

Correspondence of WIDA English Language Development Standards and the Common Core State Standards for Mathematics

Introduction

What these documents are:

- These documents show correspondences between the WIDA (World-Class Instructional Design and Assessment) English Language Development Standards and the Common Core State Standards in mathematics.
- WIDA is a consortium of 30 states (including New Hampshire) and the District of Columbia that have all adopted the same English language development standards and assessments.

Format of the documents:

- The WIDA English Language Development Standards for mathematics consist of Model Performance Indicators (MPIs) at each of five different levels of language proficiency.
- Each MPI suggests a task that students at a particular level of language proficiency should be able to do to show achievement of a particular subject area standard.
- These documents consist of five WIDA-style MPIs (one for each of the five language proficiency levels) that correspond to selected Common Core State Standards.
- The model performance indicators were written by groups of New Hampshire ESOL and mainstream teachers through a federal Title III Professional Development grant to UNH Manchester.

Suggestions for using the documents:

- Mainstream teachers can use these documents to help understand what can be expected from ESOL students at various levels of language proficiency, and to guide the assessment of students' progress toward meeting Common Core State Standards in mathematics.
- ESOL teachers can use the alignments to help understand what ESOL students are expected to know in mathematics, and to guide the assessment of their progress toward meeting Common Core mathematics standards.

Important considerations:

- The documents are not curricula or programs of study; they are tools to be used in designing on-going classroom assessment of ESOL students.
- The MPIs are models that should be adapted as needed to meet individual teachers' and students' needs.
- Because the MPIs are geared to different levels of English language proficiency, it is essential to know students' proficiency levels (that information should be available in students' records or from their ESOL teacher).
- It is assumed that the knowledge and skills required to complete the tasks given in these MPIs have been previously taught, using teaching strategies appropriate for ESOL students.
- If WIDA MPIs are not included for a particular standard, or for a particular grade level, you can adapt related MPIs, or create new ones following the same model.

Grade 6 Model Performance Indicators that Correspond to the Common Core State Standards for Mathematics

Ratios and Proportional Relationships

Understand ratio concepts and use ratio reasoning to solve problems

CC.6.RP.1 *Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes."*

Level 1 Entering	Match pictures showing real-life use of ratios and rates with their oral representations (e.g., teacher says <i>3 out of 5 pets are dogs</i> , student chooses picture of 2 cats and 3 dogs).
Level 2 Emerging	Match pictures showing real-life use of ratios with their written representations (e.g., match a card showing <i>3 out of 5 pets are dogs</i> , with a picture of 2 cats and 3 dogs).
Level 3 Developing	Write a ratio or rate that corresponds to a visual representation (e.g., write $2/3$, $2:3$, or $2 \div 3$ to represent a picture showing 2 boys and 3 girls).

Level 4 Expanding	Discuss in a small group what specific examples of ratios mean in real life (e.g., <i>a ratio of 2 boys to 3 girls</i> means that there are two boys for every 3 girls); then individually draw or use manipulatives to construct a model of the ratio.
Level 5 Bridging	Discuss in a small group what specific examples of ratios mean in real life (e.g., <i>a ratio of 2 boys to 3 girls</i> means that there are two boys for every 3 girls); then individually writes the explanations.

CC.6.RP.2 *Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$ (b not equal to zero), and use rate language in the context of a ratio relationship. For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is $3/4$ cup of flour for each cup of sugar." "We paid \$75 for 15 hamburgers, which is a rate of \$5 per hamburger." (Expectations for unit rates in this grade are limited to non-complex fractions.)*

Level 1 Entering	Match pictures showing real-life use of ratios and rates with their oral representations (e.g., teacher says <i>40 miles per hour</i> , student chooses picture of a speed limit sign).
Level 2 Emerging	Match pictures showing real-life use of ratios and rates with their written representations (e.g., match a card saying <i>40 miles per hour</i> with a picture of a speed limit sign).
Level 3 Developing	Write a ratio or rate that corresponds to a visual representation (e.g., write <i>40 miles per hour</i> to represent a picture showing a 40 speed limit sign).
Level 4 Expanding	Discuss in a small group what specific examples of ratios and rates mean in real life (e.g., <i>a wage of \$8.00 per hour</i> means that a person gets \$8.00 for each hour worked); then individually draw or use manipulatives to construct a model of the rate or ratio.
Level 5 Bridging	Discuss in a small group what specific examples of ratios and rates mean in real life (e.g., <i>a wage of \$8.00 per hour</i> means that a person gets \$8.00 for each hour worked); then individually write an explanation of what the real-life ratio or rate means.

