

Achievement Level Descriptors (ALDs)

Mathematics

Grades 3-5

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The achievement level descriptors describe what a typical student scoring at each achievement level can do. A student who scores at a level would be expected to also be able to demonstrate the skills described in previous levels. A student would not necessarily demonstrate all the skills listed at a particular achievement level on a particular test in order to score at that level.

## Achievement Level Definitions

**Far Below Proficient** - Student may partially meet the standards but has significant gaps in knowledge and skills of current grade-level content.

**Below Proficient** - Student partially meets the standards and may have gaps in knowledge and skills but is capable of most grade-level content.

**Proficient** - Student meets the standards at a proficient level, demonstrating knowledge and skills of current grade-level content.

**Advanced** - Student meets the standards at an advanced level, demonstrating knowledge and skills of complex grade-level content.

## Grade 3

### Operations and Algebraic Thinking

| Alaska Standard | **Far Below Proficient** | **Below Proficient** | **Proficient** | **Advanced** |
| --- | --- | --- | --- | --- |
| 3.OA.1 – 3.OA.9 | A student at this level solves one-step word problems using addition and subtraction.  A student at this level calculates sums and differences of whole numbers.  A student at this level finds unknown terms in addition and subtraction equations. | A student at this level solves one-step problems using all four operations.  A student at this level calculates whole-number products and quotients.  A student at this level finds an unknown in a multiplication equation.  A student at this level extends the terms of an arithmetic pattern. | A student at this level solves two-step word problems, using any of the four operations.  A student at this level applies a property of operations to multiply and divide.  A student at this level calculates and interprets whole-number products and quotients up to 100.  A student at this level fluently multiplies and divides up to 100.  A student at this level finds unknowns in multiplication and division equations involving three whole numbers.  A student at this level identifies rules for arithmetic patterns. | A student at this level solves multistep word problems, using all four operations.  A student at this level applies multiple properties of operations to multiply and divide.  A student at this level calculates, interprets, and creates real-world problems involving whole-number products and quotients.  A student at this level explains rules for arithmetic patterns. |

### Number and Operations in Based 10

| Alaska Standard | **Far Below Proficient** | **Below Proficient** | **Proficient** | **Advanced** |
| --- | --- | --- | --- | --- |
| 3.NBT.1 – 3.NBT.3 | A student at this level identifies the place values of digits in the ones, tens, and hundreds places.  A student at this level adds or subtracts whole numbers up to 100. | A student at this level identifies the place values of digits in the ones, tens, hundreds, and thousands places.  A student at this level multiplies single-digit numbers.  A student at this level adds and subtracts whole numbers up to 100. | A student at this level rounds whole numbers to the nearest 10 or 100.  A student at this level multiplies one-digit whole numbers by multiples of 10.  A student at this level adds and subtracts whole numbers fluently up to 1,000 by applying a variety of strategies. | A student at this level rounds three-digit whole numbers to the nearest 10 and rounds four-digit whole numbers to the nearest 100.  A student at this level multiplies one-digit whole numbers by multiples of 100.  A student at this level evaluates the most efficient strategies for solving a given addition/subtraction equation.  A student at this level identifies errors in a solution strategy for a given addition/subtraction equation. |

### Number and Operations – Fractions

| Alaska Standard | **Far Below Proficient** | **Below Proficient** | **Proficient** | **Advanced** |
| --- | --- | --- | --- | --- |
| 3.NF.1 – 3.NF.3 | A student at this level identifies fractional parts of one whole and recognizes unit fractions on a visual model. | A student at this level understands a unit fraction as an equal part of one whole and represents unit fractions on a number line.  A student at this level compares fractions with the same denominator. | A student at this level understands fractions in terms of equal parts of one whole and intervals on a number line.  A student at this level recognizes fractional equivalence supported by visual models.  A student at this level compares fractions with the same numerator or the same denominator, using <, >, or =. | A student at this level understands fractions, fractional equivalence, comparisons, unit fractions, and addition and subtraction of fractions in terms of equal partitions of one or more wholes and intervals on a number line.  A student at this level recognizes mixed numbers as additive between a fraction and a whole number. |

