This document identifies bridging standards in the 2016 *Mathematics Standards of Learning.* Bridging standards allow for the identification of content that can be connected when planning instruction and promote deeper student understanding.

Bridge icon Bridging standards (indicated by bold text in the grade level column below) are ones that meet one or more of the following criteria:

* Functions as a bridge to which other content within the grade level/course is connected, either horizontally or vertically;
* Serves as prerequisite knowledge for content to be addressed in future grade levels/courses; or
* Possesses endurance beyond a single unit of instruction within a grade level/course.

The selection of content focus areas, potential connections, and the sequencing of content in this document serve as examples only and are intended to assist with curricular development.

| **Grade 8 Content Focus Areas** | **Prerequisite Knowledge (Linked to JIT  Quick Checks)**  **Grade 6** | **Prerequisite Knowledge (Linked to JIT  Quick Checks)**  **Grade 7** | **Grade 8**  **(Linked to Just In Time Mathematics Quick Checks)** | **n/a** | **Possible Grade 8 Connections Across Content Focus Areas** | **Possible Future Grade Level/Course Content Connections** |
| --- | --- | --- | --- | --- | --- | --- |
|  | [6.3a](https://www.doe.virginia.gov/home/showpublisheddocument/33263/), [6.3b](https://www.doe.virginia.gov/home/showpublisheddocument/25004/),  [6.4](https://www.doe.virginia.gov/home/showpublisheddocument/25012/) | [7.1d](https://www.doe.virginia.gov/home/showpublisheddocument/25124/) | [8.3a](https://www.doe.virginia.gov/home/showpublisheddocument/25232/) Estimate and determine the two consecutive integers between which a square root lies |  | Pythagorean Theorem | Simplify Square and Cube Roots  (Algebra I) |
|  | [6.4](https://www.doe.virginia.gov/home/showpublisheddocument/25012/) | [7.1d](https://www.doe.virginia.gov/home/showpublisheddocument/25124/) | [8.3b](https://www.doe.virginia.gov/home/showpublisheddocument/25236/) Determine both the positive and negative square roots of a given perfect square |  | Pythagorean Theorem | Simplify Square and Cube Roots  (Algebra I) |
| **Applying Real Numbers** | [6.2a](https://www.doe.virginia.gov/home/showpublisheddocument/24994/), [6.2b](https://www.doe.virginia.gov/home/showpublisheddocument/24998/),  [6.3b](https://www.doe.virginia.gov/home/showpublisheddocument/25004/), [6.4](https://www.doe.virginia.gov/home/showpublisheddocument/25012/) | [7.1b](https://www.doe.virginia.gov/home/showpublisheddocument/25116/), [7.1c](https://www.doe.virginia.gov/home/showpublisheddocument/25120/)  [7.1d](https://www.doe.virginia.gov/home/showpublisheddocument/25124/) | [**8.1**](https://www.doe.virginia.gov/home/showpublisheddocument/25224/) **Compare and order real numbers** |  | Compare and Contrast Probabilities |  |
|  | [6.2a](https://www.doe.virginia.gov/home/showpublisheddocument/24994/), [6.3a](https://www.doe.virginia.gov/home/showpublisheddocument/33263/), [6.3c](https://www.doe.virginia.gov/home/showpublisheddocument/25008/), [6.4](https://www.doe.virginia.gov/home/showpublisheddocument/25012/) | [7.1d](https://www.doe.virginia.gov/home/showpublisheddocument/25124/), [7.1e](https://www.doe.virginia.gov/home/showpublisheddocument/25128/) | [8.2](https://www.doe.virginia.gov/home/showpublisheddocument/25228/) Describe the relationships between the subsets of the real number system |  |  |  |
