

AFTERSCHOOL ACHIEVERS:
MATH CLUB
GRADES K-8
correlated to
Virginia
**Mathematics Standards of
Learning**



YOUR VIRGINIA GREAT SOURCE REPRESENTATIVE

COREY GOOD
800-289-4490, option 4



Afterschool Achievers: Math Club © 2002
correlated to
Virginia Mathematics Standards of Learning
Kindergarten

Number and Number Sense

Standards of Learning	Afterschool Achievers: Math Club, K
K.1 The student, given two sets containing 10 or fewer concrete items, will identify and describe one set as having more, fewer, or the same number of members as the other set, using the concept of one-to-one correspondence.	Instructor's Guide: 38, 48, 58, 62, 68, 82, 88, 98, 103, 104, 108, 109, 112, 114, 118, 119, 124, 129, 134, 139, 149, 154, 162
K.2 The student, given a set containing 10 or fewer concrete items, will	Instructor's Guide: 2, 4, 5, 7, 9, 10, 12, 14, 17, 19, 22, 24, 27, 29, 30, 32, 34, 35, 39, 44, 49, 54, 55, 59, 60, 68, 69, 72, 74, 77, 79, 80, 81, 84, 85, 89, 94, 99, 104, 105, 109, 110, 114, 119, 124, 129, 130, 134, 135, 139, 144, 149, 154, 155, 159, 164
a) tell how many are in the set by counting the number of items orally;	
b) select the corresponding numeral from a given set; and	Instructor's Guide: 32, 62, 64, 69, 74, 79, 84, 89, 94, 99
c) write the numeral to tell how many are in the set.	Instructor's Guide: 4, 9, 14, 17, 19, 22, 24, 27, 29, 32, 34, 35, 38, 39, 44, 48, 49, 54, 58, 59, 60, 64, 68, 69, 74, 79, 80, 84, 88, 89, 94, 98, 99, 103, 105, 108, 110, 118, 124, 129, 134, 139, 155
K.3 The student, given an ordered set of three objects and/or pictures, will indicate the ordinal position of each item, first through third, and the ordered position of each item from left-to-right, right-to-left, top-to-bottom, and/or bottom-to-top.	Instructor's Guide: 163
K.4 The student will investigate and recognize patterns from counting by fives and tens to 30, using concrete objects and a calculator.	Instructor's Guide: 175
K.5 The student will count forward to 30 and backward from 10.	Instructor's Guide: 10, 38, 48, 58, 60, 67, 68, 82, 85, 88, 98, 103, 104, 108, 109, 110, 112, 114, 118, 119, 124, 127, 129, 134, 135, 139, 142, 144, 149, 154, 159, 160, 162, 164, 169, 174, 179

Computation and Estimation

Standards of Learning	Afterschool Achievers: Math Club, K
K.6 The student will add and subtract whole numbers, using up to 10 concrete items.	Instructor's Guide: 10, 38, 48, 58, 60, 62, 67, 68, 82, 85, 88, 98, 103, 104, 108, 109, 110, 112, 114, 118, 119, 124, 127, 129, 134, 135, 139, 142, 144, 149, 154, 159, 160, 162, 164, 169, 174, 179

Measurement

Standards of Learning	Afterschool Achievers: Math Club, K
K.7 The student will recognize a penny, nickel, dime, and quarter and will determine the value of a collection of pennies and/or nickels whose total value is 10 cents or less.	Instructor's Guide: 122
K.8 The student will identify the instruments used to measure length (ruler), weight (scale), time (clock: digital and analog; calendar: day, month, and season), and temperature (thermometer).	Instructor's Guide: 15, 40, 43, 47, 65, 90, 92, 115, 132, 140, 165, 180
K.9 The student will tell time to the hour, using an analog or digital clock.	Instructor's Guide: 28
K.10 The student will compare two objects or events, using direct comparisons or nonstandard units of measure, according to one or more of the following attributes: length (shorter, longer), height (taller, shorter), weight (heavier, lighter), temperature (hotter, colder). Examples of nonstandard units include foot length, hand span, new pencil, paper clip, block.	Instructor's Guide: 15, 40, 47, 65, 90, 92, 180

Geometry

Standards of Learning	Afterschool Achievers: Math Club, K
K.11 The student will identify, describe, and draw two-dimensional (plane) geometric figures (circle, triangle, square, and rectangle).	Instructor's Guide: 1, 6, 11, 16, 21, 26, 45, 53, 61, 70, 71
K.12 The student will describe the location of one object relative to another (above, below, next to) and identify representations of plane geometric figures (circle, triangle, square, and rectangle) regardless of their position and orientation in space.	Instructor's Guide: 42, 69, 95, 125

Standards of Learning	Afterschool Achievers: Math Club, K
K.13 The student will compare the size (larger, smaller) and shape of plane geometric figures (circle, triangle, square, and rectangle).	Instructor's Guide: 1, 11, 16, 21, 26, 61, 66, 71

Probability and Statistics

Standards of Learning	Afterschool Achievers: Math Club, K
K.14 The student will gather data relating to familiar experiences by counting and tallying.	Instructor's Guide: 93
K.15 The student will display objects and information, using objects graphs, pictorial graphs and tables.	Instructor's Guide: 93

Patterns, Functions, and Algebra

Standards of Learning	Afterschool Achievers: Math Club, K
K.17 The student will sort and classify objects according to similar attributes (size, shape, and color).	Instructor's Guide: 1, 3, 6, 8, 11, 13, 16, 18, 21, 25, 26, 28, 31, 33, 36, 40, 41, 46, 51, 52, 56, 61, 66, 71, 76, 81, 83, 86, 91, 92, 96, 101, 102, 106, 111, 116, 123, 138, 147, 153, 168
K.18 The student will identify, describe, and extend a repeating relationship (pattern) found in common objects, sounds, and movements.	Instructor's Guide: 50, 57, 72, 75, 97, 100, 121, 126, 131, 136, 141, 146, 151, 156, 157, 161, 166, 167, 171, 175, 176



