson 10.5-page 543) http://mathworld.wolfram.com/Solid.html Website provides 3D views of a wide variety of geometric solids (may be rotated and manipulated to observe all sides). www.portaleschools.com (Staff Resources Link) PDSA form