|  | [6.2a](https://www.doe.virginia.gov/home/showpublisheddocument/24994/), [6.5b](https://www.doe.virginia.gov/home/showpublisheddocument/25020/), [6.5c](https://www.doe.virginia.gov/home/showpublisheddocument/25024/), [6.6a](https://www.doe.virginia.gov/home/showpublisheddocument/25028/), [6.6b](https://www.doe.virginia.gov/home/showpublisheddocument/25032/), [6.13](https://www.doe.virginia.gov/home/showpublisheddocument/25100/) | [7.2](https://www.doe.virginia.gov/home/showpublisheddocument/25132/), [7.3](https://www.doe.virginia.gov/home/showpublisheddocument/25136/) | [**8.4**](https://www.doe.virginia.gov/home/showpublisheddocument/25240/) **Solve practical problems involving consumer applications** |  | Evaluate Algebraic Expressions and Solve Equations |  |
|  | [6.3c](https://www.doe.virginia.gov/home/showpublisheddocument/25008/), [6.5a](https://www.doe.virginia.gov/home/showpublisheddocument/25016/), [6.6a](https://www.doe.virginia.gov/home/showpublisheddocument/25028/), [6.6c](https://www.doe.virginia.gov/home/showpublisheddocument/25036/) | [7.1d](https://www.doe.virginia.gov/home/showpublisheddocument/25124/), [7.1e](https://www.doe.virginia.gov/home/showpublisheddocument/25128/), [7.11](https://www.doe.virginia.gov/home/showpublisheddocument/25192/) | [**8.14a**](https://www.doe.virginia.gov/home/showpublisheddocument/25304/) **Evaluate an algebraic expression for given replacement values of the variables** |  | Positive and Negative Square Roots of Perfect Squares | Evaluate Algebraic Expressions  (Algebra I) |
|  | [6.6a](https://www.doe.virginia.gov/home/showpublisheddocument/25028/), [6.6c](https://www.doe.virginia.gov/home/showpublisheddocument/25036/), [6.13](https://www.doe.virginia.gov/home/showpublisheddocument/25100/) | [7.12](https://www.doe.virginia.gov/home/showpublisheddocument/25196/) | [**8.14b**](https://www.doe.virginia.gov/home/showpublisheddocument/25308/) **Simplify algebraic expressions in one variable** |  | Perimeter of Composite Figures | Adding and Subtracting Polynomials  (Algebra I) |
| **Solving Algebraic Expressions and Equations** | [6.5a](https://www.doe.virginia.gov/home/showpublisheddocument/25016/), [6.6a](https://www.doe.virginia.gov/home/showpublisheddocument/25028/), [6.6c](https://www.doe.virginia.gov/home/showpublisheddocument/25036/), [6.13](https://www.doe.virginia.gov/home/showpublisheddocument/25100/) | [7.12](https://www.doe.virginia.gov/home/showpublisheddocument/25196/) | [**8.17**](https://www.doe.virginia.gov/home/showpublisheddocument/25340/) **Solve multistep linear equations in one variable with the variable on one or both sides of the equation, including practical problems that require the solution of a multistep linear equation in one variable** |  | Solve Practical Problems Involving Consumer Applications | Solve Multistep Linear Equations and Systems of Linear Equations  (Algebra I) |
|  | [6.14a](https://www.doe.virginia.gov/home/showpublisheddocument/25104/), [6.14b](https://www.doe.virginia.gov/home/showpublisheddocument/25108/) | [7.13](https://www.doe.virginia.gov/home/showpublisheddocument/25200/) | [**8.18**](https://www.doe.virginia.gov/home/showpublisheddocument/25344/) **Solve multistep linear inequalities in one variable with the variable on one or both sides of the inequity symbol, including practical problems, and graph the solution on a number line** |  |  | Solve Multistep Linear Inequalities in One Variable (Algebra I) |
|  | [6.1](https://www.doe.virginia.gov/home/showpublisheddocument/24990/), [6.8b](https://www.doe.virginia.gov/home/showpublisheddocument/25076/), [6.12a](https://www.doe.virginia.gov/home/showpublisheddocument/25084/), [6.12b](https://www.doe.virginia.gov/home/showpublisheddocument/25088/) | [7.10a](https://www.doe.virginia.gov/home/showpublisheddocument/25172/) | [**8.16a**](https://www.doe.virginia.gov/home/showpublisheddocument/25320/) **Recognize and describe the graph of a linear function with a slope that is positive, negative, or zero** |  | Linear Relationship in Scatterplots | Determine the Slope of a Line  (Algebra I) |