CC.6.RP.3 *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.*

(See MPIs for each specific standard below.)

CC.6.RP.3a *Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.*

(No WIDA MPIs developed.)

CC.6.RP.3b *Solve unit rate problems including those involving unit pricing and constant speed. For example, if it took 7 hours to mow 4 lawns, then*

at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?

Level 1 Entering	Solve a simple miles per hour problem read aloud by the teacher, using a visual representation (e.g., double number line, labeled <i>Time</i> and <i>Miles</i> ; numbers on the <i>miles</i> line from 50 to 350 in increments of 50; on the <i>time</i> line a 2 above the 100 and a question mark above the 350; teacher reads <i>A train goes 100 miles in 2 hours; how many hours to go 350 miles?</i> , pointing to places on the number lines and gesturing to convey meaning).
Level 2 Emerging	Sequence a given set of steps in solving a unit rate problem, orally and/or with pictures or manipulatives (e.g., order the number sentences used to calculate how much 6 cans of tomato soup would cost if the price is 2 for \$1.50).
Level 3 Developing	Solve unit rate problems in a small group, and discuss how the problem was solved, including how the unit rate was determined.
Level 4 Expanding	Solve unit rate problems individually; then compare answers with a partner and discuss any differences.
Level 5 Bridging	Solve unit rate problems and explain how the problem was solved, including how the unit rate was determined.

CC.6.RP.3c Find a percentage of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole given a part and the percentage.

Level 1 Entering	Match number sentence cards showing problems of finding a percent of a whole, and finding the whole given a part and the percentage, with visual representations of the problem.
Level 2 Emerging	Solve problems involving percent of a whole, and finding the whole given a part and the percentage, with a partner, using manipulatives or pictures.
Level 3 Developing	Solve word problems involving percent of a whole and finding the whole given a part and the percentage; then exchange problems and solutions with another pair and compare answers.
Level 4 Expanding	Write and solve word problems involving percent of a whole and finding the whole given a part and the percentage; then exchange problems and solutions with another pair and compare answers.
Level 5 Bridging	Explain steps to solve a problem involving percent of a whole and finding the whole given a part and the percentage, and justify the answers in a small group discussion.

CC.6.RP.3d Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

Level 1 Entering	Match cards showing ratios with corresponding picture cards of units of measure, with a conversion chart.
Level 2 Emerging	Write a ratio to represent a given number of units in a larger unit (e.g., 16:1 to represent the ratio of ounces to pounds), using a conversion chart if necessary; use the ratio to determine how many of the smaller units there are in a given number of the larger unit.
Level 3 Developing	Solve simple, illustrated problems involving measurement and conversion (e.g., picture of jump rope and yardstick with text: <i>1 jump rope = 3 yards rope. How many yards of rope for 4 jump ropes?</i>), using a conversion chart if necessary,

	and writing out the ratios (e.g., 1:3; 4:?), with a partner.
Level 4 Expanding	Solve word problems involving measurement and conversion, with a partner.
Level 5 Bridging	Solve word problems involving measurement and conversion, individually.

The Number System

Apply and extend previous understandings of multiplication and division to divide fractions by fractions

CC.6.NS.1 *Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. For example, create a story context for $(2/3) \div (3/4)$ and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that $(2/3) \div (3/4) = 8/9$ because $3/4$ of $8/9$ is $2/3$. (In general, $(a/b) \div (c/d) = ad/bc$.) How much chocolate will each person get if 3 people share $1/2$ lb of chocolate equally? How many $3/4$ -cup servings are in $2/3$ of a cup of yogurt? How wide is a rectangular strip of land with length $3/4$ mi and area $1/2$ square mi?*

Level 1 Entering	Match an expression showing division of fractions by fractions to a visual fraction model of the problem, with a partner.
Level 2 Emerging	Write an expression showing division of fractions by fractions based on a visual fraction model of the problem, with a partner.
Level 3 Developing	Create a visual fraction model of an expression showing division of fractions by fractions, with a partner.
Level 4 Expanding	Create a visual fraction model of an expression showing division of fractions by fractions, and compute the quotient, in a small group.
Level 5 Bridging	Solve word problems involving division of fractions by fractions, using visual fraction models and equations.

