Wyoming Mathematics

Grade 4

Adopted 2021

Standards for Mathematical Practice

1. **Make sense of problems and persevere in solving them.** MP.1
2. **Reason abstractly and quantitatively.** MP.2
3. **Construct viable arguments and critique the reasoning of others.** MP.3
4. **Model with mathematics.** MP.4
5. **Use appropriate tools strategically.** MP.5
6. **Attend to precision.** MP.6
7. **Look for and make use of structure.** MP.7
8. **Look for and express regularity in repeated reasoning.** MP.8

Operations And Algebraic Thinking

A. **Use the four operations with whole numbers to solve problems.** 4.OA.A

1. This standard was Intentionally removed by the 2018 Math Standards Review Committee. 4.OA.A.1
2. Multiply or divide to solve word problems involving multiplicative comparison, by using strategies including, but not limited to, drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison. 4.OA.A.2

Ad. Recognize how many times larger one quantity is than another, when comparing two quantities. 4.OA.A.AD

P. Multiply or divide to solve word problems involving multiplicative comparison, by using strategies including, but not limited to, drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison. 4.OA.A.2.P

Ba. Multiply or divide to solve word problems involving multiplicative comparison when given an equation or pictorial representation for the problem. 4.OA.A.2.BA

BeB. May be able to multiply or divide to solve word problems involving multiplicative comparison with partial success, when given an equation or pictorial representation for the problem. 4.OA.A.2.BEB

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3. Solve multi-step word problems posed with whole numbers, including problems in which remainders must be interpreted. 4.OA.A.3

   A. Represent these problems using equations with a letter standing for the unknown quantity. 4.OA.A.3.A

   B. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. 4.OA.A.3.B

Ad. Create a real-world problem when given a division problem that includes a remainder, then solve and interpret the remainder. 4.OA.A.3.AD

P. Solve multi-step word problems posed with whole numbers, including problems in which remainders must be interpreted. 4.OA.A.3.P

   A. Represent these problems using equations with a letter standing for the unknown quantity. 4.OA.A.3.P.A

   B. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. 4.OA.A.3.P.B

Ba. Solve one-step word problems posed with whole numbers, including problems in which remainders must be interpreted. 4.OA.A.3.BA

   A. Represent these problems using equations with a letter standing for the unknown quantity. 4.OA.A.3.BA.A

   B. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. 4.OA.A.3.BA.B

BeB. May be able to solve one-step word problems posed with whole numbers with partial success, including problems in which remainders must be interpreted. 4.OA.3.A.BEB

   A. Represent these problems using equations with a letter standing for the unknown quantity. 4.OA.A.3.BEB.A

   B. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. 4.OA.A.3.BEB.B

B. Develop understanding of factors and multiples. 4.OA.B

4. Demonstrate an understanding of factors and multiples. 4.OA.B.4

   A. Find all factor pairs for a whole number in the range 1-100. 4.OA.B.4.A

   B. Recognize that a whole number is a multiple of each of its factors. 4.OA.B.4.B

   C. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. 4.OA.B.4.C

   D. Determine whether a given whole number in the range 1-100 is prime or composite. 4.OA.B.4.D

Ad. Find the prime factorization of a given number within the range of 1-100. 4.OA.B.4.AD

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P. Demonstrate an understanding of factors and multiples. 4.OA.B.4.P

A. Find all factor pairs for a whole number in the range 1-100. 4.OA.B.4.P.A

B. Recognize that a whole number is a multiple of each of its factors. 4.OA.B.4.P.B

C. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. 4.OA.B.4.P.C

D. Determine whether a given whole number in the range 1-100 is prime or composite. 4.OA.B.4.P.D

Ba. Demonstrate an understanding of factors and multiples. 4.OA.B.4.BA

A. Find all factor pairs for a whole number in the range 1-25. 4.OA.B.4.BA.A

B. Recognize that a whole number is a multiple of each of its factors. 4.OA.B.4.BA.B

C. Determine whether a given whole number in the range 1-25 is a multiple of a given one-digit number. 4.OA.B.4.BA.C

D. Determine whether a given whole number in the range 1-25 is prime or composite. 4.OA.B.4.BA.D

BeB. May be able to demonstrate an understanding of factors and multiples with partial success. 4.OA.B.4.BEB