### Measurement and Data

| Alaska Standard | **Far Below Proficient** | **Below Proficient** | **Proficient** | **Advanced** |
| --- | --- | --- | --- | --- |
| 3.MD.1 – 3.MD.10 | A student at this level tells and writes time to the nearest five minutes.  A student at this level recognizes standard and metric units of volume, such as cups and liters.  A student at this level interprets a unit-scaled pictograph graph or bar graph to represent data.  A student at this level recognizes the side lengths of polygons. | A student at this level tells and writes time to the minute.  A student at this level measures length to the nearest whole unit.  A student at this level draws and interprets unit-scaled pictographs, bar graphs, and line plots.  A student at this level finds perimeters given the side lengths of polygons. | A student at this level tells and writes time to the nearest minute and measures time intervals in minutes.  A student at this level measures and estimates length to one-quarter of a unit.  A student at this level measures liquid volume and mass.  A student at this level draws and interprets scaled pictographs, bar graphs, and line plots.  A student at this level solves problems related to perimeter (polygons), area (rectangles), and their relationships. | A student at this level solves time interval problems involving hours and minutes.  A student at this level solves multistep problems involving interpreting scaled pictographs, bar graphs, and line plots.  A student at this level recognizes patterns between area and perimeter. |

### Geometry

| Alaska Standard | **Far Below Proficient** | **Below Proficient** | **Proficient** | **Advanced** |
| --- | --- | --- | --- | --- |
| 3.G.1 – 3.G.2 | A student at this level partitions symmetrical shapes into halves.  A student at this level recognizes quadrilaterals. | A student at this level identifies the fractions associated with shapes partitioned into equal areas.  A student at this level recognizes that shapes fit into different categories. | A student at this level partitions shapes into equal areas and relates the areas to unit fractions.  A student at this level recognizes that shapes fit into different categories and creates examples and non-examples. | A student at this level partitions shapes into equal areas in a variety of ways and relates the areas to fractional parts. |

## Grade 4

### Operations and Algebraic Thinking

| Alaska Standard | **Far Below Proficient** | **Below Proficient** | **Proficient** | **Advanced** |
| --- | --- | --- | --- | --- |
| 4.OA.1 – 4.OA.6 | A student at this level solves single-step word problems by adding, subtracting, multiplying, and dividing.  A student at this level finds all factor pairs to 24. | A student at this level solves single-step word problems by multiplying and dividing with whole-number factors, products, dividends, divisors, and quotients.  A student at this level recognizes multiples of a given single-digit number.  A student at this level finds all factor pairs to 48.  A student at this level identifies the next term in a number or shape pattern. | A student at this level interprets multiplication equations as comparisons and uses them to solve multistep word problems, using the four operations.  A student at this level explains the correlations/differences between multiples and factors and identifies multiples of a given single-digit number.  A student at this level finds factor pairs of whole numbers up to 100.  A student at this level generates number and shape patterns that follow a given rule, including rules expressed algebraically.  A student at this level determines whether a whole number up to 100 is prime or composite.  A student at this level interprets remainders in context. | A student at this level interprets multiplication equations as comparisons and uses them to solve multistep word problems, using the four operations and an unknown quantity as a variable.  A student at this level finds prime factors of a given number.  A student at this level generates the rules for given number and shape patterns, including rules expressed algebraically.  A student at this level explains the difference between prime and composite numbers. |