|  | [6.1](https://www.doe.virginia.gov/home/showpublisheddocument/24990/), [6.8b](https://www.doe.virginia.gov/home/showpublisheddocument/25076/), [6.12a](https://www.doe.virginia.gov/home/showpublisheddocument/25084/), [6.12b](https://www.doe.virginia.gov/home/showpublisheddocument/25088/) | [7.10a](https://www.doe.virginia.gov/home/showpublisheddocument/25172/),  [7.10c](https://www.doe.virginia.gov/home/showpublisheddocument/25180/) | [**8.16b**](https://www.doe.virginia.gov/home/showpublisheddocument/25324/) **Identify the slope and *y*-intercept of a linear function, given a table of values, a graph, or an equation in *y* = *mx* + *b*** |  |  | Determine the Slope of a Line  (Algebra I) |
| **Investigating Linear Functions** |  |  | [**8.16c**](https://www.doe.virginia.gov/home/showpublisheddocument/25328/) **Determine the independent and dependent variable, given a practical situation modeled by a linear function** |  |  | Domain and Range (Algebra I) |
|  | [6.1](https://www.doe.virginia.gov/home/showpublisheddocument/24990/), [6.8b](https://www.doe.virginia.gov/home/showpublisheddocument/25076/), [6.12a](https://www.doe.virginia.gov/home/showpublisheddocument/25084/), [6.12c](https://www.doe.virginia.gov/home/showpublisheddocument/25092/) | [7.10a](https://www.doe.virginia.gov/home/showpublisheddocument/25172/), [7.10b](https://www.doe.virginia.gov/home/showpublisheddocument/25176/), [7.10c](https://www.doe.virginia.gov/home/showpublisheddocument/25180/), [7.10d](https://www.doe.virginia.gov/home/showpublisheddocument/25184/) | [**8.16d**](https://www.doe.virginia.gov/home/showpublisheddocument/25332/) **Graph a linear function given the equation in *y* = *mx* + *b* form** |  |  | Graph Linear Equations in Two Variables (Algebra I) |
|  | [6.12a](https://www.doe.virginia.gov/home/showpublisheddocument/25084/), [6.12b](https://www.doe.virginia.gov/home/showpublisheddocument/25088/), [6.12c](https://www.doe.virginia.gov/home/showpublisheddocument/25092/), [6.12d](https://www.doe.virginia.gov/home/showpublisheddocument/25096/) | [7.10a](https://www.doe.virginia.gov/home/showpublisheddocument/25172/), [7.10b](https://www.doe.virginia.gov/home/showpublisheddocument/25176/), [7.10c](https://www.doe.virginia.gov/home/showpublisheddocument/25180/), [7.10d](https://www.doe.virginia.gov/home/showpublisheddocument/25184/), [7.10e](https://www.doe.virginia.gov/home/showpublisheddocument/25188/) | [**8.16e**](https://www.doe.virginia.gov/home/showpublisheddocument/25338/) **Make connections between and among representations of a linear function using verbal descriptions, tables, equations, and graphs** |  |  | Make Connections Between and Among Multiple Representations of Functions (Algebra I) |
|  | [6.8b](https://www.doe.virginia.gov/home/showpublisheddocument/25076/) |  | [**8.15a**](https://www.doe.virginia.gov/home/showpublisheddocument/25312/) **Determine whether a given relation is a function** |  | Represent Data in Scatterplots | Determine Whether a Relation is a Function (Algebra I) |
|  | [6.8b](https://www.doe.virginia.gov/home/showpublisheddocument/25076/) | [7.10b](https://www.doe.virginia.gov/home/showpublisheddocument/25176/), [7.10d](https://www.doe.virginia.gov/home/showpublisheddocument/25184/), [7.10e](https://www.doe.virginia.gov/home/showpublisheddocument/25188/) | [**8.15b**](https://www.doe.virginia.gov/home/showpublisheddocument/25316/) **Determine the domain and range of a function** |  |  | Domain and Range (Algebra I) |