Compute fluently with multi-digit numbers and find common factors and multiples

CC.6.NS.2 *Fluently divide multi-digit numbers using the standard algorithm.*

(No WIDA MIPs developed.)

CC.6.NS.3 *Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.*

Level 1 Entering	Write multi-digit decimal problems dictated by the teacher.
Level 2 Emerging	Follow the teacher's oral prompts to solve problems involving multi-digit decimals, with a partner.
Level 3 Developing	Solve problems involving multi-digit decimals, using drawings, manipulatives, or charts.
Level 4 Expanding	Write and solve word problems involving multi-digit decimals, in pairs; then exchange problems and solutions with another pair and compare answers.
Level 5 Bridging	Explain steps to solve a problem involving multi-digit decimals, and justify the answer in a small group discussion.

CC.6.NS.4 *Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factor. For example, express $36 + 8$ as $4(9 + 2)$.*

Level 1 Entering	Match pairs of numbers that have common factors with their greatest common factor; match pairs of numbers that have common multiples with their least common multiple, with a partner.
Level 2 Emerging	Match equivalent expressions where an addition problem with a common factor is matched with a multiple of a sum of two whole numbers with no common factor (e.g., $42 + 12$ is matched with $6(7 + 2)$); read the expressions aloud as an equation.
Level 3 Developing	Use the distributive property to express a sum of two whole numbers with a common factor as a multiple of a sum of two whole numbers with no common factor, with a partner
Level 4 Expanding	Use the distributive property to express a sum of two whole numbers with a common factor as a multiple of a sum of two whole numbers with no common factor, and discuss the process in a small group.
Level 5 Bridging	Use the distributive property to express a sum of two whole numbers with a common factor as a multiple of a sum of two whole numbers with no common factor, and explain the process.

Apply and extend previous understandings of numbers to the system of rational numbers

CC.6.NS.5 *Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, debits/credits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.*

Level 1	Draw arrows and + and – signs on pictures of real-life examples of positive and
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Entering	negative numbers (e.g., thermometer, diagram of water depth and hill elevation, debits and credits on a bank statement), with a partner.
Level 2 Emerging	Locate numbers on a number line to correspond to the teacher's descriptions of pictures of real-life examples of positive and negative numbers (e.g., teacher uses a picture and positive and negative numbers to describe how tall a mountain is and how deep a lake is; student locates the numbers on a number line).
Level 3 Developing	Explain to a partner how to locate numbers of a number line to correspond to a picture of a real-life example of positive and negative numbers (e.g., from a picture showing the elevation of a mountain and the depth of a lake, explain how to represent those numbers on a number line).
Level 4 Expanding	Discuss in a small group how warm or cold the numbers -20 , -10 , 0 , $+10$, and $+20$ represent on a Fahrenheit thermometer and a Centigrade thermometer, and why they are different on each scale (because 0 has a different value on each).
Level 5 Bridging	Use positive and negative numbers to represent quantities in real-world contexts (e.g., write high and low temperatures from a weather forecast; enter debits and credits on an accounting statement); explain what 0 means in each situation.

CC.6.NS.6 *Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.*

(See MPIs for each specific standard below.)

CC.6.NS.6a *Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., $-(-3) = 3$, and that 0 is its own opposite.*

Level 1 Entering	Match rational number cards with their opposites, with a partner (including matching a 0 card with a 0 card).
Level 2 Emerging	Locate on a number line the opposite of a rational number (including 0) given orally by the teacher.
Level 3 Developing	Read aloud rational numbers chosen from sets of cards (including 0); tell what the opposite of the number is, and locate both numbers on a number line, with a partner.
Level 4 Expanding	Discuss in a small group what opposite signs of numbers mean on a number line.
Level 5 Bridging	Explain what opposite signs of numbers mean on a number line, what the opposite of 0 is, and what the opposite of the opposite of a number is.

