

Kindergarten

The kindergarten standards place emphasis on developing the concept of number by counting; combining, sorting, and comparing sets of objects; recognizing and describing simple repeating patterns; and recognizing shapes and sizes of figures and objects. Students will investigate nonstandard measurement, collect data, and create graphs. The idea of fractions will be introduced.

While learning mathematics, students will be actively engaged, using concrete materials and appropriate technologies such as calculators and computers. However, facility in the use of technology shall not be regarded as a substitute for a student's understanding of quantitative concepts and relationships or for proficiency in basic computations.

Mathematics has its own language, and the acquisition of specialized vocabulary and language patterns is crucial to a student's understanding and appreciation of the subject. Students should be encouraged to use correctly the concepts, skills, symbols, and vocabulary identified in the following set of standards.

Problem solving has been integrated throughout the six content strands. The development of problem-solving skills should be a major goal of the mathematics program at every grade level. Instruction in the process of problem solving will need to be integrated early and continuously into each student's mathematics education. Students must be helped to develop a wide range of skills and strategies for solving a variety of problem types.

Number and Number Sense

Focus: Whole Number Concepts

- K.1 The student, given two sets, each containing 10 or fewer concrete objects, will identify and describe one set as having more, fewer, or the same number of members as the other set, using the concept of one-to-one correspondence.
- K.2 The student, given a set containing 15 or fewer concrete objects, will
 - a) tell how many are in the set by counting the number of objects orally;
 - b) write the numeral to tell how many are in the set; and
 - c) select the corresponding numeral from a given set of numerals.
- K.3 The student, given an ordered set of ten objects and/or pictures, will indicate the ordinal position of each object, first through tenth, and the ordered position of each object.
- K.4 The student will
 - a) count forward to 100 and backward from 10;
 - b) identify one more than a number and one less than a number; and
 - c) count by fives and tens to 100.
- K.5 The student will identify the parts of a set and/or region that represent fractions for halves and fourths.

Computation and Estimation

Focus: Whole Number Operations

- K.6 The student will model adding and subtracting whole numbers, using up to 10 concrete objects.

Measurement

Focus: Instruments and Attributes

- K.7 The student will recognize a penny, nickel, dime, and quarter and will determine the value of a collection of pennies and/or nickels whose total value is 10 cents or less.
- K.8 The student will identify the instruments used to measure length (ruler), weight (scale), time (clock: digital and analog; calendar: day, month, and season), and temperature (thermometer).

- K.9 The student will tell time to the hour, using analog and digital clocks.
- K.10 The student will compare two objects or events, using direct comparisons or nonstandard units of measure, according to one or more of the following attributes: length (shorter, longer), height (taller, shorter), weight (heavier, lighter), temperature (hotter, colder). Examples of nonstandard units include foot length, hand span, new pencil, paper clip, and block.

Geometry

Focus: Plane Figures

- K.11 The student will
- identify, describe, and trace plane geometric figures (circle, triangle, square, and rectangle); and
 - compare the size (larger, smaller) and shape of plane geometric figures (circle, triangle, square, and rectangle).
- K.12 The student will describe the location of one object relative to another (above, below, next to) and identify representations of plane geometric figures (circle, triangle, square, and rectangle) regardless of their positions and orientations in space.

Probability and Statistics

Focus: Data Collection and Display

- K.13 The student will gather data by counting and tallying.
- K.14 The student will display gathered data in object graphs, picture graphs, and tables, and will answer questions related to the data.

Patterns, Functions, and Algebra

Focus: Attributes and Patterning

- K.15 The student will sort and classify objects according to attributes.
- K.16 The student will identify, describe, and extend repeating patterns.

ELD STANDARD 3: The Language of Mathematics

EXAMPLE TOPIC: Attributes of objects

CONNECTION: *Common Core Standards for Mathematics, Measurement and Data #1–2 (Kindergarten):* Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.; Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference. For example, directly compare the heights of two children and describe one child as taller/shorter.

EXAMPLE CONTEXT FOR LANGUAGE USE: Students talk with classmates about real objects at a math center and sort them according to attributes.

COGNITIVE FUNCTION: Students at all levels of English language proficiency ANALYZE the attributes of objects.											
SPEAKING	Level 1 Entering	Indicate attributes of objects (e.g., “big,” “small”) using gestures and words in small groups	Level 2 Emerging	Describe attributes of objects (e.g., “a small ball,” “a big ball”) using gestures and words in small groups	Level 3 Developing	Describe in detail attributes of objects (e.g., “the smaller ball”) in small groups	Level 4 Expanding	Compare attributes of objects (e.g., “This is the biggest ball.”) in small groups	Level 5 Bridging	Specify similarities and differences in attributes of objects (e.g., “The chalk and the crayon are short. The pencil is longer.”) in small groups	Level 6 – Reaching
	TOPIC-RELATED LANGUAGE: Students at all levels of English language proficiency interact with grade-level words and expressions, such as: bigger, smaller, heavier, lighter, longer/ taller, shorter										

Figure O: Guiding Questions for the Components of WIDA English Language Development Strands

GRADE: _____



ELD STANDARD: _____ **EXAMPLE TOPIC:** _____
 What is one of the topics addressed in the selected content standard(s)?

CONNECTION: Which state content standards, including the Common Core, form the basis of related lessons or a unit of study? What are the essential concepts and skills embedded in the content standards? What is the language associated with these grade-level concepts and skills?

EXAMPLE CONTEXT FOR LANGUAGE USE: What is the purpose of the content work, task, or product? What roles or identities do the students assume? What register is required of the task? What are the genres of text types with which the students are interacting?

	Level 1 Entering	Level 2 Emerging	Level 3 Developing	Level 4 Expanding	Level 5 Bridging	Level 6 – Reaching
<p>COGNITIVE FUNCTION: What is the level of cognitive engagement for the given task? Does the level of cognitive engagement match or exceed that of the content standards?</p>	<p>Language Domain(s): How will learners process and use language?</p> <p>A Strand of Model Performance Indicators:</p> <p>What language are the students expected to process or produce at each level of proficiency?</p> <p>Which language functions reflect the cognitive function at each level of proficiency?</p> <p>Which instructional supports (sensory, graphic, and interactive) are necessary for students to access content?</p>					
<p>TOPIC-RELATED LANGUAGE: With which grade-level words and expressions will all students interact?</p>						

Grade One

The first-grade standards place emphasis on counting, sorting, and comparing sets of up to 100 objects; recognizing and describing simple repeating and growing patterns; and tracing, describing, and sorting plane geometric figures. Students' understanding of number will be expanded through learning and applying the basic addition facts through the nines table and the corresponding subtraction facts; using nonstandard units to measure; and organizing and interpreting data. Fractional concepts will be expanded.

While learning mathematics, students will be actively engaged, using concrete materials and appropriate technologies such as calculators and computers. However, facility in the use of technology shall not be regarded as a substitute for a student's understanding of quantitative concepts and relationships or for proficiency in basic computations.