Afterschool Achievers: Math Club © 2002
correlated to
Virginia Mathematics Standards of Learning
Grade 1

Number and Number Sense

Standards of Learning	Afterschool Achievers: Math Club, 1
1.1 The student will count objects in a given set containing between 1 and 100 objects and write the corresponding numeral.	Instructor's Guide: 2, 4, 5, 28, 65, 85
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.	Instructor's Guide: 123, 125, 136, 138, 141, 145, 146, 156, 161, 172, 176
1.3 The student will count forward by ones, fives, and tens to 100, by twos to 20, and backward by ones from 20.	Instructor's Guide: 67, 68, 82, 83, 97, 105, 123, 125, 136, 138, 141, 145, 146, 156, 161, 172, 176
1.4 The student will recognize and write numerals 0 through 100.	Instructor's Guide: 2, 4, 5, 28, 37, 67, 68, 82, 83, 97, 116, 141
1.5 The student will identify the ordinal positions first through tenth, using an ordered set of objects.	Instructor's Guide: 27, 45
1.6 The student will identify and represent the concepts of one-half and one-fourth, using appropriate materials or a drawing.	Instructor's Guide: 117, 118, 173

Computation and Estimation

Standards of Learning	Afterschool Achievers: Math Club, 1
<p>1.7 The student, given a familiar problem situation involving magnitude, will</p> <p>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</p>	<p>Instructor's Guide: 25, 45, 65, 85, 115, 120, 125, 130, 135, 140, 145, 150, 155, 160, 165, 170, 175</p>
<p>b) explain the reasonableness of his/her choice.</p>	<p>Instructor's Guide: 25, 45, 65, 85, 115, 120, 125, 130, 135, 140, 145, 150, 155, 160, 165, 170, 175</p>
<p>1.8 The student will recall basic addition facts - i.e., sums to 10 or less - and the corresponding subtraction facts.</p>	<p>Instructor's Guide: 24, 25, 28, 37, 44, 52, 62, 65, 67, 68, 82, 83, 85, 90, 91, 92, 97, 113, 114, 122, 142, 154, 159, 164, 167, 169</p>
<p>1.9 The student will create and solve story and picture problems involving one-step solutions, using basic addition and subtraction facts.</p>	<p>Instructor's Guide: 24, 25, 28, 37, 44, 52, 62, 65, 67, 68, 82, 83, 85, 90, 91, 92, 97, 113, 114, 122, 142, 154, 159, 164, 167, 169</p>

Measurement

Standards of Learning	Afterschool Achievers: Math Club, 1
<p>1.10 The student will</p> <p>a) identify the number of pennies equivalent to a nickel, a dime, and a quarter; and</p>	<p>Instructor's Guide: 29, 34, 39, 64, 73, 77, 78, 79, 94, 102, 109, 124, 139, 149, 152, 155</p>
<p>b) determine the value of a collection of pennies, nickels, and dimes whose total value is 100 cents or less.</p>	<p>Instructor's Guide: 29, 34, 39, 64, 73, 77, 78, 79, 94, 102, 109, 124, 139, 149, 152, 155</p>
<p>1.11 The student will tell time to the half-hour, using an analog or digital clock.</p>	<p>Instructor's Guide: 57, 135, 147, 148, 175</p>
<p>1.12 The student will use nonstandard units to measure length and weight.</p>	<p>Instructor's Guide: 15, 42, 43, 47, 55, 88, 95, 103, 115, 127, 133, 143, 178</p>
<p>1.13 The student will compare the volumes of two given containers by using concrete materials (e.g., jelly beans, sand, water, rice).</p>	<p>Instructor's Guide: 6, 42</p>
<p>1.14 The student will compare the weights of two objects, using a balance scale.</p>	<p>Instructor's Guide: 15, 33, 55, 95</p>

Geometry

Standards of Learning	Afterschool Achievers: Math Club, 1
1.15 The student will describe the proximity of objects in space (<i>near, far, close by, below, above, up, down, beside, and next to</i>).	Instructor's Guide: 20, 40
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.	Instructor's Guide: 3, 8, 12, 13, 18, 21, 23, 60, 61, 66, 80, 100, 132, 153
1.17 The student will identify and describe objects in his/her environment that depict plane geometric figures (triangle, square, rectangle, and circle).	Instructor's Guide: 3, 8, 12, 13, 18, 21, 23, 60, 61, 66, 80, 100, 132, 153

Probability and Statistics

Standards of Learning	Afterschool Achievers: Math Club, 1
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.	Instructor's Guide: 76, 96, 151, 163
1.19 The student will interpret information displayed in a picture or object graph, using the vocabulary <i>more, less, fewer, greater than, less than, and equal to</i> .	Instructor's Guide: 7, 52, 163

Patterns, Functions, and Algebra

Standards of Learning	Afterschool Achievers: Math Club, 1
1.20 The student will sort and classify concrete objects according to one or more attributes, including color, size, shape, and thickness.	Instructor's Guide: 3, 8, 12, 13, 18, 21, 23, 48, 53, 58, 60, 61, 63, 66, 80, 100, 132, 153, 158, 160, 180
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.	Instructor's Guide: 11, 16, 26, 31, 36, 41, 46, 51, 56, 61, 66, 71, 81, 91, 101, 111, 131, 141, 171



Afterschool Achievers: Math Club © 2002
correlated to
Virginia Mathematics Standards of Learning
Grade 2