A. Find all factor pairs for a whole number in the range 1-25. 4.OA.B.4.BEB.A

B. Recognize that a whole number is a multiple of each of its factors. 4.OA.B.4.BEB.B

C. Determine whether a given whole number in the range 1-25 is a multiple of a given one-digit number. 4.OA.B.4.BEB.C

D. Determine whether a given whole number in the range 1-25 is prime or composite. 4.OA.B.4.BEB.D

C. Generate and analyze patterns. 4.OA.C

5. Given a pattern, explain a rule that the pattern follows and extend the pattern. Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. 4.OA.C.5

Ad. Generate a pattern, write a rule, and predict a term in a number or shape pattern. 4.OA.C.5.AD

P. Given a pattern, explain the rule that the pattern follows and extend the pattern. Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. 4.OA.C.5.P

Ba. Given a pattern and the rule that the pattern follows, extend the pattern. 4.OA.C.5.BA

BeB. May be able to, given a pattern and the rule that the pattern follows, extend the pattern with partial success. 4.OA.C.5.BEB

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Number And Operations In Base Ten

D. Generalize place value understanding for multi-digit whole numbers (limited to numbers less than or equal to 1,000,000). 4.NBT.D

1. Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. 4.NBT.D.1

Ad. The Advanced student is able to:
Recognize that a digit in one place represents a multiple of 10 times what another digit represents in the place to the right and apply this relationship as an equation. OR
Compare numbers beyond millions by reasoning about place value. OR
Extend reasoning about place value to go beyond one place value to the right. 4.NBT.D.1.AD

P. Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. 4.NBT.D.1.P

Ba. Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right when given a visual model or representation. 4.NBT.D.1.BA

BeB. May be able to recognize, that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right with partial success, when given a visual model or representation. 4.NBT.D.1.BEB

2. Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols. 4.NBT.D.2

Ad. Apply understanding of numbers beyond 1,000,000 to a real-world context or situation and compare them using >, =, and < symbols. 4.NBT.D.2.AD

P. Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols. 4.NBT.D.2.P

Ba. Read and write multi-digit whole numbers up to 10,000 using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols. 4.NBT.D.2.BA

BeB. May be able to read and write multi-digit whole numbers up to 10,000 using base-ten numerals, number names, and expanded form with partial success. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols with partial success. 4.NBT.D.2.BEB

3. Use place value understanding to round multi-digit whole numbers to any place. 4.NBT.D.3

Ad. The Advanced student is able to:
Explain how to use the digits in multi-digit whole numbers to round numbers up to 1,000,000. OR
Use an example of rounding and explain how it is helpful in computation. OR
Justify the appropriate place value to which the student would round in a given situation. 4.NBT.D.3.AD

P. Use place value understanding to round multi-digit whole numbers up to 1,000,000 to any place. 4.NBT.D.3.P

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Ba. Use place value understanding to round multi-digit whole numbers up to 1,000,000 to any place when provided a model such as a number line with benchmark numbers. 4.NBT.D.3.BA

BeB. May be able to use place value understanding to round multi-digit whole numbers up to 1,000,000 to any place, with partial success, when provided a model such as a number line with benchmark numbers. 4.NBT.D.3.BEB

E. Use place value understanding and properties of operations to perform multi-digit arithmetic (limited to whole numbers less than or equal to 1,000,000). 4.NBT.E

4. Add and subtract multi-digit whole numbers using place value strategies including the standard algorithm. 4.NBT.E.4

Ad. Extend the standard algorithm for addition and subtraction of whole numbers to the addition and subtraction of decimal values. 4.NBT.E.4.AD

P. Add and subtract multi-digit whole numbers using place value strategies including the standard algorithm. 4.NBT.E.4.P

Ba. Add or subtract two or more numbers, using place value strategies including the standard algorithm, whose sum or difference is less than 10,000. 4.NBT.E.4.BA