Mathematics has its own language, and the acquisition of specialized vocabulary and language patterns is crucial to a student's understanding and appreciation of the subject. Students should be encouraged to use correctly the concepts, skills, symbols, and vocabulary identified in the following set of standards.

Problem solving has been integrated throughout the six content strands. The development of problem-solving skills should be a major goal of the mathematics program at every grade level. Instruction in the process of problem solving will need to be integrated early and continuously into each student's mathematics education. Students must be helped to develop a wide range of skills and strategies for solving a variety of problem types.

Number and Number Sense

Focus: Place Value and Fraction Concepts

- 1.1 The student will
 - a) count from 0 to 100 and write the corresponding numerals; and
 - b) group a collection of up to 100 objects into tens and ones and write the corresponding numeral to develop an understanding of place value.
- 1.2 The student will count forward by ones, twos, fives, and tens to 100 and backward by ones from 30.
- 1.3 The student will identify the parts of a set and/or region that represent fractions for halves, thirds, and fourths and write the fractions.

Computation and Estimation

Focus: Whole Number Operations

- 1.4 The student, given a familiar problem situation involving magnitude, will
 - a) select a reasonable order of magnitude from three given quantities: a one-digit numeral, a two-digit numeral, and a three-digit numeral (e.g., 5, 50, 500); and
 - b) explain the reasonableness of the choice.
- 1.5 The student will recall basic addition facts with sums to 18 or less and the corresponding subtraction facts.
- 1.6 The student will create and solve one-step story and picture problems using basic addition facts with sums to 18 or less and the corresponding subtraction facts.

Measurement

Focus: Time and Nonstandard Measurement

- 1.7 The student will
 - a) identify the number of pennies equivalent to a nickel, a dime, and a quarter; and
 - b) determine the value of a collection of pennies, nickels, and dimes whose total value is 100 cents or less.

- 1.8 The student will tell time to the half-hour, using analog and digital clocks.
- 1.9 The student will use nonstandard units to measure length, weight/mass, and volume.
- 1.10 The student will compare, using the concepts of more, less, and equivalent,
 - a) the volumes of two given containers; and
 - b) the weight/mass of two objects, using a balance scale.
- 1.11 The student will use calendar language appropriately (e.g., names of the months, *today*, *yesterday*, *next week*, *last week*).

Geometry

Focus: Characteristics of Plane Figures

- 1.12 The student will identify and trace, describe, and sort plane geometric figures (triangle, square, rectangle, and circle) according to number of sides, vertices, and right angles.
- 1.13 The student will construct, model, and describe objects in the environment as geometric shapes (triangle, rectangle, square, and circle) and explain the reasonableness of each choice.

Probability and Statistics

Focus: Data Collection and Interpretation

- 1.14 The student will investigate, identify, and describe various forms of data collection (e.g., recording daily temperature, lunch count, attendance, favorite ice cream), using tables, picture graphs, and object graphs.
- 1.15 The student will interpret information displayed in a picture or object graph, using the vocabulary *more*, *less*, *fewer*, *greater than*, *less than*, and *equal to*.

Patterns, Functions, and Algebra

Focus: Patterning and Equivalence

- 1.16 The student will sort and classify concrete objects according to one or more attributes, including color, size, shape, and thickness.
- 1.17 The student will recognize, describe, extend, and create a wide variety of growing and repeating patterns.
- 1.18 The student will demonstrate an understanding of equality through the use of the equal sign.

ELD STANDARD 3: The Language of Mathematics

EXAMPLE TOPIC: Measurement of objects

CONNECTION: *Common Core Standards for Mathematics, Measurement and Data #1 (Grade 1):* Order three objects by length; compare the lengths of two objects indirectly by using a third object.

EXAMPLE CONTEXT FOR LANGUAGE USE: Students work independently or with a partner to create charts about the length of objects using standard and non-standard measurement tools (e.g., paper clips, popsicle sticks, string, rulers, yard/meter sticks).

COGNITIVE FUNCTION: Students at all levels of English language proficiency ANALYZE the relative length of objects.						
	Level 1 Entering	Level 2 Emerging	Level 3 Developing	Level 4 Expanding	Level 5 Bridging	Level 6 – Reaching
LISTENING	Follow oral instructions to identify lengths of objects following a model with a partner	Follow oral instructions to categorize objects according to their length following a model with a partner	Follow oral instructions to order objects according to their lengths following a model with a partner	Follow oral instructions to compare the lengths of objects using a template with a partner	Follow multi-step oral instructions to compare the lengths of objects with a partner	
TOPIC-RELATED LANGUAGE: Students at all levels of English language proficiency interact with grade-level words and expressions, such as: inches/centimeters, foot, yard/meter, length, chart, standard, non-standard						

See expanded
version of this strand
on pp. 24–25

Figure O: Guiding Questions for the Components of WIDA English Language Development Strands

GRADE: _____



ELD STANDARD: _____ **EXAMPLE TOPIC:** What is one of the topics addressed in the selected content standard(s)?

CONNECTION: Which state content standards, including the Common Core, form the basis of related lessons or a unit of study? What are the essential concepts and skills embedded in the content standards? What is the language associated with these grade-level concepts and skills?

EXAMPLE CONTEXT FOR LANGUAGE USE: What is the purpose of the content work, task, or product? What roles or identities do the students assume? What register is required of the task? What are the genres of text types with which the students are interacting?

COGNITIVE FUNCTION: What is the level of cognitive engagement for the given task? Does the level of cognitive engagement match or exceed that of the content standards?						
Language Domain(s): How will learners process and use language?	Level 1 Entering	Level 2 Emerging	Level 3 Developing	Level 4 Expanding	Level 5 Bridging	Level 6 – Reaching
	<p>A Strand of Model Performance Indicators:</p> <p>What language are the students expected to process or produce at each level of proficiency?</p> <p>Which language functions reflect the cognitive function at each level of proficiency?</p> <p>Which instructional supports (sensory, graphic, and interactive) are necessary for students to access content?</p>					
TOPIC-RELATED LANGUAGE: With which grade-level words and expressions will all students interact?						

Grade Two

The second-grade standards extend the study of number and spatial sense to include three-digit whole numbers and solid geometric figures. Students will continue to learn, use, and gain proficiency in the basic addition facts through the tens table and the corresponding subtraction facts. Students will begin to use U.S. Customary and metric units of measure; predict, using simple probability; and create and interpret picture and bar graphs. Students will work with a variety of patterns and will develop knowledge of equality by identifying missing numbers in addition and subtraction facts.

While learning mathematics, students will be actively engaged, using concrete materials and appropriate technologies such as calculators and computers. However, facility in the use of technology shall not be regarded as a substitute for a student's understanding of quantitative concepts and relationships or for proficiency in basic computations.

Mathematics has its own language, and the acquisition of specialized vocabulary and language patterns is crucial to a student's understanding and appreciation of the subject. Students should be encouraged to use correctly the concepts, skills, symbols, and vocabulary identified in the following set of standards.

