Content Emphasis in the Common Core Standards

Major Areas of Emphasis

Not all of the content in a given grade is emphasized equally in the Common Core Standards. Some clusters of the standards require greater emphasis than others. This greater emphasis may be based on the depth of the ideas, the time that students need to master the concepts, the content's importance to future mathematics topics, or a combination of some or all of these. A greater focus on the most critical material at each grade allows for lessons to go more in-depth and for students to have more time to master concepts and mathematical practices.

The tables on these two pages identify the Major Clusters emphasized by the Common Core Standards and assessments and those that are Supporting and Additional Clusters, In addition, the *Ready*® lessons that correspond to these clusters are also identified.

Use the tables on these pages to help inform instructional decisions regarding the amount of time spent on clusters of varying degrees of emphasis. If you are using *Ready*® as a supplement with another program, you may want to spend more time with the *Ready*® lessons connected to clusters with a major emphasis.

The table below indicates the clusters of Major Emphasis in the Common Core Standards.

Standard Clusters with Major Emphasis	Standards	*Ready*® Lesson(s)
Expressions and Equations		
Work with radicals and integer exponents.	8.EE.A.1, 8.EE.A.2, 8.EE.A.3, 8.EE.A.4	1, 2, 4, 5
Understand the connections between proportional relationships, lines, and linear equations.	8.EE.B.5, 8.EE.B.6	11, 12
Analyze and solve linear equations and pairs of simultaneous linear equations.	8.EE.C.7, 8.EE.C.8	13, 14, 15, 16, 17
Functions		
Define, evaluate, and compare functions.	8.F.A.1, 8.F.A.2, 8.F.A.3	6, 7, 8
Use functions to model relationships between quantities.	8.F.B.4, 8.F.B.5	9, 10
Geometry		
Understand congruence and similarity using physical models, transparencies, or geometry software.	8.G.A.1, 8.G.A.2, 8.G.A.3, 8.G.A.4, 8.G.A.5	18, 19, 20, 21, 22
Understand and apply the Pythagorean Theorem.	8.G.B.6, 8.G.B.7, 8.G.B.8	23, 24, 25

Supporting and Additional Areas of Emphasis

Although some clusters have greater emphasis in the Common Core Standards, this does not mean that standards within the clusters identified as Supporting or Additional can be neglected during instruction. Neglecting material will leave gaps in students' skills and understanding and may leave students unprepared for the challenges of a later grade. Standards for topics that are not major emphases are written in such a way as to support and strengthen the areas of major emphasis. This allows for valuable connections that add coherence to the grade.

In addition, the Supporting and Additional clusters provide students with understanding that is essential for success on the Common Core assessments, though they are not a major focus of the assessments. The Common Core assessments will mirror the emphasis developed by the Common Core and highlighted here. Major clusters will represent the majority of the questions on the Common Core assessments, but it is important to note that items identified as being Supporting or Additional will also be included.

The table below indicates the clusters with Supporting or Additional Emphasis in the Common Core Standards.

Standard Clusters with Supporting or Additional Emphasis	Standards	*Ready*® Lesson(s)
The Number System		
Know that there are numbers that are not rational, and approximate them by rational numbers.	8.NS.A.1, 8.NS.A.2	3
Geometry		
Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.	8.G.C.9	26, 27
Statistics and Probability		
Investigate patterns of association in bivariate data.	8.SP.A.1, 8.SP.A.2, 8.SP.A.3, 8.SP.A.4	28, 29, 30, 31

Additional Resources

For more information on Content Emphases, see these helpful resources.

http://www.corestandards.org/other-resources/key-shifts-in-mathematics/
www.parcconline.org/parcc-model-content-frameworks
www.smarterbalanced.org/wordpress/wp-content/uploads/2011/12/Math-Content-Specifications.pdf
engageny.org/resource/math-content-emphases/

Correlation Charts

Common Core State Standards Coverage by *Ready*® Instruction

The table below correlates each Common Core State Standard to the *Ready*® Common Core Instruction lesson(s) that offer(s) comprehensive instruction on that standard. Use this table to determine which lessons your students should complete based on their mastery of each standard.

Common Core State Standards for Grade 8 Mathematical Standards		Content Emphasis	*Ready*® Lesson(s)
The Number System			
Know that there are numbers that are not rational, and approximate them by rational numbers.			
8.NS.A.1	Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.	Supporting/ Additional	3
8.NS.A.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). *For example, by truncating the decimal expansion of $\sqrt{2}$ show that $\sqrt{2}$ is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.*	Supporting/ Additional	3
Expressions and Equations			
Work with radicals and integer exponents.			
8.EE.A.1	Know and apply the properties of integer exponents to generate equivalent numerical expressions. *For example,* $3^2 \times 3^{-5} = 3^{-3} = \frac{1}{3}^3 = \frac{1}{27}$.	Major	1
8.EE.A.2	Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.	Major	2
8.EE.A.3	Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. *For example, estimate the population of the United States as 3×10^8 and the population of the world as 7×10^9, and determine that the world population is more than 20 times larger.*	Major	4
8.EE.A.4	Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.	Major	5

