

ELL Newcomers Math – Grades K-2

Description Grades K-2 students will develop beginning language, skills, and strategies related to mathematics.

Prerequisites English Language Level 1-2

Textbooks/Resources

Required Assessments ACCESS

Board Approved July, 2005

Revised

AASD Mathematics Goals for K-12 Students

The ELL Bilingual Education program will enable students to:

- *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 Students in Grades K-2

- . Number Operations and Relationships
 - . Understand place value of whole numbers through the hundred thousands (999,999)
 - . Solve problems involving addition, subtraction, multiplication and division.
 - . Understand the relationship among whole numbers, simple fractions and decimals.

- II. Geometry
 - . Identify and describe polygons and common 3-dimensional figures.
 - . Compare shapes of plane geometric figures in terms of such concepts as symmetry, congruence and similarity.
 - . Understand right angles in geometric figures and objects in the environment, and relationships with other angles.

- III. Measurement
 - . Demonstrate the ability to measure length, liquid capacity and weight (mass) using the appropriate units (metric and U.S customary) and tools of measurement.
 - . Understand the use of measurement to specific degrees of accuracy for time, money, temperature and angle size.

- IV. Algebraic Relationships
 - . Understand simple number expressions and sentences.
 - . Identify relationships between two quantities.
 - . Demonstrate problem solving strategies, including working a simple problem and working backward.

- V. Statistics & Probability
 - . Collect and record data.
 - . Make predictions based on probability.

Standard 3: English language learners communicate information, ideas, and concepts necessary for academic success in the content area of **MATHEMATICS**.

Domain	Level 1 Entering	Level 2 Beginning	Level 3 Developing	Level 4 Expanding	Level 5 Bridging
Listening	<ul style="list-style-type: none"> use manipulatives or realia to illustrate oral math statements 	<ul style="list-style-type: none"> use manipulatives or draw pictures to illustrate math operations from oral directions 	<ul style="list-style-type: none"> use manipulatives, draw pictures, or make tallies to illustrate oral math stories 	<ul style="list-style-type: none"> use manipulatives or bar graphs to compare oral information (e.g., “There are more girls here today than boys.”) 	<ul style="list-style-type: none"> complete or produce graphs (such as histograms) to show comparisons given orally (e.g., “Most children are wearing red, some are wearing blue, and one child is wearing green.”)
Speaking	<ul style="list-style-type: none"> give identifying information that involves numbers (such as age, address, or telephone number) 	<ul style="list-style-type: none"> give examples of things with numbers (such as room #s, bus #s, or calendars) 	<ul style="list-style-type: none"> give examples of how or when you use numbers outside of school 	<ul style="list-style-type: none"> tell how to play games that involves numbers (such as sports, board games, or hopscotch) 	<ul style="list-style-type: none"> tell a story that involves numbers from oral scenarios
Reading	<ul style="list-style-type: none"> sort real-life objects by size or weight using pictures and descriptive words (such as big, little) 	<ul style="list-style-type: none"> sort real-life objects by size or weight using non-standard measurement and comparative language (such as smaller, longer, lighter) 	<ul style="list-style-type: none"> match real-life pictures/ words with standard, metric, or non-standard measurement tools (such as use of paperclips, hands, rulers, or yardsticks) 	<ul style="list-style-type: none"> estimate measurement of objects from pictures and text using standard, metric, or non-standard measurement tools (e.g., “About how many...”) 	<ul style="list-style-type: none"> decide appropriate standard, metric, or non-standard measurement tools based on grade level text for everyday situations
Writing	<ul style="list-style-type: none"> make collages or pictures of numbers and quantities (from newspapers or magazines) 	<ul style="list-style-type: none"> dictate, draw, or make notes of examples of everyday math 	<ul style="list-style-type: none"> keep an illustrated log or journal of examples of everyday math 	<ul style="list-style-type: none"> describe uses of everyday math with illustrated examples 	<ul style="list-style-type: none"> explain how you use everyday math (such as when shopping or cooking)

ELP Standards – WIDA (Classroom)

Standard 3: English language learners communicate information, ideas, and concepts necessary for academic success in the content area of **MATHEMATICS**.

