



# Correlation of First Grade IT!<sup>®</sup> Math to First Grade Virginia Standards of Learning

Virginia Standard	COVERED	IT! <sup>®</sup> Topic
<b>Grade 1</b>		
<b>Number and Number Sense</b>		
1.1 The student will count objects in a given set containing between 1 and 100 objects and write the corresponding numeral. . . . .	Yes . . . . .	1.1 1.5
1.2 The student will group a collection of up to 100 objects into tens and ones and write the corresponding numeral to develop an understanding of place value. . . . .	No	
1.3 The student will count forward by ones, fives, and tens to 100, by twos to 20, and backward by ones from 20. . . . .	Yes . . . . .	(p) 3.3.1
1.4 The student will recognize and write numerals 0 through 100. . . . .	Yes . . . . .	1.1
1.5 The student will identify the ordinal positions first through tenth, using an ordered set of objects. . . . .	No	
1.6 The student will identify and represent the concepts of one-half and one-fourth, using appropriate materials or a drawing.. . . .	Yes . . . . .	1.2
<b>Computation and Estimation</b>		
1.7 The student, given a familiar problem situation involving magnitude, will		
a) select a reasonable magnitude from three given quantities: a one-digit numeral, a two-digit numeral, and a three-digit numeral (e.g., 5, 50, and 500); and. . . . .	No	
b) explain the reasonableness of his/her choice.. . . .	No	
1.8 The student will recall basic addition facts – i.e., sums to 10 or less – and the corresponding subtraction facts. . . . .	Yes . . . . .	1.3
1.9 The student will create and solve story and picture problems involving one-step solutions, using basic addition and subtraction facts.. . . .	Yes . . . . .	1.3 3.2 3.4
<b>Measurement</b>		
1.10 The student will		
a) identify the number of pennies equivalent to a nickel, a dime, and a quarter; and . . . . .	Yes . . . . .	2.3
b) determine the value of a collection of pennies, nickels, and dimes whose total value is 100 cents or less. . . . .	Yes . . . . .	2.3
1.11 The student will tell time to the half-hour, using an analog or digital clock. . . . .	Yes . . . . .	2.2
1.12 The student will use nonstandard units to measure length and weight.. . . .	Yes . . . . .	2.1
1.13 The student will compare the volumes of two given containers by using concrete materials (e.g., jelly beans, sand, water, rice).. . . .	Yes . . . . .	2.1
1.14 The student will compare the weights of two objects, using a balance scale. . . . .	Yes . . . . .	2.1
<b>Geometry</b>		
1.15 The student will describe the proximity of objects in space (near, far, close by, below, above, up, down, beside, and next to).. . . .	No	
1.16 The student will draw, describe, and sort plane geometric figures (triangle, square, rectangle, and circle) according to number of sides, corners, and square corners. . . . .	Yes . . . . .	4.1
1.17 The student will identify and describe objects in his/her environment that depict plane geometric figures (triangle, rectangle, square, and circle). . . . .	Yes . . . . .	4.1

(p) indicates that this Standard is partially covered.



**Virginia Standard**

**Grade 1 (continued)**

**Probability and Statistics**

- |  | <b>COVERED</b>       | <b>IT!® Topic</b> |
|--|----------------------|-------------------|
| 1.18 The student will investigate, identify, and describe various forms of data collection in his/her world (e.g., recording daily temperature, lunch count, attendance, and favorite ice cream), using tables, picture graphs, and object graphs. . . . . | <b>Yes</b> . . . . . | 5.1               |
| 1.19 The student will interpret information displayed in a picture or object graph, using the vocabulary more, less, fewer, greater than, less than, and equal to. . . . .   | <b>No</b> . . . . .  |                   |

**Patterns, Functions, and Algebra**

- |  |                      |            |
|--|----------------------|------------|
| 1.20 The student will sort and classify concrete objects according to one or more attributes, including color, size, shape, and thickness. . . . .   | <b>No</b> . . . . .  |            |
| 1.21 The student will recognize, describe, extend, and create a wide variety of patterns, including rhythmic, color, shape, and numerical. Patterns will include both growing and repeating patterns. Concrete materials and calculators will be used by students. . . . . | <b>Yes</b> . . . . . | 3.1<br>3.3 |



# Correlation of Second Grade IT!<sup>®</sup> Math to Second Grade Virginia Standards of Learning

Virginia Standard	COVERED	IT! <sup>®</sup> Topic
<b>Grade 2</b>		
<b>Number and Number Sense</b>		
2.1 The student will		
a) read, write, and identify the place value of each digit in a three-digit numeral, using numeration models; and . . . . .	Yes . . . . .	1.1
b) round two-digit numbers to the nearest ten. . . . .	No	
2.2 The student will compare two whole numbers between 0 and 999, using symbols (>, <, or =) and words (greater than, less than, or equal to).. . . . .	Yes . . . . .	1.1 1.6
2.3 The student will identify the ordinal positions first through twentieth, using an ordered set of objects.. . . . .	No	
2.4 The student will identify the part of a set and/or region that represents fractions for one-half, one-third, one-fourth, one-eighth, and one-tenth and write the corresponding fraction.. . . . .	Yes . . . . .	1.2
2.5 The student will		
a) count forward by twos, fives, and tens to 100, starting at various multiples of 2, 5, or 10, using mental mathematics, paper and pencil, hundred chart, calculators, and/or concrete objects, as appropriate; . . . . .	Yes . . . . .	3.3.17
b) count backward by tens from 100;. . . . .	No	
c) group objects by threes and fours; and. . . . .	No	
d) recognize even and odd numbers, using objects. . . . .	Yes . . . . .	3.3
<b>Computation and Estimation</b>		
2.6 The student will recall basic addition facts – i.e., sums to 18 or less – and the corresponding subtraction facts. . . . .	Yes . . . . .	1.3
2.7 The student, given two whole numbers whose sum is 99 or less, will		
a) estimate the sum; and . . . . .	Yes . . . . .	1.5
b) find the sum, using various methods of calculation (mental computation, concrete materials, and paper and pencil).. . . . .	Yes . . . . .	1.3 3.2
2.8 The student, given two whole numbers, each of which is 99 or less, will		
a) estimate the difference; and . . . . .	Yes . . . . .	1.5
b) find the difference, using various methods of calculation (mental computation, concrete materials, and paper and pencil). . . . .	Yes . . . . .	1.3 3.2
2.9 The student will create and solve one-step addition and subtraction problems using data from simple tables, picture graphs, bar graphs, and practical situations. . . . .	Yes . . . . .	1.3 1.6 3.2 5.2
2.10 The student, given a simple addition or subtraction fact, will recognize and describe the related facts which represent and describe the inverse relationship between addition and subtraction (e.g., $3 + \underline{\quad} = 7$ , $\underline{\quad} + 3 = 7$ ; $7 - 3 = \underline{\quad}$ , and $7 - \underline{\quad} = 3$ ).. . . .	Yes . . . . .	3.4 1.4

(p) indicates that this Standard is partially covered.



**Virginia Standard**

**Grade 2 (continued)**

**Number and Number Sense**

**Measurement**

2.11	The student will		
	a) count and compare a collection of pennies, nickels, dimes, and quarters whose total value is \$2.00 or less; and. . . . .	<b>Yes</b>	2.3
	b) identify the correct usage of the cent symbol (¢), dollar symbol (\$), and decimal point (.). . . . .	<b>No</b>	
2.12	The student will estimate and then use a ruler to make linear measurements to the nearest centimeter and inch, including measuring the distance around a polygon in order to determine perimeter. . . . .	<b>Yes</b>	(p) 2.1 2.6 2.5
2.13	The student, given grid paper, will estimate and then count the number of square units needed to cover a given surface in order to determine area.. . . .	<b>Yes</b>	2.6
2.14	The student will estimate and then count the number of cubes in a rectangular box in order to determine volume. . . . .	<b>No</b>	
2.15	The student will estimate and then determine weight/mass of familiar objects in pounds and/or kilograms, using a scale. . . . .	<b>Yes</b>	2.1
2.16	The student will tell and write time to the quarter hour, using analog and digital clocks. . . . .	<b>Yes</b>	2.2
2.17	The student will use actual measuring devices to compare metric and U.S. Customary units (cups, pints, quarts, gallons, and liters) for measuring liquid volume, using the concepts of more, less, and equivalent.. . . .	<b>Yes</b>	2.1 2.5
2.18	The student will		
	a) use calendar language appropriately (e.g., months, today, yesterday, next week, last week);. . . . .	<b>No</b>	
	b) determine past and future days of the week; and . . . . .	<b>No</b>	
	c) identify specific dates on a given calendar. . . . .	<b>No</b>	
2.19	The student will read the temperature on a Celsius and/or Fahrenheit thermometer to the nearest 10 degrees. . . . .	<b>Yes</b>	2.4

**Geometry**

2.20	The student will identify, describe, and sort three-dimensional (solid) concrete figures, including a cube, rectangular solid (prism), square pyramid, sphere, cylinder, and cone, according to the number and shape of the solid's faces, edges, and corners.. . . .	<b>Yes</b>	4.1
2.21	The student will identify and create figures, symmetric along a line, using various concrete materials.. . . .	<b>Yes</b>	4.3
2.22	The student will compare and contrast plane and solid geometric shapes (circle/sphere, square/ cube, and rectangle/rectangular solid). . . . .	<b>No</b>	

**Probability and Statistics**

2.23	The student will read, construct, and interpret a simple picture and bar graph. . . . .	<b>Yes</b>	5.1 5.2 5.3
2.24	The student will record data from experiments, using spinners and colored tiles/cubes, and use the data to predict which of two events is more likely to occur if the experiment is repeated.. . . .	<b>Yes</b>	5.4

**Patterns, Functions, and Algebra**

2.25	The student will identify, create, and extend a wide variety of patterns, using numbers, concrete objects, and pictures.. . . .	<b>Yes</b>	3.1 3.3
2.26	The student will solve problems by completing a numerical sentence involving the basic facts for addition and subtraction. Examples include: $3 + \underline{\quad} = 7$ , or $9 - \underline{\quad} = 2$ . Students will create story problems, using the numerical sentences.. . . .	<b>Yes</b>	1.4 3.4

(p) indicates that this Standard is partially covered.



