

## Intermediate ELL Math (9620)

**Description** The Intermediate math course is the second in a series of three ELL math courses that move students from arithmetic into algebra, geometry, measurement and probability and statistics. Students in the intermediate math course are moving beyond arithmetic, moving into these other strands of mathematics. A problem solving approach is often implemented as students learn about the fundamentals of Algebra, Geometry, and Probability and Statistics. Key vocabulary terms in math are stressed in all of the ELL math courses.

**Credits** 1

**Prerequisites** Basic ELL Math or placement test into Intermediate ELL Math

**Textbooks/Resources** Selection process in progress. Final materials selected in Spring 2005 per AASD curriculum cycle.

**Required Assessments** Standards based assessments to be developed 04-05 school year

**Board Approved** May 2004

**Revised**

### AASD Mathematics Goals for K-12 Students

- *Become mathematical problem solvers.*
- *Learn to reason mathematically.*
- *Learn to communicate mathematically.*
- *Make mathematical connections.*
- *Become proficient in basic computational skills.*
- *Learn to use technology appropriately.*

## AASD Mathematics Standards for Grades 9-12 Students

<u>Content Strand</u>	<u>Content Standard</u>
I. Mathematical Processes	<ul style="list-style-type: none"> <li>A. Use of mathematical knowledge, skills and strategies to solve mathematical, real-world and non-routine problems: reasoning</li> <li>B. Use of mathematical knowledge, skills and strategies to solve mathematical, real-world and non-routine problems: oral and written communication</li> <li>C. Use of mathematical knowledge, skills and strategies to solve mathematical, real-world and non-routine problems: use of appropriate technology</li> </ul>
II. Number Operations & Relationships	<ul style="list-style-type: none"> <li>A. Use numbers effectively for counting</li> <li>B. Use numbers effectively for measuring</li> <li>C. Use numbers effectively for estimating</li> <li>D. Use numbers effectively for problem solving</li> </ul>
III. Geometry	<ul style="list-style-type: none"> <li>A. Use geometric concepts to interpret, represent and solve problems</li> <li>B. Use geometric relationships to interpret, represent and solve problems</li> <li>C. Use geometric procedures to interpret, represent and solve problems</li> </ul>
IV. Measurement	<ul style="list-style-type: none"> <li>A. Select and use appropriate tools and techniques to measure to a specified degree of accuracy</li> <li>B. Use measurements in problem-solving situations</li> </ul>
V. Statistics & Probability	<ul style="list-style-type: none"> <li>A. Use data collection and analysis</li> <li>B. Use statistics in problem-solving situations</li> <li>C. Use probability in problem-solving situations</li> </ul>
VI Algebraic Relationships	<ul style="list-style-type: none"> <li>A. Discover, describe and generalize simple and complex patterns and relationships</li> <li>B. Use algebraic techniques to define and describe real-world problems to determine and justify appropriate solutions</li> </ul>

Essential Learning Objectives	Performance Indicators	Classroom Assessments
<p>1. <b>Calculates and estimates problems involving whole numbers and integers.</b></p>	<p><b>Performance will be satisfactory when the student:</b></p> <ul style="list-style-type: none"> <li>a. Performs arithmetic operations on whole numbers and integers</li> <li>b. Uses the order of operations to simplify numerical expressions involving whole numbers and integers.</li> <li>c. Uses rounding techniques to estimate arithmetic expressions.</li> </ul>	<ul style="list-style-type: none"> <li>• Unit assessment</li> </ul>
<p><b>Above Objective aligned with AASD Mathematics standards:</b> Number Operations and Relationships</p>		
<p>2. <b>Performs operations and solves problems involving rational numbers.</b></p>	<p><b>Performance will be satisfactory when the student:</b></p> <ul style="list-style-type: none"> <li>a. Uses factors to find common denominators in addition and subtraction of fractions.</li> <li>b. Converts rational numbers to decimals and percents and uses these representations in estimation, computation, and application.</li> <li>c. Writes rates, ratios, and proportions by using equivalent fractions.</li> <li>d. Performs operations on rational numbers including add, subtract, multiply, and divide.</li> </ul>	<ul style="list-style-type: none"> <li>• Unit assessment</li> </ul>
<p><b>Above Objective aligned with AASD Mathematics standards:</b> Number Operations and Relationships</p>		
<p>3. <b>Solves real-world problems involving percent.</b></p>	<p><b>Performance will be satisfactory when the student:</b></p> <ul style="list-style-type: none"> <li>a. Uses appropriate methods to solve problems involving percents.</li> <li>b. Solves real-world problems involving percent.</li> </ul>	<ul style="list-style-type: none"> <li>• Unit assessment</li> </ul>
<p><b>Above Objective aligned with AASD Mathematics standards:</b> Number Operations and Relationships</p>		

