

WYOMING MATH CONTENT STANDARDS

GRADE K BENCHMARKS

1. NUMBER OPERATIONS AND CONCEPTS - *Students use numbers, number sense, and number relationships in a problem-solving situation.*

- **MAK.1.1** Students read and represent numbers up to 9.
- **MAK.1.2** Students recognize the larger of two sets. (Which set has more or less?)
- **MAK.1.3** Students recognize and name penny, nickel, dime, and quarter using real coins.
- **MAK.1.4** Students count with understanding up to 21 objects to solve problems.
- **MAK.1.5** Students act out or use objects as strategies to solve problems.

2. GEOMETRY - *Students apply geometric concepts, properties, and relationships in a Problem-solving situation.*

- **MAK.2.1** Students recognize, name, compare, and sort geometric shapes (circle, square, triangle and rectangle).
- **MAK.2.2** Students select, use, and communicate organizational methods in a problem - solving situation using geometric shapes.

3. MEASUREMENT - *Students use a variety of tools and techniques of measurement in a problem-solving situation.*

NOTE: Students communicate the reasoning used in solving these problems. They may use tools/technology to support learning.

- **MAK.3.1** Students apply estimation and measurement of length to content problems using non-standard units up to 9 units.

4. ALGEBRA - *Students use algebraic methods to investigate, model, and interpret patterns and functions involving numbers, shapes, data, and graphs in a problem solving situation.*

NOTE: Students communicate the reasoning used in solving these problems. They may use tools/technology to support learning.

- **MAK.4.1** Students recognize, describe, and create three-element patterns by using manipulatives.

5. DATA ANALYSIS AND PROBABILITY- *Students use data analysis and probability to analyze given situations and the results of experiments.*

NOTE: Students communicate the reasoning used in solving these problems. They may use tools/technology to support learning.

- **MAK.5.1** Students sort real objects to create graphs.
- **MAK.5.2** Students communicate conclusions from a set of data. (Which set has more or less?)

GRADE 1 BENCHMARKS

1. NUMBER OPERATIONS AND CONCEPTS - Students use numbers, number sense, and number relationships in a problem-solving situation.

NOTE: Students communicate the reasoning used in solving these problems.

They may use tools/technology to support learning.

- **MA1.1.1** Students use the concept of place value to read and represent numbers up to 99.
- **MA1.1.2** Students use sets of objects to compare values and order numerals.
- **MA1.1.3** Students use coins (penny, nickel, dime, and quarter) to compare values (more/less).
- **MA1.1.4** Students demonstrate computational fluency with basic facts (add to 10).
- **MA1.1.5** Students make a picture or *use objects* as strategies to solve problems.
- **MA1.1.6** Students communicate their choice of appropriate grade level procedures and results when performing operations in a problem-solving situation.

2. GEOMETRY - *Students apply geometric concepts, properties, and relationships in a problem-solving situation.*

NOTE: Students communicate the reasoning used in solving these problems.

They may use tools/technology to support learning.

- **MA1.2.1** Students recognize, name, compare, and sort 2- and 3-dimensional geometric objects.
- **MA1.2.2** Students select, use, and communicate organizational methods in a problem-solving situation using 2- and 3- dimensional geometric objects.

3. MEASUREMENT - *Students use a variety of tools and techniques of measurement in a problem-solving situation.*

NOTE: Students communicate the reasoning used in solving these problems.

They may use tools/technology to support learning.

- **MA1.3.1** Students apply estimation and measurement of length to content problems using non-standard units up to 99 units.
- **MA1.3.2** Students apply estimation and measurement of capacity to content problems using non-standard units.
- **MA1.3.3** Students tell time, using both analog and digital clocks to the nearest half-hour.

4. ALGEBRA - *Students use algebraic methods to investigate, model, and interpret patterns and functions involving numbers, shapes, data, and graphs in a problem-solving situation.*

NOTE: *Students communicate the reasoning used in solving these problems. They may use tools/technology to support learning.*

- **MA1.4.1** Students recognize, create, and describe four-element patterns by using manipulatives and graphic representations.
- **MA1.4.2** Students apply knowledge of repeating patterns when solving problems.

5. DATA ANALYSIS AND PROBABILITY - *Students use data analysis and probability to analyze given situations and the results of experiments.*

NOTE: *Students communicate the reasoning used in solving these problems. They may use tools/technology to support learning.*

- **MA1.5.1** Students collect and classify information to create graphs with pictures and report data in problem-solving situations.
- **MA1.5.2** Students communicate conclusions about a set of data using graphs with pictures.
- **MA1.5.3** Students perform and record (with tally marks) simple probability experiments.