N u m b e r a n d N u m b e r S e n s e

Standards of Learning	Afterschool Achievers: Math Club, 2
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	Instructor's Guide: 40, 60, 90, 122, 123
2.2 The student will compare two whole numbers between 0 and 999, using symbols ($>$, $<$, or $=$) and words (<i>greater than, less than, or equal to</i>).	Instructor's Guide: 51, 123
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.	Instructor's Guide: 48, 57, 80, 97, 138
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;	Instructor's Guide: 73, 112, 113, 124, 128, 139, 141, 165, 174, 179
c) group objects by threes and fours; and	Instructor's Guide: 135, 178
d) recognize even and odd numbers, using objects.	Instructor's Guide: 17, 18, 26, 46, 61, 96, 116, 154

Computation and Estimation

Standards of Learning	Afterschool Achievers: Math Club, 2
2.6 The student will recall basic addition facts - i.e., sums to 18 or less - and the corresponding subtraction facts.	Instructor's Guide: 4, 9, 12, 14, 19, 22, 27, 29, 33, 42, 49, 54, 79, 84, 89, 94, 99, 102, 104, 107, 109, 114
2.7 The student, given two whole numbers whose sum is 99 or less, will b) find the sum, using various methods of calculation (mental computation, concrete materials, and paper and pencil).	Instructor's Guide: 4, 9, 12, 14, 19, 22, 27, 29, 33, 42, 49, 54, 79, 84, 87, 89, 94, 99, 102, 104, 107, 109, 114
2.8 The student, given two whole numbers, each of which is 99 or less, will b) find the difference, using various methods of calculation (mental computation, concrete materials, and paper and pencil).	Instructor's Guide: 27, 33, 42, 64, 69, 102, 127, 134, 137, 143, 158
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.	Instructor's Guide: 25, 70, 155, 161
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., $3 + _ = 7$, $_ + 3 = 7$; $7 - 3 = _$, and $7 - _ = 3$).	Instructor's Guide: 4, 5, 9, 12, 14, 19, 22, 27, 29, 33, 42, 49, 54, 79, 84, 89, 94, 99, 102, 104, 107, 109, 114

Measurement

Standards of Learning	Afterschool Achievers: Math Club, 2
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	Instructor's Guide: 32, 34, 59, 77, 100, 103, 118, 119, 140, 159, 161, 167
b) identify the correct usage of the cent symbol (¢), dollar symbol (\$), and decimal point (.).	Instructor's Guide: 34, 59, 77, 103, 118, 119, 159, 161, 167
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.	Instructor's Guide: 7, 30

Standards of Learning	Afterschool Achievers: Math Club, 2
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.	Instructor's Guide: 53
2.15 The student will estimate and then determine the weight/mass of familiar objects in pounds and/or kilograms, using a scale.	Instructor's Guide: 43, 45, 148
2.16 The student will tell and write time to the quarter hour, using analog and digital clocks.	Instructor's Guide: 47, 58, 82, 108
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 <i>more</i> , <i>less</i> , and <i>equivalent</i> .	Instructor's Guide: 20, 28, 83, 160
2.18 The student will	Instructor's Guide 56, 91, 131, 171
a) use calendar language appropriately (e.g., months, <i>today</i> , <i>yesterday</i> , <i>next week</i> , <i>last week</i>);	
b) determine past and future days of the week; and	Instructor's Guide: 47, 58, 82, 108
c) identify specific dates on a given calendar.	Instructor's Guide: 56, 91, 131, 171
2.19 The student will read the temperature on a Celsius and/or Fahrenheit thermometer to the nearest 10 degrees.	Instructor's Guide: 93

G e o m e t r y

Standards of Learning	Afterschool Achievers: Math Club, 2
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.	Instructor's Guide: 3, 13, 15, 23, 35, 38, 50, 52, 63, 78, 88, 98, 115, 125, 133, 163, 173
2.21 The student will identify and create figures, symmetric along a line, using various concrete materials.	Instructor's Guide: 153
2.22 The student will compare and contrast plane and solid geometric shapes (circle/sphere, square/cube, and rectangle/rectangular solid).	Instructor's Guide: 3, 13, 23, 35, 38, 50, 52, 63, 88, 98, 125, 133, 163, 173

Probability and Statistics

Standards of Learning	Afterschool Achievers: Math Club, 2
2.23 The student will read, construct, and interpret a simple picture and bar graph.	Instructor's Guide: 25, 70

Patterns, Functions, and Algebra

Standards of Learning	Afterschool Achievers: Math Club, 2
2.25 The student will identify, create, and extend a wide variety of patterns, using numbers, concrete objects, and pictures.	Instructor's Guide: 6, 11, 21, 41, 51, 56, 66, 91, 126, 131, 171
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.	Instructor's Guide: 4, 5, 9, 12, 14, 19, 22, 27, 29, 33, 42, 49, 54, 79, 84, 89, 94, 99, 102, 104, 107, 109, 114



Afterschool Achievers: Math Club © 2002
correlated to
Virginia Mathematics Standards of Learning
Grade 3

N u m b e r a n d N u m b e r S e n s e

Standards of Learning	Afterschool Achievers: Math Club, 3
3.1 The student will read and write six, digit numerals and identify the place value for each digit.	Instructor's Guide: 5, 35, 48, 60, 103, 127, 140
3.2 The student will round a whole number, 9,999 or less, to the nearest ten, hundred, and thousand.	Instructor's Guide: 43, 75, 105, 122, 158,
3.3 The student will compare two whole numbers between 0 and 9,999, using symbols (>, <, or =) and words (<i>greater than, less than, or equal to</i>).	Instructor's Guide: 22, 153
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 $8 - 3 = \underline{\quad}$.	Instructor's Guide: 33, 71, 85, 112, 175
3.5 The student will	Instructor's Guide: 82, 83, 137, 145, 150
a) divide regions and sets to represent a fraction; and	
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.	Instructor's Guide: 82, 83, 137, 145, 150
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.	Instructor's Guide: 82, 83, 145

