



# Alaska Mathematics Standards

## Grade 1

### Standards for Mathematical Content Grade 1

#### Counting and Cardinality

##### Know ordinal names and counting flexibility.

- 1.CC.1. Skip count by 2s and 5s.
- 1.CC.2. Use ordinal numbers correctly when identifying object position (e.g., first, second, third, etc.).
- 1.CC.3. Order numbers from 1-100. Demonstrate ability in counting forward and backward.

##### Count to tell the number of objects.

- 1.CC.4. Count a large quantity of objects by grouping into 10s and counting by 10s and 1s to find the quantity.

##### Compare numbers.

- 1.CC.5. Use the symbols for greater than, less than or equal to when comparing two numbers or groups of objects.
- 1.CC.6. Estimate how many and how much in a given set to 20 and then verify estimate by counting.

#### Operations and Algebraic Thinking

##### Represent and solve problems involving addition and subtraction.

- 1.OA.1. Use addition and subtraction strategies to solve word problems (using numbers up to 20), involving situations of adding to, taking from, putting together, taking apart and comparing, with unknowns in all positions, using a number line (e.g., by using objects, drawings and equations). Record and explain using equation symbols and a symbol for the unknown number to represent the problem.
- 1.OA.2. Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20 (e.g., by using objects, drawings and equations). Record and explain using equation symbols and a symbol for the unknown number to represent the problem.

**Understand and apply properties of operations and relationship between addition and subtraction.**

- 1.OA.3. Apply properties of operations as strategies to add and subtract. (Students need not know the name of the property.)
  - For example: If  $8 + 3 = 11$  is known, then  $3 + 8 = 11$  is also known (Commutative property of addition). To add  $2 + 6 + 4$ , the second two numbers can be added to make a ten, so  $2 + 6 + 4 = 2 + 10 = 12$  (Associative property of addition). Demonstrate that when adding zero to any number, the quantity does not change (Identity property of addition).
- 1.OA.4. Understand subtraction as an unknown-addend problem. For example, subtract  $10 - 8$  by finding the number that makes 10 when added to 8.

**Add and subtract using numbers up to 20.**

- 1.OA.5. Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).
- 1.OA.6. Add and subtract using numbers up to 20, demonstrating fluency for addition and subtraction up to 10. Use strategies such as
  - counting on
  - making ten ( $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$ )
  - decomposing a number leading to a ten ( $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$ )
  - using the relationship between addition and subtraction, such as fact families, ( $8 + 4 = 12$  and  $12 - 8 = 4$ )
  - creating equivalent but easier or known sums (e.g., adding  $6 + 7$  by creating the known equivalent  $6 + 6 + 1 = 12 + 1 = 13$ ).

**Work with addition and subtraction equations.**

- 1.OA.7. Understand the meaning of the equal sign (e.g., read equal sign as “same as”) and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false ( $6 = 6$ ,  $7 = 8 - 1$ ,  $5 + 2 = 2 + 5$ ,  $4 + 1 = 5 + 2$ ).
- 1.OA.8. Determine the unknown whole number in an addition or subtraction equation. For example, determine the unknown number that makes the equation true in each of the equations ( $8 + ? = 11$ ,  $6 + 6 = ?$ ,  $5 = ? - 3$ ).

**Identify and continue patterns.**

- 1.OA.9. Identify, continue and label patterns (e.g., aabb, abab). Create patterns using number, shape, size, rhythm or color.

**Numbers and Operations in Base Ten**

**Extend the counting sequence.**

- 1.NBT.1. Count to 120. In this range, read, write and order numerals and represent a number of objects with a written numeral.

**Understand place value.**

- 1.NBT.2. Model and identify place value positions of two digit numbers. Include:
  - a) 10 can be thought of as a bundle of ten ones, called a "ten".
  - b) The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight or nine ones.
  - c) The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90, refer to one, two, three, four, five, six, seven, eight or nine tens (and 0 ones).
- 1.NBT.3. Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols  $>$ ,  $=$ ,  $<$ .

**Use place value understanding and properties of operations to add and subtract.**

- 1.NBT.4. Add using numbers up to 100 including adding a two-digit number and a one-digit number and adding a two-digit number and a multiple of 10.
  - Use:
    - concrete models or drawings and strategies based on place value
    - properties of operations
    - and/or relationship between addition and subtraction.
  - Relate the strategy to a written method and explain the reasoning used.
  - Demonstrate in adding two-digit numbers, tens and tens are added, ones and ones are added and sometimes it is necessary to compose a ten from ten ones.
- 1.NBT.5. Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.
- 1.NBT.6. Subtract multiples of 10 up to 100. Use:
  - concrete models or drawings
  - strategies based on place value
  - properties of operations
  - and/or the relationship between addition and subtraction.
- Relate the strategy to a written method and explain the reasoning used.

**Measurement and Data**

**Measure lengths indirectly and by iterating length units.**

- 1.MD.1. Measure and compare three objects using standard or non-standard units.
- 1.MD.2. Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps.

**Work with time and money.**

- 1.MD.3. Tell and write time in half hours using both analog and digital clocks.
- 1.MD.4. Read a calendar distinguishing yesterday, today and tomorrow. Read and write a date.
- 1.MD.5. Recognize and read money symbols including \$ and ¢.
- 1.MD.6. Identify values of coins (e.g., nickel = 5 cents, quarter = 25 cents). Identify equivalent values of coins up to \$1 (e.g., 5 pennies = 1 nickel, 5 nickels = 1 quarter).

**Represent and interpret data.**

- 1.MD.7. Organize, represent and interpret data with up to three categories. Ask and answer comparison and quantity questions about the data.

## Geometry

**Reason with shapes and their attributes.**

- 1.G.1. Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes. Identify shapes that have non-defining attributes (e.g., color, orientation, overall size). Build and draw shapes given specified attributes.
- 1.G.2. Compose (put together) two-dimensional or three-dimensional shapes to create a larger, composite shape, and compose new shapes from the composite shape.
- 1.G.3. Partition circles and rectangles into two and four equal shares. Describe the shares using the words, halves, fourths, and quarters and phrases half of, fourth of and quarter of. Describe the whole as two of or four of the shares. Understand for these examples that decomposing (break apart) into more equal shares creates smaller shares.

## 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