Algebra Readiness Summer Bridge: Unit, Topic, and CCSS Alignment

Activity	Topic(s)	Math CCSS
Unit 1: "Survival" Set Up		
Survival Guidelines		**6.EE.2** Write, read, and evaluate expressions in which letters stand for numbers.
Vocabulary: The Importance of Official		**6.EE.3** Apply the properties of operations to generate equivalent expressions.
Equation Name Plate		**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).
Guild Selection		
The Interactive Notebook	Structure of INB	**7.G.6** Solve real-world and mathematical problems involving area, volume, and surface area of two-and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.
Guild Flags		
Word Break	Review of fractional parts	
Costa's Levels of Thinking		
Costa's Card Sort	Identifying levels of questions	
Brain Break: Stand Up and Be Counted	Team builder	
Guild Challenge Calendar Math	Collaborative problem-solving	
Exit Ticket	Reflections, remaining questions	
Unit 2 - Rational Numbers:		
Warm-Up, Unit 2		**7.NS.1c** Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.
Program Goals		
Acrostic You	Team builder	
Vocabulary	Review of vocabulary	
Fractions: Focused Notes		**7.NS.1d** Apply properties of operations as strategies to add and subtract rational numbers.
Birthday Human Number Line Challenge	Team builder	**7.NS.2a** Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts
Teach and Go, Part 1	Demonstrate understanding of operations and concepts	
Guild Challenge: Multiplication Team Relay	Fun review of multiplication facts	**7.NS.2c** Apply properties of operations as strategies to multiply and divide rational numbers
Teach and Go, Part 2	Student-to-student teaching	**7.NS.2d** Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats
Summarization	Writing summaries	
Guild Challenge: 5 Minute Madness	Rational number challenge	
The Parking Lot	Questions for the teacher	
Unit 3 - Rational Numbers: Square Roots		
Warm-Up, Unit 3		**6.RP.3a** Make tables of equivalent ratios relating quantities with whole-number measurements
Domino Conversion Match Up	Fractions-decimals-percents	**6.RP.3c** Find a percent of a quantity as a rate per 100; solve problems involving finding the whole, given a part and the percent.
Modeling Squares and Square Roots	Squares and square roots	
Word Hunt	Interactive solving integer	**6.NS.7a** Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.
Guild Challenge: Square Roots and the Number Line	Square roots	**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.
Reflection: Squares and Square Roots	Squares and square roots	
SWAT Vocabulary Game	Vocabulary builder	
Inequalities: Focused Notes	Inequalities	**8.NS.2** Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2)
Human Number Line (My number is)	Operations with integers	
Guild Challenge: Crossing the River	Team builder	

Unit 4 - Rational Numbers: Integers		
Warm-Up, Unit 4		**7.NS.1a** Describe situations in which opposite quantities combine to make 0.
Quickwrite: Integers	"Brain dump" on integers	**7.NS.1b** Understand p + q as the number located a distance |q| from p, in the positive or
Zero Pair	Additive inverse, absolute values	negative direction, depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational
Rules to Tools	Conceptualization of zero pairs	numbers by describing real-world contexts. **7.NS.1c** Understand subtraction of rational numbers as adding the additive inverse, p –q =
Brain Break: Act It Out	Team builder	p + (-q). Show that the distance between two rational numbers on the number line is the
Who's the Greatest?	Integer operations card games	absolute value of their difference, and apply this principle in real-world contexts. **7.NS.1d** Apply properties of operations as strategies to add and subtract rational numbers.
Integer Train/Relay Game	Integer operations	**7.NS.2a** Understand that multiplication is extended from fractions to rational numbers by
Guild Challenge: SWAT Take 2-Integers	Vocabulary involving integers	requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (-1)(-1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts
Reflection: Learning Log		**7.NS.2c** Apply properties of operations as strategies to multiply and divide rational
		numbers.