GRADE 2 BENCHMARKS

1. NUMBER OPERATIONS AND CONCEPTS - *Students use numbers, number sense, and number relationships in a problem-solving situation.*

NOTE: *Students communicate the reasoning used in solving these problems. They may use tools/technology to support learning.*

- **MA2.1.1** Students use the concept of place value to read and write designated numbers up to 999.
- **MA2.1.2** Students compare and order whole numbers up to 999.
- **MA2.1.3** Students use coins to compare the values and make combinations up to one dollar.
- **MA2.1.4** Students demonstrate computational fluency with basic facts (add to 20, subtract from 10).
- **MA2.1.5** Students use mental math (fact families) and estimation strategies (referent to a group of 10) to solve problems.
- **MA2.1.6** Students look for patterns and use guess and check as strategies to solve problems.
- **MA2.1.7** Students communicate their choice of appropriate grade level procedures and results when performing operations in a problem-solving situation.

2. GEOMETRY - *Students apply geometric concepts, properties, and relationships in a problem-solving situation.*

NOTE: *Students communicate the reasoning used in solving these problems. They may use tools/technology to support learning.*

- **MA2.2.1** Students name, classify, and describe 2- and 3-dimensional geometric objects.
- **MA2.2.2** Students identify lines of symmetry in various geometric objects.
- **MA2.2.3** Students select, use, and communicate organizational methods in problem-solving situations with 2- and 3- dimensional objects.

3. MEASUREMENT - *Students use a variety of tools and techniques of measurement in a problem-solving situation.*

NOTE: Students communicate the reasoning used in solving these problems. They may use tools/technology to support learning.

- **MA2.3.1** Students apply estimation and measurement of length to content problems using standard units to the nearest inch.
- **MA2.3.2** Students apply estimation and measurement of weight to content problems using non-standards units.
- **MA2.3.3** Students tell time, using both analog and digital clocks to the nearest five minutes.

4. ALGEBRA - *Students use algebraic methods to investigate, model, and interpret patterns and functions involving numbers, shapes, data, and graphs in a problem-solving situation.*

NOTE: Students communicate the reasoning used in solving these problems. They may use tools/technology to support learning.

- **MA2.4.1** Students recognize, describe, create, and extend patterns by using manipulatives and graphic representations.
- **MA2.4.2** Students apply knowledge of appropriate grade-level patterns when solving problems.

5. DATA ANALYSIS AND PROBABILITY - *Students use data analysis and probability to analyze given situations and the results of experiments.*

NOTE: Students communicate the reasoning used in solving these problems. They may use tools/technology to support learning.

- **MA2.5.1** Students collect, organize, and report data using graphs and Venn diagrams.
- **MA2.5.2** Students communicate conclusions about a set of data using graphs and Venn diagrams.
- **MA2.5.3** Students perform and record results of simple probability experiments using equally and unequally divided spinners.

GRADE 3 BENCHMARKS

1. NUMBER OPERATIONS AND CONCEPTS - *Students use numbers, number sense, and number relationships in a problem-solving situation.*

NOTE: Students communicate the reasoning used in solving these problems. They may use tools/technology to support learning.

- **MA3.1.1** Students use the concept of place value to read and write designated numbers up to 9,999.
- **MA3.1.2** Students compare and order whole numbers up to 9,999.
- **MA3.1.3** Students use coins and bills to compare the values & combinations up to five dollars.
- **MA3.1.4** Students demonstrate computational fluency with basic facts (add to 20 and subtract from 20).
- **MA3.1.5** Students add and subtract two- and three-digit numbers with and without regrouping.
- **MA3.1.6** Students make an organized list and break problems into parts as strategies to solve problems.
- **MA3.1.7** Students use estimation strategies (rounding to the nearest 10 or 100, or front-end loading) to solve problems.
- **MA3.1.8** Students communicate their choice of procedures and results when performing number operations in a problem-solving situation.

2. GEOMETRY- *Students apply geometric concepts, properties, and relationships in a problem-solving situation.*

NOTE: Students communicate the reasoning used in solving these problems. They may use tools/technology to support learning.

- **MA3.2.1** Students recognize, name, compare, and sort 2- and 3-dimensional geometric objects.
- **MA3.2.2** Students describe and compare various geometric objects using congruency and lines of symmetry.
- **MA3.2.3** Students select, use, and communicate organizational methods in a problem-solving situation using 2- and 3- dimensional geometric objects.

3. MEASUREMENT - Students use a variety of tools and techniques of measurement in a problem-solving situation.

NOTE: Students communicate the reasoning used in solving these problems. They may use tools/technology to support learning.