Domain	Level 1 Entering	Level 2 Beginning	Level 3 Developing	Level 4 Expanding	Level 5 Bridging
Listening	<ul style="list-style-type: none"> identify illustrations of math figures described orally (e.g., “Find a shape that looks like the sun.”) 	<ul style="list-style-type: none"> identify illustrations of math figures whose attributes are described orally (e.g., “Find a shape with 4 sides.”)[such as a door or window]) 	<ul style="list-style-type: none"> complete repeated math patterns of alternating figures described orally 	<ul style="list-style-type: none"> complete repeated math patterns described orally (such as + + - - ☺ ☹) 	<ul style="list-style-type: none"> predict sequence of complex math patterns from oral descriptions according to grade level
Speaking	<ul style="list-style-type: none"> recite math-related words or phrases from pictures of everyday objects and oral statements 	<ul style="list-style-type: none"> restate simple math operations from oral statements, referring to pictures of everyday objects 	<ul style="list-style-type: none"> describe math representations and operations from pictures of everyday objects and oral descriptions 	<ul style="list-style-type: none"> compare/contrast math operations needed in problem solving from pictures and oral descriptions 	<ul style="list-style-type: none"> explain the process of math problem solving from pictures and oral descriptions at grade level
Reading	<ul style="list-style-type: none"> match pictures of everyday objects in context with math symbols 	<ul style="list-style-type: none"> match pictures depicting varying quantities in context with math-related words or phrases 	<ul style="list-style-type: none"> sort math sentences according to language associated with different operations (such as altogether, more, sum, plus, in all; take away, left, minus, fewer) 	<ul style="list-style-type: none"> order math sentences involving different operations using sequential language 	<ul style="list-style-type: none"> analyze math sentences from grade level texts to produce sequences for problem solving
Writing	<ul style="list-style-type: none"> illustrate and label whole numbers (such as from 1-100) 	<ul style="list-style-type: none"> match whole numbers with words, symbols, or illustrations 	<ul style="list-style-type: none"> list uses of whole numbers using words, phrases, symbols, or illustrations 	<ul style="list-style-type: none"> describe and compare whole numbers using words, phrases, symbols, or illustrations 	<ul style="list-style-type: none"> create math story problems using whole numbers in words, phrases, or sentences

ELP Standards – WIDA (Large Scale)

A. Mathematical Processes

Course Objectives	Performance Indicators	Classroom Assessments
<p>1. Use mathematical processes.</p>	<p>Performance will be satisfactory when the student:</p> <ul style="list-style-type: none"> . recognizes, identifies, and justifies patterns & relationships. . recognizes and uses step-by-step processes in reasoning by following basic oral & written directions. . communicates mathematical ideas in a variety of ways (including words, numbers, symbols, pictures, charts, graphs, tables, diagrams, and models). . links mathematics to everyday experiences. . exhibits knowledge of various mathematical functions. . recognizes and uses mathematical concepts and vocabulary (e.g. subtraction, minus, take away, what is left?). . discusses mathematical concepts and solutions. 	<ul style="list-style-type: none"> • Manipulatives (e.g. Pattern blocks, Base Ten blocks) • Math Journal • Student Drawings • Observations • Illustrations • Calendar Math • Lunch Count • Charts, Graphs, Tables • Written Work • Following Oral Directions
<p>Above objective aligned with AASD standards: Math: Mathematical Processes</p>		

. Number Operations and Relationships

Course Objectives	Performance Indicators	Classroom Assessments
<p>1. Use numbers effectively for various purposes, such as counting, measuring, estimating, and problem solving.</p>	<p>Performance will be satisfactory when the student:</p> <ul style="list-style-type: none"> . recognizes and uses whole numbers, place value, and basic fractions through manipulatives, number lines, pictures, and oral sharing. . sorts and classifies objects by color, shape, and size. . groups and counts (e.g. by two's, five's, and ten's). . estimates and rounds numbers. . reads, writes, and orders whole numbers and money. . recalls and computes the basic facts of addition, subtraction, and basic multiplication (e.g. fact families). . applies mental math. . uses a calculator. . explains problem-solving situations involving adding and subtracting money. 	<ul style="list-style-type: none"> • Manipulatives (e.g. Money, Base Ten blocks, Pattern Blocks, etc.) • Observations • Math Journal
<p>Above objective aligned with AASD standards: Math: Number Operations and Relationships</p>		