CC.6.NS.6b *Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.*

(No WIDA MPIs developed.)

CC.6.NS.6c *Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.*

Level 1 Entering	Find numbers given by the teacher on a horizontal or vertical number line, with a partner.
Level 2 Emerging	Find ordered pairs given by the teacher on a coordinate plane, with a partner.
Level 3 Developing	Position numbers given by the teacher on a horizontal or vertical number line, with a partner.
Level 4 Expanding	Position ordered pairs given by the teacher on a coordinate plane, with a partner.
Level 5 Bridging	Read aloud sets of ordered pairs from a coordinate plane.

CC.6.NS.7 *Understand the ordering and the absolute value of rational numbers.*

(See MPIs for each specific standard below.)

CC.6.NS.7a *Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. For example, interpret $-3 > -7$ as a statement that -3 is located to the right of -7 on a number line oriented from left to right.*

Level 1 Entering	Locate pairs of rational numbers (shown on number cards) on a number line, and point to the greater number, with a partner.
Level 2 Emerging	Locate numbers on a number line to correspond to an inequality on a card; then read the inequality aloud.
Level 3 Developing	Locate pairs of rational numbers (shown on number cards) on a number line, write an inequality about the two numbers, and read it aloud.
Level 4 Expanding	Explain an inequality shown on a card, in relation to the positions of the numbers on a number line.
Level 5 Bridging	Explain in writing an inequality shown on a card, in relation to the positions of the numbers on a number line.

CC.6.NS.7b *Write, interpret, and explain statements of order for rational numbers in real-world contexts. For example, write -3 degrees C $>$ -7 degrees C to express the fact that -3 degrees C is warmer than -7 degrees C.*

Level 1 Entering	Sequence cards showing various temperatures on thermometers, with a partner.
Level 2 Emerging	Match cards showing different temperatures to corresponding pictures of thermometers; then label the hottest and coldest temperatures.
Level 3 Developing	Discuss in a small group why -3 degrees C is warmer than -7 degrees C.

Level 4 Expanding	Discuss in a small group -3 degrees C is warmer than -7 degrees C; then write a summary of the discussion.
Level 5 Bridging	Discuss in a small group why -3 degrees C is warmer than -7 degrees C; then explain in writing why this is true.

CC.6.NS.7c *Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. For example, for an account balance of -30 dollars, write $|-30| = 30$ to describe the size of the debt in dollars.*

Level 1 Entering	Locate on a number line rational numbers representing the amount of money borrowed and paid back, in response to a teacher acting out the situation of getting a loan of \$50 and repaying it in amounts of \$10.
Level 2 Emerging	Act out, with a partner, getting a \$50 loan from a bank and repaying it in amounts of \$10; for each transaction, record the balance owed on a number line.
Level 3 Developing	Act out, with a partner, getting a \$50 loan from a bank and repaying it in amounts of \$10; for each transaction, record the balance owed on a number line; discuss the absolute value of the negative numbers.
Level 4 Expanding	Discuss in a small group what the absolute value of a rational number is in terms of a number line, and in terms of a real-world situation (e.g., charges and credits on a loan account from a bank).
Level 5 Bridging	Explain what the absolute value of a rational number is in terms of a number line, and in terms of a real-world situation (e.g., charges and credits on a loan account from a bank).

CC.6.NS.7d *Distinguish comparisons of absolute value from statements about order. For example, recognize that an account balance less than -30 dollars represents a debt greater than 30 dollars.*

(No WIDA MPIs developed.)

CC.6.NS.8 *Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.*

(No WIDA MPIs developed.)

Expressions and Equations

Apply and extend previous understandings of arithmetic to algebraic expressions

CC.6.EE.1 Write and evaluate numerical expressions involving whole-number exponents.