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Number and Number Sense

Focus: Place Value, Number Patterns, and Fraction Concepts

- 2.1 The student will
 - a) read, write, and identify the place value of each digit in a three-digit numeral, using numeration models;
 - b) round two-digit numbers to the nearest ten; and
 - c) compare two whole numbers between 0 and 999, using symbols ($>$, $<$, or $=$) and words (*greater than*, *less than*, or *equal to*).
- 2.2 The student will
 - a) identify the ordinal positions first through twentieth, using an ordered set of objects; and
 - b) write the ordinal numbers.
- 2.3 The student will
 - a) identify the parts of a set and/or region that represent fractions for halves, thirds, fourths, sixths, eighths, and tenths;
 - b) write the fractions; and
 - c) compare the unit fractions for halves, thirds, fourths, sixths, eighths, and tenths.
- 2.4 The student will
 - a) count forward by twos, fives, and tens to 100, starting at various multiples of 2, 5, or 10;
 - b) count backward by tens from 100; and
 - c) recognize even and odd numbers.

Computation and Estimation

Focus: Number Relationships and Operations

- 2.5 The student will recall addition facts with sums to 20 or less and the corresponding subtraction facts.

- 2.6 The student, given two whole numbers whose sum is 99 or less, will
 - a) estimate the sum; and
 - b) find the sum, using various methods of calculation.
- 2.7 The student, given two whole numbers, each of which is 99 or less, will
 - a) estimate the difference; and
 - b) find the difference, using various methods of calculation.
- 2.8 The student will create and solve one- and two-step addition and subtraction problems, using data from simple tables, picture graphs, and bar graphs.
- 2.9 The student will recognize and describe the related facts that represent and describe the inverse relationship between addition and subtraction.

Measurement

Focus: Money, Linear Measurement, Weight/Mass, and Volume

- 2.10 The student will
 - a) count and compare a collection of pennies, nickels, dimes, and quarters whose total value is \$2.00 or less; and
 - b) correctly use the cent symbol (¢), dollar symbol (\$), and decimal point (.
- 2.11 The student will estimate and measure
 - a) length to the nearest centimeter and inch;
 - b) weight/mass of objects in pounds/ounces and kilograms/grams, using a scale; and
 - c) liquid volume in cups, pints, quarts, gallons, and liters.
- 2.12 The student will tell and write time to the nearest five minutes, using analog and digital clocks.
- 2.13 The student will
 - a) determine past and future days of the week; and
 - b) identify specific days and dates on a given calendar.
- 2.14 The student will read the temperature on a Celsius and/or Fahrenheit thermometer to the nearest 10 degrees.

Geometry

Focus: Symmetry and Plane and Solid Figures

- 2.15 The student will
 - a) draw a line of symmetry in a figure; and
 - b) identify and create figures with at least one line of symmetry.
- 2.16 The student will identify, describe, compare, and contrast plane and solid geometric figures (circle/sphere, square/cube, and rectangle/rectangular prism).

Probability and Statistics

Focus: Applications of Data

- 2.17 The student will use data from experiments to construct picture graphs, pictographs, and bar graphs.
- 2.18 The student will use data from experiments to predict outcomes when the experiment is repeated.
- 2.19 The student will analyze data displayed in picture graphs, pictographs, and bar graphs.

Patterns, Functions, and Algebra

Focus: Patterning and Numerical Sentences

- 2.20 The student will identify, create, and extend a wide variety of patterns.

- 2.21 The student will solve problems by completing numerical sentences involving the basic facts for addition and subtraction. The student will create story problems, using the numerical sentences.
- 2.22 The student will demonstrate an understanding of equality by recognizing that the symbol = in an equation indicates equivalent quantities and the symbol \neq indicates that quantities are not equivalent.

ELD STANDARD 3: The Language of Mathematics

EXAMPLE TOPIC: Money

CONNECTION: *Common Core Standards for Mathematics, Measurement and Data #8 (Grade 2):* Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ symbols appropriately.

EXAMPLE CONTEXT FOR LANGUAGE USE: Students act out real-life mathematics scenarios related to money (e.g., to make purchases in a classroom store).

READING	COGNITIVE FUNCTION: Students at all levels of English language proficiency will ANALYZE text of word problems.				
	Level 1 Entering	Match words and phrases (e.g., “more than,” “less than,” “take away”) involving money and value to operations (e.g., +, -) using illustrated word cards and realia with a partner			
	Level 2 Emerging	Find words and phrases involving money and value from illustrated text using realia with a partner			
	Level 3 Developing	Sequence sentences to decide how to solve word problems involving money and value using realia with a partner			
	Level 4 Expanding	Locate clues for solving problems involving money and value from simplified text (e.g., written in present tense with familiar contexts) using realia with a partner			
	Level 5 Bridging	Categorize word problems (e.g., by addition or subtraction) involving money and value using realia			
		Level 6 - Reaching			
TOPIC-RELATED LANGUAGE: Students at all levels of English language proficiency interact with grade-level words and expressions, such as: total, enough, cost, change, left over, solve					

Figure O: Guiding Questions for the Components of WIDA English Language Development Strands

GRADE: _____



ELD STANDARD: _____ **EXAMPLE TOPIC:** _____
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CONNECTION: Which state content standards, including the Common Core, form the basis of related lessons or a unit of study? What are the essential concepts and skills embedded in the content standards? What is the language associated with these grade-level concepts and skills?

EXAMPLE CONTEXT FOR LANGUAGE USE: What is the purpose of the content work, task, or product? What roles or identities do the students assume? What register is required of the task? What are the genres of text types with which the students are interacting?

	Level 1 Entering	Level 2 Emerging	Level 3 Developing	Level 4 Expanding	Level 5 Bridging	Level 6 – Reaching
<p>COGNITIVE FUNCTION: What is the level of cognitive engagement for the given task? Does the level of cognitive engagement match or exceed that of the content standards?</p> <p>Language Domain(s): How will learners process and use language?</p> <p>A Strand of Model Performance Indicators: What language are the students expected to process or produce at each level of proficiency? Which language functions reflect the cognitive function at each level of proficiency? Which instructional supports (sensory, graphic, and interactive) are necessary for students to access content?</p>						
<p>TOPIC-RELATED LANGUAGE: With which grade-level words and expressions will all students interact?</p>						

Grade Three

The third-grade standards place emphasis on learning multiplication and division facts through the twelves table. Students will be fluent in the basic addition facts through the tens table and the corresponding subtraction facts. Concrete materials and two-dimensional representations will be used to introduce addition and subtraction with fractions and the concept of probability as chance. Students will use standard units (U.S. Customary and metric) to measure temperature, length, liquid volume, and weight and identify relevant properties of shapes, points, line segments, rays, angles, vertices, and lines. Students will investigate and describe the identity and commutative properties for addition and multiplication.

While learning mathematics, students will be actively engaged, using concrete materials and appropriate technologies such as calculators and computers. However, facility in the use of technology shall not be regarded as a substitute for a student's understanding of quantitative concepts and relationships or for proficiency in basic computations.