- **MA3.3.1** Students apply estimation and measurement of length to content problems using actual measuring devices and express the results in U.S. customary units (inches, feet, and yards).
- **MA3.3.2** Students apply estimation and measurement of capacity in problem-solving situations using actual measuring devices and express the results in U.S. customary units (cups, quarts, and gallons).
- **MA3.3.3** Students demonstrate relationships within the U.S. customary units in problem-solving situations.

- **MA3.3.4** Students determine perimeter of rectangles and squares using models in problem solving situations.
- **MA3.3.5** Students tell time, using both analog and digital clocks, to the nearest minute using A.M. and P.M.

4. ALGEBRA - *Students use algebraic methods to investigate, model, and interpret patterns and functions involving numbers, shapes, data, and graphs in a problem solving situation.*

NOTE: Students communicate the reasoning used in solving these problems. They may use tools/technology to support learning.

- **MA3.4.1** Students recognize, describe, create, and extend patterns by using manipulatives, numbers, and graphic representations.
- **MA3.4.2** Students apply knowledge of appropriate grade level patterns when solving problems.

5. DATA ANALYSIS AND PROBABILITY - *Students use data analysis and probability to analyze given situations and the results of experiments.*

NOTE: Students communicate the reasoning used in solving these problems. They may use tools/technology to support learning.

- **MA3.5.1** Students collect, organize, and compare data using graphs and Venn diagrams.
- **MA3.5.2** Students communicate conclusions about a set of data by interpreting information using graphs and Venn diagrams.
- **MA3.5.3** Students predict, perform, and record likely results of simple probability experiments.

GRADE 4 BENCHMARKS

1. NUMBER OPERATIONS AND CONCEPTS - *Students use numbers, number sense, and number relationships in a problem-solving situation.*

NOTE: Students communicate the reasoning used in solving these problems. They may use tools/technology to support learning.

- **MA4.1.1** Students use the concept of place value to read and write whole numbers up to 999,999 in words, standard, and expanded form.
- **MA4.1.2** Students compare and order whole numbers.
- **MA4.1.3** Students use coins and bills to compare the values, make combinations up to \$10.00, and make change from amounts up to \$5.00.
- **MA4.1.4** Students demonstrate computational fluency with basic facts (add to 20, subtract from 20, multiply by 0-10).
- **MA4.1.5** Students add and subtract to thousands and multiply hundreds by a single digit.

- **MA4.1.6** Students explain their choice of problem-solving strategies and justify their results when performing whole number operations in problem-solving situations.
- **MA4.1.7** Students recognize commonly used fractions (halves, thirds, fourths) as parts of a whole using an area model.
- **MA4.1.8** Students use estimation strategies to solve problems.

2. GEOMETRY - *Students apply geometric concepts, properties, and relationships in a problem-solving situation.*

NOTE: Students communicate the reasoning used in solving these problems. They may use tools/technology to support learning.

- **MA4.2.1** Students classify and describe 2- and 3- dimensional geometric objects by their attributes (sides, edges, vertices, and faces).
- **MA4.2.2** Students understand the images resulting from reflections (flips).
- **MA4.2.3** Students select, use, and communicate organizational methods in problem-solving situations appropriate to grade level.
- **MA4.2.4** Students know characteristics of lines (parallel, perpendicular, and intersecting).

3. MEASUREMENT- *Students use a variety of tools and techniques of measurement in a problem-solving situation.*

NOTE: Students communicate the reasoning used in solving these problems. They may use tools/technology to support learning.

- **MA4.3.1** Students select and apply appropriate U.S. customary units (half inch, quarter inch, feet, and yards) to the estimation and measurement of length in real-world problems using actual measuring devices.
- **MA4.3.2** Students select and apply appropriate U.S. customary units (ounces and pounds) to the estimation and measurement of weight in real-world problems using actual measuring devices.
- **MA4.3.3** Students select and apply appropriate U.S. customary units (teaspoons, tablespoons, cups, pints, quarts, and gallons) to the estimation and measurement of capacity in real-world problems using actual measuring devices.
- **MA4.3.4** Students demonstrate relationships within the U.S. customary system, given an equivalence chart, in problem-solving situations.
- **MA4.3.5** Students determine area and perimeter of rectangles and squares using models in problem-solving situations.
- **MA4.3.6** Students use time, in problem-solving situations to:
 - ~ compare relationships among seconds, minutes, and hours;
 - ~ use elapsed time to the nearest minute.