# Correlation of Third Grade IT!® Math to Third Grade Virginia Standards of Learning

Virginia Standard	COVERED	IT!® Topic
<b>Grade 3</b>		
<b>Number and Number Sense</b>		
3.1. The student will read and write six-digit numerals and identify the place value for each digit. . . . .	Yes . . . . .	1.1
3.2. The student will round a whole number, 9,999 or less, to the nearest ten, hundred, and thousand.. . . .	Yes . . . . .	1.5
3.3. The student will compare two whole numbers between 0 and 9,999, using symbols (>, <, or = ) and words (greater than, less than, or equal to).. . . . .	Yes . . . . .	1.1 1.6
3.4. The student will recognize and use the inverse relationships between addition/subtraction and multiplication/division to complete basic fact sentences. Students will use these relationships to solve problems such as $5 + 3 = 8$ and $8 - 3 = \underline{\quad}$ .. . . .	Yes . . . . .	3.4 3.5
3.5. The student will		
a) divide regions and sets to represent a fraction; and. . . . .	Yes . . . . .	1.2
b) name and write the fractions represented by a given model (area/region, length/measurement, and set). Fractions (including mixed numbers) will include halves, thirds, fourths, eighths, and tenths. . . . .	Yes . . . . .	1.2
3.6. The student will compare the numerical value of two fractions having like and unlike denominators, using concrete or pictorial models involving areas/regions, lengths/measurements, and sets.. . . . .	Yes . . . . .	1.2
3.7. The student will read and write decimals expressed as tenths and hundredths, using concrete materials and models. . . . .	No	
<b>Computation and Estimation</b>		
3.8. The student will solve problems involving the sum or difference of two whole numbers, each 9,999 or less, with or without regrouping, using various computational methods, including calculators, paper and pencil, mental computation, and estimation.. . . . .	Yes . . . . .	1.3
3.9. The student will recall the multiplication and division facts through the nines table. . . . .	Yes . . . . .	1.3
3.10. The student will represent multiplication and division, using area and set models, and create and solve problems that involve multiplication of two whole numbers, one factor 99 or less and the second factor 5 or less.. . . . .	Yes . . . . .	1.3 3.2 3.4
3.11. The student will add and subtract with proper fractions having like denominators of 10 or less, using concrete materials and pictorial models representing areas/regions, lengths/measurements, and sets. . . . .	No	
3.12. The student will add and subtract with decimals expressed as tenths, using concrete materials, pictorial representations, and paper and pencil.. . . . .	No	
<b>Measurement</b>		
3.13. The student will determine by counting the value of a collection of bills and coins whose total value is \$5.00 or less, compare the value of the coins or bills, and make change.. . . . .	Yes . . . . .	2.3
3.14. The student will estimate and then use actual measuring devices with metric and U.S. Customary units to measure		
a) length–inches, feet, yards, centimeters, and meters;. . . . .	Yes . . . . .	2.1 2.5
b) liquid volume–cups, pints, quarts, gallons, and liters; and . . . . .	Yes . . . . .	2.1 2.5

(p) indicates that this Standard is partially covered.



**Virginia Standard**

**Grade 3 (continued)**

Virginia Standard	COVERED	IT!® Topic
c) weight/mass—ounces, pounds, grams, and kilograms. . . . .	Yes . . . . .	2.1
3.15. The student will tell time to the nearest five-minute interval and to the nearest minute, using analog and digital clocks. . . . .	Yes . . . . .	2.2
3.16. The student will identify equivalent periods of time, including relationships among days, months, and years, as well as minutes and hours. . . . .	Yes . . . . .	2.2
3.17. The student will read temperature to the nearest degree from a Celsius thermometer and a Fahrenheit thermometer. Real thermometers and physical models of thermometers will be used. . . . .	Yes . . . . .	2.4

**Geometry**

3.18. The student will analyze two-dimensional (plane) and three-dimensional (solid) geometric figures (circle, square, rectangle, triangle, cube, rectangular solid [prism], square pyramid, sphere, cone, and cylinder) and identify relevant properties, including the number of corners, square corners, edges, and the number and shape of faces, using concrete models. . . . .	Yes . . . . .	4.1 4.4
3.19. The student will identify and draw representations of line segments and angles, using a ruler or straightedge. . . . .	No	
3.20. The student, given appropriate drawings or models, will identify and describe congruent and symmetrical, two-dimensional (plane) figures, using tracing procedures. . . . .	Yes . . . . .	4.3 4.5

**Probability and Statistics**

3.21. The student, given grid paper, will		
a) collect and organize data on a given topic of his/her choice, using observations, measurements, surveys, or experiments; and. . . . .	Yes . . . . .	5.1 5.3
b) construct a line plot, a picture graph, or a bar graph to represent the results. Each graph will include an appropriate title and key. . . . .	Yes . . . . .	5.3 5.4
3.22. The student will read and interpret data represented in line plots, bar graphs, and picture graphs and write a sentence analyzing the data. . . . .	Yes . . . . .	5.1 5.3 5.5
3.23. The student will investigate and describe the concept of probability as chance and list possible results of a given situation. . . . .	Yes . . . . .	5.6 5.7

**Patterns, Functions, and Algebra**

3.24. The student will recognize and describe a variety of patterns formed using concrete objects, numbers, tables, and pictures, and extend the pattern, using the same or different forms (concrete objects, numbers, tables, and pictures). . . . .	Yes . . . . .	3.1 3.3
3.25. The student will		
a) investigate and create patterns involving numbers, operations (addition and multiplication), and relations that model the identity and commutative properties for addition and multiplication; and . . . . .	Yes . . . . .	(p) 3.1 3.3 3.4
b) demonstrate an understanding of equality by recognizing that the equal sign (=) links equivalent quantities, such as $4 \cdot 3 = 2 \cdot 6$ . . . . .	No	

(p) indicates that this Standard is partially covered.



# Correlation of Fourth Grade IT!<sup>®</sup> Math to Fourth Grade Virginia Standards of Learning

Virginia Standard	COVERED	IT! <sup>®</sup> Topic
<b>Grade 4</b>		
<b>Number and Number Sense</b>		
4.1. The student will		
a) identify (orally and in writing) the place value for each digit in a whole number expressed through millions; . . . . .	Yes . . . . .	1.1
b) compare two whole numbers expressed through millions, using symbols ( >, <, or = ); and . . . . .	Yes . . . . .	1.1
c) round whole numbers expressed through millions to the nearest thousand, ten thousand, and hundred thousand. . . . .	Yes . . . . .	(p) 1.4
4.2. The student will		
a) identify, model, and compare rational numbers (fractions and mixed numbers), using concrete objects and pictures; . . . . .	Yes . . . . .	1.1
b) represent equivalent fractions; and. . . . .	Yes . . . . .	1.1
c) relate fractions to decimals, using concrete objects.. . . .	Yes . . . . .	1.1
4.3. The student will compare the numerical value of fractions (with like and unlike denominators) having denominators of 12 or less, using concrete materials.. . . .	Yes . . . . .	1.1
4.4. The student will		
a) read, write, represent, and identify decimals expressed through thousandths; . . . . .	Yes . . . . .	(p) 1.1
b) round to the nearest whole number, tenth, and hundredth; and . . . . .	Yes . . . . .	1.4
c) compare the value of two decimals, using symbols (<, >, or =), concrete materials, drawings, and calculators. . . . .	Yes . . . . .	1.1
<b>Computation and Estimation</b>		
4.5. The student will estimate whole-number sums and differences and describe the method of estimation. Students will refine estimates, using terms such as closer to, between, and a little more than. . . . .	Yes . . . . .	1.4
4.6. The student will add and subtract whole numbers written in vertical and horizontal form, choosing appropriately between paper and pencil methods and calculators.. . . .	Yes . . . . .	1.2
4.7. The student will find the product of two whole numbers when one factor has two digits or fewer and the other factor has three digits or fewer, using estimation and paper and pencil. For larger products (a two-digit numeral times a three-digit numeral), estimation and calculators will be used.. . . .	Yes . . . . .	1.2
4.8. The student will estimate and find the quotient of two whole numbers, given a one-digit divisor. . . . .	Yes . . . . .	1.2 1.4
4.9. The student will		
a) add and subtract with fractions having like and unlike denominators of 12 or less, using concrete materials, pictorial representations, and paper and pencil; . . . . .	No	
b) add and subtract with decimals through thousandths, using concrete materials, pictorial representations, and paper and pencil; and. . . . .	Yes . . . . .	1.2
c) solve problems involving addition and subtraction with fractions having like and unlike denominators of 12 or less and with decimals expressed through thousandths, using various computational methods, including calculators, paper and pencil, mental computation, and estimation. . . . .	No	

(p) indicates that this Standard is partially covered.