Computation and Estimation

Standards of Learning	Afterschool Achievers: Math Club, 3
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.	Instructor's Guide: 1, 2, 4, 6, 7, 8, 9, 10, 11, 12, 14, 16, 19, 24, 26, 31, 33, 34, 36, 37, 39, 41, 46, 49, 51, 53, 56, 61, 66, 68, 85, 94, 144, 154, 164
3.9 The student will recall the multiplication and division facts through the nines table.	Instructor's Guide: 64, 69, 77, 79, 84, 86, 89, 91, 97, 102, 126, 131, 136, 138, 147, 149, 153, 154, 164, 169, 171, 174, 174, 179
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.	Instructor's Guide: 23, 47, 54, 55, 59, 62, 64, 69, 74, 77, 79, 84, 86, 89, 90, 91, 92, 97, 99, 101, 102, 119, 120, 124, 126, 131, 136, 138, 147, 149, 153, 154, 164, 169, 171, 173, 174, 179
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.	Instructor's Guide: 137, 150
3.12 The student will add and subtract with decimals expressed as tenths, using concrete materials, pictorial representations, and paper and pencil.	Instructor's Guide: 73, 95, 117, 168

Measurement

Standards of Learning	Afterschool Achievers: Math Club, 3
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.	Instructor's Guide: 1, 32, 44, 73, 74, 78, 95, 117, 147, 168
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;	Instructor's Guide: 13, 17, 30, 50, 63, 80, 110, 148, 155
b) liquid volume, cups, pints, quarts, gallons, and liters; and	Instructor's Guide: 113, 160, 166

Standards of Learning	Afterschool Achievers: Math Club, 3
c) weight/mass, ounces, pounds, grams, and kilograms.	Instructor's Guide: 52
3.15 The student will tell time to the nearest five, minute interval and to the nearest minute, using analog and digital clocks.	Instructor's Guide: 17, 38, 72, 88, 125
3.16 The student will identify equivalent periods of time, including relationships among days, months, and years, as well as minutes and hours.	Instructor's Guide: 17, 88
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.	Instructor's Guide: 128

G e o m e t r y

Standards of Learning	Afterschool Achievers: Math Club, 3
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.	Instructor's Guide: 45, 65, 93, 108, 111, 135, 142, 176, 178
3.20 The student, given appropriate drawings or models, will identify and describe congruent and symmetrical, two, dimensional (plane) figures, using tracing procedures.	Instructor's Guide: 28, 57, 108

P r o b a b i l i t y a n d S t a t i s t i c s

Standards of Learning	Afterschool Achievers: Math Club, 3
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, and experiments; and	Instructor's Guide: 25
b) construct a line plot, a picture graphs, or a bar graph to represent the results. Each graph will include an appropriate title and key.	Instructor's Guide: 25

Standards of Learning	Afterschool Achievers: Math Club, 3
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.	Instructor's Guide: 25

Patterns, Functions, and Algebra

Standards of Learning	Afterschool Achievers: Math Club, 3
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).	Instructor's Guide: 21, 47, 58, 67, 74, 76, 81, 86, 96, 98, 99, 101, 104, 106, 109, 114, 116, 118, 121, 126, 131, 136, 138, 153, 156, 169
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	Instructor's Guide: 21, 47, 58, 74, 76, 81, 86, 96, 98, 99, 101, 104, 106, 109, 114, 116, 118, 121, 126, 131, 136, 138, 153, 156, 169
b) demonstrate an understanding of equality by recognizing that the equal sign (=) links equivalent quantities, such as $4 \cdot 3 = 2 \cdot 6$.	Instructor's Guide: 9, 22, 53, 55, 64



Afterschool Achievers: Math Club © 2002
correlated to
Virginia Mathematics Standards of Learning
Grade 4

Number and Number Sense

Standards of Learning	Afterschool Achievers: Math Club, 4
4.1 The student will a) identify (orally and in writing) the place value for each digit in a whole number expressed through millions;	Instructor's Guide: 9, 27, 95, 103, 112, 133, 143, 147, 175
b) compare two whole numbers expressed through millions, using symbols ($>$, $<$, or $=$); and	Instructor's Guide: 22, 26, 62, 102
c) round whole numbers expressed through millions to the nearest thousand, ten thousand, and hundred thousand.	Instructor's Guide: 22, 25, 62, 100, 169, 173, 174, 178, 179
4.2 The student will a) identify, model, and compare rational numbers (fractions and mixed numbers), using concrete objects and pictures;	Instructor's Guide: 82, 107, 113, 120, 132, 133, 144, 145, 150, 154, 155
b) represent equivalent fractions; and	Instructor's Guide: 113, 133, 144, 150
c) relate fractions to decimals, using concrete objects.	Instructor's Guide: 113, 133, 145
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.	Instructor's Guide: 82, 107, 113, 120, 132, 133, 144, 145, 150, 154, 155
4.4 The student will a) read, write, represent, and identify decimals expressed through thousandths;	Instructor's Guide: 112, 133, 145, 165, 175, 178
b) round to the nearest whole number, tenth, and hundredth; and	Instructor's Guide: 22, 25, 62, 100, 169, 173, 174, 178, 179

Standards of Learning	Afterschool Achievers: Math Club, 4
c) compare the value of two decimals, using symbols (<, >, or =), concrete materials, drawings, and calculators.	Instructor's Guide: 112, 175