4. ALGEBRA - *Students use algebraic methods to investigate, model, and interpret patterns and functions involving numbers, shapes, data, and graphs in a problem-solving situation.*

NOTE: *Students communicate the reasoning used in solving these problems. They may use tools/technology to support learning.*

- **MA4.4.1** Students recognize, describe, extend, create, and generalize patterns by using manipulatives, numbers, and graphic representations.
- **MA4.4.2** Students apply knowledge of appropriate grade level patterns when solving problems.
- **MA4.4.3** Students explain a rule given a pattern or sequence.

5. DATA ANALYSIS AND PROBABILITY - *Students use data analysis and probability to analyze given situations and the results of experiments.*

NOTE: *Students communicate the reasoning used in solving these problems. They may use tools/technology to support learning.*

- **MA4.5.1** Students collect, organize, and compare data in graphs, Venn diagrams, tables, and charts.
- **MA4.5.2** Students communicate conclusions about a set of data by interpreting information using graphs, Venn diagrams, tables, and charts.
- **MA4.5.3** Students predict, perform, and record results of probability experiments.
- **MA4.5.4** Students predict all possible outcomes of a given situation or event.

GRADE 5 BENCHMARKS

1. NUMBER OPERATIONS AND CONCEPTS - *Students use numbers, number sense, and number relationships in a problem-solving situation.*

NOTE: *Students communicate the reasoning used in solving these problems. They may use tools/technology to support learning.*

- **MA5.1.1** Students use the concept of place value to read and write whole numbers (in words, standard, and expanded form) and decimals (10ths and 100ths).
- **MA5.1.2** Students demonstrate computational fluency with basic facts for all four operations, including identifying multiples and factors of designated numbers up to 100.
- **MA5.1.3** Students demonstrate an understanding of whole number operations by:
 - ~ explaining the relationships between the operations of addition, subtraction, multiplication, and division; and
 - ~ multiplying by two-digit whole numbers and dividing by single-digit whole numbers.
- **MA5.1.4** Students explain their choice of estimation or problem-solving strategies and justify results when performing number operations in problem-solving situations.

- **MA5.1.5** Students add and subtract decimals to hundredths and solve problems in the context of money.
- **MA5.1.6** Students demonstrate an understanding of fractions as parts of wholes.
- **MA5.1.7** Students order, compare, add, and subtract fractions with like denominators.

2. GEOMETRY - *Students apply geometric concepts, properties, and relationships in a problem-solving situation.*

NOTE: Students communicate the reasoning used in solving these problems. They may use tools/technology to support learning.

- **MA5.2.1** Students describe, draw, and classify two-dimensional geometric figures such as triangles, quadrilaterals, and circles.
- **MA5.2.2** Students describe, identify, and classify three-dimensional geometric figures such as cylinders, cones, pyramids, rectangular prisms, and spheres.
- **MA5.2.3** Students describe and compare various geometric objects using congruency and lines of symmetry appropriate to grade level.
- **MA5.2.4** Students select, use, and communicate organizational methods in problem-solving situations appropriate to grade level.

3. MEASUREMENT - *Students use a variety of tools and techniques of measurement in problem-solving situation.*

NOTE: Students communicate the reasoning used in solving these problems. They may use tools/technology to support learning.

- **MA5.3.1** Students apply estimation and measurement of length to content problems using actual measuring devices and express the results in U.S. customary units (parts of inch-halves/fourths, eighths inches, feet, yards, and miles).
- **MA5.3.2** Students apply estimation and measurement of weight to content problems using actual measuring devices and express the results in U.S. customary units (ounces and pounds).
- **MA5.3.3** Students apply estimation and measurement of capacity in real-world problem-solving situations using actual measuring devices and express the results in U.S. customary units (teaspoons, tablespoons, cups, pints, quarts, and gallons).
- **MA5.3.4** Students demonstrate relationships within the U.S. customary units, given an equivalence chart, in problem-solving situations appropriate to grade level.
- **MA5.3.5** Students determine area and perimeter of triangles, rectangles, and squares using models in problem-solving situations using appropriate units.
- **MA5.3.6** Students use time, in problem-solving situations to:
 - ~ compare relationships among seconds, minutes, hours, and days, and
 - ~ use elapsed time to the nearest minute.

4. ALGEBRA - *Students use algebraic methods to investigate, model, and interpret patterns and functions involving numbers, shapes, data, and graphs in a problem-solving situation.*

NOTE: *Students communicate the reasoning used in solving these problems. They may use tools/technology to support learning.*

- **MA5.4.1** Students recognize, describe, extend, create, and generalize patterns by using manipulatives, numbers, and graphic representations, including charts and graphs.
- **MA5.4.2** Students apply knowledge of patterns when solving problems appropriate to grade level.
- **MA5.4.3** Students represent the idea of a variable as an unknown quantity, a letter, or a symbol within addition and subtraction sentences using whole numbers.