**Virginia Standard**

**Grade 4 (continued)**

**Measurement**

4.10. The student will

- a) estimate and measure weight/mass, using actual measuring devices, and describe the results in U.S. Customary/metric units as appropriate, including ounces, pounds, grams, and kilograms; . . . . . **Yes** . . . . . 2.1  
2.3
- b) identify equivalent measurements between units within the U.S. Customary system (ounces and pounds) and between units within the metric system (grams and kilograms); and . . . . . **Yes** . . . . . 2.1  
2.4
- c) estimate the conversion of ounces and grams and pounds and kilograms, using approximate comparisons (1 ounce is about 28 grams, or 1 gram is about the weight of a paper clip; 1 kilogram is a little more than 2 pounds). . . . . **No**

4.11. The student will

- a) estimate and measure length, using actual measuring devices, and describe the results in both metric and U.S. Customary units, including part of an inch (1/2, 1/4, and 1/8), inches, feet, yards, millimeters, centimeters, and meters; . . . . . **Yes** . . . . . 2.1  
2.3
- b) identify equivalent measurements between units within the U.S. Customary system (inches and feet; feet and yards; inches and yards) and between units within the metric system (millimeters and centimeters; centimeters and meters; and millimeters and meters); and . . . . . **Yes** . . . . . 2.1  
2.4
- c) estimate the conversion of inches and centimeters, yards and meters, and miles and kilometers, using approximate comparisons (1 inch is about 2.5 centimeters, 1 meter is a little longer than 1 yard, 1 mile is slightly farther than 1.5 kilometers, or 1 kilometer is slightly farther than half a mile). . . . . **No**

4.12. The student will

- a) estimate and measure liquid volume, using actual measuring devices and using metric and U.S. Customary units, including cups, pints, quarts, gallons, milliliters, and liters; . . . . . **Yes** . . . . . 2.1  
2.3
- b) identify equivalent measurements between units within the U.S. Customary system (cups, pints, quarts, and gallons) and between units within the metric system (milliliters and liters); and . . . . . **No**
- c) estimate the conversion of quarts and liters, using approximate comparisons (1 quart is a little less than 1 liter, 1 liter is a little more than 1 quart). . . . . **No**

4.13. The student will

- a) identify and describe situations representing the use of perimeter and area; and . . . . . **Yes** . . . . . 2.1  
2.6
- b) use measuring devices to find perimeter in both standard and nonstandard units of measure. . . . . **Yes** . . . . . 2.1  
2.6

**Geometry**

4.14. The student will investigate and describe the relationships between and among points, lines, line segments, and rays. . . . . **No**

4.15. The student will

- a) identify and draw representations of points, lines, line segments, rays, and angles, using a straightedge or ruler; and. . . . . **No**
- b) describe the path of shortest distance between two points on a flat surface. . . . . **No**

4.16. The student will identify and draw representations of lines that illustrate intersection, parallelism, and perpendicularity. . . . . **Yes** . . . . . 4.3  
4.4

4.17. The student will

- a) analyze and compare the properties of two-dimensional (plane) geometric figures (circle, square, rectangle, triangle, parallelogram, and rhombus) and three-dimensional (solid) geometric figures (sphere, cube, and rectangular solid [prism]); . . . . **Yes** . . . . . 4.1  
4.5

(p) indicates that this Standard is partially covered.



**Virginia Standard**

**Grade 4 (continued)**

	COVERED	IT!® Topic
b) identify congruent and noncongruent shapes; and. . . . .	Yes . . . . .	4.4
c) investigate congruence of plane figures after geometric transformations such as reflection (flip), translation (slide) and rotation (turn), using mirrors, paper folding, and tracing. . . . .	No . . . . .	
4.18. The student will identify the ordered pair for a point and locate the point for an ordered pair in the first quadrant of a coordinate plane. . . . .	No . . . . .	
<b>Probability and Statistics</b>		
4.19. The student will		
a) predict the likelihood of outcomes of a simple event, using the terms certain, likely, unlikely, impossible; and. . . . .	Yes . . . . .	5.9
b) determine the probability of a given simple event, using concrete materials. . . . .	Yes . . . . .	5.8 5.9
4.20. The student will collect, organize, and display data in line and bar graphs with scale increments of one or greater than one and use the display to interpret the results, draw conclusions, and make predictions. . . . .	Yes . . . . .	5.1 5.3 5.4 5.5 5.6
<b>Patterns, Functions, and Algebra</b>		
4.21. The student will recognize, create, and extend numerical and geometric patterns, using concrete materials, number lines, symbols, tables, and words. . . . .	Yes . . . . .	3.1 3.3
4.22. The student will recognize and demonstrate the meaning of equality, using symbols representing numbers, operations, and relations [e.g., $3 + 5 = 5 + 3$ and $15 + (35 + 16) = (15 + 35) + 16$ ]. . . . .	Yes . . . . .	3.4

(p) indicates that this Standard is partially covered.



# Correlation of Fifth Grade IT!<sup>®</sup> Math to Fifth Grade Virginia Standards of Learning

Virginia Standard	COVERED	IT! <sup>®</sup> Topic
<b>Grade 5</b>		
<b>Number and Number Sense</b>		
5.1. The student will		
a) read, write, and identify the place values of decimals through thousandths; . . . . .	Yes . . . . .	1.1
b) round decimal numbers to the nearest tenth or hundredth; and . . . . .	Yes . . . . .	1.4
c) compare the values of two decimals through thousandths, using the symbols >, <, or =. . . . .	Yes . . . . .	1.1
5.2. The student will		
a) recognize and name commonly used fractions (halves, fourths, fifths, eighths, and tenths) in their equivalent decimal form and vice versa; and . . . . .	Yes . . . . .	1.1
b) order a given set of fractions and decimals from least to greatest. Fractions will include like and unlike denominators limited to 12 or less, and mixed numbers.. . . .	Yes . . . . .	1.1
<b>Computation and Estimation</b>		
5.3. The student will create and solve problems involving addition, subtraction, multiplication, and division of whole numbers, using paper and pencil, estimation, mental computation, and calculators.. . . .	Yes . . . . .	1.2
5.4. The student will find the sum, difference, and product of two numbers expressed as decimals through thousandths, using an appropriate method of calculation, including paper and pencil, estimation, mental computation, and calculators.. . . .	Yes . . . . .	1.2
5.5. The student, given a dividend of four digits or fewer and a divisor of two digits or fewer, will find the quotient and remainder. . . . .	Yes . . . . .	1.2
5.6. The student, given a dividend expressed as a decimal through thousandths and a single-digit divisor, will find the quotient. . . . .	Yes . . . . .	1.2
5.7. The student will add and subtract with fractions and mixed numbers, with and without regrouping, and express answers in simplest form. Problems will include like and unlike denominators limited to 12 or less. . . . .	Yes . . . . .	1.2
<b>Measurement</b>		
5.8. The student will describe and determine the perimeter of a polygon and the area of a square, rectangle, and right triangle, given the appropriate measures. . . . .	Yes . . . . .	2.1 2.6
5.9. The student will identify and describe the diameter, radius, chord, and circumference of a circle. . . . .	Yes . . . . .	(p) 4.5
5.10. The student will differentiate between perimeter, area, and volume and identify whether the application of the concept of perimeter, area, or volume is appropriate for a given situation.. . . .	No	
5.11. The student will choose an appropriate measuring device and unit of measure to solve problems involving measurement of		
a) length—part of an inch (1/2, 1/4, and 1/8), inches, feet, yards, miles, millimeters, centimeters, meters, and kilometers; . . . . .	Yes . . . . .	2.1 2.3
b) weight/mass—ounces, pounds, tons, grams, and kilograms; . . . . .	Yes . . . . .	2.1 2.3
c) liquid volume—cups, pints, quarts, gallons, milliliters, and liters; . . . . .	Yes . . . . .	2.1 2.3

(p) indicates that this Standard is partially covered.