Level 1 Entering	Match the mathematical symbols $+$, $-$, \times , \div (or $/$), and the exponents <i>squared</i> , <i>cubed</i> , and <i>to the nth power</i> with spoken prompts.
Level 2 Emerging	Read aloud numerical expressions involving whole-number exponents.
Level 3 Developing	Read aloud numerical expressions involving whole-number exponents, and solve them, with a partner.
Level 4 Expanding	Discuss in a small group the steps involved in solving numerical expressions involving whole-number exponents; then solve them.
Level 5 Bridging	Write and evaluate numerical expressions involving whole-number exponents.

CC.6.EE.2 Write, read, and evaluate expressions in which letters stand for numbers.

(See MPIs for each specific standard below.)

CC.6.EE.2a Write expressions that record operations with numbers and with letters standing for numbers. For example, express the calculation "Subtract y from 5" as $5 - y$.

Level 1 Entering	Identify written expressions as algebraic or non-algebraic, with a partner.
Level 2 Emerging	Match written algebraic expressions with the written sentences that correspond, with a partner.
Level 3 Developing	Write an algebraic expression to represent an oral phrase (e.g., <i>subtract 26 from a number</i>).
Level 4 Expanding	Write an algebraic expression to represent a written phrase (e.g., <i>10 less than a number; something increased by 6</i>), with a partner.
Level 5 Bridging	Write an algebraic expression to represent a written phrase (e.g., <i>10 less than a number; something increased by 6</i>), individually.

CC.6.EE.2b Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. For example, describe the expression $2(8 + 7)$ as a product of two factors; view $(8 + 7)$ as both a single entity and a sum of two terms.

(No WIDA MPIs developed.)

CC.6.EE.2c *Evaluate expressions by substituting values for their variables. Include expressions that arise from formulas in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). For example, use the formulas $V = s^3$ and $A = 6s^2$ to find the volume and surface area of a cube with sides of length $s = 1/2$.*

Level 1 Entering	Identify the variables in an algebraic expression.
Level 2 Emerging	Identify the variables in a measurement formula, and substitute values for the variables, based on a diagram of the formula, with a partner.
Level 3 Developing	Identify the variables in a measurement formula, substitute values for the variables, and evaluate the expression, using Order of Operations, with a partner.
Level 4 Expanding	Discuss in a small group the steps involved in evaluating algebraic expressions; then use the steps to solve problems.
Level 5 Bridging	Explain the order of the steps involved in evaluating an algebraic expression, orally or in writing; then solve the equation.

CC.6.EE.3 *Apply the properties of operations as strategies to generate equivalent expressions. For example, apply the distributive property to the expression $3(2 + x)$ to produce the equivalent expression $6 + 3x$; apply the distributive property to the expression $24x + 18y$ to produce the equivalent expression $6(4x + 3y)$; apply properties of operations to $y + y + y$ to produce the equivalent expression $3y$.*

Level 1 Entering	Match equivalent expressions from sets of numerical and algebraic expressions (some of which are equivalent, some are not), with a partner.
Level 2 Emerging	Match equivalent expressions from a set of numerical and algebraic expressions (some equivalent, some not), with a partner; read them aloud, inserting <i>equals</i> in the proper place in equivalent sets.
Level 3 Developing	Identify equivalent expressions from a list of equivalent and non-equivalent numerical and algebraic expressions, with a partner; discuss why they are or are not equivalent.
Level 4 Expanding	Generate equivalent expressions from a list of expressions provided by the teacher and discuss in a small group the properties used to generate them.
Level 5 Bridging	Generate equivalent expressions from a list of expressions provided by the teacher and identify in writing the properties used to generate them.

CC.6.EE.4 *Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). For example, the expressions $y + y + y$ and $3y$ are equivalent because they name the same number regardless of which number y stands for.*

Level 1 Entering	Sort cards showing algebraic expressions into equivalent and non-equivalent groups (e.g., from the expressions $2(3x)$, $3(2x)$, $2(x + x + x)$, $3(x + x + x)$ choose those that are equivalent); then read the expressions aloud.
Level 2	Substitute numbers for variables in equivalent algebraic expressions to show

Emerging	the expressions are still equivalent.
Level 3 Developing	Discuss in a small group how you can determine if two expressions are equivalent, regardless of what value is substituted into them.
Level 4 Expanding	Identify when two expressions are equivalent, regardless of what value is substituted into them.
Level 5 Bridging	Explain how two expressions can be equivalent, even when different values are substituted into them.