Computation and Estimation

Standards of Learning	Afterschool Achievers: Math Club, 4
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 <i>closer to, between, and a little more than.</i>	Instructor's Guide: 25, 100, 122, 124, 129, 134, 177
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.	Instructor's Guide: 4, 6, 9, 14, 19, 24, 25, 29, 34, 36, 41, 46, 48, 49, 54, 59, 61, 64, 66, 69, 71, 74, 76, 78, 79, 81, 84, 86, 93, 96, 97, 117, 118, 124, 129, 134, 138, 139, 141, 142, 146, 151, 156, 159, 161, 164, 166, 170, 171, 176
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.	Instructor's Guide: 2, 18, 19, 24, 29, 34, 39, 40, 44, 49, 54, 59, 64, 69, 74, 75, 78, 79, 93, 108, 118, 119, 124, 125, 129, 138, 159
4.8 The student will estimate and find the quotient of two whole numbers, given a one, digit divisor.	Instructor's Guide: 134, 139, 170
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;	Instructor's Guide: 155, 160
b) add and subtract with decimals through thousandths, using concrete materials, pictorial representations, and paper and pencil; and	Instructor's Guide: 112, 133, 145, 165, 175
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.	Instructor's Guide: 112, 133, 145, 155, 160, 165, 175

Measurement

Standards of Learning	Afterschool Achievers: Math Club, 4
<p>4.10 The student will</p> <p>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;</p>	<p>Instructor's Guide: 5, 30, 55, 73</p>
<p>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).</p>	<p>Instructor's Guide: 8, 33, 55, 73, 82, 132</p>
<p>4.11 The student will</p> <p>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 ($\frac{1}{2}$, $\frac{1}{4}$, and $\frac{1}{8}$), inches, feet, yards, millimeters, centimeters, and meters;</p>	<p>Instructor's Guide: 5, 8, 10, 30, 33, 35, 53, 55, 73, 82, 88, 132, 137</p>
<p>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).</p>	<p>Instructor's Guide: 5, 8, 10, 30, 33, 35, 53, 55, 73, 82, 88, 132, 137</p>
<p>4.12 The student will</p> <p>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;</p>	<p>Instructor's Guide: 33, 55</p>
<p>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).</p>	<p>Instructor's Guide: 5, 8, 10, 30, 33, 35, 53, 55, 73, 82, 88, 132, 137</p>
<p>4.13 The student will</p> <p>a) identify and describe situations representing the use of perimeter and area; and</p>	<p>Instructor's Guide: 10, 35, 53, 88, 137</p>
<p>b) use measuring devices to find perimeter in both standard and nonstandard units of measure.</p>	<p>Instructor's Guide: 10, 35, 53, 88, 137</p>

Geometry

Standards of Learning	Afterschool Achievers: Math Club, 4
4.14 The student will investigate and describe the relationships between and among points, lines, line segments, and rays.	Instructor's Guide: 85, 153, 158
4.15 The student will a) identify and draw representations of points, lines, line segments, rays, and angles, using a straightedge or ruler.	Instructor's Guide: 85, 153, 158
4.16 The student will identify and draw representations of lines that illustrate intersection, parallelism, and perpendicularity.	Instructor's Guide: 85
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]);	Instructor's Guide: 42, 85, 158
b) identify congruent and noncongruent shapes; and	Instructor's Guide: 3, 110, 137, 158
c) investigate congruence of plane figures after geometric transformations such as reflection (flip), translation (slide) and rotation (turn), using mirrors, paper folding, and tracing.	Instructor's Guide: 163
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.	Instructor's Guide: 135

Probability and Statistics

Standards of Learning	Afterschool Achievers: Math Club, 4
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.	Instructor's Guide: 31, 83, 91, 140

Patterns, Functions, and Algebra

Standards of Learning	Afterschool Achievers: Math Club, 4
4.21 The student will recognize, create, and extend numerical and geometric patterns, using concrete materials, number lines, symbols, tables, and words.	Instructor's Guide: 7, 31, 36, 41, 45, 46, 48, 51, 56, 61, 65, 66, 71, 78, 91, 96, 116, 131, 136
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 $15 + (35 + 16) = (15 + 35) + 16$].	Instructor's Guide: 90, 115



Afterschool Achievers: Math Club © 2002
correlated to
Virginia Mathematics Standards of Learning
Grade 5

N u m b e r a n d N u m b e r S e n s e

Standards of Learning	Afterschool Achievers: Math Club, 5
5.1 The student will a) read, write, and identify the place values of decimals through thousandths;	Instructor's Guide: 77, 152, 157, 172
b) round decimal numbers to the nearest tenth or hundredth; and	Instructor's Guide: 148
c) compare the values of two decimals through thousandths, using the symbols $>$, $<$, or $=$.	Instructor's Guide: 157
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	Instructor's Guide: 27, 28, 49, 58, 87, 145, 150, 178
b) order a given set of fractions and decimals from the least to greatest. Fractions will include like and unlike denominators limited to 12 or less, and mixed numbers.	Instructor's Guide: 20

C o m p u t a t i o n a n d E s t i m a t i o n

Standards of Learning	Afterschool Achievers: Math Club, 5
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.	Instructor's Guide: 4, 6, 9, 13, 14, 15, 19, 24, 25, 29, 34, 39, 42, 50, 53, 59, 62, 64, 68, 69, 74, 75, 78, 79, 82, 93, 97, 100, 117, 118, 119, 122, 124, 147, 163, 165, 177

Standards of Learning	Afterschool Achievers: Math Club, 5
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.	Instructor's Guide: 54, 84, 94, 104, 109, 112, 113, 129, 134, 148, 154, 164, 174, 179
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.	Instructor's Guide: 69, 74, 75, 79, 82, 93
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.	Instructor's Guide: 47, 89, 125, 133, 144, 155, 160, 169