Unit 5 - Algebraic Concepts: Transformations and Expressions		
Warm-Up, Unit 5		**6.EE.2c** Evaluate expressions at specific values of their variables. Include expressions that
Transformation Exploration Part 1	Congruence and similarity	arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no
SLAP	Integer card games	parentheses to specify a particular order (Order of Operations).
Transformation Exploration Part 2	Congruence and similarity, student presentations and explanations	**6.EE.3** Apply the properties of operations to generate equivalent expressions. **8.G.1** Verify experimentally the properties of rotations, reflections, and translations. **8.G.2**Understand that a two-dimensional figure is congruent to another if the second can
Transformation Exploration Sort and Summary	Summary activity	be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.
Expression-Problem Match	Matching problems and expressions	**8.G.3**Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.
Substitution Crossword	Algebraic crossword puzzle	**8.G.4** Understand that a two-dimensional figure is similar to another if the second can be
See Run Do	Algebra equations and vocabulary	obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity
Exit Ticket		between them.

Unit 6 - Algebraic Concepts: Equations		
Warm-Up, Unit 6		**6.EE.2** Write, read, and evaluate expressions in which letters stand for numbers.
Combining Like Terms	Interactive discovery activity	**6.EE.3** Apply the properties of operations to generate equivalent expressions.
DIstributive Property	Interactive discovery activity	**7.EE.4A** Solve word problems leading to equations of the form px + q = r and p(x + q) = r,
Brain Break: Last Detail	Team builder; attention to detail	where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the
Putting It All Together	Like terms; distributive property	operations used in each approach. **8.EE.7b** Solve linear equations with rational number coefficients, including equations
Modeling Solving Equations	Modeling with manipulatives	whose solutions require expanding expressions using the distributive property and
Guild Challenge: Balance	Graphics → algebraic equations	collecting like terms.
What's Your Fav?	Word problems → algebraic Solving equations	

Unit 7 - Algebraic Concepts:		
Warm-Up- Unit 7		**7.EE.4a** Solve word problems leading to equations of the form px + q = r and p(x + q) = r,
Student Guided Practice Bingo	Equation bingo	where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the
Guild Challenge: Back to School	Word problems → algebraic	operations used in each approach.
Snowball Fight Activity	Creating and solving equations	**8.EE.7a** Give examples of linear equations in one variable with one solution, infinitely
Function Machine Activity	Developing understanding of a	many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent
Set the Table Part 1	Functions, slope, proportional	equation of the form x = a, a = a, or a = b results (where a and b are different numbers).
Brain Break: Team Huddle	Team builder	**8.F.1** Understand that a function is a rule that assigns to each input exactly one output.
Set the Table Part 2	Graphical proportional and non-proportional relationships	The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. **8.F.2** Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions)