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Number and Number Sense

Focus: Place Value and Fractions

- 3.1 The student will
 - a) read and write six-digit numerals and identify the place value and value of each digit;
 - b) round whole numbers, 9,999 or less, to the nearest ten, hundred, and thousand; and
 - c) compare two whole numbers between 0 and 9,999, using symbols ($>$, $<$, or $=$) and words (*greater than*, *less than*, or *equal to*).
- 3.2 The student will recognize and use the inverse relationships between addition/subtraction and multiplication/division to complete basic fact sentences. The student will use these relationships to solve problems.
- 3.3 The student will
 - a) name and write fractions (including mixed numbers) represented by a model;
 - b) model fractions (including mixed numbers) and write the fractions' names; and
 - c) compare fractions having like and unlike denominators, using words and symbols ($>$, $<$, or $=$).

Computation and Estimation

Focus: Computation and Fraction Operations

- 3.4 The student will estimate solutions to and solve single-step and multistep problems involving the sum or difference of two whole numbers, each 9,999 or less, with or without regrouping.
- 3.5 The student will recall multiplication facts through the twelves table, and the corresponding division facts.
- 3.6 The student will represent multiplication and division, using area, set, and number line models, and create and solve problems that involve multiplication of two whole numbers, one factor 99 or less and the second factor 5 or less.

- 3.7 The student will add and subtract proper fractions having like denominators of 12 or less.

Measurement

Focus: U.S. Customary and Metric Units, Area and Perimeter, and Time

- 3.8 The student will determine, by counting, the value of a collection of bills and coins whose total value is \$5.00 or less, compare the value of the bills and coins, and make change.
- 3.9 The student will estimate and use U.S. Customary and metric units to measure
- length to the nearest $\frac{1}{2}$ -inch, inch, foot, yard, centimeter, and meter;
 - liquid volume in cups, pints, quarts, gallons, and liters;
 - weight/mass in ounces, pounds, grams, and kilograms; and
 - area and perimeter.
- 3.10 The student will
- measure the distance around a polygon in order to determine perimeter; and
 - count the number of square units needed to cover a given surface in order to determine area.
- 3.11 The student will
- tell time to the nearest minute, using analog and digital clocks; and
 - determine elapsed time in one-hour increments over a 12-hour period.
- 3.12 The student will identify equivalent periods of time, including relationships among days, months, and years, as well as minutes and hours.
- 3.13 The student will read temperature to the nearest degree from a Celsius thermometer and a Fahrenheit thermometer. Real thermometers and physical models of thermometers will be used.

Geometry

Focus: Properties and Congruence Characteristics of Plane and Solid Figures

- 3.14 The student will identify, describe, compare, and contrast characteristics of plane and solid geometric figures (circle, square, rectangle, triangle, cube, rectangular prism, square pyramid, sphere, cone, and cylinder) by identifying relevant characteristics, including the number of angles, vertices, and edges, and the number and shape of faces, using concrete models.
- 3.15 The student will identify and draw representations of points, line segments, rays, angles, and lines.
- 3.16 The student will identify and describe congruent and noncongruent plane figures.

Probability and Statistics

Focus: Applications of Data and Chance

- 3.17 The student will
- collect and organize data, using observations, measurements, surveys, or experiments;
 - construct a line plot, a picture graph, or a bar graph to represent the data; and
 - read and interpret the data represented in line plots, bar graphs, and picture graphs and write a sentence analyzing the data.
- 3.18 The student will investigate and describe the concept of probability as chance and list possible results of a given situation.

Patterns, Functions, and Algebra

Focus: Patterns and Property Concepts

- 3.19 The student will recognize and describe a variety of patterns formed using numbers, tables, and pictures, and extend the patterns, using the same or different forms.

- 3.20 The student will
- a) investigate the identity and the commutative properties for addition and multiplication; and
 - b) identify examples of the identity and commutative properties for addition and multiplication.

ELD STANDARD 3: The Language of Mathematics

EXAMPLE TOPIC: Area

CONNECTION: *Common Core Standards for Mathematics, Measurement and Data #5–6 (Grade 3):* Recognize area as an attribute of plane figures and understand concepts of area measurement... Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).

EXAMPLE CONTEXT FOR LANGUAGE USE: Students follow directions to arrange manipulatives into shapes representing specified areas (e.g., to create building floor plans or plan a community garden).

COGNITIVE FUNCTION: Students at all levels of English language proficiency CREATE floor plans or models.						
	Level 1 Entering	Level 2 Emerging	Level 3 Developing	Level 4 Expanding	Level 5 Bridging	Level 6 – Reaching
LISTENING	Follow simple oral commands to design area maps using manipulatives and illustrated examples (e.g., “Make a square like this.”) in small groups	Follow simple oral directions to design area maps using manipulatives and illustrated examples in small groups	Follow oral directions to design area maps using manipulatives and illustrated examples in small groups	Follow detailed oral directions to design area maps using manipulatives in small groups (e.g., “The area for beans needs to be less than 12 square units. Make the side less than 4 units long.”)	Follow complex oral specifications to design area maps using manipulatives in small groups (e.g., “The total area of the garden is 50 square units. Each tomato plant requires 5 square units. Draw an area for the tomatoes.”)	
TOPIC-RELATED LANGUAGE: Students at all levels of English language proficiency interact with grade-level words and expressions, such as: square unit, unit squares, length, width, area						

Figure O: Guiding Questions for the Components of WIDA English Language Development Strands

GRADE: _____



ELD STANDARD: _____ **EXAMPLE TOPIC:** What is one of the topics addressed in the selected content standard(s)?

CONNECTION: Which state content standards, including the Common Core, form the basis of related lessons or a unit of study? What are the essential concepts and skills embedded in the content standards? What is the language associated with these grade-level concepts and skills?

EXAMPLE CONTEXT FOR LANGUAGE USE: What is the purpose of the content work, task, or product? What roles or identities do the students assume? What register is required of the task? What are the genres of text types with which the students are interacting?

COGNITIVE FUNCTION: What is the level of cognitive engagement for the given task? Does the level of cognitive engagement match or exceed that of the content standards?						
Language Domain(s): How will learners process and use language?	Level 1 Entering	Level 2 Emerging	Level 3 Developing	Level 4 Expanding	Level 5 Bridging	Level 6 – Reaching
	<p>A Strand of Model Performance Indicators:</p> <p>What language are the students expected to process or produce at each level of proficiency?</p> <p>Which language functions reflect the cognitive function at each level of proficiency?</p> <p>Which instructional supports (sensory, graphic, and interactive) are necessary for students to access content?</p>					
TOPIC-RELATED LANGUAGE: With which grade-level words and expressions will all students interact?						

Grade Four

The fourth-grade standards place emphasis on multiplication and division with whole numbers and solving problems involving addition and subtraction of fractions and decimals by finding common multiples and factors. Students will be fluent in the basic multiplication facts through the twelves table and the corresponding division facts as they become proficient in multiplying larger numbers. Students also will refine their estimation skills for computations and measurements. Students will identify and describe representations of points, lines, line segments, rays, and angles, including endpoints and vertices. Concrete materials and two-dimensional representations will be used to solve problems involving perimeter, patterns, probability, and equivalence of fractions and decimals. Students will recognize images of figures resulting from geometric transformations, such as reflection, translation, and rotation. Students will investigate and describe the associative property for addition and multiplication.