### Number and Operations in Base Ten

| Alaska Standard | **Far Below Proficient** | **Below Proficient** | **Proficient** | **Advanced** |
| --- | --- | --- | --- | --- |
| 4.NBT.1 – 4.NBT.6 | A student at this level adds and subtracts with up to three-digit addends, subtrahends, and minuends.  A student as this level uses place value to read and write numbers to 1,000 in standard form. | A student at this level adds and subtracts multi-digit whole numbers.  A student at this level finds whole-number quotients to two digits, using a whole-number dividend and divisor.  A student at this level multiplies a two-digit whole number by a one-digit whole number.  A student at this level reads and writes numbers in standard form.  A student at this level uses place value to round numbers to the greatest place value.  A student at this level recognizes whole-number patterns in base ten. | A student at this level adds and subtracts fluently by applying a variety of strategies and verifies the reasonableness of results.  A student at this level finds whole-number quotients to four digits, using a four-digit dividend and one-digit divisor.  A student at this level multiplies a three- or four-digit whole number by a one-digit whole number.  A student at this level multiplies two two-digit whole numbers.  A student at this level represents place values by left and right positions as multiples or quotients of 10, 100, 1,000, or 10,000.  A student at this level reads and writes multi-digit numbers in standard form and expanded notation.  A student at this level estimates and rounds numbers to specified place values.  A student at this level illustrates and explains calculations when multiplying and dividing. | A student at this level identifies efficient strategies for adding or subtracting multi-digit whole numbers.  A student at this level identifies and corrects errors in a given strategy for adding or subtracting multi-digit whole numbers.  A student at this level uses place value to explain and illustrate multiplication algorithms. |

### Number and Operations – Fractions

| Alaska Standard | **Far Below Proficient** | **Below Proficient** | **Proficient** | **Advanced** |
| --- | --- | --- | --- | --- |
| 4.NF.1 – 4.NF.7 | A student at this level compares fractions with like denominators, using symbols.  A student at this level identifies tenths, both as fractions and as decimals. | A student at this level compares fractions with like numerators or like denominators, using symbols.  A student at this level identifies tenths and hundredths, both as fractions and as decimals, using visual models.  A student at this level adds or subtracts fractions with like denominators.  A student at this level solves word problems with addition or subtraction of fractions with like denominators. | A student at this level understands and uses fraction equivalence.  A student at this level compares fractions symbolically, using <, >, and =.  A student at this level expresses and represents equivalence between fractions with denominators of 10 and 100.  A student at this level identifies unit fractions that compose fractions with numerators > 1.  A student at this level adds and subtracts fractions with like denominators.  A student at this level solves two-step word problems with addition and subtraction of fractions with like denominators.  A student at this level multiplies fractions by whole numbers.  A student at this level solves word problems with multiplication of fractions by whole numbers.  A student at this level finds equivalent fractions, using tenths and hundredths.  A student at this level compares and orders decimals to hundredths. | A student at this level understands, explains, and represents fraction equivalence.  A student at this level orders more than two fractions.  A student at this level represents and decomposes fractions as a sum of unit fractions.  A student at this level adds and subtracts fractions and mixed numbers with like denominators.  A student at this level solves multistep word problems with addition and subtraction of fractions with like denominators.  A student at this level represents and explains multiplication of fractions by whole numbers.  A student at this level solves multistep word problems with multiplication of fractions by whole numbers.  A student at this level orders three or more decimals to hundredths from least to greatest or greatest to least. |

### Measurement and Data

| Alaska Standard | **Far Below Proficient** | **Below Proficient** | **Proficient** | **Advanced** |
| --- | --- | --- | --- | --- |
| 4.MD.1 – 4.MD.9 | A student at this level knows that converting a measurement from larger units to smaller units increases the number of units.  A student at this level orders angles by size. | A student at this level converts units of measurement, using multiplication.  A student at this level identifies data from line plots in fractional units.  A student at this level solves addition and subtraction problems involving angles.  A student at this level finds the areas and perimeters of rectangles. | A student at this level solves one-step problems in measurement conversion, using the four operations with distance, time, liquid volume, mass, and money.  A student at this level draws line plots to represent data in fractions of a unit (½, ¼, ⅛).  A student at this level solves two-step problems involving interpretation of data on a line plot.  A student at this level measures and draws angles and recognizes that angles are fractions of a circle that are measured in degrees.  A student at this level solves addition and subtraction word problems involving angles.  A student at this level finds the areas and perimeters of rectangles in real-world and mathematical problems. | A student at this level solves multistep problems in measurement conversion, using the four operations.  A student at this level draws line plots in fractions of a unit to represent data.  A student at this level solves multistep problems involving interpretation of data on a line plot.  A student at this level solves multistep addition and subtraction word problems involving angles. |