Reason about and solve one-variable equations and inequalities

CC.6.EE.5 *Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.*

(No WIDA MPIs developed.)

CC.6.EE.6 *Use variables to represent numbers and write expressions when solving a real-world or mathematical problems; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.*

Level 1 Entering	Identify algebraic expressions from given sets of expressions; then point to variables, numerical values, and operation signs when asked, using an illustrated glossary as needed.
Level 2 Emerging	Write an algebraic expression to represent a simple illustrated situation given orally by the teacher (e.g., teacher shows picture a 10-dollar bill and a CD with price tag, and says <i>I have \$10.00. I want to buy a CD for \$12.95. How much more money do I need?</i> Student writes $\$10 + x = \12.95 or $\$12.95 - x = \10).
Level 3 Developing	Write an algebraic expression to represent an oral phrase (e.g., <i>10 less than a number; something increased by 6</i>).
Level 4 Expanding	Discuss, with a partner a real-world situation in which there is an unknown number that can be calculated; then write an expression to show how to calculate the number.
Level 5 Bridging	Write an expression for a real-world situation in which an unknown number needs to be found.

CC.6.EE.7 *Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p , q and x are all nonnegative rational numbers.*

(No WIDA MPIs developed.)

CC.6.EE.8 *Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely*

many solutions; represent solutions of such inequalities on number line diagrams.

(No WIDA MPIs developed.)

Represent and analyze quantitative relationships between dependent and independent variables

CC.6.EE.9 *Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation $d = 65t$ to represent the relationship between distance and time.*

Level 1 Entering	List and graph ordered pairs to show how much a person will earn in an 8-hour day at various hourly rates, using a model graph.
Level 2 Emerging	List and graph ordered pairs to show how much a person will earn in an 8-hour day at various hourly rates, with a partner; then write and read the equation.
Level 3 Developing	List and graph ordered pairs to show how much a person will earn in an 8-hour day at various hourly rates, in a small group; then write the equation and discuss the relationship between the total amount earned and the hourly rate.
Level 4 Expanding	Brainstorm in a small group examples of linear relationships (e.g., miles per hour and distance traveled, hours worked and number of products produced per hour, etc.); then write and solve a problem involving one of the examples, with a partner.
Level 5 Bridging	Write a problem involving an example of a linear relationship, list and graph the variables, write the equation, and summarize the relationship between the variables.

Geometry

Solve real-world and mathematical problems involving area, surface area, and volume

CC.6.G.1 *Find area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.*

Level 1 Entering	Draw a diagram showing how to solve a problem involving the area of a composite shape, based on a picture of a real-world situation (e.g., a diagram of an L-shaped room with the question <i>How many square feet of carpet are needed to cover this room?</i>)
Level 2 Emerging	Follow simple oral instructions to write and solve a problem involving the area of a composite shape, including drawing the shape and labeling it with the proper unit measurements.
Level 3 Developing	Solve problems involving the area of a composite shape, and state the answer orally using technical vocabulary (e.g., <i>formula, area, volume, units</i>), using a word bank, with a partner.
Level 4 Expanding	Describe the steps involved in solving a problem involving the area of a composite shape, stating the entire problem and its solution, including the unit measurements of the shape.
Level 5 Bridging	Write and solve a problem involving the area of a composite shapes with a partner; then exchanges problems with another pair, and compares answers.

CC.6.G.2 *Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = l w h$ and $V = b h$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.*

Level 1 Entering	Draw a diagram showing how to solve a problem involving volume, based on a picture of a real-world situation (e.g., <i>How many 5-centimeter cubes fit into a box that is 20 cm long, 15 cm wide, and 10 cm high?</i> , with a picture).
Level 2 Emerging	Follow simple oral instructions to write and solve a problem involving volume, including drawing a shape and labeling it with the proper unit measurements.
Level 3 Developing	Solve problems involving volume, and state the answer orally using technical vocabulary (e.g., <i>formula, area, volume, units</i>), using a word bank, with a partner.
Level 4 Expanding	Describe the steps involved in solving a problem involving volume, stating the entire problem, the formula, and its solution, including the unit measurements of the shape.
Level 5 Bridging	Write and solve a problem involving volume, with a partner; then exchange problems with another pair, and compare answers.