Measurement

Standards of Learning	Afterschool Achievers: Math Club, 5
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.	Instructor's Guide: 127, 141, 175
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.	Instructor's Guide: 127
5.11 The student will choose an appropriate measuring device and unit of measure to solve problems involving measurement of	Instructor's Guide: 2, 5, 8, 32, 80, 88, 91, 107, 121, 137, 143, 158, 170
a) length-part of an inch ($\frac{1}{2}$, $\frac{1}{4}$, and $\frac{1}{8}$), inches, feet, yards, miles, millimeters, centimeters, meters, and kilometers;	
b) weight/mass-ounces, pounds, tons, grams, and kilograms;	Instructor's Guide: 2, 32, 38, 80, 106, 107, 137, 158
c) liquid volume-cups, pints, quarts, gallons, milliliters, and liters;	Instructor's Guide: 2, 30, 32, 73, 80, 96, 101, 107, 116, 137, 158
d) area-square units; and	Instructor's Guide: 127, 175
e) temperature-Celsius and Fahrenheit units.	Instructor's Guide: 2, 55, 80

Standards of Learning	Afterschool Achievers: Math Club, 5
5.12 The student will determine an amount of elapsed time in hours and minutes within a 24, hour period.	Instructor's Guide: 105, 108, 130, 131
5.13 The student will measure and draw right, acute, and obtuse angles and triangles, using appropriate tools.	Instructor's Guide: 123, 129

G e o m e t r y

Standards of Learning	Afterschool Achievers: Math Club, 5
5.14 The student will classify angles and triangles as right, acute, and obtuse.	Instructor's Guide: 110, 123, 129
5.15 The student, using two, dimensional (plane) figures (square, rectangle, triangle, parallelogram, rhombus, kite, and trapezoid) will	Instructor's Guide: 22, 35, 102, 115, 138, 153
a) recognize, identify, describe, and analyze their properties in order to develop definitions of these figures;	
b) identify and explore congruent, noncongruent, and similar figures;	Instructor's Guide: 35, 102, 110, 138, 153, 175
e) recognize the images of figures resulting from geometric transformations such as translation (slide), reflection (flip), or rotation (turn).	Instructor's Guide: 146
5.16 The student will identify, compare, and analyze properties of three, dimensional (solid) geometric shapes (cylinder, cone, cube, square pyramid, and rectangular prism).	Instructor's Guide: 10, 60

P r o b a b i l i t y a n d S t a t i s t i c s

Standards of Learning	Afterschool Achievers: Math Club, 5
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.	Instructor's Guide: 156, 161, 166

Patterns, Functions, and Algebra

Standards of Learning	Afterschool Achievers: Math Club, 5
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.	Instructor's Guide: 1, 6, 11, 16, 18, 21, 46, 48, 65, 114, 121, 149, 165
5.21 The student will a) investigate and describe the concept of variable;	Instructor's Guide: 17, 40, 57
b) use a variable expression to represent a given verbal quantitative expression involving one operation; and	Instructor's Guide: 17, 51
c) write an open sentence to represent a given mathematical relationship, using a variable.	Instructor's Guide: 17, 56, 76



Afterschool Achievers: Math Club © 2003
correlated to
Virginia Mathematics Standards of Learning
Grade 6

Number and Number Sense

Standards of Learning	Afterschool Achievers: Math Club, 6
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.	Instructor's Guide: 9, 26, 30, 44, 59, 61, 62, 76, 100, 104, 105, 151, 175
6.2 The student will describe and compare two sets of data, using ratios, and will use the appropriate notations, such as a/b , a to b , and $a:b$.	Instructor's Guide: 100
6.3 The student will	Instructor's Guide: 35, 36, 39, 47, 48, 49, 62, 63, 66, 73, 77, 78, 82, 83, 107, 137, 138, 153
a) find common multiples and factors, including least common multiple and greatest common factor;	
b) identify and describe prime and composite numbers; and	Instructor's Guide: 1, 39, 47, 48, 62, 63, 66, 117, 118, 153
c) identify and describe the characteristics of even and odd integers.	Instructor's Guide: 39, 48, 78, 138
6.4 The student will compare and order whole numbers, fractions, and decimals, using concrete materials, drawings, or pictures, and mathematical symbols.	Instructor's Guide: 25, 46, 51, 116, 119, 121, 156, 166
6.5 The student will identify, represent, order and compare integers.	Instructor's Guide: 81, 139, 164

Computation and Estimation

Standards of Learning	Afterschool Achievers: Math Club, 6
<p>6.6 The student will:</p> <p>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.</p>	<p>Instructor's Guide: 10, 20, 46, 54, 102, 103, 116, 121, 125, 160</p>
<p>6.7 The student will use estimation strategies to solve multistep practical problems involving whole numbers, decimals, and fractions (rational numbers).</p>	<p>Instructor's Guide: 130, 145</p>
<p>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.</p>	<p>Instructor's Guide: 111, 120, 125, 131, 145</p>

Measurement

Standards of Learning	Afterschool Achievers: Math Club, 6
<p>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:</p> <p>a) length-part of an inch ($\frac{1}{2}$, $\frac{1}{4}$, and $\frac{1}{8}$), inches, feet, yards, miles, millimeters, centimeters, meters, kilometers;</p>	<p>Instructor's Guide: 11, 31, 134, 136, 174</p>
<p>b) weight/mass-ounces, pounds, tons, grams, kilograms;</p>	<p>Instructor's Guide: 11, 124, 136, 174</p>
<p>c) liquid volume-cups, pints, quarts, gallons, milliliters, and liters; and</p>	<p>Instructor's Guide: 11, 24, 31, 136, 174</p>
<p>d) area-square units.</p>	<p>Instructor's Guide: 85, 87, 88, 97, 98, 107, 108, 115, 126, 144, 176</p>
<p>6.10 The student will estimate and then determine length, weight/mass, area, and liquid volume/capacity, using standard and nonstandard units of measure.</p>	<p>Instructor's Guide: 85, 87, 88, 97, 98, 107, 108, 115, 126, 142, 144, 176</p>

