

## PLANNED COURSE

**SUBJECT AREA:** Pre Algebra **GRADE/COURSE:** 7/8  
**Standard And Strand** 2.1 Numbers, Number Systems, and Number Relationships

OBJECTIVES	PERFORMANCE INDICATORS	ASSESSMENTS (Variety as per Section 4.52, Chapter 4)
A. Represent rational numbers in equivalent forms.	1. Use integers, fractions, decimals, percents, exponents, scientific notation, and square roots in equivalent forms.	Homework Written work
B. Simplify expressions involving rational numbers.	1. Simplify expressions involving exponents, scientific notation and square roots.	Teacher observation Projects
C. Order and identify rational and irrational numbers.	1. Classify numbers as rational or irrational.	Portfolios Group work
D. Use ratio and proportion to solve problems.	1. Solve problems involving distance, rate, time and similar triangles.	Quizzes
E. Expand algebraic expressions using exponents.	1. Raise a monomial term to a power.	Teacher-made tests Standardized tests
F. Identify and apply integers.	1. Use a number line to order and compare.	
G. Solve linear equations.	1. Solve by using inverse operations.	

OBJECTIVES	PERFORMANCE INDICATORS	ASSESSMENTS (Variety as per Section 4.52, Chapter 4)
	<p><u>Adaptations:</u>            Use common fractions, decimals and square roots.            Provide a number line.            Allow limited calculator use.</p> <p><u>Enrichment:</u>            Include more word problems and problems of greater difficulty.            Increase depth and number of topics covered.            Include rational exponents.</p>	<p><u>Adaptations:</u>            Allow limited calculator use.            Allow greater use of manipulatives.            Limit the number of problems assigned for seatwork/homework.            Choose projects according to student's strengths.            Type or dictate math journals.            Limit the number and degree of difficulty of items on tests and quizzes and portfolios.            Give extended time during assessment.            Read any test material as needed.</p> <p><u>Enrichments:</u>            Include an independent research project or experiment.            Limit the time for assessments.</p>

**SUBJECT AREA:** Pre Algebra  
**Standard And Strand** 2.2 Computation and Estimation

**GRADE/COURSE:** 7/8

<b>OBJECTIVES</b>	<b>PERFORMANCE INDICATORS</b>	<b>ASSESSMENTS (Variety as per Section 4.52, Chapter 4)</b>
<p>A. Use order of operations to complete calculations.</p> <p>B. Use basic operations involving rational numbers.</p> <p>C. Estimate the value of irrational numbers.</p> <p>D. Use ratio and proportion to solve problems. Round to an appropriate number of decimal places.</p>	<p>1. Simplify expressions and equations with parentheses, exponents, multiplication, division, addition and subtraction.</p> <p>1. Add, subtract, multiply and divide with integers, decimals, fractions, percents, proper and improper fractions.</p> <p>1. Use benchmarks to estimate.</p> <p>1. Solve problems involving rate x time = distance; tips, discounts and percents.</p> <p>2. Round money and measurement, interpreting remainders.</p>	<p>Homework</p> <p>Written work</p> <p>Teacher observation</p> <p>Projects</p> <p>Portfolios</p> <p>Group work</p> <p>Quizzes</p> <p>Teacher-made tests</p> <p>Standardized tests</p>

**SUBJECT AREA:** Pre Algebra  
**Standard And Strand** 2.3 Measurement and Estimation

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OBJECTIVES	PERFORMANCE INDICATORS	ASSESSMENTS (Variety as per Section 4.52, Chapter 4)
A. Develop formulas and procedures for determining measurement in area, volume and distance.	1. Form a net to determine the polygons in each figure.	Homework
B. Solve problems involving distance and interest.	1. Use rate x time = interest and principal x rate x time = simple interest.	Written work Teacher observation
C. Determine relations of angles using the angle measures.	1. Using a protractor, explore complementary, supplementary and right angle relationships.	Projects Portfolios
D. Describe, estimate and use units of measure.	1. Use distance, rate, perimeter, area, volume, capacity, weight, mass and angle.	Group work Quizzes
F. Interpret maps or drawings.	1. Use scale measurements.	Teacher-made tests
G. Create and use scale models.	1. Create and use a scale that will work within given parameters.	Standardized tests