|  | [6.9](https://www.doe.virginia.gov/home/showpublisheddocument/25080/) | [7.5](https://www.doe.virginia.gov/home/showpublisheddocument/25148/) | [**8.5**](https://www.doe.virginia.gov/home/showpublisheddocument/25244/) **Use relationships among pairs of angles that are vertical angles, adjacent angles, supplementary angles, and complementary angles to determine the measure of unknown angles** |  |  | Angle Relationships and Parallel Lines  (Geometry) |
| **Exploring Angle Relationships and the Pythagorean Theorem** | [6.4](https://www.doe.virginia.gov/home/showpublisheddocument/25012/) |  | [8.9a](https://www.doe.virginia.gov/home/showpublisheddocument/25270/) Verify the Pythagorean Theorem |  |  | Right Triangles/ Trigonometry (Geometry) |
|  | [6.4](https://www.doe.virginia.gov/home/showpublisheddocument/25012/) | [7.1d](https://www.doe.virginia.gov/home/showpublisheddocument/25124/) | [**8.9b**](https://www.doe.virginia.gov/home/showpublisheddocument/25272/) **Apply the Pythagorean Theorem** |  | Determine Positive and Negative Square Roots of Perfect Squares | Right Triangles/ Trigonometry (Geometry) |
| **Investigating Area, Perimeter, Volume, Surface Area and Transformations** | [6.7a](https://www.doe.virginia.gov/home/showpublisheddocument/25040/), [6.7b](https://www.doe.virginia.gov/home/showpublisheddocument/25044/), [6.7c](https://www.doe.virginia.gov/home/showpublisheddocument/25048/) |  | [**8.10**](https://www.doe.virginia.gov/home/showpublisheddocument/25216/) **Solve area and perimeter problems, including practical problems, involving composite plane figures** |  |  | Area of a Sector of a Circle (Geometry) |
|  | [6.8a](https://www.doe.virginia.gov/home/showpublisheddocument/25072/), [6.8b](https://www.doe.virginia.gov/home/showpublisheddocument/25076/), [6.9](https://www.doe.virginia.gov/home/showpublisheddocument/25080/) | [7.7](https://www.doe.virginia.gov/home/showpublisheddocument/25160/) | [8.7a](https://www.doe.virginia.gov/home/showpublisheddocument/25256/) Given a polygon, apply transformations, to include translations, reflections, and dilations, in the coordinate plane |  |  | Transformations of Figures (Geometry) |
|  | [6.9](https://www.doe.virginia.gov/home/showpublisheddocument/25080/) | [7.7](https://www.doe.virginia.gov/home/showpublisheddocument/25160/) | [8.7b](https://www.doe.virginia.gov/home/showpublisheddocument/25260/) Identify practical applications of transformations |  |  | Transformations of Figures (Geometry) |
|  | [6.7b](https://www.doe.virginia.gov/home/showpublisheddocument/25044/), [6.7c](https://www.doe.virginia.gov/home/showpublisheddocument/25048/) | [7.4a](https://www.doe.virginia.gov/home/showpublisheddocument/25140/), [7.4b](https://www.doe.virginia.gov/home/showpublisheddocument/25144/) | [8.6a](https://www.doe.virginia.gov/home/showpublisheddocument/25248/) Solve problems, including practical problems, involving volume and surface area of cones and square-based pyramids |  | Evaluate Algebraic Expressions | Surface Area and Volume of 3-D Figures (Geometry) |
|  | [6.7c](https://www.doe.virginia.gov/home/showpublisheddocument/25048/) | [7.4a](https://www.doe.virginia.gov/home/showpublisheddocument/25140/), [7.4b](https://www.doe.virginia.gov/home/showpublisheddocument/25144/) | [8.6b](https://www.doe.virginia.gov/home/showpublisheddocument/25252/) Describe how changing one measured attribute of a rectangular prism affects the volume and surface area |  |  | Surface Area and Volume of 3-D Figures (Geometry) |
|  |  |  | [8.8](https://www.doe.virginia.gov/home/showpublisheddocument/25264/) Construct a three-dimensional model, given the top or bottom, side, and front views |  |  |  |