**Virginia Standard**

**Grade 5 (continued)**

	COVERED	IT! <sup>®</sup> Topic
d) area-square units; and . . . . .	No	
e) temperature-Celsius and Fahrenheit units. Problems also will include estimating the conversion of Celsius and Fahrenheit units relative to familiar situations (water freezes at 0C and 32F, water boils at 100C and 212F, normal body temperature is about 37C and 98.6F).. . . . .	No	
5.12. The student will determine an amount of elapsed time in hours and minutes within a 24-hour period.. . . .	Yes . . . . .	1.2.74 1.2.75 1.2.76 1.2.77
5.13. The student will measure and draw right, acute, and obtuse angles and triangles, using appropriate tools.. . . .	No	
<b>Geometry</b>		
5.14. The student will classify angles and triangles as right, acute, or obtuse.. . . . .	Yes . . . . .	4.4
5.15. The student, using two-dimensional (plane) figures (square, rectangle, triangle, parallelogram, rhombus, kite, and trapezoid) will		
a) recognize, identify, describe, and analyze their properties in order to develop definitions of these figures; . . . . .	Yes . . . . .	4.1 4.3 4.5
b) identify and explore congruent, noncongruent, and similar figures; . . . . .	Yes . . . . .	4.5 4.4
c) investigate and describe the results of combining and subdividing shapes; . . . . .	Yes . . . . .	4.1
d) identify and describe a line of symmetry; and . . . . .	Yes . . . . .	4.4 4.5
e) recognize the images of figures resulting from geometric transformations such as translation (slide), reflection (flip), or rotation (turn). . . . .	No	
5.16. The student will identify, compare, and analyze properties of three-dimensional (solid) geometric shapes (cylinder, cone, cube, square pyramid, and rectangular prism).. . . . .	Yes . . . . .	4.1 4.2 4.5
<b>Probability and Statistics</b>		
5.17. The student will		
a) solve problems involving the probability of a single event by using tree diagrams or by constructing a sample space representing all possible results; . . . . .	No	
b) predict the probability of outcomes of simple experiments, representing it with fractions or decimals from 0 to 1, and test the prediction; and . . . . .	Yes . . . . .	5.8
c) create a problem statement involving probability and based on information from a given problem situation. Students will not be required to solve the created problem statement. . . . .	Yes . . . . .	5.8
5.18. The student will, given a problem situation, collect, organize, and display a set of numerical data in a variety of forms, using bar graphs, stem-and-leaf plots, and line graphs, to draw conclusions and make predictions.. . . . .	Yes . . . . .	5.1 5.5 5.7
5.19. The student will find the mean, median, mode, and range of a set of data.. . . . .	Yes . . . . .	5.2 5.6
<b>Patterns, Functions, and Algebra</b>		
5.20. The student will analyze the structure of numerical and geometric patterns (how they change or grow) and express the relationship, using words, tables, graphs, or a mathematical sentence. Concrete materials and calculators will be used.. . . .	Yes . . . . .	3.1 3.3

(p) indicates that this Standard is partially covered.



**Virginia Standard**

**Grade 5 (continued)**

**COVERED**

**IT!® Topic**

5.21. The student will		
a) investigate and describe the concept of variable; . . . . .	<b>No</b>	
b) use a variable expression to represent a given verbal quantitative expression involving one operation; and . . . . .	<b>Yes</b> . . . . .	3.2 3.5
c) write an open sentence to represent a given mathematical relationship, using a variable. . . . .	<b>Yes</b> . . . . .	3.2 3.5
5.22. The student will create a problem situation based on a given open sentence using a single variable.. . . .	<b>Yes</b> . . . . .	(p) 3.5.1

(p) indicates that this Standard is partially covered.



# Correlation of Sixth Grade IT!<sup>®</sup> Math to Sixth Grade Virginia Standards of Learning

Virginia Standard	COVERED	IT! <sup>®</sup> Topic
<b>Grade 6</b>		
<b>Number and Number Sense</b>		
6.1. The student will identify representations of a given percent and describe orally and in writing the equivalence relationships among fractions, decimals, and percents. . . . .	Yes . . . . .	1.1 1.7
6.2. The student will describe and compare two sets of data, using ratios, and will use appropriate notations, such as a/b, a to b, and a:b. . . . .	Yes . . . . .	1.7
6.3. The student will		
a) find common multiples and factors, including least common multiple and greatest common factor;. . . . .	Yes . . . . .	1.6 1.3
b) identify and describe prime and composite numbers; and. . . . .	Yes . . . . .	1.3
c) identify and describe the characteristics of even and odd integers. . . . .	No	
6.4. The student will compare and order whole numbers, fractions, and decimals, using concrete materials, drawings or pictures, and mathematical symbols. . . . .	Yes . . . . .	1.1
6.5. The student will identify, represent, order, and compare integers. . . . .	Yes . . . . .	3.1
<b>Computation and Estimation</b>		
6.6. The student will		
a) solve problems that involve addition, subtraction, multiplication, and/or division with fractions and mixed numbers, with and without regrouping, that include like and unlike denominators of 12 or less, and express their answers in simplest form; and . . . . .	Yes . . . . .	1.2
b) find the quotient, given a dividend expressed as a decimal through thousandths and a divisor expressed as a decimal to thousandths with exactly one non-zero digit. . . . .	Yes . . . . .	1.2
6.7. The student will use estimation strategies to solve multistep practical problems involving whole numbers, decimals, and fractions (rational numbers). . . . .	Yes . . . . .	1.6
6.8. The student will solve multistep consumer-application problems involving fractions and decimals and present data and conclusions in paragraphs, tables, or graphs. Planning a budget will be included. . . . .	Yes . . . . .	(p) 1.5
<b>Measurement</b>		
6.9. The student will compare and convert units of measure for length, area, weight/mass, and volume within the U.S. Customary system and the metric system and estimate conversions between units in each system:		
a) length—part of an inch (1/2, 1/4, and 1/8), inches, feet, yards, miles, millimeters, centimeters, meters, and kilometers; . . . . .	Yes . . . . .	2.1
b) weight/mass—ounces, pounds, tons, grams, and kilograms; . . . . .	Yes . . . . .	2.1
c) liquid volume—cups, pints, quarts, gallons, milliliters, and liters; and . . . . .	Yes . . . . .	2.1
d) area—square units. . . . .	Yes . . . . .	2.1

(p) indicates that this Standard is partially covered.



**Virginia Standard**

**Grade 6 (continued)**

Virginia Standard	COVERED	IT!® Topic
6.10. The student will estimate and then determine length, weight/mass, area, and liquid volume/ capacity, using standard and nonstandard units of measure.. . . . .	<b>Yes</b> . . . . .	2.1 1.6.23 1.6.24 1.6.25 1.6.26 1.6.27 1.6.28 1.6.29 1.6.42 1.6.43
6.11. The student will determine if a problem situation involving polygons of four or fewer sides represents the application of perimeter or area and apply the appropriate formula. . . . .	<b>No</b>	
6.12. The student will		
a) solve problems involving the circumference and/or area of a circle when given the diameter or radius; and . . . . .	<b>Yes</b> . . . . .	2.1 2.2
b) derive approximations for pi from measurements for circumference and diameter, using concrete materials or computer models. . . . .	<b>No</b>	
6.13. The student will		
a) estimate angle measures, using 45, 90, and 180 as referents, and use the appropriate tools to measure the given angles; and . . . . .	<b>Yes</b> . . . . .	(p) 2.1.1 2.1.9
b) measure and draw right, acute, and obtuse angles and triangles. . . . .	<b>Yes</b> . . . . .	(p) 2.2
<b>Geometry</b>		
6.14. The student will identify, classify, and describe the characteristics of plane figures, describing their similarities, differences, and defining properties.. . . . .	<b>Yes</b> . . . . .	4.4
6.15. The student will determine congruence of segments, angles, and polygons by direct comparison, given their attributes. Examples of noncongruent and congruent figures will be included.. . . . .	<b>Yes</b> . . . . .	4.3 4.2
6.16. The student will construct the perpendicular bisector of a line segment and an angle bisector. . . . .	<b>No</b>	
6.17. The student will sketch, construct models of, and classify solid figures (rectangular prism, cone, cylinder, and pyramid). . . . .	<b>Yes</b> . . . . .	(p) 4.1 4.4
<b>Probability and Statistics</b>		
6.18. The student, given a problem situation, will collect, analyze, display, and interpret data in a variety of graphical methods, including		
a) line, bar, and circle graphs;. . . . .	<b>Yes</b> . . . . .	5.1 5.3 5.4
b) stem-and-leaf plots; and. . . . .	<b>Yes</b> . . . . .	5.1
c) box-and-whisker plots. . . . .	<b>No</b>	
6.19. The student will describe the mean, median, and mode as measures of central tendency, describe the range, and determine their meaning for a set of data.. . . . .	<b>Yes</b> . . . . .	5.2
6.20. The student will		
a) make a sample space for selected experiments and represent it in the form of a list, chart, picture, or tree diagram; and . . . . .	<b>No</b>	

(p) indicates that this Standard is partially covered.



**Virginia Standard**

**Grade 6 (continued)**

b) determine and interpret the probability of an event occurring from a given sample space and represent the probability as a ratio, decimal, or percent, as appropriate for the given situation. . . . .

**Yes** . . . . .

5.5

**Patterns, Functions, and Algebra**

6.21. The student will investigate, describe, and extend numerical and geometric patterns, including triangular numbers, patterns formed by powers of 10, and arithmetic sequences. . . . .