### Geometry

| Alaska Standard | **Far Below Proficient** | **Below Proficient** | **Proficient** | **Advanced** |
| --- | --- | --- | --- | --- |
| 4.G.1 – 4.G.3 | A student at this level draws points and line segments.  A student at this level recognizes symmetrical and nonsymmetrical figures. | A student at this level draws points, lines, and angles and identifies them in two-dimensional figures.  A student at this level identifies a line of symmetry. | A student at this level draws points, lines, line segments, rays, angles, and parallel and perpendicular lines and identifies them in two-dimensional figures.  A student at this level identifies right triangles.  A student at this level identifies and draws lines of symmetry in two-dimensional figures.  A student at this level classifies quadrilaterals based on the presence or absence of parallel or perpendicular lines. | A student at this level draws, defines, and interprets points, lines, line segments, rays, angles, and parallel and perpendicular lines and represents them in two-dimensional figures.  A student at this level identifies and generalizes right triangles.  A student at this level interprets symmetry as a characteristic of two- dimensional figures.  A student at this level provides examples of two- dimensional figures, given specific characteristics. |

## Grade 5

### Operations and Algebraic Thinking

| Alaska Standard | **Far Below Proficient** | **Below Proficient** | **Proficient** | **Advanced** |
| --- | --- | --- | --- | --- |
| 5.OA.1 – 5.OA.3 | A student at this level evaluates one-step numerical expressions.  A student at this level identifies the next term in a pattern.  A student at this level identifies the coordinate plane. | A student at this level writes simple numerical expressions and applies a set of parentheses appropriately.  A student at this level identifies or generates a rule for a given pattern.  A student at this level identifies ordered pairs on a coordinate plane. | A student at this level writes, evaluates, and interprets numerical expressions using parentheses.  A student at this level generates two numerical patterns from two rules, identifies the corresponding terms, and explains the corresponding relationships.  A student at this level translates numerical patterns into ordered pairs and plots the points on a coordinate plane. | A student at this level writes, evaluates, and interprets numerical expressions with two or more sets of grouping symbols.  A student at this level generates two complex numerical patterns from two rules, identifies the corresponding terms, and explains the corresponding relationships.  A student at this level translates numerical patterns into ordered pairs, plots coordinate pairs on a coordinate plane, and explains data displayed on a coordinate plane. |

### Number and Operations in Base Ten

| Alaska Standard | **Far Below Proficient** | **Below Proficient** | **Proficient** | **Advanced** |
| --- | --- | --- | --- | --- |
| 5.NBT.1 – 5.NBT.7 | A student at this level identifies the place value name for a given digit or the digit for a given place value in a decimal to the tenths.  A student at this level adds and subtracts decimals to the hundredths. | A student at this level identifies the place value name for a given digit or the digit for a given place value in a decimal to the thousandths.  A student at this level reads, writes, and symbolically compares (using <, >, =) decimals to the hundredths.  A student at this level multiplies multi-digit whole numbers.  A student at this level multiplies decimals to the hundredths.  A student at this level multiplies and divides by powers of ten. | A student at this level recognizes that the value of a digit differs by a factor of 10 compared with the same digit one place to the left or right.  A student at this level reads, writes, and symbolically compares (using <, >, =) decimals to the thousandths in standard form.  A student at this level uses place value to round decimals to the thousandths.  A student at this level multiplies multi-digit whole numbers and divides multi-digit whole numbers with dividends up to four digits and divisors up to two digits.  A student at this level multiplies and divides decimals to the hundredths.  A student at this level uses whole-number exponents to denote powers of ten. | A student at this level reads, writes, and compares (using <, >, =) decimals to the thousandths, including in expanded form.  A student at this level compares three or more decimals to the thousandths.  A student at this level uses place value to round decimals to any place.  A student at this level fluently multiplies and divides multi-digit numbers.  A student at this level fluently adds, subtracts, multiplies, and divides decimals to the thousandths. |