**SUBJECT AREA:** Pre Algebra  
**Standard And Strand** 2.4 Mathematical Reasoning and Connections

**GRADE/COURSE:** 7/8

<b>OBJECTIVES</b>	<b>PERFORMANCE INDICATORS</b>	<b>ASSESSMENTS (Variety as per Section 4.52, Chapter 4)</b>
<p>A. Use logical reasoning to make and test conjectures.</p> <p>B. Combine numerical relationships to arrive at a conclusion.</p> <p>C. Construct simple valid arguments.</p> <p>D. Construct, use and explain algorithmic procedures for computing/estimating with rational numbers.</p> <p>E. Distinguish between inductive and deductive reasoning.</p> <p>F. Use measurements and statistics in family and consumer science.</p>	<p>1. Make conjectures and test using counter examples.</p> <p>1. Use if/then statements to construct valid arguments.</p> <p>1. Using compatible numbers, benchmarks to estimate.</p> <p>1. Show and explain each step involved in solving a computation with rational numbers.</p> <p>1. Be able to pick, from a group of problems, examples of inductive and deductive reasoning.</p> <p>1. Interpret data using mean, median and mode.</p>	<p>Homework</p> <p>Written work</p> <p>Teacher observation</p> <p>Projects</p> <p>Portfolios</p> <p>Group work</p> <p>Quizzes</p> <p>Teacher-made tests</p> <p>Standardized tests</p>

**SUBJECT AREA:**  
**Standard And Strand**

Pre Algebra  
2.5 Mathematical Problem Solving and Communications

**GRADE/COURSE:** 7/8

<b>OBJECTIVES</b>	<b>PERFORMANCE INDICATORS</b>	<b>ASSESSMENTS (Variety as per Section 4.52, Chapter 4)</b>
A. Use appropriate methods to solve problems and justify solutions.  B. Verify and interpret results using precise mathematical language and notation.  C. Construct simple valid arguments.  D. Construct, use and explain algorithmic procedures for computing/estimating with rational numbers.	1. Explore problem solving strategies (guess and check, plug in, estimate, calculator, Venn diagram).  1. Use numerical tables, equations, formulas, charts, graphs and diagrams to verify and interpret results.  1. Show familiar use of rubrics from open-ended questions.  1. Eliminate extraneous information or when recognize the need for more information.	Homework  Written work  Teacher observation  Projects  Portfolios  Group work  Quizzes  Teacher-made tests  Standardized tests

**SUBJECT AREA:** Pre Algebra  
**Standard And Strand** 2.6 Statistics and Data Analysis

**GRADE/COURSE:** 7/8

OBJECTIVES	PERFORMANCE INDICATORS	ASSESSMENTS (Variety as per Section 4.52, Chapter 4)
<p>A. Compare and contrast plots of data.</p> <p>B. Determine the reliability of data.</p> <p>C. Describe any correlation of variables in a scatter plot.</p> <p>D. Design and carry out a random sampling procedure.</p> <p>E. Display and analyze data.</p> <p>F. Organize and analyze data.</p> <p>G. Determine the validity of the sampling method used in published local or national papers.</p>	<p>1. Use mean, median, mode, quartiles, and range.</p> <p>1. Analyze the effects of missing or incorrect data.</p> <p>1. Fit a line to the scatter plot of two quantities.</p> <p>1. Design an unbiased question and decide on an appropriate group/location.</p> <p>1. Use stem and leaf and box and whisker plots</p> <p>1. Use scientific/graphing calculators and spreadsheets.</p> <p>1. Determine if a survey question is biased.</p>	<p>Homework</p> <p>Written work</p> <p>Teacher observation</p> <p>Projects</p> <p>Portfolios</p> <p>Group work</p> <p>Quizzes</p> <p>Teacher-made tests</p> <p>Standardized tests</p>

**SUBJECT AREA:** Pre Algebra  
**Standard And Strand** 2.7 Probability and Predictions

**GRADE/COURSE:** 7/8

<b>OBJECTIVES</b>	<b>PERFORMANCE INDICATORS</b>	<b>ASSESSMENTS (Variety as per Section 4.52, Chapter 4)</b>
<p>A. Determine the number of permutations and combinations for a given event.</p> <p>B. Display the results of an experiment.</p> <p>C. Analyze predictions, such as election polls.</p> <p>D. Analyze observations and mathematical models to compare and contrast results.</p> <p>E. Make valid inferences, predictions, and arguments based on probability.</p>	<p>1. Use factorials, fundamental counting principle, and making a tree diagram.</p> <p>1. Use visual representations such as tables, charts and graphs.</p> <p>1. Make predictions based on sample size.</p> <p>1. Compute the probability for an event, change the fraction to a percent, and compare it to other events.</p> <p>1. Use dependent verses independent events to make valid predictions.</p>	<p>Homework</p> <p>Written work</p> <p>Teacher observation</p> <p>Projects</p> <p>Portfolios</p> <p>Group work</p> <p>Quizzes</p> <p>Teacher-made tests</p> <p>Standardized tests</p>