**Yes** . . . . .

(p) 3.3

6.22. The student will investigate and describe concepts of positive exponents, perfect squares, square roots, and, for numbers greater than 10, scientific notation. Calculators will be used to develop exponential patterns. . . . .

**Yes** . . . . .

(p) 3.7  
1.4

6.23. The student will

a) model and solve algebraic equations, using concrete materials;. . . . .

**Yes** . . . . .

3.2  
3.6

b) solve one-step linear equations in one variable, involving whole number coefficients and positive rational solutions; and . . . . .

**Yes** . . . . .

3.2  
3.6

c) use the following algebraic terms appropriately: variable, coefficient, term, and equation. . . . .

**No**

(p) indicates that this Standard is partially covered.



# Correlation of Seventh Grade IT!® Math to Seventh Grade Virginia Standards of Learning

Virginia Standard	COVERED	IT!® Topic
<b>Grade 7</b>		
<b>Number and Number Sense</b>		
7.1. The student will compare, order, and determine equivalent relationships between fractions, decimals, and percents, including use of scientific notation for numbers greater than 10. . . . .	Yes . . . . .	1.1
7.2. The student will simplify expressions that contain rational numbers (whole numbers, fractions, and decimals) and positive exponents, using order of operations, mental mathematics, and appropriate tools. . . . .	Yes . . . . .	3.1 3.4.12
7.3. The student will identify and apply the following properties of operations with real numbers:		
a) the commutative and associative properties for addition and multiplication; . . . . .	Yes . . . . .	3.4 3.1
b) the distributive property; . . . . .	Yes . . . . .	3.1 3.4
c) the additive and multiplicative identity properties;. . . . .	No	
d) the additive and multiplicative inverse properties; and. . . . .	No	
e) the multiplicative property of zero. . . . .	No	
<b>Computation and Estimation</b>		
7.4. The student will		
a) solve practical problems using rational numbers (whole numbers, fractions, decimals) and percents; and. . . . .	Yes . . . . .	1.5 3.6
b) solve consumer-application problems involving tips, discounts, sales tax, and simple interest. . . . .	Yes . . . . .	1.5 3.6
7.5. The student will formulate rules for and solve practical problems involving basic operations (addition, subtraction, multiplication, and division) with integers. . . . .	Yes . . . . .	1.2
7.6. The student will use proportions to solve practical problems, which may include scale drawings, that contain rational numbers (whole numbers, fractions, and decimals), and percents. . . . .	Yes . . . . .	3.6 1.7
<b>Measurement</b>		
7.7. The student, given appropriate dimensions, will		
a) estimate and find the area of polygons by subdividing them into rectangles and right triangles; and . . . . .	Yes . . . . .	2.5
b) apply perimeter and area formulas in practical situations. . . . .	Yes . . . . .	2.5 2.1 4.6
7.8. The student will investigate and solve problems involving the volume and surface area of rectangular prisms and cylinders, using concrete materials and practical situations to develop formulas. . . . .	Yes . . . . .	2.5 4.6

(p) indicates that this Standard is partially covered.



**Virginia Standard**

**Grade 7 (continued)**

**Geometry**

	COVERED	IT!® Topic
7.9. The student will compare and contrast the following quadrilaterals: parallelogram, rectangle, square, rhombus, and trapezoid. Deductive reasoning and inference will be used to classify quadrilaterals.. . . . .	No	
7.10. The student will identify and draw the following polygons: pentagon, hexagon, heptagon, octagon, nonagon, and decagon. . . . .	Yes . . . . .	(p) 4.1
7.11. The student will determine if geometric figures – quadrilaterals and triangles – are similar and write proportions to express the relationships between corresponding parts of similar figures. . . . .	Yes . . . . .	4.7
7.12. The student will identify and graph ordered pairs in the four quadrants of a coordinate plane. . . . .	Yes . . . . .	4.3
7.13. The student, given a polygon in the coordinate plane, will represent transformations – rotation and translation – by graphing the coordinates of the vertices of the transformed polygon and sketching the resulting figure.. . . . .	Yes . . . . .	4.2 3.5.3 3.5.4 3.5.5 3.5.6 3.5.11 3.5.12 3.5.13 3.5.14 3.5.15 3.5.16 3.5.17

**Probability and Statistics**

7.14. The student will investigate and describe the difference between the probability of an event found through simulation versus the theoretical probability of that same event. . . . .	No	
7.15. The student will identify and describe the number of possible arrangements of several objects, using a tree diagram or the Fundamental (Basic) Counting Principle.. . . . .	Yes . . . . .	5.5
7.16. The student will create and solve problems involving the measures of central tendency (mean, median, mode) and the range of a set of data. . . . .	Yes . . . . .	5.2
7.17. The student, given a problem situation, will collect, analyze, display, and interpret data, using a variety of graphical methods, including		
a) frequency distributions; . . . . .	No	
b) line plots; . . . . .	Yes . . . . .	5.1 5.4
c) histograms; . . . . .	No	
d) stem-and-leaf plots; . . . . .	No	
e) box-and-whisker plots; and. . . . .	No	
f) scattergrams. . . . .	Yes . . . . .	5.1
7.18. The student will make inferences, conjectures, and predictions based on analysis of a set of data. . . . .	Yes . . . . .	5.6

**Patterns, Functions, and Algebra**

7.19. The student will represent, analyze, and generalize a variety of patterns, including arithmetic sequences and geometric sequences, with tables, graphs, rules, and words in order to investigate and describe functional relationships.. . . . .	Yes . . . . .	3.3 3.5
7.20. The student will write verbal expressions as algebraic expressions and sentences as equations. . . . .	Yes . . . . .	3.2
7.21. The student will use the following algebraic terms appropriately: equation, inequality, and expression. . . . .	Yes . . . . .	3.2 3.5

(p) indicates that this Standard is partially covered.



**Virginia Standard**

**Grade 7 (continued)**

7.22. The student will

a) solve one-step linear equations and inequalities in one variable with strategies involving inverse operations and integers, using concrete materials, pictorial representations, and paper and pencil; and . . . . .

b) solve practical problems requiring the solution of a one-step linear equation.. . . .

COVERED	
Yes	Yes
Yes	Yes

**IT!® Topic**

3.2

3.2

3.5



# Correlation of Eighth Grade IT!<sup>®</sup> Math and Algebra to Eighth Grade Virginia Standards of Learning

Virginia Standard	COVERED	IT! <sup>®</sup> Topic
<b>Grade 8</b>		
<b>Number and Number Sense</b>		
8.1. The student will		
a) simplify numerical expressions involving positive exponents, using rational numbers, order of operations, and properties of operations with real numbers; . . . . .	Yes . . . . .	3.1 3.4
b) recognize, represent, compare, and order numbers expressed in scientific notation; and. . . . .	Yes . . . . .	1.1 3.7
c) compare and order decimals, fractions, percents, and numbers written in scientific notation. . . . .	Yes . . . . .	1.1
8.2. The student will describe orally and in writing the relationship between the subsets of the real number system. . . . .	No	
<b>Computation and Estimation</b>		
8.3. The student will solve practical problems involving rational numbers, percents, ratios, and proportions. Problems will be of varying complexities and will involve real-life data, such as finding a discount and discount prices and balancing a checkbook.. . . .	Yes . . . . .	1.2 1.5 1.7 3.6
8.4. The student will apply the order of operations to evaluate algebraic expressions for given replacement values of the variables. Problems will be limited to positive exponents.. . . .	Yes . . . . .	3.1
8.5. The student, given a whole number from 0 to 100, will identify it as a perfect square or find the two consecutive whole numbers between which the square root lies.. . . .	Yes . . . . .	3.7
<b>Measurement</b>		
8.6. The student will verify by measuring and describe the relationships among vertical angles, supplementary angles, and complementary angles and will measure and draw angles of less than 360.. . . .	Yes . . . . .	(p) 4.7 2.3.19 4.4.16
8.7. The student will investigate and solve practical problems in volving volume and surface area of rectangular solids (prisms), cylinders, cones, and pyramids.. . . .	Yes . . . . .	2.5 4.6
<b>Geometry</b>		
8.8. The student will apply transformations (rotate or turn, reflect or flip, translate or slide, and dilate or scale) to geometric figures represented on graph paper. The student will identify applications of transformations, such as tiling, fabric design, art, and scaling. . . . .	Yes . . . . .	4.2
8.9. The student will construct a three-dimensional model, given the top, side, and/or bottom views. . . . .	Yes . . . . .	4.1 4.2
8.10. The student will		
a) verify the Pythagorean Theorem, using diagrams, concrete materials, and measurement; and . . . . .	Yes . . . . .	4.7.34

(p) indicates that this Standard is partially covered.



**Virginia Standard**

**Grade 8 (continued)**

b) apply the Pythagorean Theorem to find the missing length of a side of a right triangle when given the lengths of the other two sides. . . . .

**COVERED** **IT!® Topic**  
**Yes** . . . . . 4.7

**Probability and Statistics**

8.11. The student will analyze problem situations, including games of chance, board games, or grading scales, and make predictions, using knowledge of probability. . . . .

**Yes** . . . . . 5.5  
 5.6

8.12. The student will make comparisons, predictions, and inferences, using information displayed in frequency distributions; box-and-whisker plots; scattergrams; line, bar, circle, and picture graphs; and histograms. . . . .