Essential Learning Objectives	Performance Indicators	Classroom Assessments
<p>4. <b>Understands and simplifies expressions involving exponents and square roots.</b></p>	<p><b>Performance will be satisfactory when the student:</b></p> <ul style="list-style-type: none"> <li>a. Understands and simplifies numerical expressions involving whole number exponents</li> <li>b. Converts numbers into scientific notation and to standard form.</li> <li>c. Knows whole number square roots and can estimate square roots up to the square root of 100.</li> </ul>	<ul style="list-style-type: none"> <li>• Unit assessment</li> </ul>
<p><b>Above Objective aligned with AASD Mathematics standards:</b> Number Operations and Relationships</p>		
<p>5. <b>Use multiple problem solving techniques to solve problems in context.</b></p>	<p><b>Performance will be satisfactory when the student:</b></p> <ul style="list-style-type: none"> <li>a. Uses “critical” reading techniques to find important information in a problem.</li> <li>b. Develops strategies to determine what a problem is asking.</li> <li>c. Develops techniques to solve problems involving indirect measurement.</li> </ul>	<ul style="list-style-type: none"> <li>• Unit assessment</li> </ul>
<p><b>Above Objective aligned with AASD Mathematics standards:</b> Number Operations and Relationships, Measurement</p>		
<p>6. <b>Identify and describe attributes of two-dimensional shapes and figures.</b></p>	<p><b>Performance will be satisfactory when the student:</b></p> <ul style="list-style-type: none"> <li>a. Identifies and classifies different two-dimensional shapes.</li> <li>b. Identifies and describes different angle relationships.</li> <li>c. Identifies similarities between different geometrical shapes.</li> </ul>	<ul style="list-style-type: none"> <li>• Unit assessment</li> </ul>
<p><b>Above Objective aligned with AASD Mathematics standards:</b> Geometry</p>		

Essential Learning Objectives	Performance Indicators	Classroom Assessments
7. Finds measures of objects directly with precision.	<p><b>Performance will be satisfactory when the student:</b></p> <ul style="list-style-type: none"> <li>a. Finds lengths to the nearest mm or 16th of an inch.</li> <li>b. Finds angles to the nearest degree.</li> <li>c. Converts units of measure within a system.</li> </ul>	<ul style="list-style-type: none"> <li>• Unit assessment</li> </ul>
<p><b>Above Objective aligned with AASD Mathematics standards:</b> Measurement</p>		
8. Finds measures of lengths indirectly by a variety of techniques.	<p><b>Performance will be satisfactory when the student:</b></p> <ul style="list-style-type: none"> <li>a. Finds the lengths of sides of similar triangles by using proportions.</li> <li>b. Uses Pythagorean Theorem to find the missing sides of right triangles.</li> <li>c. Uses appropriate formulas to find areas and perimeters of different polygons.</li> </ul>	<ul style="list-style-type: none"> <li>• Unit assessment</li> </ul>
<p><b>Above Objective aligned with AASD Mathematics standards:</b> Measurement</p>		
9. Evaluates and solves equations and inequalities including formulas.	<p><b>Performance will be satisfactory when the student:</b></p> <ul style="list-style-type: none"> <li>a. Uses “critical” reading techniques to find important information in a problem.</li> <li>b. Develops strategies to determine what a problem is asking.</li> <li>c. Develops techniques to solve problems.</li> </ul>	<ul style="list-style-type: none"> <li>• Unit assessment</li> </ul>
<p><b>Above Objective aligned with AASD Mathematics standards:</b> Measurement</p>		

Essential Learning Objectives	Performance Indicators	Classroom Assessments
<p>10. <b>Graphs linear equations from data in two variables on the coordinate system.</b></p>	<p><b>Performance will be satisfactory when the student:</b></p> <ul style="list-style-type: none"> <li>a. Graphs ordered pairs on the coordinate plane.</li> <li>b. Graphs linear equations by creating tables of values.</li> <li>c. Graphs vertical and horizontal lines from equations.</li> </ul>	<ul style="list-style-type: none"> <li>• Unit assessment</li> </ul>
<p><b>Above Objective aligned with AASD Mathematics standards:</b> Algebraic Relationships</p>		
<p>11. <b>Applies statistics in solving real-world problems.</b></p>	<p><b>Performance will be satisfactory when the student:</b></p> <ul style="list-style-type: none"> <li>a. Draws bar graphs and line graphs of data given in a frequency distribution.</li> <li>b. Interprets a variety of graphs including line and bar graphs</li> </ul>	<ul style="list-style-type: none"> <li>• Unit assessment</li> </ul>
<p><b>Above Objective aligned with AASD Mathematics standards:</b> Statistics and Probability</p>		
<p>12. <b>Finds the probability of an event.</b></p>	<p><b>Performance will be satisfactory when the student:</b></p> <ul style="list-style-type: none"> <li>a. Finds the theoretical probability of a single event occurring.</li> </ul>	<ul style="list-style-type: none"> <li>• Unit assessment</li> </ul>
<p><b>Above Objective aligned with AASD Mathematics standards:</b> Statistics and Probability</p>		

**Resources and learning activities that address course objectives:**