While learning mathematics, students will be actively engaged, using concrete materials and appropriate technologies such as calculators and computers. However, facility in the use of technology shall not be regarded as a substitute for a student's understanding of quantitative concepts and relationships or for proficiency in basic computations.

Mathematics has its own language, and the acquisition of specialized vocabulary and language patterns is crucial to a student's understanding and appreciation of the subject. Students should be encouraged to use correctly the concepts, skills, symbols, and vocabulary identified in the following set of standards.

Problem solving has been integrated throughout the six content strands. The development of problem-solving skills should be a major goal of the mathematics program at every grade level. Instruction in the process of problem solving will need to be integrated early and continuously into each student's mathematics education. Students must be helped to develop a wide range of skills and strategies for solving a variety of problem types.

Number and Number Sense

Focus: Place Value, Fractions, and Decimals

- 4.1 The student will
 - a) identify orally and in writing the place value for each digit in a whole number expressed through millions;
 - b) compare two whole numbers expressed through millions, using symbols ($>$, $<$, or $=$); and
 - c) round whole numbers expressed through millions to the nearest thousand, ten thousand, and hundred thousand.
- 4.2 The student will
 - a) compare and order fractions and mixed numbers;
 - b) represent equivalent fractions; and
 - c) identify the division statement that represents a fraction.
- 4.3 The student will
 - a) read, write, represent, and identify decimals expressed through thousandths;
 - b) round decimals to the nearest whole number, tenth, and hundredth;
 - c) compare and order decimals; and
 - d) given a model, write the decimal and fraction equivalents.

Computation and Estimation

Focus: Factors and Multiples, and Fraction and Decimal Operations

- 4.4 The student will
- estimate sums, differences, products, and quotients of whole numbers;
 - add, subtract, and multiply whole numbers;
 - divide whole numbers, finding quotients with and without remainders; and
 - solve single-step and multistep addition, subtraction, and multiplication problems with whole numbers.
- 4.5 The student will
- determine common multiples and factors, including least common multiple and greatest common factor;
 - add and subtract fractions having like and unlike denominators that are limited to 2, 3, 4, 5, 6, 8, 10, and 12, and simplify the resulting fractions, using common multiples and factors;
 - add and subtract with decimals; and
 - solve single-step and multistep practical problems involving addition and subtraction with fractions and with decimals.

Measurement

Focus: Equivalence within U.S. Customary and Metric Systems

- 4.6 The student will
- estimate and measure weight/mass and describe the results in U.S. Customary and metric units as appropriate; and
 - identify equivalent measurements between units within the U.S. Customary system (ounces, pounds, and tons) and between units within the metric system (grams and kilograms).
- 4.7 The student will
- estimate and measure length, and describe the result in both metric and U.S. Customary units; and
 - identify equivalent measurements between units within the U.S. Customary system (inches and feet; feet and yards; inches and yards; yards and miles) and between units within the metric system (millimeters and centimeters; centimeters and meters; and millimeters and meters).
- 4.8 The student will
- estimate and measure liquid volume and describe the results in U.S. Customary units; and
 - identify equivalent measurements between units within the U.S. Customary system (cups, pints, quarts, and gallons).
- 4.9 The student will determine elapsed time in hours and minutes within a 12-hour period.

Geometry

Focus: Representations and Polygons

- 4.10 The student will
- identify and describe representations of points, lines, line segments, rays, and angles, including endpoints and vertices; and
 - identify representations of lines that illustrate intersection, parallelism, and perpendicularity.

- 4.11 The student will
- a) investigate congruence of plane figures after geometric transformations, such as reflection, translation, and rotation, using mirrors, paper folding, and tracing; and
 - b) recognize the images of figures resulting from geometric transformations, such as translation, reflection, and rotation.
- 4.12 The student will
- a) define *polygon*; and
 - b) identify polygons with 10 or fewer sides.

Probability and Statistics

Focus: Outcomes and Data

- 4.13 The student will
- a) predict the likelihood of an outcome of a simple event; and
 - b) represent probability as a number between 0 and 1, inclusive.
- 4.14 The student will collect, organize, display, and interpret data from a variety of graphs.

Patterns, Functions, and Algebra

Focus: Geometric Patterns, Equality, and Properties

- 4.15 The student will recognize, create, and extend numerical and geometric patterns.
- 4.16 The student will
- a) recognize and demonstrate the meaning of equality in an equation; and
 - b) investigate and describe the associative property for addition and multiplication.

ELD STANDARD 3: The Language of Mathematics

EXAMPLE TOPIC: Lines & angles

CONNECTION: *Common Core Standards for Mathematics, Geometry #1–2 (Grade 4):* Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.

EXAMPLE CONTEXT FOR LANGUAGE USE: Students build models or posters with photo displays specifying the lines and angles they find in their school, home, or community.

COGNITIVE FUNCTION: Students at all levels of English language proficiency APPLY their understanding of lines and angles to everyday situations.						
	Level 1 Entering	Level 2 Emerging	Level 3 Developing	Level 4 Expanding	Level 5 Bridging	Level 6 – Reaching
WRITING	Label types of lines and angles according to their properties using realia and graphic support	Define types of lines and angles according to their properties using realia and graphic support (e.g., “Obtuse > 90 degrees”)	Describe types of lines and angles according to their properties using realia and graphic support	Compare and contrast types of lines or angles according to their properties using realia and graphic support	Explain types of lines and angles according to their properties using realia (e.g., “My desk has four right angles on the top, which are 90 degrees. Each leg of the desk has two acute angles of 55 degrees and two obtuse angles of 125 degrees.”)	
TOPIC-RELATED LANGUAGE: Students at all levels of English language proficiency interact with grade-level words and expressions, such as: obtuse, acute, right or 90-degree angle, parallel and perpendicular lines, end points, rays, vertex, line segment						

Figure O: Guiding Questions for the Components of WIDA English Language Development Strands

GRADE: _____



ELD STANDARD: _____ **EXAMPLE TOPIC:** What is one of the topics addressed in the selected content standard(s)?

CONNECTION: Which state content standards, including the Common Core, form the basis of related lessons or a unit of study? What are the essential concepts and skills embedded in the content standards? What is the language associated with these grade-level concepts and skills?

EXAMPLE CONTEXT FOR LANGUAGE USE: What is the purpose of the content work, task, or product? What roles or identities do the students assume? What register is required of the task? What are the genres of text types with which the students are interacting?

COGNITIVE FUNCTION: What is the level of cognitive engagement for the given task? Does the level of cognitive engagement match or exceed that of the content standards?						
Language Domain(s): How will learners process and use language?	Level 1 Entering	Level 2 Emerging	Level 3 Developing	Level 4 Expanding	Level 5 Bridging	Level 6 – Reaching
	<p>A Strand of Model Performance Indicators:</p> <p>What language are the students expected to process or produce at each level of proficiency?</p> <p>Which language functions reflect the cognitive function at each level of proficiency?</p> <p>Which instructional supports (sensory, graphic, and interactive) are necessary for students to access content?</p>					
TOPIC-RELATED LANGUAGE: With which grade-level words and expressions will all students interact?						