BeB. May be able to add or subtract two or more numbers, using place value strategies, with partial success, including the standard algorithm, whose sum or difference is less than 10,000. 4.NBT.E.4.BEB

5. Use strategies based on place value and the properties of multiplication. 4.NBT.E.5

A. Multiply a whole number of up to four digits by a one-digit whole number. 4.NBT.E.5.A

B. Multiply a pair of two-digit numbers. 4.NBT.E.5.B

C. Use appropriate models to explain the calculation, such as by using equations, rectangular arrays, and/or area models. 4.NBT.E.5.C

Ad. Multiply a whole number of up to four digits by a one-digit whole number or a pair of two-digit numbers using more than one model or strategy and defend the efficiency of the strategy used. 4.NBT.E.5.AD

P. Use strategies based on place value and the properties of multiplication to: 4.NBT.E.5.P

A. Multiply a whole number of up to four digits by a one-digit whole number. 4.NBT.E.5.P.A

B. Multiply a pair of two-digit numbers. 4.NBT.E.5.P.B

C. Use appropriate models to explain the calculation, such as by using equations, rectangular arrays, ratio tables, or area models. 4.NBT.E.5.P.C

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Ba. Use strategies based on place value and the properties of multiplication to: 4.NBT.E.5.BA

A. Multiply a whole number of up to four digits by a one-digit whole number when given a partially completed model. 4.NBT.E.5.BA.A

B. Multiply a pair of two-digit numbers when given a partially completed model. 4.NBT.E.5.BA.B

BeB. May be able to use strategies based on place value and the properties of multiplication with partial success to: 4.NBT.E.5.BEB

A. Multiply a whole number of up to four digits by a one-digit whole number when given a partially completed model. 4.NBT.E.5.BEB.A

B. Multiply a pair of two-digit numbers when given a partially completed model. 4.NBT.E.5.BEB.B

6. Use strategies based on place value, the properties of multiplication, and/or the relationship between multiplication and division to find quotients and remainders with up to four-digit dividends and one-digit divisors. Use appropriate models to explain the calculation, such as by using equations, rectangular arrays, and/or area models. 4.NBT.E.6

Ad. Create a real-world situation that can be modeled using a given division problem or find quotients and remainders with up to four-digit dividends and one-digit divisors using more than one model or strategy and defend the efficiency of the strategy used. 4.NBT.E.6.AD

P. Use strategies based on place value, the properties of multiplication, and/or the relationship between multiplication and division to find quotients and remainders with up to four-digit dividends and one-digit divisors. Use appropriate models to explain the calculation, such as by using equations, rectangular arrays, ratio tables, or area models. 4.NBT.E.6.P

Ba. Use partially completed models to find quotients and remainders with up to four-digit dividends and one-digit divisors. 4.NBT.E.6.BA

BeB. May be able to use partially completed models to find quotients and remainders with up to four-digit dividends and one-digit divisors with partial success. 4.NBT.E.6.BEB

Measurement And Data

I. **Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.** 4.MD.I

1. Know relative sizes of measurement units within one system of units including, but not limited to, km, m, cm; kg, g; lb., oz.; l L, ml; hr., min, sec; ft., in., gal., qt. pt., c. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. 4.MD.I.1

Ad. Estimate a given unit of measurement from one system to another (i.e., km vs. miles, kg vs lbs, etc.). 4.MD.I.1.AD

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P. Know relative sizes of measurement units within one system of units including, but not limited to, km, m, cm; kg, g; lb, oz.; l L, ml; hr, min, sec; ft., in., gal., qt. pt., c. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. 4.MD.I.1.P

Ba. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit when given a labeled model or two-column table. 4.MD.I.1.BA

BeB. May be able to, within a single system of measurement, express measurements in a larger unit in terms of a smaller unit with partial success when given a labeled model or two-column table. 4.MD.I.1.BEB

2. Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. 4.MD.I.2

Ad. In addition to Proficient, the Advanced student is able to create and solve real-world scenarios using the four operations involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit or smaller units in terms of larger units. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. 4.MD.I.2.AD