**Yes** . . . . . (p) 5.1  
 5.3  
 5.4

8.13. The student will use a matrix to organize and describe data. . . . .

**No**

**Patterns, Functions, and Algebra**

8.14. The student will

a) describe and represent relations and functions, using tables, graphs, and rules; and. . . . .

**Yes** . . . . . 3.3

b) relate and compare tables, graphs, and rules as different forms of representation for relationships. . . . .

**Yes** . . . . . 3.5

8.15. The student will solve two-step equations and inequalities in one variable, using concrete materials, pictorial representations, and paper and pencil. . . . .

**Yes** . . . . . 3.2

8.16. The student will graph a linear equation in two variables, in the coordinate plane, using a table of ordered pairs. . . . .

**Yes** . . . . . 3.5

8.17. The student will create and solve problems, using proportions, formulas, and functions. . . . .

**Yes** . . . . . 1.7  
 3.6

8.18. The student will use the following algebraic terms appropriately: domain, range, independent variable, and dependent variable. . . . .

**No**

(p) indicates that this Standard is partially covered.



# Correlation of Ninth Grade IT!® Math to Ninth Grade Virginia Standards of Learning

## Virginia Standard

## COVERED

## IT!® Topic

### Grade 9

#### Algebra I

A.1. The student will solve multistep linear equations and inequalities in one variable, solve literal equations (formulas) for a given variable, and apply these skills to solve practical problems. Graphing calculators will be used to confirm algebraic solutions.. . . . .	<b>Yes</b> . . . . .	4.1 2.7
A.2. The student will represent verbal quantitative situations algebraically and evaluate these expressions for given replacement values of the variables. Students will choose an appropriate computational technique, such as mental mathematics, calculator, or paper and pencil. . . . .	<b>Yes</b> . . . . .	1.4 4.1
A.3. The student will justify steps used in simplifying expressions and solving equations and inequalities. Justifications will include the use of concrete objects; pictorial representations; and the properties of real numbers, equality, and inequality. . . . .	<b>No</b>	
A.4. The student will use matrices to organize and manipulate data, including matrix addition, subtraction, and scalar multiplication. Data will arise from business, industrial, and consumer situations.. . . . .	<b>No</b>	
A.5. The student will create and use tabular, symbolic, graphical, verbal, and physical representations to analyze a given set of data for the existence of a pattern, determine the domain and range of relations, and identify the relations that are functions.. . . . .	<b>Yes</b> . . . . .	1.2 2.2 2.4 2.6
A.6. The student will select, justify, and apply an appropriate technique to graph linear functions and linear inequalities in two variables. Techniques will include slope-intercept, x- and y-intercepts, graphing by transformation, and the use of the graphing calculator.. . . . .	<b>Yes</b> . . . . .	(p) 2.1 2.3 3.7
A.7. The student will determine the slope of a line when given an equation of the line, the graph of the line, or two points on the line. Slope will be described as rate of change and will be positive, negative, zero, or undefined. The graphing calculator will be used to investigate the effect of changes in the slope on the graph of the line. . . . .	<b>Yes</b> . . . . .	3.3 3.4
A.8. The student will write an equation of a line when given the graph of the line, two points on the line, or the slope and a point on the line.. . . . .	<b>Yes</b> . . . . .	3.6
A.9. The student will solve systems of two linear equations in two variables both algebraically and graphically and apply these techniques to solve practical problems. Graphing calculators will be used both as a primary tool for solution and to confirm an algebraic solution. . . . .	<b>Yes</b> . . . . .	(p) 4.4
A.10. The student will apply the laws of exponents to perform operations on expressions with integral exponents, using scientific notation when appropriate. . . . .	<b>Yes</b> . . . . .	5.2
A.11. The student will add, subtract, and multiply polynomials and divide polynomials with monomial divisors, using concrete objects, pictorial and area representations, and algebraic manipulations. . . . .	<b>Yes</b> . . . . .	(p) 2.7 2.8
A.12. The student will factor completely first- and second-degree binomials and trinomials in one or two variables. The graphing calculator will be used as a tool for factoring and for confirming algebraic factorizations.. . . . .	<b>No</b>	

(p) indicates that this Standard is partially covered.



**Virginia Standard**

**Grade 9 (continued)**

	COVERED	IT! <sup>®</sup> Topic
A.13. The student will express the square root of a whole number in simplest radical form and approximate square roots to the nearest tenth. . . . .	<b>Yes</b>	9.1
A.14. The student will solve quadratic equations in one variable both algebraically and graphically. Graphing calculators will be used both as a primary tool in solving problems and to verify algebraic solutions. . . . .	<b>No</b>	
A.15. The student will, given a rule, find the values of a function for elements in its domain and locate the zeros of the function both algebraically and with a graphing calculator. The value of $f(x)$ will be related to the ordinate on the graph. . . . .	<b>Yes</b>	(p) 1.5
A.16. The student will, given a set of data points, write an equation for a line of best fit and use the equation to make predictions.. . . .	<b>Yes</b>	(p) 3.6 2.4
A.17. The student will compare and contrast multiple one-variable data sets, using statistical techniques that include measures of central tendency, range, and box-and-whisker graphs. . . . .	<b>No</b>	
A.18. The student will analyze a relation to determine whether a direct variation exists and represent it algebraically and graphically, if possible. . . . .	<b>Yes</b>	(p) 3.9
<b>Geometry</b>		
G.1. The student will construct and judge the validity of a logical argument consisting of a set of premises and a conclusion. This will include		
a) identifying the converse, inverse, and contrapositive of a conditional statement; . . . . .	<b>No</b>	
b) translating a short verbal argument into symbolic form;. . . . .	<b>No</b>	
c) using Venn diagrams to represent set relationships; and . . . . .	<b>No</b>	
d) using deductive reasoning, including the law of syllogism. . . . .	<b>No</b>	
G.2. The student will use pictorial representations, including computer software, constructions, and coordinate methods, to solve problems involving symmetry and transformation. This will include		
a) investigating and using formulas for finding distance, midpoint, and slope; . . . . .	<b>No</b>	
b) investigating symmetry and determining whether a figure is symmetric with respect to a line or a point; and. . . . .	<b>No</b>	
c) determining whether a figure has been translated, reflected, or rotated.. . . .	<b>Yes</b>	6.2
G.3. The student will solve practical problems involving complementary, supplementary, and congruent angles that include vertical angles, angles formed when parallel lines are cut by a transversal, and angles in polygons. . . . .	<b>Yes</b>	7.2 8.5 10.4
G.4. The student will use the relationships between angles formed by two lines cut by a transversal to determine if two lines are parallel and verify, using algebraic and coordinate methods as well as deductive proofs. . . . .	<b>No</b>	
G.5. The student will		
a) investigate and identify congruence and similarity relationships between triangles; and. . . . .	<b>Yes</b>	7.2.2 7.2.38 8.5
b) prove two triangles are congruent or similar, given information in the form of a figure or statement, using algebraic and coordinate as well as deductive proofs. . . . .	<b>Yes</b>	7.2.6 7.2.8 10.4.1 10.4.2 10.4.6
G.6. The student, given information concerning the lengths of sides and/or measures of angles, will apply the triangle inequality properties to determine whether a triangle exists and to order sides and angles. These concepts will be considered in the context of practical situations.. . . .	<b>No</b>	

(p) indicates that this Standard is partially covered.



**Virginia Standard**

**Grade 9 (continued)**

	<b>COVERED</b>	<b>IT!® Topic</b>
G.7. The student will solve practical problems involving right triangles by using the Pythagorean Theorem, properties of special right triangles, and right triangle trigonometry. Solutions will be expressed in radical form or as decimal approximations. . . . .	<b>Yes</b> . . . . .	(p) 7.3 8.4
G.8. The student will		
a) investigate and identify properties of quadrilaterals involving opposite sides and angles, consecutive sides and angles, and diagonals; . . . . .	<b>Yes</b> . . . . .	(p) 7.2.13 8.4.12
b) prove these properties of quadrilaterals, using algebraic and coordinate methods as well as deductive reasoning; and. . . . .	<b>No</b>	
c) use properties of quadrilaterals to solve practical problems. . . . .	<b>No</b>	
G.9. The student will use measures of interior and exterior angles of polygons to solve problems. Tessellations and tiling problems will be used to make connections to art, construction, and nature.. . . .	<b>Yes</b> . . . . .	(p) 7.2 8.5
G.10. The student will investigate and solve practical problems involving circles, using properties of angles, arcs, chords, tangents, and secants. Problems will include finding arc length and area of a sector, and may be drawn from applications of architecture, art, and construction.. . . .	<b>No</b>	
G.11. The student will construct a line segment congruent to a given line segment, the bisector of a line segment, a perpendicular to a given line from a point not on the line, a perpendicular to a given line at a point on the line, the bisector of a given angle, and an angle congruent to a given angle.. . . .	<b>Yes</b> . . . . .	(p) 6.3.7 6.3.8 7.2.10 7.2.11 7.2.16
G.12. The student will make a model of a three-dimensional figure from a two-dimensional drawing and make a two-dimensional representation of a three-dimensional object. Models and representations will include scale drawings, perspective drawings, blueprints, or computer simulations.. . . .	<b>Yes</b> . . . . .	7.1 7.2.34 7.2.35 7.2.36
G.13. The student will use formulas for surface area and volume of three-dimensional objects to solve practical problems. Calculators will be used to find decimal approximations for results. . . . .	<b>Yes</b> . . . . .	8.1 8.2 8.3
G.14. The student will		
a) use proportional reasoning to solve practical problems, given similar geometric objects; and . . . . .	<b>Yes</b> . . . . .	8.5 10.3.5
b) determine how changes in one dimension of an object affect area and/or volume of the object. . . . .	<b>Yes</b> . . . . .	8.6 8.7

(p) indicates that this Standard is partially covered.