Grade Five

The fifth-grade standards place emphasis on number sense with whole numbers, fractions, and decimals. This focus includes concepts of prime and composite numbers, identifying even and odd numbers, and solving problems using order of operations for positive whole numbers. Students will develop proficiency in the use of fractions and decimals to solve problems. Students will collect, display, and analyze data in a variety of ways and solve probability problems, using a sample space or tree diagram. Students also will solve problems involving volume, area, and perimeter. Students will be introduced to variable expressions and open sentences, and will model one-step linear equations in one variable, using addition and subtraction. Students will investigate and recognize the distributive property. All of these skills assist in the development of the algebraic concepts needed for success in the middle grades.

While learning mathematics, students will be actively engaged, using concrete materials and appropriate technologies such as calculators and computers. However, facility in the use of technology shall not be regarded as a substitute for a student's understanding of quantitative concepts and relationships or for proficiency in basic computations.

Mathematics has its own language, and the acquisition of specialized vocabulary and language patterns is crucial to a student's understanding and appreciation of the subject. Students should be encouraged to use correctly the concepts, skills, symbols, and vocabulary identified in the following set of standards.

Problem solving has been integrated throughout the six content strands. The development of problem-solving skills should be a major goal of the mathematics program at every grade level. Instruction in the process of problem solving will need to be integrated early and continuously into each student's mathematics education. Students must be helped to develop a wide range of skills and strategies for solving a variety of problem types.

Number and Number Sense

Focus: Prime and Composite Numbers and Rounding Decimals

- 5.1 The student, given a decimal through thousandths, will round to the nearest whole number, tenth, or hundredth.
- 5.2 The student will
 - a) recognize and name fractions in their equivalent decimal form and vice versa; and
 - b) compare and order fractions and decimals in a given set from least to greatest and greatest to least.
- 5.3 The student will
 - a) identify and describe the characteristics of prime and composite numbers; and
 - b) identify and describe the characteristics of even and odd numbers.

Computation and Estimation

Focus: Multistep Applications and Order of Operations

- 5.4 The student will create and solve single-step and multistep practical problems involving addition, subtraction, multiplication, and division with and without remainders of whole numbers.
- 5.5 The student will
 - a) find the sum, difference, product, and quotient of two numbers expressed as decimals through thousandths (divisors with only one nonzero digit); and
 - b) create and solve single-step and multistep practical problems involving decimals.
- 5.6 The student will solve single-step and multistep practical problems involving addition and subtraction with fractions and mixed numbers and express answers in simplest form.

- 5.7 The student will evaluate whole number numerical expressions, using the order of operations limited to parentheses, addition, subtraction, multiplication, and division.

Measurement

Focus: Perimeter, Area, Volume, and Equivalent Measures

- 5.8 The student will
- find perimeter, area, and volume in standard units of measure;
 - differentiate among perimeter, area, and volume and identify whether the application of the concept of perimeter, area, or volume is appropriate for a given situation;
 - identify equivalent measurements within the metric system;
 - estimate and then measure to solve problems, using U.S. Customary and metric units; and
 - choose an appropriate unit of measure for a given situation involving measurement using U.S. Customary and metric units.
- 5.9 The student will identify and describe the diameter, radius, chord, and circumference of a circle.
- 5.10 The student will determine an amount of elapsed time in hours and minutes within a 24-hour period.
- 5.11 The student will measure right, acute, obtuse, and straight angles.

Geometry

Focus: Classification and Subdividing

- 5.12 The student will classify
- angles as right, acute, obtuse, or straight; and
 - triangles as right, acute, obtuse, equilateral, scalene, or isosceles.
- 5.13 The student, using plane figures (square, rectangle, triangle, parallelogram, rhombus, and trapezoid), will
- develop definitions of these plane figures; and
 - investigate and describe the results of combining and subdividing plane figures.

Probability and Statistics

Focus: Outcomes and Measures of Center

- 5.14 The student will make predictions and determine the probability of an outcome by constructing a sample space.
- 5.15 The student, given a problem situation, will collect, organize, and interpret data in a variety of forms, using stem-and-leaf plots and line graphs.
- 5.16 The student will
- describe mean, median, and mode as measures of center;
 - describe mean as fair share;
 - find the mean, median, mode, and range of a set of data; and
 - describe the range of a set of data as a measure of variation.

Patterns, Functions, and Algebra

Focus: Equations and Properties

- 5.17 The student will describe the relationship found in a number pattern and express the relationship.

- 5.18 The student will
- a) investigate and describe the concept of variable;
 - b) write an open sentence to represent a given mathematical relationship, using a variable;
 - c) model one-step linear equations in one variable, using addition and subtraction; and
 - d) create a problem situation based on a given open sentence, using a single variable.
- 5.19 The student will investigate and recognize the distributive property of multiplication over addition.

ELD STANDARD 3: The Language of Mathematics

EXAMPLE TOPIC: Coordinate plane

CONNECTION: *Common Core State Standards for Mathematics, Geometry #1–2 (Grade 5):* Use a pair of perpendicular number lines, called axes, to define a coordinate system... Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.

EXAMPLE CONTEXT FOR LANGUAGE USE: Students practice referring to axes and coordinates in real-world situations with a partner.

COGNITIVE FUNCTION: Students at all levels of English language proficiency UNDERSTAND how to plot points on a coordinate plane.						
	Level 1 Entering	Level 2 Emerging	Level 3 Developing	Level 4 Expanding	Level 5 Bridging	Level 6 – Reaching
SPEAKING	Ask and answer yes/no questions related to coordinate planes using teacher modeling and visual support (e.g., “Is the house at (2,3)?” “Yes”)	Ask and answer simple Wh- questions related to coordinate planes using word banks and visual support (e.g., “Where is the school?” “It is at (5,7)”)	Describe the relationships among points on coordinate planes using word banks and visual support (e.g., “The new park will be one block from the school. It will be located at (4,7).”)	Describe real-world applications of plotting points and navigating distances between locations on coordinate planes using visual support	Explain real-world applications of plotting points and navigating distances between locations on coordinate planes	
TOPIC-RELATED LANGUAGE: Students at all levels of English language proficiency interact with grade-level words and expressions, such as: horizontal and vertical axes, coordinates, coordinate plane, ordered pair						

Figure O: Guiding Questions for the Components of WIDA English Language Development Strands

GRADE: _____



ELD STANDARD: _____ **EXAMPLE TOPIC:** What is one of the topics addressed in the selected content standard(s)?

CONNECTION: Which state content standards, including the Common Core, form the basis of related lessons or a unit of study? What are the essential concepts and skills embedded in the content standards? What is the language associated with these grade-level concepts and skills?

EXAMPLE CONTEXT FOR LANGUAGE USE: What is the purpose of the content work, task, or product? What roles or identities do the students assume? What register is required of the task? What are the genres of text types with which the students are interacting?