Common Core State Standards for Grade 8 Mathematical Standards	Content Emphasis	*Ready*® Lesson(s)
Expressions and Equations *continued*		
Understand the connections between proportional relationships, lines, and linear equations.		
8.EE.B.5 Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. *For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.*	Major	11
8.EE.B.6 Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b.	Major	12
Analyze and solve linear equations and pairs of simultaneous linear equations.		
8.EE.C.7 Solve linear equations in one variable.	Major	13, 14
8.EE.C.7a Give examples of linear equations in one variable with one solution, infinitely 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 equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers).	Major	14
8.EE.C.7B Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.	Major	13
8.EE.C.8 Analyze and solve pairs of simultaneous linear equations.	Major	15, 16, 17
8.EE.C.8a Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.	Major	15
8.EE.C.8b Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. *For example, $3x + 2y = 5$ and $3x + 2y = 6$ have no solution because $3x + 2y$ cannot simultaneously be 5 and 6.*	Major	16
8.EE.C.8c Solve real-world and mathematical problems leading to two linear equations in two variables. For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.	Major	17

Common Core State Standards Coverage by *Ready*® Instruction, *continued*

Common Core State Standards for Grade 8 Mathematical Standards	Content Emphasis	*Ready*® Lesson(s)
Functions		
Define, evaluate, and compare functions.		
8.F.A.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.	Major	6
8.F.A.2 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.*	Major	7
8.F.A.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. *For example, the function $A = s^2$ giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.*	Major	8
Use functions to model relationships between quantities.		
8.F.B.4 Construct a function to model a linear relationship between two quantities. 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.	Major	9
8.F.B.5 Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.	Major	10

Common Core State Standards for Grade 8 Mathematical Standards	Content Emphasis	*Ready*® Lesson(s)
Geometry		
Understand congruence and similarity using physical models, transparencies, or geometry software.		
8.G.A.1 Verify experimentally the properties of rotations, reflections, and translations:	Major	18
8.G.A.1a Lines are taken to lines, and line segments to line segments of the same length.	Major	18
8.G.A.1b Angles are taken to angles of the same measure.	Major	18
8.G.A.1c Parallel lines are taken to parallel lines.	Major	18
8.G.A.2 Understand that a two-dimensional figure is congruent to another if the second can 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.	Major	18, 19
8.G.A.3 Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.	Major	19, 20
8.G.A.4 Understand that a two-dimensional figure is similar to another if the second can be 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 between them.	Major	20
8.G.A.5 Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. *For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.*	Major	21, 22
Understand and apply the Pythagorean Theorem.		
8.G.B.6 Explain a proof of the Pythagorean Theorem and its converse.	Major	23
8.G.B.7 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.	Major	24
8.G.B.8 Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.	Major	25
Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.		
8.G.C.9 Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.	Supporting/ Additional	26, 27

Common Core State Standards Coverage by *Ready*® Instruction, *continued*

Common Core State Standards for Grade 8 Mathematical Standards	Content Emphasis	*Ready*® Lesson(s)
Statistics and Probability		
Investigate patterns of association in bivariate data.		
8.SP.A.1 Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.	Supporting/ Additional	28
8.SP.A.2 Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.	Supporting/ Additional	29
8.SP.A.3 Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. *For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.*	Supporting/ Additional	30
8.SP.A.4 Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. *For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?*	Supporting/ Additional	31

Interim Assessment Correlations

Depth of Knowledge and Standards Coverage by *Ready*® Instruction

The table below show the depth-of-knowledge (DOK) level for the items in the Interim Assessments, as well as the standard(s) addressed, and the corresponding *Ready*® Instruction lesson(s) being assessed by each item. Use this information to adjust lesson plans and focus remediation.

Question	DOK[1]	Standard(s)	*Ready*® Lesson(s)
Unit 1: Expressions and Equations (Exponents) and the Number System			
1	1	8.EE.A.4	5
2	2	8.EE.A.1	1
3	1	8.EE.A.1	1
4	2	8.EE.A.4	5
5	2	8.EE.A.2	2
6	2	8.EE.A.2	2
7	2	8.EE.A.3	4
PT	3	8.EE.A.1	1
Unit 2: Functions			
1	1	8.F.A.3	8
2	2	8.F.B.5	10
3	2	8.F.A.2	7
4	3	8.F.A.2	7
5	2	8.F.B.4	9
PT	3	8.F.A.1, 8.F.B.4	6, 9
Unit 3: Expressions and Equations (Linear Equations)			
1	2	8.EE.B.5	11
2	1	8.EE.B.6, 8.EE.C.8	12, 15
3	2	8.EE.B.6	12
4	2	8.EE.C.7a	13
5	1	8.EE.C.7b	14
6	2	8.EE.C.8a	15
PT	3	8.EE.C.7a, 8.EE.C.7b, 8.EE.C.8a, 8.EE.C.8b, 8.EE.C.8c	13, 14, 15, 16, 17

[1]Depth of Knowledge levels:

1. The item requires superficial knowledge of the standard.
2. The item requires processing beyond recall and observation.
3. The item requires explanation, generalization, and connection to other ideas.

Interim Assessment Correlations, *continued*

Question	DOK[1]	Standard(s)	*Ready*® Lesson(s)
Unit 4: Geometry			
1	2	8.G.A.2	18, 19
2	1	8.G.C.9	26, 27
3	2	8.G.A.5	22
4	2	8.G.C.9	26, 27
5	2	8.G.A.3	19, 20
6	2	8.G.A.5	21, 22
PT	3	8.G.C.9	26, 27
Unit 5: Statistics and Probability			
1	2	8.SP.A.4	31
2	1	8.SP.A.2, 8.SP.A.3	29, 30
3	3	8.SP.A.4	31
4	2	8.SP.A.3	30, 31
5	2	8.SP.A.4	31
PT	3	8.SP.A.1, 8.SP.A.2, 8.SP.A.3	28, 29, 30

[1]Depth of Knowledge levels:

1. The item requires superficial knowledge of the standard.
2. The item requires processing beyond recall and observation.
3. The item requires explanation, generalization, and connection to other ideas.

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