5. DATA ANALYSIS AND PROBABILITY - *Students use data analysis and probability to analyze given situations and the results of experiments.*

NOTE: *Students communicate the reasoning used in solving these problems. They may use tools/technology to support learning.*

- **MA5.5.1** Students systematically collect, organize, and describe/represent categorical data using bar graphs.
- **MA5.5.2** Students find and interpret mode for data sets in a problem-solving setting appropriate to grade level. Students communicate their findings.
- **MA5.5.3** Students predict and record outcomes of probability experiments or simulations.

GRADE 6 BENCHMARKS

1. NUMBER OPERATIONS AND CONCEPTS - *Students use numbers, number sense, and number relationships in a problem-solving situation.*

NOTE: *Students communicate the reasoning used in solving these problems. They may use tools/technology to support learning.*

- **MA6.1.1** Students use the concept of place value to read and write decimals (to 1000ths) in words, standard, and expanded form.
- **MA6.1.2** Students multiply decimals (10ths & 100ths) and divide whole numbers by 2-digit divisors and divide decimals by whole numbers.
- **MA6.1.3** Students represent the number line using integers.
- **MA6.1.4** Students explain their choice of estimation and problem solving strategies and justify results when performing number operations with fractions and decimals in problem-solving situations.
- **MA6.1.5** Students identify prime and composite numbers and apply prime factorization to numbers less than 100.

- **MA6.1.6** Students demonstrate an understanding of fractions and decimals by:
 - ~ representing fractions as division of whole numbers;
 - ~ converting between mixed numbers and improper fractions;
 - ~ simplifying fractions and mixed numbers;
 - ~ writing fractions in equivalent forms;
 - ~ using parts of a set;
 - ~ rounding decimal numbers to 10ths, 100ths, and whole numbers (units) place; and
 - ~ converting between decimals (from .01 to .99), fractions and representing percentages.
- **MA6.1.7** Students add and subtract mixed numbers with like denominators.
- **MA6.1.8** Students represent repeated multiplication in exponential form.

2. GEOMETRY - *Students apply geometric concepts, properties, and relationships in a problem-solving situation.*

NOTE: Students communicate the reasoning used in solving these problems. They may use tools/technology to support learning.

- **MA6.2.1** Students classify, describe, compare, and draw representations of 1- and 2-dimensional objects and angles.
- **MA6.2.2** Students identify and classify congruent objects by properties appropriate to grade level.
- **MA6.2.3** Students communicate the reasoning used in identifying geometric relationships in problem-solving situations appropriate to grade level.

3. MEASUREMENT - *Students use a variety of tools and techniques of measurement in a problem-solving situation.*

NOTE: Students communicate the reasoning used in solving these problems. They may use tools/technology to support learning.

- **MA6.3.1** Students apply estimation and measurement of length to content problems and express the results in metric units (centimeters and meters).
- **MA6.3.2** Students apply estimation and measurement of weight to content problems and express the results in U.S. customary units (ounces, pounds, and tons).
- **MA6.3.3** Students apply estimation and measurement of capacity to content problems and express the results in U.S. customary units (teaspoons, tablespoons, cups, pints, quarts, gallons).
- **MA6.3.4** Students demonstrate relationships within the U.S. customary units for weight and capacity and within the metric system (centimeters to meters) in problem-solving situations.
- **MA6.3.5** Students determine the area and perimeter of regular polygons and the area of parallelograms, with and without models.

4. ALGEBRA - *Students use algebraic methods to investigate, model, and interpret patterns and functions involving numbers, shapes, data, and graphs in a problem-solving situation.*

NOTE: Students communicate the reasoning used in solving these problems. They may use tools/technology to support learning.

- **MA6.4.1** Students recognize, describe, extend, create, and generalize patterns, such as numeric sequences, by using manipulatives, numbers, graphic representations, including charts and graphs.
- **MA6.4.2** Students apply their knowledge of patterns to describe a constant rate of change when solving problems.
- **MA6.4.3** Students represent the idea of a variable as an unknown quantity, a letter, or a symbol within any whole number operation.

5. DATA ANALYSIS AND PROBABILITY - *Students use data analysis and probability to analyze given situations and the results of experiments.*

NOTE: Students communicate the reasoning used in solving these problems. They may use tools/technology to support learning.

- **MA6.5.1** Students systematically collect, organize, and describe/represent numeric data using line graphs.
- **MA6.5.2** Students, given a scenario, recognize and communicate the likelihood of events using concepts from probability (i.e., impossible, equally likely, certain) appropriate to grade level.