COGNITIVE FUNCTION: What is the level of cognitive engagement for the given task? Does the level of cognitive engagement match or exceed that of the content standards?						
Language Domain(s): How will learners process and use language?	Level 1 Entering	Level 2 Emerging	Level 3 Developing	Level 4 Expanding	Level 5 Bridging	Level 6 – Reaching
	<p>A Strand of Model Performance Indicators:</p> <p>What language are the students expected to process or produce at each level of proficiency?</p> <p>Which language functions reflect the cognitive function at each level of proficiency?</p> <p>Which instructional supports (sensory, graphic, and interactive) are necessary for students to access content?</p>					
TOPIC-RELATED LANGUAGE: With which grade-level words and expressions will all students interact?						

Grade Six

The sixth-grade standards are a transition from the emphasis placed on whole number arithmetic in the elementary grades to foundations of algebra. The standards emphasize rational numbers. Students will use ratios to compare data sets; recognize decimals, fractions, and percents as ratios; solve single-step and multistep problems, using rational numbers; and gain a foundation in the understanding of integers. Students will solve linear equations and use algebraic terminology. Students will solve problems involving area, perimeter, and surface area, work with π (pi), and focus on the relationships among the properties of quadrilaterals. In addition, students will focus on applications of probability and statistics.

While learning mathematics, students will be actively engaged, using concrete materials and appropriate technology such as calculators, computers, and spreadsheets. However, facility in the use of technology shall not be regarded as a substitute for a student's understanding of quantitative concepts and relationships or for proficiency in basic computations. Students will also identify real-life applications of the mathematical principles they are learning and apply these to science and other disciplines they are studying.

Mathematics has its own language, and the acquisition of specialized vocabulary and language patterns is crucial to a student's understanding and appreciation of the subject. Students should be encouraged to use correctly the concepts, skills, symbols, and vocabulary identified in the following set of standards.

Problem solving has been integrated throughout the six content strands. The development of problem-solving skills should be a major goal of the mathematics program at every grade level. Instruction in the process of problem solving will need to be integrated early and continuously into each student's mathematics education. Students must be helped to develop a wide range of skills and strategies for solving a variety of problem types.

Number and Number Sense

Focus: Relationships among Fractions, Decimals, and Percents

- 6.1 The student will describe and compare data, using ratios, and will use appropriate notations, such as $\frac{a}{b}$, a to b , and $a:b$.
- 6.2 The student will
- investigate and describe fractions, decimals, and percents as ratios;
 - identify a given fraction, decimal, or percent from a representation;
 - demonstrate equivalent relationships among fractions, decimals, and percents; and
 - compare and order fractions, decimals, and percents.
- 6.3 The student will
- identify and represent integers;
 - order and compare integers; and
 - identify and describe absolute value of integers.
- 6.4 The student will demonstrate multiple representations of multiplication and division of fractions.
- 6.5 The student will investigate and describe concepts of positive exponents and perfect squares.

Computation and Estimation

Focus: Applications of Operations with Rational Numbers

- 6.6 The student will
- multiply and divide fractions and mixed numbers; and
 - estimate solutions and then solve single-step and multistep practical problems involving addition, subtraction, multiplication, and division of fractions.

- 6.7 The student will solve single-step and multistep practical problems involving addition, subtraction, multiplication, and division of decimals.
- 6.8 The student will evaluate whole number numerical expressions, using the order of operations.

Measurement

Focus: Problem Solving with Area, Perimeter, Volume, and Surface Area

- 6.9 The student will make ballpark comparisons between measurements in the U.S. Customary System of measurement and measurements in the metric system.
- 6.10 The student will
- define π (π) as the ratio of the circumference of a circle to its diameter;
 - solve practical problems involving circumference and area of a circle, given the diameter or radius;
 - solve practical problems involving area and perimeter; and
 - describe and determine the volume and surface area of a rectangular prism.

Geometry

Focus: Properties and Relationships

- 6.11 The student will
- identify the coordinates of a point in a coordinate plane; and
 - graph ordered pairs in a coordinate plane.
- 6.12 The student will determine congruence of segments, angles, and polygons.
- 6.13 The student will describe and identify properties of quadrilaterals.

Probability and Statistics

Focus: Practical Applications of Statistics

- 6.14 The student, given a problem situation, will
- construct circle graphs;
 - draw conclusions and make predictions, using circle graphs; and
 - compare and contrast graphs that present information from the same data set.
- 6.15 The student will
- describe mean as balance point; and
 - decide which measure of center is appropriate for a given purpose.
- 6.16 The student will
- compare and contrast dependent and independent events; and
 - determine probabilities for dependent and independent events.

Patterns, Functions, and Algebra

Focus: Variable Equations and Properties

- 6.17 The student will identify and extend geometric and arithmetic sequences.
- 6.18 The student will solve one-step linear equations in one variable involving whole number coefficients and positive rational solutions.
- 6.19 The student will investigate and recognize
- the identity properties for addition and multiplication;
 - the multiplicative property of zero; and
 - the inverse property for multiplication.
- 6.20 The student will graph inequalities on a number line.

ELD STANDARD 3: The Language of Mathematics

EXAMPLE TOPIC: Ratio & rate

CONNECTION: *Common Core State Standards for Mathematics, Ratios and Proportional Relationships #3 (Grade 6):* Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.

EXAMPLE CONTEXT FOR LANGUAGE USE: Students justify their decisions in real-life scenarios (e.g., choosing items to buy based on discounts and local tax, determining miles per gallon for different models of cars, or selecting players for a fantasy team based on sports average).

COGNITIVE FUNCTION: Students at all levels of English language proficiency EVALUATE their options and make choices.						
	Level 1 Entering	Level 2 Emerging	Level 3 Developing	Level 4 Expanding	Level 5 Bridging	Level 6 – Reaching
WRITING	List choices based on rate calculations in real-life situations using templates and word banks with a partner	Describe choices based on rate calculations in real-life situations using templates and word banks with a partner	Compare choices based on rate calculations in real-life situations using graphic organizers with a partner	Explain choices based on rate calculations in real-life situations using charts with partners	Elaborate on choices based on rate calculations in real-life situations with partners	
TOPIC-RELATED LANGUAGE: Students at all levels of English language proficiency interact with grade-level words and expressions, such as: sales tax, discount, percentage, ratio, proportion						

See expanded
version of this strand
on pp. 34–35

Figure O: Guiding Questions for the Components of WIDA English Language Development Strands

GRADE: _____



ELD STANDARD: _____ **EXAMPLE TOPIC:** What is one of the topics addressed in the selected content standard(s)?

CONNECTION: Which state content standards, including the Common Core, form the basis of related lessons or a unit of study? What are the essential concepts and skills embedded in the content standards? What is the language associated with these grade-level concepts and skills?

EXAMPLE CONTEXT FOR LANGUAGE USE: What is the purpose of the content work, task, or product? What roles or identities do the students assume? What register is required of the task? What are the genres of text types with which the students are interacting?