### Number and Operations – Fractions

| Alaska Standard | **Far Below Proficient** | **Below Proficient** | **Proficient** | **Advanced** |
| --- | --- | --- | --- | --- |
| 5.NF.1 – 5.NF.7 | A student at this level uses models to add and subtract unit fractions with unlike denominators. | A student at this level uses models to add and subtract fractions with unlike denominators.  A student at this level solves single-step word problems with addition and subtraction of fractions with unlike denominators.  A student at this level fluently multiplies a fraction by a whole number. | A student at this level adds and subtracts fractions and mixed numbers with unlike denominators.  A student at this level solves word problems with addition and subtraction of fractions with unlike denominators.  A student at this level recognizes a fraction as a numerator divided by a denominator.  A student at this level solves word problems involving division of whole numbers that leads to answers in the form of fractions or mixed numbers.  A student at this level fluently multiplies fractions by fractions and fractions by whole numbers.  A student at this level solves problems with areas of rectangles with fractional side lengths.  A student at this level interprets multiplication to modify the relative size of numbers with respect to fractions > 1 and < 1. | A student at this level solves multistep word problems with addition and subtraction of fractions.  A student at this level recognizes and interprets a fraction as a numerator divided by a denominator.  A student at this level solves multistep word problems involving division of whole numbers that leads to answers in the form of fractions or mixed numbers.  A student at this level solves multistep problems with areas of rectangles with fractional side lengths.  A student at this level understands, interprets, and represents multiplication to modify the relative size of numbers with respect to fractions > 1 and < 1.  A student at this level solves multistep problems involving multiplication of fractions and mixed numbers.  A student at this level represents and interprets division of fractions by dividing unit fractions by whole numbers and dividing whole numbers by unit fractions.  A student at this level solves problems involving division of unit fractions and whole numbers, without the use of models. |

### Measurement and Data

| Alaska Standard | **Far Below Proficient** | **Below Proficient** | **Proficient** | **Advanced** |
| --- | --- | --- | --- | --- |
| 5.MD.1 – 4.MD.7 | A student at this level calculates one-step conversions of length.  A student at this level identifies measures of volume.  A student at this level finds volumes of right rectangular prisms by counting unit cubes.  A student at this level identifies perimeter and area as attributes of two-dimensional objects. | A student at this level calculates one-step conversions of length and mass within a given system.  A student at this level creates line plots consisting of unit fractions.  A student at this level identifies volume as an attribute of three-dimensional objects. | A student at this level calculates one-step conversions of time, length, volume, and mass within a given system.  A student at this level creates and interprets line plots consisting of unit fractions.  A student at this level identifies and represents volume as an attribute of three-dimensional objects.  A student at this level finds volumes of rectangular prisms and recognizes volume relating to the multiplication of unit cubes along sides.  A student at this level distinguishes between perimeter, area, and volume. | A student at this level calculates multistep conversions of time, length, volume, and mass.  A student at this level creates line plots and interprets multiple characteristics of line plots.  A student at this level represents and analyzes volume as an attribute of three-dimensional objects.  A student at this level identifies the appropriate application of perimeter, area, and volume. |

### Geometry

| Alaska Standard | **Far Below Proficient** | **Below Proficient** | **Proficient** | **Advanced** |
| --- | --- | --- | --- | --- |
| 5.G.1 – 5.G.3 | A student at this level plots points in Quadrant I on the coordinate plane.  A student at this level identifies attributes of two- dimensional figures. | A student at this level identifies ordered pairs in Quadrant I on the coordinate plane.  A student at this level classifies two-dimensional figures according to their attributes. | A student at this level uses *x*/*y*-coordinate systems to graph and identify points in Quadrant I on the coordinate plane.  A student at this level recognizes two-dimensional figures by hierarchy. | A student at this level uses and applies *x*/*y*-coordinate systems and interprets and graphs real-world contexts and problems in Quadrant I on the coordinate plane.  A student at this level classifies two-dimensional figures by hierarchy. |