# Correlation of Tenth Grade IT!® Math to Tenth Grade Virginia Standards of Learning

## Virginia Standard

## COVERED

## IT!® Topic

### Grade 10

#### Algebra I

A.1. The student will solve multistep linear equations and inequalities in one variable, solve literal equations (formulas) for a given variable, and apply these skills to solve practical problems. Graphing calculators will be used to confirm algebraic solutions. . . . .	<b>Yes</b> . . . . .	4.2 2.7
A.2. The student will represent verbal quantitative situations algebraically and evaluate these expressions for given replacement values of the variables. Students will choose an appropriate computational technique, such as mental mathematics, calculator, or paper and pencil.. . . .	<b>Yes</b> . . . . .	1.4 4.1
A.3. The student will justify steps used in simplifying expressions and solving equations and inequalities. Justifications will include the use of concrete objects; pictorial representations; and the properties of real numbers, equality, and inequality. . . . .	<b>No</b>	
A.4. The student will use matrices to organize and manipulate data, including matrix addition, subtraction, and scalar multiplication. Data will arise from business, industrial, and consumer situations.. . . .	<b>No</b>	
A.5. The student will create and use tabular, symbolic, graphical, verbal, and physical representations to analyze a given set of data for the existence of a pattern, determine the domain and range of relations, and identify the relations that are functions. . . . .	<b>Yes</b> . . . . .	1.2 2.2 2.4 2.6
A.6. The student will select, justify, and apply an appropriate technique to graph linear functions and linear inequalities in two variables. Techniques will include slope-intercept, x- and y-intercepts, graphing by transformation, and the use of the graphing calculator.. . . .	<b>Yes</b> . . . . .	(p) 2.1 2.3 3.7
A.7. The student will determine the slope of a line when given an equation of the line, the graph of the line, or two points on the line. Slope will be described as rate of change and will be positive, negative, zero, or undefined. The graphing calculator will be used to investigate the effect of changes in the slope on the graph of the line. . . . .	<b>Yes</b> . . . . .	3.3 3.4
A.8. The student will write an equation of a line when given the graph of the line, two points on the line, or the slope and a point on the line.. . . .	<b>Yes</b> . . . . .	3.6
A.9. The student will solve systems of two linear equations in two variables both algebraically and graphically and apply these techniques to solve practical problems. Graphing calculators will be used both as a primary tool for solution and to confirm an algebraic solution. . . . .	<b>Yes</b> . . . . .	(p) 4.4 4.5 4.6
A.10. The student will apply the laws of exponents to perform operations on expressions with integral exponents, using scientific notation when appropriate.. . . .	<b>Yes</b> . . . . .	5.6
A.11. The student will add, subtract, and multiply polynomials and divide polynomials with monomial divisors, using concrete objects, pictorial and area representations, and algebraic manipulations. . . . .	<b>Yes</b> . . . . .	(p) 2.7 2.8

(p) indicates that this Standard is partially covered.



**Virginia Standard**

**Grade 10 (continued)**

	<b>COVERED</b>	<b>IT!® Topic</b>
A.12. The student will factor completely first- and second-degree binomials and trinomials in one or two variables. The graphing calculator will be used as a tool for factoring and for confirming algebraic factorizations.. . . . .	<b>No</b>	
A.13. The student will express the square root of a whole number in simplest radical form and approximate square roots to the nearest tenth.. . . . .	<b>No</b>	
A.14. The student will solve quadratic equations in one variable both algebraically and graphically. Graphing calculators will be used both as a primary tool in solving problems and to verify algebraic solutions. . . . .	<b>Yes</b>	5.3 5.4 5.5
A.15. The student will, given a rule, find the values of a function for elements in its domain and locate the zeros of the function both algebraically and with a graphing calculator. The value of $f(x)$ will be related to the ordinate on the graph. . . . .	<b>Yes</b>	(p) 1.5
A.16. The student will, given a set of data points, write an equation for a line of best fit and use the equation to make predictions.. . . .	<b>Yes</b>	(p) 3.6 2.4
A.17. The student will compare and contrast multiple one-variable data sets, using statistical techniques that include measures of central tendency, range, and box-and-whisker graphs. . . . .	<b>No</b>	
A.18. The student will analyze a relation to determine whether a direct variation exists and represent it algebraically and graphically, if possible. . . . .	<b>Yes</b>	(p) 3.9
<b>Geometry</b>		
G.1. The student will construct and judge the validity of a logical argument consisting of a set of premises and a conclusion. This will include		
a) identifying the converse, inverse, and contrapositive of a conditional statement; . . . . .	<b>No</b>	
b) translating a short verbal argument into symbolic form;. . . . .	<b>No</b>	
c) using Venn diagrams to represent set relationships; and . . . . .	<b>No</b>	
d) using deductive reasoning, including the law of syllogism. . . . .	<b>No</b>	
G.2. The student will use pictorial representations, including computer software, constructions, and coordinate methods, to solve problems involving symmetry and transformation. This will include		
a) investigating and using formulas for finding distance, midpoint, and slope; . . . . .	<b>No</b>	
b) investigating symmetry and determining whether a figure is symmetric with respect to a line or a point; and. . . . .	<b>No</b>	
c) determining whether a figure has been translated, reflected, or rotated.. . . .	<b>Yes</b>	6.2
G.3. The student will solve practical problems involving complementary, supplementary, and congruent angles that include vertical angles, angles formed when parallel lines are cut by a transversal, and angles in polygons. . . . .	<b>Yes</b>	7.2 8.5 10.4
G.4. The student will use the relationships between angles formed by two lines cut by a transversal to determine if two lines are parallel and verify, using algebraic and coordinate methods as well as deductive proofs. . . . .	<b>No</b>	
G.5. The student will		
a) investigate and identify congruence and similarity relationships between triangles; and. . . . .	<b>Yes</b>	7.2.2 7.2.36 8.5
b) prove two triangles are congruent or similar, given information in the form of a figure or statement, using algebraic and coordinate as well as deductive proofs.. . . .	<b>Yes</b>	10.4.1 10.6.5 10.6.6 10.6.7 10.6.8 10.6.9

(p) indicates that this Standard is partially covered.



**Virginia Standard**

**Grade 10 (continued)**

	COVERED	IT!® Topic
G.6. The student, given information concerning the lengths of sides and/or measures of angles, will apply the triangle inequality properties to determine whether a triangle exists and to order sides and angles. These concepts will be considered in the context of practical situations.. . . . .	<b>No</b>	
G.7. The student will solve practical problems involving right triangles by using the Pythagorean Theorem, properties of special right triangles, and right triangle trigonometry. Solutions will be expressed in radical form or as decimal approximations.. . . . .	<b>Yes</b> . . . . .	(p) 7.3 8.4
G.8. The student will		
a) investigate and identify properties of quadrilaterals involving opposite sides and angles, consecutive sides and angles, and diagonals; . . . . .	<b>Yes</b> . . . . .	(p) 7.2.13 8.4.12
b) prove these properties of quadrilaterals, using algebraic and coordinate methods as well as deductive reasoning; and . . . . .	<b>No</b>	
c) use properties of quadrilaterals to solve practical problems. . . . .	<b>No</b>	
G.9. The student will use measures of interior and exterior angles of polygons to solve problems. Tessellations and tiling problems will be used to make connections to art, construction, and nature.. . . . .	<b>Yes</b> . . . . .	(p) 7.2 8.5
G.10. The student will investigate and solve practical problems involving circles, using properties of angles, arcs, chords, tangents, and secants. Problems will include finding arc length and area of a sector, and may be drawn from applications of architecture, art, and construction.. . . . .	<b>No</b>	
G.11. The student will construct a line segment congruent to a given line segment, the bisector of a line segment, a perpendicular to a given line from a point not on the line, a perpendicular to a given line at a point on the line, the bisector of a given angle, and an angle congruent to a given angle.. . . . .	<b>Yes</b> . . . . .	(p) 6.3.7 6.3.8 7.2.8 7.2.9 7.2.14
G.12. The student will make a model of a three-dimensional figure from a two-dimensional drawing and make a two-dimensional representation of a three-dimensional object. Models and representations will include scale drawings, perspective drawings, blueprints, or computer simulations.. . . . .	<b>Yes</b> . . . . .	7.1 7.2.32 7.2.33 7.2.34
G.13. The student will use formulas for surface area and volume of three-dimensional objects to solve practical problems. Calculators will be used to find decimal approximations for results. . . . .	<b>Yes</b> . . . . .	8.1 8.2 8.3
G.14. The student will		
a) use proportional reasoning to solve practical problems, given similar geometric objects; and . . . . .	<b>Yes</b> . . . . .	8.5 10.3.3
b) determine how changes in one dimension of an object affect area and/or volume of the object. . . . .	<b>Yes</b> . . . . .	8.6 8.7

(p) indicates that this Standard is partially covered.



