Virginia Mathematics

Kindergarten

Number and Number Sense K.NS

1 The student will utilize flexible counting strategies to determine and describe quantities up to 100. K.NS.1

Students will demonstrate the following Knowledge and Skills:

a Use one-to-one correspondence to determine how many are in a given set containing 30 or fewer concrete objects (e.g., cubes, pennies, balls), and describe the last number named as the total number of objects counted. K.NS.1.A

b Recognize and explain that the number of objects remains the same regardless of the arrangement or the order in which the objects are counted. K.NS.1.B

c Represent forward counting by ones using a variety of tools, including five-frames, tenframes, and number paths (a prelude to number lines). K.NS.1.C

d Count forward orally by ones from 0 to 100. K.NS.1.D

e Count forward orally by ones, within 100, starting at any given number. K.NS.1.E

f Count backward orally by ones when given any number between 1 and 20. K.NS.1.F

g State the number after, without counting, when given any number between 0 and 30. K.NS.1.G

h State the number before, without counting, when given any number between 1 and 20. K.NS.1.H

i Use objects, drawings, words, or numbers to compose and decompose numbers 11-19 into a ten and some ones. K.NS.1.I

j Group a collection of up to 100 objects (e.g., counters, pennies, cubes) into sets of ten and count by tens to determine the total (e.g., there are 3 groups of ten and 6 leftovers, 36 total objects). K.NS.1.J

2 The student will identify, represent, and compare quantities up to 30. K.NS.2

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Students will demonstrate the following Knowledge and Skills:

a Read, write, and identify the numerals 0 through 30. K.NS.2.A

b Construct a set of objects that corresponds to a given numeral within 30, including an empty set. K.NS.2.B

c Determine and write the numeral that corresponds to the total number of objects in a given set of 30 or fewer concrete objects or pictorial models. K.NS.2.C

d Given a set of up to 30 objects, construct another set which has more, fewer, or the same number of objects using concrete or pictorial models. K.NS.2.D

e Given a numeral up to 30, construct a set which has more, fewer, or the same number of objects using concrete or pictorial models. K.NS.2.E

f Compare two sets containing up to 30 concrete objects or pictorial models, using the terms more, fewer, or the same as (equal to). K.NS.2.F

g Compare numbers up to 30, to the benchmarks of 5 and 10 using various models (e.g., five frames, ten frames, number paths [a prelude to number lines], beaded racks, hands) using the terms greater than, less than, or the same as (equal to). K.NS.2.G

Computation and Estimation K.CE

1 **The student will model and solve single-step contextual problems using addition and subtraction with whole numbers within 10.** K.CE.1

Students will demonstrate the following Knowledge and Skills:

a Use objects, drawings, words, or numbers to compose and decompose numbers less than or equal to 5 in multiple ways. K.CE.1.A

b Recognize and describe with fluency part-part-whole relationships for numbers up to 5 in a variety of configurations. K.CE.1.B

c Model and identify the number that makes 5 when added to a given number less than or equal to 5. K.CE.1.C

d Use objects, drawings, words, or numbers to compose and decompose numbers less than or equal to 10 in multiple ways. K.CE.1.D

e Model and identify the number that makes 10 when added to a given number less than or equal to 10. K.CE.1.E

f Model and solve single-step contextual problems (join, separate, and part-part-whole) using 10 or fewer concrete objects. K.CE.1.F

Measurement and Geometry K.MG

1 **The student will reason mathematically by making direct comparisons between two objects or events using the attributes of length, height, weight, volume, and time.** K.MG.1

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Students will demonstrate the following Knowledge and Skills:

a Use direct comparisons to compare, describe, and justify the: K.MG.1.A

1 lengths of two objects using the terms longer or shorter; K.MG.1.A.1

2 heights of two objects using the terms taller or shorter; K.MG.1.A.2

3 weights of two objects using the terms heavier or lighter; K.MG.1.A.3

4 volumes of two containers using the terms more or less; and K.MG.1.A.4

5 amount of time spent on two events using the terms longer or shorter. K.MG.1.A.5

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2 The student will identify, describe, name, compare, and construct plane figures (circles, triangles, squares, and rectangles). K.MG.2

Students will demonstrate the following Knowledge and Skills:

a Identify and name concrete and pictorial representations of circles, triangles, squares, and rectangles regardless of their orientation in space. K.MG.2.A

b Describe triangles, squares, and rectangles to include the number of sides and number of vertices. K.MG.2.B

c Describe a circle using terms such as round and curved. K.MG.2.C

d Distinguish between examples and nonexamples of identified plane figures (circles, triangles, squares, and rectangles). K.MG.2.D

e Compare and contrast two plane figures using characteristics to describe similarities and differences. K.MG.2.E

f Construct plane figures (circles, triangles, squares, and rectangles) using a variety of materials (e.g., straws, sticks, pipe cleaners). K.MG.2.F

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3 The student will describe the units of time represented in a calendar. K.MG.3

Students will demonstrate the following Knowledge and Skills:

a Identify a calendar as a tool used to measure time. K.MG.3.A

b Name the days of the week and state that there are seven days in one week. K.MG.3.B

c Determine the day before and after a given day (e.g., yesterday, today, tomorrow). K.MG.3.C

d Name the twelve months of the year and state that there are twelve months in one year. K.MG.3.D

e Distinguish between days of the week and months of the year. K.MG.3.E

Probability and Statistics K.PS

1 The student will apply the data cycle (pose questions; collect or acquire data; organize and represent data; and analyze data and communicate results) with a focus on object graphs and picture graphs. K.PS.1

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Students will demonstrate the following Knowledge and Skills:

a Sort and classify concrete objects into appropriate subsets (categories) based on one attribute (e.g., size, shape, color, thickness). K.PS.1.A

b Describe and label attributes (e.g., size, color, shape) of a set of objects (e.g., coins, counters, buttons) that has been sorted. K.PS.1.B

c Pose questions, given a predetermined context, that require the collection of data (limited to 25 or fewer data points for no more than four categories). K.PS.1.C

d Determine the data needed to answer a posed question, and collect the data using various methods (e.g., counting objects, drawing pictures). K.PS.1.D

e Organize and represent a data set (vertically or horizontally) by sorting concrete objects into organized groups to form a simple object graph. K.PS.1.E

f Organize and represent a data set (vertically or horizontally) using pictures to form a simple picture graph. K.PS.1.F

g Analyze data represented in object graphs and picture graphs and communicate results: K.PS.1.G

1 ask and answer questions about the data represented in object graphs and picture graphs (e.g., how many in each category, which categories have the greatest, least, or the same amount of data); and K.PS.1.G.1

2 draw conclusions about the data and make predictions based on the data. K.PS.1.G.2

Patterns, Functions, and Algebra K.PFA

1 **The student will identify, describe, extend, and create simple repeating patterns using various representations.** K.PFA.1

Students will demonstrate the following Knowledge and Skills:

a Identify and describe the core found in repeating patterns. K.PFA.1.A

b Extend a repeating pattern by adding at least two complete repetitions of the core to the pattern. K.PFA.1.B

c Create and describe a repeating pattern using objects, colors, sounds, movements, or pictures. K.PFA.1.C