Standards of Learning	Afterschool Achievers: Math Club, 6
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.	Instructor's Guide: 4, 19, 85, 87, 88, 97, 98, 107, 108, 115, 126, 144, 176
6.12 The student will a) solve problems involving the circumference and/or area of a circle when given the diameter or radius; and	Instructor's Guide: 142, 143, 155
b) derive approximations for π from measurements for circumference and diameter, using concrete materials or computer models.	Instructor's Guide: 142, 143
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	Instructor's Guide: 72, 79, 147
b) measure and draw right, acute, and obtuse angles and triangles.	Instructor's Guide: 147, 179

G e o m e t r y

Standards of Learning	Afterschool Achievers: Math Club, 6
6.14 The student will identify, classify, and describe the characteristics of plane figures, describing their similarities, differences, and defining properties.	Instructor's Guide: 12, 21, 27, 28, 72, 79, 84, 85, 94, 101, 152, 170
6.15 The student will determine the congruence of segments, angles, and polygons by direct comparison, given their attributes. Examples of noncongruent and congruent figures will be included.	Instructor's Guide: 72, 79, 85, 94, 162
6.17 The student will sketch, construct models of, and classify solid figures (rectangular prism, cone, cylinder, and pyramid).	Instructor's Guide: 90, 101, 180

Probability and Statistics

Standards of Learning	Afterschool Achievers: Math Club, 6
<p>6.18 The student, given a problem situation, will collect, analyze, display, and interpret data in a variety of graphical methods, including:</p> <p>a) line, bar, and circle graphs.</p>	<p>Instructor's Guide: 102, 133, 135, 140</p>
<p>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.</p>	<p>Instructor's Guide: 91, 132, 133, 135, 143</p>
<p>6.20 The student will</p> <p>a) make a sample space for selected experiments and represent it in the form of a list, chart, picture, or tree diagram; and</p>	<p>Instructor's Guide: 122, 123, 127, 128</p>
<p>b) determine and interpret the probability of an event occurring from a given sample space and represent probability as a ratio, decimal, or percent, as appropriate for the given situation.</p>	<p>Instructor's Guide: 122, 123, 127, 128, 132, 133</p>

Patterns, Functions, and Algebra

Standards of Learning	Afterschool Achievers: Math Club, 6
<p>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.</p>	<p>Instructor's Guide: 14, 18, 51, 74, 83, 87, 88, 92, 93, 149, 171</p>
<p>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.</p>	<p>Instructor's Guide: 1, 18, 51, 141, 157, 158, 161, 177, 178</p>
<p>6.23 The student will</p> <p>a) model and solve algebraic equations, using concrete materials;</p>	<p>Instructor's Guide: 13, 16, 18, 27, 28, 56, 88, 98</p>
<p>b) solve one-step linear equations in one variable, involving whole number coefficients and positive rational solutions; and</p>	<p>Instructor's Guide: 16, 18, 56</p>

Standards of Learning	Afterschool Achievers: Math Club, 6
c) use the following algebraic terms appropriately: <i>variable, coefficient, term, and equation.</i>	Instructor's Guide: 16, 18, 27, 28, 41, 55, 56, 64, 88, 98, 146, 150



Afterschool Achievers: Math Club © 2003
correlated to
Virginia Mathematics Standards of Learning
Grade 7

N u m b e r a n d N u m b e r S e n s e

Standards of Learning	Afterschool Achievers: Math Club, 7
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.	Instructor's Guide: 10, 26, 27, 33, 44, 54, 59, 61, 76, 96, 99, 116, 175
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.	Instructor's Guide: 1, 14, 16, 20, 25, 32, 35, 39, 40, 41, 46, 48, 49, 55, 60, 64, 80, 82, 86, 92, 93, 95, 96, 105, 106, 109, 111, 112, 113, 116, 121, 124, 127, 128, 129, 131, 136, 139, 150, 155, 157, 158, 159, 160, 177
7.3 The student will identify and apply the following properties of operations with real numbers:	Instructor's Guide: 4, 24
a) the commutative and associate properties for addition and multiplication;	
b) the distributive property;	Instructor's Guide: 55, 95, 149
c) the additive and multiplicative identity properties;	Instructor's Guide: 6
d) the additive and multiplicative inverse properties.	Instructor's Guide: 4, 44, 56, 110, 144

C o m p u t a t i o n a n d E s t i m a t i o n

Standards of Learning	Afterschool Achievers: Math Club, 7
7.4 The student will	Instructor's Guide: 10, 92, 93, 99, 100, 110, 120, 131, 151, 159
a) solve practical problems using rational numbers (whole numbers, fractions, decimals) and percents; and	
b) solve consumer-application problems involving tips, discounts, sales tax, and simple interest.	Instructor's Guide: 10, 99, 100, 110, 120, 131, 151, 159

Standards of Learning	Afterschool Achievers: Math Club, 7
7.5 The student will formulate rules for and solve practical problems involving basic operations (addition, subtraction, multiplication, division) with integers.	Instructor's Guide: 31, 34, 41, 64, 65, 67, 69, 72, 81, 141, 146, 161
7.6 The student will use proportions to solve practical problems, which may include scale drawings, that contain rational numbers (whole numbers, fractions, decimals), and percents.	Instructor's Guide: 11, 78, 104, 170

M e a s u r e m e n t

Standards of Learning	Afterschool Achievers: Math Club, 7
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	Instructor's Guide: 4, 12, 17, 145, 172
b) apply perimeter and area formulas in practical situations.	Instructor's Guide: 4, 50, 74, 92, 126, 171, 180
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.	Instructor's Guide: 24, 130, 145, 176

G e o m e t r y

Standards of Learning	Afterschool Achievers: Math Club, 7
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.	Instructor's Guide: 21, 101
7.10 The student will identify and draw the following polygons: pentagon, hexagon, heptagon, octagon, nonagon, and decagon.	Instructor's Guide: 21, 101
7.11 The student will determine if geometric figures - quadrilaterals or triangles - are similar and write proportions to express the relationships between corresponding parts of similar figures.	Instructor's Guide: 77, 78, 170