# Correlation of Eleventh Grade IT!<sup>®</sup> Math to Eleventh Grade Virginia Standards of Learning

Virginia Standard	COVERED	IT! <sup>®</sup> Topic
<b>Grade 11</b>		
<b>Algebra I</b>		
A.1. The student will solve multistep linear equations and inequalities in one variable, solve literal equations (formulas) for a given variable, and apply these skills to solve practical problems. Graphing calculators will be used to confirm algebraic solutions. . . . .	Yes . . . . .	4.2 2.7
A.2. The student will represent verbal quantitative situations algebraically and evaluate these expressions for given replacement values of the variables. Students will choose an appropriate computational technique, such as mental mathematics, calculator, or paper and pencil. . . . .	Yes . . . . .	1.4 4.1
A.3. The student will justify steps used in simplifying expressions and solving equations and inequalities. Justifications will include the use of concrete objects; pictorial representations; and the properties of real numbers, equality, and inequality. . . . .	No	
A.4. The student will use matrices to organize and manipulate data, including matrix addition, subtraction, and scalar multiplication. Data will arise from business, industrial, and consumer situations. . . . .	No	
A.5. The student will create and use tabular, symbolic, graphical, verbal, and physical representations to analyze a given set of data for the existence of a pattern, determine the domain and range of relations, and identify the relations that are functions. . . . .	Yes . . . . .	1.2 2.2 2.4 2.6
A.6. The student will select, justify, and apply an appropriate technique to graph linear functions and linear inequalities in two variables. Techniques will include slope-intercept, x- and y-intercepts, graphing by transformation, and the use of the graphing calculator. . . . .	Yes . . . . .	(p) 2.1 2.3 3.7
A.7. The student will determine the slope of a line when given an equation of the line, the graph of the line, or two points on the line. Slope will be described as rate of change and will be positive, negative, zero, or undefined. The graphing calculator will be used to investigate the effect of changes in the slope on the graph of the line. . . . .	Yes . . . . .	3.3 3.4
A.8. The student will write an equation of a line when given the graph of the line, two points on the line, or the slope and a point on the line. . . . .	Yes . . . . .	3.6
A.9. The student will solve systems of two linear equations in two variables both algebraically and graphically and apply these techniques to solve practical problems. Graphing calculators will be used both as a primary tool for solution and to confirm an algebraic solution. . . . .	Yes . . . . .	(p) 4.4 4.5 4.6
A.10. The student will apply the laws of exponents to perform operations on expressions with integral exponents, using scientific notation when appropriate. . . . .	Yes . . . . .	5.6
A.11. The student will add, subtract, and multiply polynomials and divide polynomials with monomial divisors, using concrete objects, pictorial and area representations, and algebraic manipulations. . . . .	Yes . . . . .	(p) 2.7 2.8

(p) indicates that this Standard is partially covered.



**Virginia Standard**

**Grade 11 (continued)**

	COVERED	IT!® Topic
A.12. The student will factor completely first- and second-degree binomials and trinomials in one or two variables. The graphing calculator will be used as a tool for factoring and for confirming algebraic factorizations.. . . . .	<b>No</b>	
A.13. The student will express the square root of a whole number in simplest radical form and approximate square roots to the nearest tenth.. . . . .	<b>No</b>	
A.14. The student will solve quadratic equations in one variable both algebraically and graphically. Graphing calculators will be used both as a primary tool in solving problems and to verify algebraic solutions. . . . .	<b>Yes</b>	5.3 5.4 5.5
A.15. The student will, given a rule, find the values of a function for elements in its domain and locate the zeros of the function both algebraically and with a graphing calculator. The value of $f(x)$ will be related to the ordinate on the graph. . . . .	<b>Yes</b>	(p) 1.5
A.16. The student will, given a set of data points, write an equation for a line of best fit and use the equation to make predictions. . . . .	<b>Yes</b>	(p) 3.6 2.4
A.17. The student will compare and contrast multiple one-variable data sets, using statistical techniques that include measures of central tendency, range, and box-and-whisker graphs. . . . .	<b>No</b>	
A.18. The student will analyze a relation to determine whether a direct variation exists and represent it algebraically and graphically, if possible. . . . .	<b>Yes</b>	(p) 3.9

**Geometry**

G.1. The student will construct and judge the validity of a logical argument consisting of a set of premises and a conclusion. This will include		
a) identifying the converse, inverse, and contrapositive of a conditional statement; . . . . .	<b>No</b>	
b) translating a short verbal argument into symbolic form; . . . . .	<b>No</b>	
c) using Venn diagrams to represent set relationships; and . . . . .	<b>No</b>	
d) using deductive reasoning, including the law of syllogism. . . . .	<b>No</b>	
G.2. The student will use pictorial representations, including computer software, constructions, and coordinate methods, to solve problems involving symmetry and transformation. This will include		
a) investigating and using formulas for finding distance, midpoint, and slope; . . . . .	<b>Yes</b>	(p) 7.5
b) investigating symmetry and determining whether a figure is symmetric with respect to a line or a point; and. . . . .	<b>No</b>	
c) determining whether a figure has been translated, reflected, or rotated. . . . .	<b>No</b>	
G.3. The student will solve practical problems involving complementary, supplementary, and congruent angles that include vertical angles, angles formed when parallel lines are cut by a transversal, and angles in polygons. . . . .	<b>Yes</b>	(p) 10.4.4 10.4.14 6.2.1
G.4. The student will use the relationships between angles formed by two lines cut by a transversal to determine if two lines are parallel and verify, using algebraic and coordinate methods as well as deductive proofs. . . . .	<b>No</b>	
G.5. The student will		
a) investigate and identify congruence and similarity relationships between triangles; and. . . . .	<b>Yes</b>	8.7 8.6 8.5
b) prove two triangles are congruent or similar, given information in the form of a figure or statement, using algebraic and coordinate as well as deductive proofs.. . . .	<b>Yes</b>	10.6.4 10.6.5 10.6.6 10.6.7 10.6.8 10.6.9

(p) indicates that this Standard is partially covered.



**Virginia Standard**

**Grade 11 (continued)**

	<b>COVERED</b>	<b>IT!® Topic</b>
G.6. The student, given information concerning the lengths of sides and/or measures of angles, will apply the triangle inequality properties to determine whether a triangle exists and to order sides and angles. These concepts will be considered in the context of practical situations.. . . . .	<b>No</b>	
G.7. The student will solve practical problems involving right triangles by using the Pythagorean Theorem, properties of special right triangles, and right triangle trigonometry. Solutions will be expressed in radical form or as decimal approximations.. . . . .	<b>Yes</b> . . . . .	(p) 8.3 7.4 6.4
G.8. The student will		
a) investigate and identify properties of quadrilaterals involving opposite sides and angles, consecutive sides and angles, and diagonals; . . . . .	<b>No</b>	
b) prove these properties of quadrilaterals, using algebraic and coordinate methods as well as deductive reasoning; and. . . . .	<b>No</b>	
c) use properties of quadrilaterals to solve practical problems. . . . .	<b>No</b>	
G.9. The student will use measures of interior and exterior angles of polygons to solve problems. Tessellations and tiling problems will be used to make connections to art, construction, and nature.. . . . .	<b>Yes</b> . . . . .	(p) 6.2 6.3
G.10. The student will investigate and solve practical problems involving circles, using properties of angles, arcs, chords, tangents, and secants. Problems will include finding arc length and area of a sector, and may be drawn from applications of architecture, art, and construction.. . . . .	<b>Yes</b> . . . . .	(p) 8.2
G.11. The student will construct a line segment congruent to a given line segment, the bisector of a line segment, a perpendicular to a given line from a point not on the line, a perpendicular to a given line at a point on the line, the bisector of a given angle, and an angle congruent to a given angle.. . . . .	<b>No</b>	
G.12. The student will make a model of a three-dimensional figure from a two-dimensional drawing and make a two-dimensional representation of a three-dimensional object. Models and representations will include scale drawings, perspective drawings, blueprints, or computer simulations.. . . . .	<b>Yes</b> . . . . .	7.1 7.2
G.13. The student will use formulas for surface area and volume of three-dimensional objects to solve practical problems. Calculators will be used to find decimal approximations for results. . . . .	<b>Yes</b> . . . . .	8.4
G.14. The student will		
a) use proportional reasoning to solve practical problems, given similar geometric objects; and . . . . .	<b>Yes</b> . . . . .	8.7 10.3.3
b) determine how changes in one dimension of an object affect area and/or volume of the object. . . . .	<b>Yes</b> . . . . .	8.8

(p) indicates that this Standard is partially covered.