CC.6.G.3 *Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.*

(No WIDA MPIs developed.)

CC.6.G.4 *Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.*

(No WIDA MPIs developed.)

Statistics and Probability

Develop understanding of statistical variability

CC.6.SP.1 *Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. For example, “How old am I?” is not a statistical question, but “How old are the students in my school?” is a statistical question because one anticipates variability in students’ ages.*

(No WIDA MPIs developed.)

CC.6.SP.2 *Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.*

Level 1 Entering	Identify the center, shape, and spread of a bell shaped curve by pointing to appropriate places on the curve as the teacher says <i>center, shape, spread</i> , with a partner.
Level 2 Emerging	Label a drawing of a bell shaped curve that has arrows indicating the center, spread, and shape of the curve, using a word bank, with a partner.
Level 3 Developing	Select from a list of math vocabulary the three words that tell in what ways a set of data can be described (<i>center, shape, spread</i>).
Level 4 Expanding	Discuss in a small group the three ways that can be used to describe the distribution of a set of data (<i>center, shape, spread</i>); then write a short summary of the discussion.
Level 5 Bridging	Explain in writing the three ways that can be used to describe the distribution of a set of data .

CC.6.SP.3 *Recognize that a measure of center for a numerical data set summarizes all of its values using a single number, while a measure of variation describes how its values vary using a single number.*

Level 1 Entering	Sort word cards showing <i>mean, median, mode, range, and variance</i> into two columns labeled <i>Center</i> and <i>Spread</i> .
Level 2 Emerging	Sort word cards showing <i>mean, median, mode, range, and variance</i> into two columns labeled <i>Center</i> and <i>Spread</i> ; identify which words represent a number that is a <i>Summary</i> of the data, and which represent a number that shows <i>Variation</i> .
Level 3 Developing	Discuss in a small group what a measure of center is and what a measure of variation is.

Level 4 Expanding	Discuss in a small group what a measure of center is and what a measure of variation is; then write a short summary of the discussion.
Level 5 Bridging	Explain in writing what a measure of center is and what a measure of variation is.

Summarize and describe distributions

CC.6.SP.4 *Display numerical data in plots on a number line, including dot plots, histograms, and box plots.*

Level 1 Entering	Create a dot plot from a given set of numerical data, using a model.
Level 2 Emerging	Create a box plot from a given set of numerical data, using a model.
Level 3 Developing	Create a histogram from a given set of numerical data, using a model.
Level 4 Expanding	Create a dot plot, histogram, and box plot from a given set of numerical data, with a partner.
Level 5 Bridging	Create a dot plot, histogram, and box plot from a given set of numerical data, individually.

CC.6.SP.5 *Summarize numerical data sets in relation to their context, such as by:*

- a. *Reporting the number of observations.*
- b. *Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.*
- c. *Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data was gathered.*
- d. *Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data was gathered.*

Level 1 Entering	Complete a summary of a numerical data set by filling in the number of observations, how the measurements were made, and the units of measurement, using a word bank.
Level 2 Emerging	Complete a summary of a numerical data set by filling in the number of observations, how the measurements were made, the units of measurement, and a measure of center, using a word/phrase bank.
Level 3 Developing	Complete a summary of a numerical data set by filling in the number of observations, how the measurements were made, the units of measurement, a measure of center, and a measure of variability, with a partner.
Level 4 Expanding	Create a summary of a numerical data set by recording the number of observations, how the measurements were made, the units of measurement, a measure of center, and a measure of variability, in a small group; then discuss the overall pattern of the data, and any deviations from the pattern.
Level 5 Bridging	Create a summary of a numerical data set by recording the number of observations, how the measurements were made, the units of measurement, a

	measure of center, and a measure of variability, individually; then discuss with a partner the overall pattern of the data, any deviations from the pattern, and why the particular measure of center and variability were chosen.
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