Standards of Learning	Afterschool Achievers: Math Club, 7
7.12 The student will identify and graph ordered pairs in the four quadrants of a coordinate plane.	Instructor's Guide: 29, 67, 72, 114
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.	Instructor's Guide: 7, 15, 42, 43, 164, 179

Probability and Statistics

Standards of Learning	Afterschool Achievers: Math Club, 7
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.	Instructor's Guide: 122, 123, 137
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.	Instructor's Guide: 85, 125
7.16 The student will create and solve problems involving measures of central tendency (mean, median, mode) and the range of a set of data.	Instructor's Guide: 75, 83, 91, 107, 108, 123
7.17 The student, given a problem situation, will collect, analyze, display, and interpret data, using a variety of graphical methods, including	Instructor's Guide: 122, 135, 137, 165
a) frequency distributions;	
c) histograms;	Instructor's Guide: 165
d) stem-and-leaf plots;	Instructor's Guide: 75
e) box-and-whisker plots; and	Instructor's Guide: 90
f) scattergrams.	Instructor's Guide: 82, 88
7.18 The student will make inferences, conjectures, and predictions based on analysis of a set of data.	Instructor's Guide: 75, 103, 135, 140, 164

Patterns, Functions, and Algebra

Standards of Learning	Afterschool Achievers: Math Club, 7
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.	Instructor's Guide: 7, 8, 12, 13, 18, 32, 33, 38, 48, 52, 53, 57, 74, 132, 147, 148, 155, 163, 166, 167, 168, 173
7.20 The student will write verbal expressions as algebraic expressions and sentences as equations.	Instructor's Guide: 5, 13, 18, 38, 60, 63, 133, 148, 158, 163, 168, 172, 173
7.21 The student will use the following algebraic terms appropriately: <i>equation</i> , <i>inequality</i> , and <i>expression</i> .	Instructor's Guide: 6, 16, 29, 41, 56, 64
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	Instructor's Guide: 5, 10, 16, 56, 60, 83
b) solve practical problems requiring the solution of a one-step linear equation.	Instructor's Guide: 5, 10, 83



Afterschool Achievers: Math Club © 2003
correlated to
Virginia Mathematics Standards of Learning
Grade 8

N u m b e r a n d N u m b e r S e n s e

Standards of Learning	Afterschool Achievers: Math Club, 8
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;	Instructor's Guide: 1, 3, 13, 14, 25, 37, 38, 45, 46, 56, 66, 69, 95, 109, 115, 116, 117, 118, 121, 124, 141, 149, 160, 161
b) recognize, represent, compare, and order numbers expressed in scientific notation; and	Instructor's Guide: 66
c) compare and order decimals, fractions, percents, and numbers written in scientific notation.	Instructor's Guide: 9, 26, 34, 96, 99
8.2 The student will describe orally and in writing the relationship between the subsets of the real number system.	Instructor's Guide: 30, 65, 117, 118

C o m p u t a t i o n a n d E s t i m a t i o n

Standards of Learning	Afterschool Achievers: Math Club, 8
8.3 The student will solve 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.	Instructor's Guide: 3, 10, 99, 106, 110, 119, 151, 156, 157, 158
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.	Instructor's Guide: 41, 64, 90, 120, 121, 131, 146

Standards of Learning	Afterschool Achievers: Math Club, 8
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.	Instructor's Guide: 14, 49, 50, 92, 93, 136, 152

M e a s u r e m e n t

Standards of Learning	Afterschool Achievers: Math Club, 8
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° .	Instructor's Guide: 82, 91, 107, 108, 134, 135, 168, 172, 173
8.7 The student will investigate and solve practical problems involving volume and surface area of rectangular solids (prisms), cylinders, cones, and pyramids.	Instructor's Guide: 19, 92, 130, 145, 176

G e o m e t r y

Standards of Learning	Afterschool Achievers: Math Club, 8
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 tilting, fabric design, art, and scaling.	Instructor's Guide: 15, 22, 23, 57, 58, 62, 82, 83, 87, 88, 137, 138, 179
8.9 The student will construct a three-dimensional model, given the top, side, and/or bottom views.	Instructor's Guide: 84
8.10 The student will	Instructor's Guide: 21
a) verify the Pythagorean Theorem, using diagrams, concrete materials, and measurement; and	
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.	Instructor's Guide: 21, 50, 112, 113, 152

Probability and Statistics

Standards of Learning	Afterschool Achievers: Math Club, 8
8.11 The student will analyze problem situations, including games of chance, board games, or grading scales, and make predictions, using knowledge of probability.	Instructor's Guide: 125, 128, 142, 143
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.	Instructor's Guide: 27, 70, 75, 80, 110, 172, 173
8.13 The student will use a matrix to organize and describe data.	Instructor's Guide: 77, 125

Patterns, Functions, and Algebra

Standards of Learning	Afterschool Achievers: Math Club, 8
8.14 The student will a) describe and represent relations and functions, using tables, graphs, and rules; and	Instructor's Guide: 17, 18, 37, 38, 77, 80, 133, 150, 153
b) relate and compare tables, graphs, and rules as different forms of representation for relationships.	
8.15 The student will solve two-step equations and inequalities in one variable, using concrete materials, pictorial representations, and paper and pencil.	Instructor's Guide: 56, 144
8.16 The student will graph a linear equation in two variables, in the coordinate plane, using a table of ordered pairs.	Instructor's Guide: 22, 29, 97, 98, 146
8.17 The student will create and solve problems, using proportions, formulas, and functions.	Instructor's Guide: 4, 17, 19, 24, 37, 38, 74, 77, 102, 103, 104, 126, 130, 145, 153, 155, 171



TOLL FREE: **800-289-4490**

VISIT OUR WEB SITE: **WWW.GREATSOURCE.COM**