Unit 8 - Algebraic Concepts: Slope		
Warm-Up- Unit 8		**8.EE.5** Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.
Function Card Sort	Identifying functions	
Slope: Focused Notes	Slopes of lines	**8.F.1** Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.
Brain Break: Human Knot	Team builder	
Slope Practice Ghosts in the Graveyard	Slopes of lines	
Guild Challenge: Concentration	Matching representations of	**8.F.2** Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).
Graph Interpretation Activity	Graph analysis	**8.F.5** Describe qualitatively the functional relationship between two quantities by analyzing a graph. Sketch a graph that exhibits the qualitative features of a function that has been described verbally.
What's the Story?	Creating and interpreting graphs	
Brain Break: Choice	Team builder	
Reflection: Learning Log		
Unit 9 - Algebraic Concepts: Slope		
Warm-Up, Unit 9		**8.EE.g** Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.
4 Corners Card Matching	Multiple representations of algebraic functions	**8.EE.8a** Understand that solutions to a system of two linear equations in two variables correspond to point of intersection of their graphs, because points of intersection satisfy both equations simultaneously.
Guild Challenge: 4 Corners	Multiple representations	
Brain Break: Like Things	Team builder	
Forms of Linear Equations: Focused Notes	Linear equations	**8.F.2** Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).
I Have Who Has (y=mx+b)	Linear equations	**8.F.3** Interpret the equation y = mx + b as defining a linear function, whose graph is a straight line; give examples of functions that are not linear.
Systems of Linear Equations: Focused Notes	Solutions of systems; graphing	**8.F.4** Construct a function to model a linear relationship between two quantitites. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.
Math Graffiti	Vocabulary activity	
Unit 10 - Algebraic Concepts: Systems of Equations		
Warm-Up, Unit 10		**8.EE.8b** Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection.
Parallel and perpendicular lines	Parallel and perpendicular	**8.F.e** Interpret the equation y = mx + b as defining a linear function, whose graph is a straight line; give examples of functions that are not linear.
Connections: Transformations and Slope	Transformations and slope	
Brain Break: Hand Jive	Team builder	**8.G.1a** Verify experimentally the properties of rotations, reflections, and translations. Lines are taken to lines, and line segments to line segments of the same length.
Systems of Equations-- Substitution: Focused Notes	Substitutions and graphing systemsl evaluating equations	**8.G.1c** Verify experimentally the properties of rotations, reflections, and translations. Parallel lines are taken to parallel lines.
Guild Challenge: Substitution Scavenger Hunt	Interactive group activity	
Guild Challenge: Quick Draw Vocabulary Hunt	Using vocab cards in appendix	
Systems of Equations-- Elimination: Focused Notes	Solving by elimination	
Guild Challenge: Solving Systems by Elimination, Trashketball	Solving by elimination	
Reflection		
Unit 11 - Measurement: Pythagorean Theorem		
Warm-Up-Unit 11		**7.NS.1d** Apply properties of operations as strategies to add and subtract rational numbers.
Vocabulary Review: Back me Up	Vocabulary game	**7.NS.2c** Apply properties of operations as strategies to multiply and divide rational numbers.
The Pythagorean Theorem	Graphing and solving with P.T.	**8.G.6** Explain a proof of the Pythagorean Theorem and its converse.
Pythagorean Theorem Practice	P.T. practice problems	**8.G.7** Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.
Guild Challenge: Distance on the Coordinate Plane	Using P.T.	**8.G.8** Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.
Brain Break: Funny Fruits and Vegetables	Team builder	
Pythagorean Theorem Application	Multi-step, real world problems	
Create Your Own Problem	Creating and solving P.T. problems	
Guild Challenge: Fraction Fun		

Unit 12 - Measurement: Geometric Shapes		
Warm-Up, Unit 12		**6.G.1** Find the 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.
SWAT: Formulas and Symbols	Vocabulary, formulas, symbols	
Perimeter Practice	Perimeter; algebraic expressions	**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.
Guild Challenge: Pythagorean Theorem, Area, and Perimeter	Area and perimeter	
Brain Break: Alike or Different?	Team builder	
Exploring Volume (Philosophical Chairs)	Volume and area of cylinders; structured class debate	**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.
Turn Up the Volume	Word problems on volume	**7.G.4** Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.
Brain Break: Scrabble	Team builder	
Surface Area and Nets	Using manipulatives	
Measurement in Reverse	Manipulation of formulas	**7.G.6** Solve real-world and mathematical problems involving area, volume, and surface area of two-and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.
		8.G.9 Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

Unit 13 - Measurement: Geometric Shapes		
Warm-Up, Unit 13		**7.G.4** Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.
X-Games: Algebra in Geometry	Writing and solving equations, in context of geometric shapes	**7.G.5** Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.
Effects of Changing Dimensions	Perimeter, area, volume;	
What's Your Grind?	Volume and surface area	**7.G.6** Solve real-world and mathematical problems involving area, volume, and surface area of two-and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.
Volume of Pyramids, Cones, and	Understanding and using formulas	
Reflection		**8.G.9** Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

Units 14 and 15 - Test Review		
Warm -Up, Units 14 and 15		All prior standards listed
End-of-Bridge Exam	Content review for end-of-bridge exam; gallery walk format	
Brain Break: Do You Match?	Team builder	
Vocabulary Conga Line	Vocabulary activity	
Gallery Walk Review	Review of concepts and topics	
Brain Break: React and Act	Team builder	
Bridge Commercial	Summary of program	
Thank-You Notes (optional)	Review challenge	
Brain Break: Partner to Partner	Team Builder	