Alaska Mathematics Standards
Grade K

Standards for Mathematical Content Grade K

Counting and Cardinality
Know number names and the count sequence. K.CC.1. Count to 100 by ones and by tens. K.CC.2. Count forward beginning from a given number within the known sequence. K.CC.3. Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects). **Count to tell the number of objects.** K.CC.4. Understand the relationship between numbers and quantities; connect counting to cardinality. a. When counting objects, say the number names in standard order, pairing each object with one and only one number name and each number name with one and only one object. b. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted. c. Understand that each successive number name refers to a quantity that is one larger. K.CC.5. Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects. **Compare numbers.** K.CC.6. Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group (e.g., by using matching, counting, or estimating strategies). K.CC.7. Compare and order two numbers between 1 and 10 presented as written numerals.
Operations and Algebraic Thinking
Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from. K.OA.1. Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps) acting out situations, verbal explanations, expressions, or equations. K.OA.2. Add or subtract whole numbers to 10 (e.g., by using objects or drawings to solve word problems). K.OA.3. Decompose numbers less than or equal to10 into pairs in more than one way (e.g., by using objects or drawings, and record each decomposition by a drawing or equation). *For example, 5=2+3 and 5=4+1.*

K.OA.4. For any number from 1- **4**, find the number that makes 5 when added to the given number and, for any number from 1-9, find the number that makes 10 when added to the given number (e.g., by using objects, drawings or 10 frames) and record the answer with a drawing or equation.

K.OA.5. Fluently add and subtract numbers up to 5.

Identify and continue patterns.
K.OA.6. Recognize, identify and continue simple patterns of color, shape, and size.

Numbers and Operations in Base Ten

Work with numbers 11-19 to gain foundations for place value.
K.NBT.1. Compose and decompose numbers from 11 to 19 into ten ones and some further ones (e.g., by using objects or drawings) and record each composition and decomposition by a drawing or equation (e.g., 18 = 10 + 8); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight or nine ones.

Measurement and Data

Describe and compare measurable attributes.
K.MD.1. Describe measurable attributes of objects (e.g., length or weight). Match measuring tools to attribute (e.g., ruler to length). Describe several measureable attributes of a single object.

K.MD.2. Make comparisons between two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference. *For example, directly compare the heights of two children and describe one child as taller/shorter.*

Classify objects and count the number of objects in each category.
K.MD.3. Classify objects into given categories (attributes). Count the number of objects in each category (limit category counts to be less than or equal to 10).

Work with time and money.
K.MD.4. Name in sequence the days of the week.

K.MD.5 Tell time to the hour using both analog and digital clocks.

K.MD.6. Identify coins by name.

Geometry

Identify and describe shapes.
K.G.1. Describe objects in the environment using names of shapes and describe their relative positions (e.g., *above, below, beside, in front of, behind, next to).*

K.G.2. Name shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres) regardless of their orientation or overall size.

K.G.3. Identify shapes as two-dimensional (flat) or three-dimensional (solid).

Analyze, compare, create, and compose shapes.

K.G.4. Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices), and other attributes (e.g., having sides of equal lengths).

K.G.5. Build shapes (e.g., using sticks and clay) and draw shapes.

K.G.6. Put together two-dimensional shapes to form larger shapes (e.g., join two triangles with full sides touching to make a rectangle).

Standards for Mathematical Practice

Instruction around the Standards of Mathematical Practices is delivered across all grades K-12. These eight standards define experiences that build understanding of mathematics and ways of thinking through which students develop, apply, and assess their knowledge.

1. Make sense of problems and persevere in solving them.
• focus on the problem and check for alternate methods • check if the solution makes sense
2. Reason abstractly and quantitatively.
• represent a situation symbolically and/or with manipulatives • create a coherent representation of the problem • use units of measurement consistently
3. Construct viable arguments and critique the reasoning of others.
• construct arguments using concrete referents such as objects, drawings, diagrams, and actions • justify conclusions, communicate conclusions • listen to arguments and decide whether the arguments make sense
4. Model with Mathematics.
• apply mathematics to solve problems in everyday life • identify important quantities in a practical situation and model the situation with manipulatives or pictures • interpret mathematical results in the context of the situation and reflect on whether the results make sense
5. Use appropriate tools strategically.
• select the available tools (such as pencil and paper, manipulatives, rulers, and available technology) when solving a mathematical problem • be familiar with tools appropriate for the grade level to make sound decisions about when each of these tools might be helpful • identify relevant external mathematical resources and use them to pose or solve problems • use technological tools to explore and deepen their understanding of concepts
6. Attend to precision.
• give thoughtful explanations to each other • use clear definitions and reasoning in discussion with others • state the meaning of symbols they choose, including using the equal sign consistently and appropriately
7. Look for and make use of structure.
• discern a pattern or structure • understand complex structures as single objects or as being composed of several objects • check if the answer is reasonable

8. Look for and express regularity in repeated reasoning.
• identify if calculations or processes are repeated • use alternative and traditional methods to solve problems • evaluate the reasonableness of their intermediate results, while attending to the details