P. The Proficient student is able to use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. 4.MD.I.2.P

Ba. The Basic student is able to use the four operations to solve one-step word problems (involving distances, intervals of time, liquid volumes, masses of objects, and money) which require expressing measurements given in a larger unit in terms of a smaller unit when given diagrams that feature a measurement scale. 4.MD.I.2.BA

BeB. The Below Basic student may be able to use the four operations to solve one-step word problems (involving distances, intervals of time, liquid volumes, masses of objects, and money) which require expressing measurements given in a larger unit in terms of a smaller unit with partial success, when given diagrams that feature a measurement scale. 4.MD.I.2.BEB

3. Apply the area and perimeter formulas for rectangles in real-world and mathematical problems. 4.MD.I.3

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Ad. The Advanced student is able to:
Apply the formula for area of a rectangle to find the area of a right triangle. OR
Find the largest possible area of a rectangle when given a specific perimeter. OR
Find the largest possible perimeter of a rectangle when given a specific area. 4.MD.I.3.AD

P. Apply the area and perimeter formulas for rectangles in real-world and mathematical problems. 4.MD.I.3.P

Ba. Determine the area and perimeter of rectangles when given a labeled (length and width) pictorial representation. 4.MD.I.3.BA

BeB. May be able to determine the area and perimeter of rectangles with partial success when given a labeled (length and width) pictorial representation. 4.MD.I.3.BEB

J. Represent and interpret data. 4.MD.J

4. Make a line plot to display a data set of measurements in fractions of a unit (½, ¼, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. 4.MD.J.4

Ad. The Advanced student is able to
Solve problems involving multiplication of fractions by using information presented in line plots. AND
Use multiplicative thinking to generalize data from a line plot. 4.MD.J.4.AD

P. Make a line plot to display a data set of measurements in fractions of a unit (½, ¼, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. 4.MD.J.4.P

Ba. The Basic student is able to make a line plot to:
Display a data set of measurements in fractions of a unit (½, ¼, 1/8). OR
Solve problems involving addition and subtraction of fractions by using information presented in given line plots. 4.MD.J.4.BA

BeB. The Below Basic student may be able to:
Make a line plot to display a data set of measurements in fractions of a unit (½, ¼, 1/8) with partial success. OR
Solve problems involving addition and subtraction of fractions by using information presented in given line plots with partial success. 4.MD.J.4.BEB

K. Geometric measurement: understand concepts of angle and measure angles. 4.MD.K

A. Regarding angles, recognize angles as geometric shapes that are formed wherever two rays share a common endpoint. 4.MD.K.5.A

B. Regarding angles, understand concepts of angle measurement. An angle is measured with reference to a circle with its center at the common endpoint of the rays. 4.MD.K.5.B

Ad. Apply understanding of angles as geometric shapes and find examples of angles in the real world for different angle measurements. 4.MD.K.5.AD

A. Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint. 4.MD.K.5.P.A

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B. Understand concepts of angle measurement. An angle is measured with reference to a circle with its center at the common endpoint of the rays. 4.MD.K.5.P.B

A. Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint. OR 4.MD.K.5.BA.A

B. Understand concepts of angle measurement. An angle is measured with reference to a circle with its center at the common endpoint of the rays. 4.MD.K.5.BA.B

A. Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint with partial success. OR 4.MD.K.5.BEB.A

B. Understand concepts of angle measurement with partial success. An angle is measured with reference to a circle with its center at the common endpoint of the rays. 4.MD.K.5.BEB.B

6. Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure. 4.MD.K.6

Ad. Measure angles in whole-number degrees greater than 180 degrees using a protractor. Sketch angles of specified measure in whole-number degrees greater than 180 degrees. 4.MD.K.6.AD

P. Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure. 4.MD.K.6.P

Ba. The Basic student is able to:
Measure angles in whole-number degrees using a protractor. OR
Sketch angles of specified measure. 4.MD.K.6.BA

BeB. The Below Basic student may be able to:
Measure angles in whole-number degrees with partial success using a protractor. OR
Sketch angles of specified measure with partial success. 4.MD.K.6.BEB