COGNITIVE FUNCTION: What is the level of cognitive engagement for the given task? Does the level of cognitive engagement match or exceed that of the content standards?						
Language Domain(s): How will learners process and use language?	Level 1 Entering	Level 2 Emerging	Level 3 Developing	Level 4 Expanding	Level 5 Bridging	Level 6 – Reaching
	<p>A Strand of Model Performance Indicators:</p> <p>What language are the students expected to process or produce at each level of proficiency?</p> <p>Which language functions reflect the cognitive function at each level of proficiency?</p> <p>Which instructional supports (sensory, graphic, and interactive) are necessary for students to access content?</p>					
TOPIC-RELATED LANGUAGE: With which grade-level words and expressions will all students interact?						

Grade Seven

The seventh-grade standards continue to emphasize the foundations of algebra. Students who successfully complete the seventh-grade standards should be prepared to study Algebra I in grade eight. Topics in grade seven include proportional reasoning, integer computation, solving two-step linear equations, and recognizing different representations for relationships. Students will apply the properties of real numbers in solving equations, solve inequalities, and use data analysis techniques to make inferences, conjectures, and predictions.

While learning mathematics, students will be actively engaged, using concrete materials and appropriate technology such as calculators, computers, and spreadsheets. However, facility in the use of technology shall not be regarded as a substitute for a student's understanding of quantitative concepts and relationships or for proficiency in basic computations. Students will also identify real-life applications of the mathematical principles they are learning and apply these to science and other disciplines they are studying.

Mathematics has its own language, and the acquisition of specialized vocabulary and language patterns is crucial to a student's understanding and appreciation of the subject. Students should be encouraged to use correctly the concepts, skills, symbols, and vocabulary identified in the following set of standards.

Problem solving has been integrated throughout the six content strands. The development of problem-solving skills should be a major goal of the mathematics program at every grade level. Instruction in the process of problem solving will need to be integrated early and continuously into each student's mathematics education. Students must be helped to develop a wide range of skills and strategies for solving a variety of problem types.

Number and Number Sense

Focus: Proportional Reasoning

- 7.1 The student will
- investigate and describe the concept of negative exponents for powers of ten;
 - determine scientific notation for numbers greater than zero;
 - compare and order fractions, decimals, percents, and numbers written in scientific notation;
 - determine square roots; and
 - identify and describe absolute value for rational numbers.
- 7.2 The student will describe and represent arithmetic and geometric sequences, using variable expressions.

Computation and Estimation

Focus: Integer Operations and Proportional Reasoning

- 7.3 The student will
- model addition, subtraction, multiplication, and division of integers; and
 - add, subtract, multiply, and divide integers.
- 7.4 The student will solve single-step and multistep practical problems, using proportional reasoning.

Measurement

Focus: Proportional Reasoning

- 7.5 The student will
- describe volume and surface area of cylinders;
 - solve practical problems involving the volume and surface area of rectangular prisms and cylinders; and
 - describe how changing one measured attribute of a rectangular prism affects its volume and surface area.
- 7.6 The student will determine whether plane figures—quadrilaterals and triangles—are similar and write proportions to express the relationships between corresponding sides of similar figures.

Geometry

Focus: Relationships between Figures

- 7.7 The student will compare and contrast the following quadrilaterals based on properties: parallelogram, rectangle, square, rhombus, and trapezoid.
- 7.8 The student, given a polygon in the coordinate plane, will represent transformations (reflections, dilations, rotations, and translations) by graphing in the coordinate plane.

Probability and Statistics

Focus: Applications of Statistics and Probability

- 7.9 The student will investigate and describe the difference between the experimental probability and theoretical probability of an event.
- 7.10 The student will determine the probability of compound events, using the Fundamental (Basic) Counting Principle.
- 7.11 The student, given data for a practical situation, will
- construct and analyze histograms; and
 - compare and contrast histograms with other types of graphs presenting information from the same data set.

Patterns, Functions, and Algebra

Focus: Linear Equations

- 7.12 The student will represent relationships with tables, graphs, rules, and words.
- 7.13 The student will
- write verbal expressions as algebraic expressions and sentences as equations and vice versa; and
 - evaluate algebraic expressions for given replacement values of the variables.
- 7.14 The student will
- solve one- and two-step linear equations in one variable; and
 - solve practical problems requiring the solution of one- and two-step linear equations.
- 7.15 The student will
- solve one-step inequalities in one variable; and
 - graph solutions to inequalities on the number line.

- 7.16 The student will apply the following properties of operations with real numbers:
- a) the commutative and associative properties for addition and multiplication;
 - b) the distributive property;
 - c) the additive and multiplicative identity properties;
 - d) the additive and multiplicative inverse properties; and
 - e) the multiplicative property of zero.

ELD STANDARD 3: The Language of Mathematics
EXAMPLE TOPIC: Algebraic equations

CONNECTION: *Common Core State Standards for Mathematics, Expressions and Equations #4 (Grade 7):* Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.

EXAMPLE CONTEXT FOR LANGUAGE USE: Students read real-life problems and use manipulatives to construct algebraic equations and find their solutions in small groups.

COGNITIVE FUNCTION: Students at all levels of English language proficiency APPLY their algebraic knowledge.						
	Level 1 Entering	Level 2 Emerging	Level 3 Developing	Level 4 Expanding	Level 5 Bridging	Level 6 – Reaching
READING	Identify key language that provides information to solve real-life mathematical problems using visual and graphic supports with a partner	Identify key language that provides information to solve real-life mathematical problems using labeled visual and graphic supports with a partner	Identify key language that provides information to solve real-life mathematical problems using graphic supports (e.g., charts and tables)	Identify key language patterns to solve real-life mathematical problems using graphic supports	Identify key language patterns to solve real-life mathematical problems	
TOPIC-RELATED LANGUAGE: Students at all levels of English language proficiency interact with grade-level words and expressions, such as: inequality, linear equation, non-linear, simplify the expression, ____ per ____						

Figure O: Guiding Questions for the Components of WIDA English Language Development Strands

GRADE: _____



ELD STANDARD: _____ **EXAMPLE TOPIC:** What is one of the topics addressed in the selected content standard(s)?

CONNECTION: Which state content standards, including the Common Core, form the basis of related lessons or a unit of study? What are the essential concepts and skills embedded in the content standards? What is the language associated with these grade-level concepts and skills?

EXAMPLE CONTEXT FOR LANGUAGE USE: What is the purpose of the content work, task, or product? What roles or identities do the students assume? What register is required of the task? What are the genres of text types with which the students are interacting?

COGNITIVE FUNCTION: What is the level of cognitive engagement for the given task? Does the level of cognitive engagement match or exceed that of the content standards?						
Language Domain(s): How will learners process and use language?	Level 1 Entering	Level 2 Emerging	Level 3 Developing	Level 4 Expanding	Level 5 Bridging	Level 6 – Reaching
	<p>A Strand of Model Performance Indicators:</p> <p>What language are the students expected to process or produce at each level of proficiency?</p> <p>Which language functions reflect the cognitive function at each level of proficiency?</p> <p>Which instructional supports (sensory, graphic, and interactive) are necessary for students to access content?</p>					
TOPIC-RELATED LANGUAGE: With which grade-level words and expressions will all students interact?						