. **Geometry**

Course Objectives	Performance Indicators	Classroom Assessments
<p>1. Use geometric concepts to interpret, represent, and solve problems.</p>	<p>Performance will be satisfactory when the student:</p> <ul style="list-style-type: none"> . names and describes two- and three-dimensional figures (e.g., circles, polygons, trapezoids, prisms, spheres). . compares, sorts, and classifies the figures. . draws and constructs physical models. . explains how these figures are related to objects in the environment. . uses physical materials and motion geometry (e.g., slides, flips, and turns). . identifies symmetry and similarity between 2- and 3-D figures. . identifies and uses relationships among figures (i.e. location, position). 	<ul style="list-style-type: none"> • Manipulatives (Tangrams, Pattern Blocks, Pentominoes, 3-D Shapes, etc.) • Following Oral Directions to produce a figure/drawing • TPR • Math Journals • Graphic Organizers • Observations • Following Oral Directions • Manipulatives
<p>Above objective aligned with AASD standards: Math: Geometry</p>		

. Measurement

Course Objectives	Performance Indicators	Classroom Assessments
<p>1. Select and use appropriate tools (including technology) and techniques to measure things.</p>	<p>Performance will be satisfactory when the student:</p> <ul style="list-style-type: none"> . demonstrates, shows, and uses measurable attributes such as length, liquid capacity, time, weight (mass), temperature, volume, and money, and identifies the appropriate units to measure. . uses and decides appropriate measurements in problem-solving situations. . demonstrates the use of measuring instruments. . demonstrates conversion of standard units within a system (such as yards, feet, and inches). . estimates and/or calculates basic length and width, weight, money, time, and temperature. 	<ul style="list-style-type: none"> • Manipulatives (Clocks, Measuring Cups, Scales, Calendars, Money, Rulers, Thermometers, etc.) • Measuring Classroom Objects • Cooking • Math Journals • Observations
<p>Above objective aligned with AASD standards: Math: Measurement</p>		

E. Statistics & Probability

Course Objectives	Performance Indicators	Classroom Assessments
<p>1. Use data collection and probability to problem-solve.</p>	<p>Performance will be satisfactory when the student:</p> <ul style="list-style-type: none"> . applies problem-solving strategies (e.g. Makes predictions, collects data, draws conclusions, etc.). . describes and interprets a set of data (Use high and low values and most frequent value). . makes predictions and determines probability of future events and test predictions using data from a variety of sources. 	<ul style="list-style-type: none"> • Manipulatives • Math Journals • Observations • Graphs, Charts, Tables • Word Problems
<p>Above objective aligned with AASD standards: Math: Statistics & Probability</p>		

F. Algebraic Relationships

Course Objectives	Performance Indicators	Classroom Assessments
1. Discover and describe simple patterns and relationships.	Performance will be satisfactory when the student: <ul style="list-style-type: none"> . uses letters, boxes, or other symbols to stand for any number (e.g., $N+0=N$ is true for any number, different ways to make 10, 100, \$1.00). . recognizes and generates basic fact families of addition and subtraction. . uses the vocabulary, symbols, and notation of algebra accurately (e.g. =, <, >). . uses simple equations and inequalities in a variety of ways (e.g. to represent story problems). . works with simple linear patterns and relationships in a variety of ways (e.g. Recognizes and extends number patterns, describing them verbally, representing them with tables, charts, and graphs). 	<ul style="list-style-type: none"> • Manipulatives • Written Assignments • Math Journals • Oral Presentations
Above objective aligned with AASD standards: Math: Algebraic Relationships		