7. Solve addition and subtraction problems to find unknown angles on a diagram in real-world and mathematical problems. 4.MD.K.7

Ad. The Advanced student is able to:
Solve addition and subtraction problems to find more than one unknown angle (may include angles greater than 180 degrees) on a diagram. OR
Create a diagram from a real-world problem to find unknown angles. 4.MD.K.7.AD

P. Solve addition and subtraction problems to find unknown angles on a diagram in real-world and mathematical problems. 4.MD.K.7.P

Ba. Solve addition and subtraction problems to find unknown angles on a diagrams where the sum of the angles is 90 or 180 degrees in real-world and mathematical problems. 4.MD.K.7.BA

BeB. May be able to solve addition and subtraction problems to find unknown angles on a diagrams where the sum of the angles is 90 or 180 degrees in real-world and mathematical problems with partial success. 4.MD.K.7.BEB

Geometry

L. **Draw and identify lines and angles, and classify shapes by properties of their lines and angles.** 4.G.L

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1. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. 4.G.L.1

Ad. Create a two-dimensional shape when given specific attributes. 4.G.L.1.AD

P. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. 4.G.L.1.P

Ba. Identify points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines in two-dimensional figures. 4.G.L.1.BA

BeB. May be able to identify points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines in two-dimensional figures with partial success. 4.G.L.1.BEB

2. Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles. 4.G.L.2

Ad. Create two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of specified size; classify triangles and justify their reasoning. 4.G.L.2.AD

P. Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category and identify right triangles. 4.G.L.2.P

Ba. The Basic student is able to:
Identify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. OR
Recognize right triangles as a category and identify right triangles. 4.G.L.2.BA

BeB. The Below Basic student may be able to:
Identify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size with partial success. OR
Recognize right triangles as a category and identify right triangles with partial success. 4.G.L.2.BEB

3. Identify line-symmetric figures. Recognize and draw lines of symmetry for two-dimensional figures. 4.G.L.3

Ad. Create a figure with a given number of lines of symmetry. 4.G.L.3.AD

P. Identify line-symmetric figures. Recognize and draw lines of symmetry for two-dimensional figures. 4.G.L.3.P

Ba. The Basic student is able to:
Identify line-symmetric figures. OR Recognize and draw lines of symmetry for two-dimensional figures. 4.G.L.3.BA

BeB. The Below Basic student may be able to:
Identify line-symmetric figures with partial success OR
Recognize and draw lines of symmetry for two-dimensional figures with partial success. 4.G.L.3.BEB

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Number And Operations - Fractions

F. Extend understanding of fraction equivalence and ordering (limited to denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100). 4.NF.F

1. Explain why a fraction a/b is equivalent to a fraction a · a/n · b by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. 4.NF.F.1

Ad. Use knowledge of equivalent fractions to solve real-world problems. 4.NF.F.1.AD

P. Explain why a fraction a/b is equivalent to a fraction n · a/n · b by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. 4.NF.F.1.P

Ba. Identify equivalent fractions when given visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. 4.NF.F.1.BA

BeB. May be able to identify equivalent fractions, with partial success, when given visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. 4.NF.F.1.BEB

2. Compare two fractions with different numerators and different denominators by creating common denominators or numerators, or by comparing to a benchmark fraction such as ½. 4.NF.F.2

A. Recognize that comparisons are valid only when the two fractions refer to the same whole. 4.NF.F.2.A

B. Record the results of comparisons with symbols >, =, or <. 4.NF.F.2.B

C. Justify the conclusions by using a visual fraction model. 4.NF.F.2.C

Ad. Compare more than two fractions with different numerators and different denominators by creating common denominators or numerators, or by comparing to a benchmark fraction such as ½. 4.NF.F.2.AD

A. Recognize that comparisons are valid only when the fractions refer to the same whole. 4.NF.F.2.AD.A

B. Record the results of comparisons on a number line. 4.NF.F.2.AD.B

C. Justify the conclusions by using a visual fraction model. 4.NF.F.2.AD.C

P. Compare two fractions with different numerators and different denominators by creating common denominators or numerators, or by comparing to a benchmark fraction such as ½. 4.NF.F.2.P