| **Finding Probability of Independent and Dependent Events** | [6.1](https://www.doe.virginia.gov/home/showpublisheddocument/24990/), [6.2a](https://www.doe.virginia.gov/home/showpublisheddocument/24994/), [6.2b](https://www.doe.virginia.gov/home/showpublisheddocument/24998/) | [7.1c](https://www.doe.virginia.gov/home/showpublisheddocument/25120/), [7.8a](https://www.doe.virginia.gov/home/showpublisheddocument/25164/), [7.8b](https://www.doe.virginia.gov/home/showpublisheddocument/25168/) | [**8.11a**](https://www.doe.virginia.gov/home/showpublisheddocument/25220/) **Compare and contrast the probability of independent and dependent event** |  | Compare and Order Real Numbers |  |
|  | [6.1](https://www.doe.virginia.gov/home/showpublisheddocument/24990/), [6.2a](https://www.doe.virginia.gov/home/showpublisheddocument/24994/) | [7.8a](https://www.doe.virginia.gov/home/showpublisheddocument/25164/) | [**8.11b**](https://www.doe.virginia.gov/home/showpublisheddocument/25276/) **Determine the probabilities for independent and dependent events** |  |  |  |
|  | [6.3b](https://www.doe.virginia.gov/home/showpublisheddocument/25004/), [6.10a](https://www.doe.virginia.gov/home/showpublisheddocument/25050/) | [7.9a](https://www.doe.virginia.gov/home/showpublisheddocument/25204/) | [8.12a](https://www.doe.virginia.gov/home/showpublisheddocument/25280/) Represent numerical data in boxplots |  |  |  |
|  | [6.6a](https://www.doe.virginia.gov/home/showpublisheddocument/25028/), [6.10b](https://www.doe.virginia.gov/home/showpublisheddocument/25056/), [6.11b](https://www.doe.virginia.gov/home/showpublisheddocument/25066/) | [7.9b](https://www.doe.virginia.gov/home/showpublisheddocument/25208/) | [8.12b](https://www.doe.virginia.gov/home/showpublisheddocument/25284/) Make observations and inference about data represented in boxplots |  |  |  |
| **Representing and Interpreting Data with Boxplots and Scatterplots** | [6.6a](https://www.doe.virginia.gov/home/showpublisheddocument/25028/), [6.10c](https://www.doe.virginia.gov/home/showpublisheddocument/25058/) | [7.9c](https://www.doe.virginia.gov/home/showpublisheddocument/25212/) | [8.12c](https://www.doe.virginia.gov/home/showpublisheddocument/25288/) Compare and analyze two data sets using boxplots |  |  |  |
|  | [6.8b](https://www.doe.virginia.gov/home/showpublisheddocument/25076/), [6.10a](https://www.doe.virginia.gov/home/showpublisheddocument/25050/) | [7.9a](https://www.doe.virginia.gov/home/showpublisheddocument/25204/) | [8.13a](https://www.doe.virginia.gov/home/showpublisheddocument/25292/) Represent data in scatterplots |  | Slope of a Linear Function | Curves of Best Fit (Algebra I) |
|  | [6.8b](https://www.doe.virginia.gov/home/showpublisheddocument/25076/), [6.10b](https://www.doe.virginia.gov/home/showpublisheddocument/25056/) | [7.9b](https://www.doe.virginia.gov/home/showpublisheddocument/25208/) | [8.13b](https://www.doe.virginia.gov/home/showpublisheddocument/25296/) Make observations about data represented in scatterplots |  | Slope of a Linear Function | Curves of Best Fit (Algebra I) |
|  | [6.8b](https://www.doe.virginia.gov/home/showpublisheddocument/25076/), [6.10c](https://www.doe.virginia.gov/home/showpublisheddocument/25058/) | [7.9c](https://www.doe.virginia.gov/home/showpublisheddocument/25212/), [7.10b](https://www.doe.virginia.gov/home/showpublisheddocument/25176/), [7.10d](https://www.doe.virginia.gov/home/showpublisheddocument/25184/) | [8.13c](https://www.doe.virginia.gov/home/showpublisheddocument/25300/) Use a drawing to estimate the line of best fit for data represented in a scatterplot |  | Slope of a Linear Function | Curves of Best Fit (Algebra I) |