**SUBJECT AREA:** Pre Algebra  
**Standard And Strand** 2.8 Algebra and Functions

**GRADE/COURSE:** 7/8

<b>OBJECTIVES</b>	<b>PERFORMANCE INDICATORS</b>	<b>ASSESSMENTS (Variety as per Section 4.52, Chapter 4)</b>
<p>A. Apply simple algebraic patterns to basic number theory and to spatial relationships.</p> <p>B. Discover, describe and generalize patterns involving linear, exponential and quadratic relationships.</p> <p>C. Use expressions, equations, or inequalities to model problem situations.</p> <p>D. Use concrete objects to model algebraic concepts.</p> <p>E. Plan and explain a strategy to solve an equation or inequality and verify the solution for accuracy.</p> <p>F. Use scientific/graphing calculators and computer spreadsheets to solve and graph equations and inequalities.</p>	<p>1. Continue an observed pattern (numerical or geometric).</p> <p>1. Describe the pattern using an algebraic expression.</p> <p>1. Write expressions, equations and inequalities.</p> <p>1. Use algebra tiles to model integers and equations.</p> <p>1. Determine by substituting or solving if a value is a solution.</p> <p>1. Create a graph using a graphing calculator or computer spread sheet.</p>	<p>Homework</p> <p>Written work</p> <p>Teacher observation</p> <p>Projects</p> <p>Portfolios</p> <p>Group work</p> <p>Quizzes</p> <p>Teacher-made tests</p> <p>Standardized tests</p>

**SUBJECT AREA:** Pre Algebra  
**Standard And Strand** 2.9 Geometry

**GRADE/COURSE:** 7/8

<b>OBJECTIVES</b>	<b>PERFORMANCE INDICATORS</b>	<b>ASSESSMENTS (Variety as per Section 4.52, Chapter 4)</b>
<p>A. Construct figures involving parallel and perpendicular lines, bisectors of lines and angle bisectors.</p> <p>B. Explore complementary, supplementary and vertical angles.</p> <p>C. The student will classify polygons.</p> <p>D. Identify, name, construct and list properties of all two dimensional and three dimensional figures.</p> <p>E. Construct parallel lines cut by a transversal measure and compare angles formed.</p> <p>F. Distinguish between similar and congruent polygons.</p>	<p>1. Use a compass, protractor or computer software (geoboard), construct angle bisectors and perpendicular bisectors.</p> <p>1. Draw, label or measure angle relationships.</p> <p>1. Classify polygons (triangle, decagon) as regular or irregular.</p> <p>1. Recognize and construct quadrilaterals, circles, spheres, cones and cylinders, cubes, pyramids and prisms.</p> <p>1. Recognize angle relationships such as alternate exterior or alternate interior.</p> <p>1. Select similar or congruent figures.</p>	<p>Homework</p> <p>Written work</p> <p>Teacher observation</p> <p>Projects</p> <p>Portfolios</p> <p>Group work</p> <p>Quizzes</p> <p>Teacher-made tests</p> <p>Standardized tests</p>

**SUBJECT AREA:** Pre Algebra  
**Standard And Strand** 2.10 Trigonometry

**GRADE/COURSE:** 7/8

<b>OBJECTIVES</b>	<b>PERFORMANCE INDICATORS</b>	<b>ASSESSMENTS (Variety as per Section 4.52, Chapter 4)</b>
A. Compute measures of sides and angles of right triangles.  B. Solve problems requiring indirect measurement for lengths of sides of triangles.	1. Solve the Pythagorean Theorem, proportions in right triangles, and right triangle relationships.  1. Compute indirect measurements using trigonometric ratios.  .	Homework  Written work  Teacher observation  Projects  Portfolios  Group work  Quizzes  Teacher-made tests  Standardized tests

**SUBJECT AREA:** Pre Algebra  
**Standard And Strand** 2.11 Concepts of Calculus

**GRADE/COURSE:** 7/8

<b>OBJECTIVES</b>	<b>PERFORMANCE INDICATORS</b>	<b>ASSESSMENTS (Variety as per Section 4.52, Chapter 4)</b>
A. Analyze graphs on a coordinate plane.  B. Describe the concept of rate of change.  C. Show that a pattern could be extended indefinitely.	1. Given a linear equation and one coordinate, be able to determine the other coordinate.  1. Compute the slope of a line and determine if it is negative or positive.  1. Continue a pattern of numbers or objects.	Homework  Written work  Teacher observation  Projects  Portfolios  Group work  Quizzes  Teacher-made tests  Standardized tests