A. Recognize that comparisons are valid only when the two fractions refer to the same whole. 4.NF.F.2.P.A

B. Record the results of comparisons with symbols >, =, or <. 4.NF.F.2.P.B

C. Justify the conclusions by using a visual fraction model. 4.NF.F.2.P.C

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Ba. Compare two fractions with different numerators and different denominators by creating common denominators or numerators, or by comparing to a benchmark fraction such as ½ when provided pre-partitioned visual models. 4.NF.F.2.BA

A. Recognize that comparisons are valid only when the two fractions refer to the same whole. 4.NF.F.2.BA.A

B. Record the results of comparisons with symbols >, =, or <. 4.NF.F.2.BA.B

BeB. May be able to compare two fractions with different numerators and different denominators by creating common denominators or numerators, or by comparing to a benchmark fraction such as ½, with partial success, when provided pre-partitioned visual models. BEB

A. Recognize that comparisons are valid only when the two fractions refer to the same whole. BEB.A

B. Record the results of comparisons with symbols >, =, or <. BEB.B

G. **Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers (limited to denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100).** 4.NF.G

3. Understand a fraction a/b with a > 1 as a sum of unit fractions (1/b). 4.NF.G.3

A. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. 4.NF.G.3.A

B. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions by using a visual fraction model. 4.NF.G.3.B

C. Add and subtract mixed numbers with like denominators by replacing each mixed number with an equivalent fraction, and/or by using properties of addition and the relationship between addition and subtraction. 4.NF.G.3.C

D. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators. 4.NF.G.3.D

A-B. Use properties of operations and inverse operations to add or subtract two fractions with like denominators including mixed numbers. 4.NF.G.3.AD.A-B

C. Identify and represent addition and subtraction of fractions with like denominators in multiple ways. 4.NF.G.3.AD.C

D. Solve two-step problems involving addition or subtraction of fractions with like denominators in mathematical or real-world contexts. 4.NF.G.3.AD.D

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P. Understand a fraction a/b with a > 1 as a sum of unit fractions (1/b). 4.NF.G.3.P

A. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. 4.NF.G.3.P.A

B. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions by using a visual fraction model. 4.NF.G.3.P.B

C. Add and subtract mixed numbers with like denominators by replacing each mixed number with an equivalent fraction, and/or by using properties of addition and the relationship between addition and subtraction. 4.NF.G.3.P.C

D. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators. 4.NF.G.3.P.D

Ba. The Basic student is able to with a pictorial representation: 4.NF.G.3.BA

A-B. Interpret a fraction as a sum or a difference of unit fractions. 4.NF.G.3.BA.A-B

C. Convert mixed numbers into equivalent fractions. 4.NF.G.3.BA.C

D. Solve one-step problems involving addition or subtraction of fractions with like denominators in mathematical contexts. 4.NF.G.3.BA.D

BeB. The Below Basic student may be able to, with a pictorial representation: 4.NF.G.3.BEB

A-B. Interpret a fraction as a sum or a difference of unit fractions with partial success. 4.NF.G.3.BEB.A-B

C. Convert mixed numbers into equivalent fractions with partial success. 4.NF.G.3.BEB.C

D. Solve one-step problems involving addition or subtraction of fractions with like denominators in mathematical contexts with partial success. 4.NF.G.3.BEB.D

4. Apply and extend an understanding of multiplication by multiplying a whole number and a fraction. 4.NF.G.4

A. Understand a fraction a/b as a multiple of 1/b. 4.NF.G.4.A

B. Understand a multiple of a/b as a multiple of 1/b, and use this understanding to multiply a fraction by a whole number. 4.NF.G.4.B

C. Solve real-world problems involving multiplication of a fraction by a whole number, using visual fraction models and equations to represent the problem. 4.NF.G.4.C

Ad. Generalize and explain the multiplication of a whole number and a fraction as $nx(a/b) = (nx \cdot a)/b$ by creating a visual fraction model in the context of a real-world problem. 4.NF.G.4.AD

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P. Apply and extend an understanding of multiplication by multiplying a whole number and a fraction. 4.NF.G.4.P

A. Understand a fraction a/b as a multiple of 1/b. 4.NF.G.4.P.A

B. Understand a multiple of a/b as a multiple of 1/b, and use this understanding to multiply a fraction by a whole number. 4.NF.G.4.P.B

C. Solve real-world problems involving multiplication of a fraction by a whole number, using visual fraction models and equations to represent the problem. 4.NF.G.4.P.C

Ba. Apply and extend an understanding of multiplication by multiplying a whole number and a fraction when given a pictorial representation. 4.NF.G.4.BA

A. Understand a fraction a/b as a multiple of 1/b. 4.NF.G.4.BA.A

B. Understand a multiple of a/b as a multiple of 1/b, and use this understanding to multiply a fraction by a whole number. 4.NF.G.4.BA.B

C. Solve real-world problems involving multiplication of a fraction by a whole number, given visual fraction models and equations to represent the problem. 4.NF.G.4.BA.C

BeB. May be able to apply and extend an understanding of multiplication by multiplying a whole number and a fraction when given a pictorial representation. 4.NF.G.4.BEB

A. Understand a fraction a/b as a multiple of 1/b with partial success. 4.NF.G.4.BEB.A

B. Understand a multiple of a/b as a multiple of 1/b, and use this understanding to multiply a fraction by a whole number with partial success. 4.NF.G.4.BEB.B

C. Solve real-world problems involving multiplication of a fraction by a whole number, with partial success, when given visual fraction models and equations to represent the problem. 4.NF.G.4.BEB.C

H. **Understand decimal notation for fractions, and compare decimal fractions.** 4.NF.H

5. Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. 4.NF.H.5

Ad. Express a fraction with denominator 10 as an equivalent fraction with denominator 100 with fractions greater than one whole, and use this technique to add two fractions with respective denominators 10 and 100. 4.NF.H.5.AD

P. Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. 4.NF.H.5.P

Ba. Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100 when given a visual model. 4.NF.H.5.BA

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BeB. May be able to express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100 with partial success when given a visual model. 4.NF.H.5.BEB

6. Use decimal notation for fractions with denominators 10 or 100. 4.NF.H.6

Ad. The Advanced student is able to:
Apply decimal notation for fractions with denominators 10 or 100 with fractions greater than one whole. OR
Apply decimal notation for fractions with a denominator of 1000. 4.NF.H.6.AD

P. Apply decimal notation for fractions with denominators 10 or 100. 4.NF.H.6.P

Ba. Apply decimal notation for fractions with denominators 10 or 100 when given a visual model. 4.NF.H.6.BA

BeB. May be able to apply decimal notation for fractions with denominators 10 or 100 with partial success when given a visual model. 4.NF.H.6.BEB

7. Compare and order decimal numbers to hundredths and justify by using concrete and visual models. Record the results of comparisons with the words "is greater than," "is equal to," "is less than," and with the symbols >, =, and <. 4.NF.H.7

Ad. Compare and order decimal numbers greater than one and/or to thousandths and justify by using concrete and visual models. Record the results of comparisons with the words "is greater than," "is equal to," "is less than," and with the symbols >, =, and <. 4.NF.H.7.AD

P. Compare and order decimal numbers to hundredths and justify by using concrete and visual models. Record the results of comparisons with the words "is greater than," "is equal to," "is less than," and with the symbols >, =, and <. 4.NF.H.7.P

Ba. Compare and order decimal numbers to hundredths when given visual models. Record the results of comparisons with the words "is greater than," "is equal to," "is less than," and with the symbols >, =, and <. 4.NF.H.7.BA

BeB. May be able to compare and order decimal numbers to hundredths with partial success when given visual models. Record the results of comparisons with the words "is greater than," "is equal to," "is less than," and with the symbols >, =, and < with partial success. 4.NF.H.7.BEB