Fourth Grade Math updated 6/2023

Question 1: How are patterns recognized and explained?

Suggested Days: 1 Week 4.OA.5 Additional Content

Essential Learning Outcome : Students will generate and analyze geometric and numeric patterns. 4.OA.5				
Learning Targets				
I can identify and create a shape pattern that follows a given rule. 4.OA.C.5				
I can identify and create a number pattern that follows a given rule. 4.OA.C.5				
Vocabulary: Rule patterns sequence repeating table				

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Question 2: How does place value relate to addition and subtraction?

Suggested days: 4-5 Weeks 4.NBT.1 4.NBT.2 4.NBT.3 4.NBT.4 ▌Major Content

Essential Learning Outcome: ▌Students will reason abstractly and quantitatively while using place value understanding and properties of operations to perform multi-digit arithmetic. 4.NBT.1 4.NBT.2 4.NBT.3 4.NBT.4				
Learning Targets				
I can identify the place value of a digit as ten times the digit to its right. 4.NBT.A.1				
I can write a whole number in expanded, word, and number form up to the millions place. 4.NBT.A.2				
I can use the symbols <,>,= to compare whole numbers up to the millions place. 4.NBT.A.2				
I can use place value to round whole numbers. 4.NBT.A.3				
I can fluently add or subtract numbers. 4.NBT.B.4 (use of borrowing and carrying is an end of the year goal of the standard. Begin with being able to add and subtract numbers by decomposing)				
Vocabulary: Sum algorithm addend difference regrouping round estimate >,<, = compare place value standard, expanded, word form				

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Question 3: How does addition relate to multiplication?

Suggested days: 2-3 Weeks 4.OA.1 4.OA.2 ▌Major Content 4.OA.4 ⊡ **Supporting Content**

Essential Learning Outcomes : ⊡ Students will accurately apply the use of factors, multiples, and prime/composite numbers.4.OA.4 ▌Students will reason abstractly and quantitatively while using place value understanding and properties of operations to perform whole number multi-digit arithmetic. 4.OA.1 4.OA.2				
Learning Targets				
I can find all factor pairs for whole numbers from 1 to 100. 4.OA.B.4				
I can find all multiples up to 100 of a single digit number. 4.OA.B.4				
I can determine if a whole number from 1 to 100 is a multiple of a given single digit number. 4.OA.B.4				
I can determine if a given whole number from 1 to 100 is a prime or composite number. 4.OA.B.4				
I can interpret a multiplication equation as a comparison. 4.OA.A.1 (the equal sign means 'same as')				
I can multiply to solve word problems involving multiplicative comparisons. 4.OA.A.2				
I can divide to solve comparison word problems. 4.OA.A.2				
Vocabulary: Factor multiple array prime composite product equation				

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Question 4: How do addition and multiplication strategies relate to the concepts of area and perimeter?

Suggested days: 3 Weeks 4.MD.3 ⊡ Supporting Content 4.NBT.5 ▌Major Content

Essential Learning Outcomes : ⊡ Students will connect and apply area and perimeter formulas to calculate perimeter and **area** of a shape in real life problems. 4.MD.3 ▌Students will reason abstractly and quantitatively while using place value understanding and properties of operations to perform whole number multi-digit arithmetic. 4.NBT.5				
Learning Targets				
I can use the formula for the area of a rectangle, a=(lxw) to solve real world and mathematical problems. 4.MD.A.3				
I can use the area formula to solve problems including unknown length or width problems. 4.MD.A.3				
I can use the perimeter formula to solve problems including unknown lengths or width problems. 4.MD.A.3				
I can multiply a four digit by one digit, or two digit by two digit numbers using an appropriate strategy. 4.NBT.B.5				
Vocabulary: array product area model traditional/standard algorithm formula equation area perimeter square units				

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Question 5: How does subtraction relate to division?

Suggested days: 3 Weeks 4.OA.3 4. NBT.6 ▌Major Content

Essential Learning Outcomes : ▌Students will reason abstractly and quantitatively while using place value understanding and properties of operations to perform whole number multi-digit arithmetic. 4.OA.3 4. NBT.6				
Learning Targets				
I can use estimation, including rounding, to assess the reasonableness of answers. 4.OA.A.3				
I can make equations for multiplication and division problems using a letter representing the unknown number. 4.OA.A.3				
I can represent multi-step division whole number word problems with models, pictures, and equations (two equations can be used in place of an equation with two operations). 4.OA.A.3				
I can solve multi-step multiplication whole number word problems. 4.OA.A.3				
I can divide up to four digit dividends by one digit divisors with or without remainders using strategies. 4.NBT.B.6				
I can interpret the remainder when needed. 4.NBT.B.6				
Vocabulary: Factor multiple array prime composite area model traditional/standard algorithm product equation Quotient divisor dividend remainder				

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Question 6: How does place value relate to decimals?

Suggested Days: 2-3 Weeks 4.NF.C.5-6-7 ▌Major Content

Essential Learning Outcome : ▌Students will understand decimal notation and use that knowledge to compare decimals and fractions. 4.NF.C.5-6-7				
Learning Targets				
I can express a fraction with denominator 10 as an equivalent fraction with denominator 100. 4.NF.C.5				
I can add two fractions with respective denominators 10 and 100. *For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100*. 4. NF.C.5				
I can use decimal notation for fractions with denominators 10 or 100. *For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram*. 4.NF.C.6				
I can identify the tenths and hundredths place. 4.NF.C.6				
I can compare two decimals to hundredths by reasoning about their size. 4.NF.C.7				
I can record the results of comparisons of decimals with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model. 4.NF.C.7				
Vocabulary: Tenths hundredths decimal point equivalent				

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Question 7: How do fractional parts apply when creating, comparing, and decomposing fractions?

Suggested Days: 3-4 Weeks 4.NF.1- 4.NF.2, 4.NF.3. ▌Major Content

Essential Learning Outcome :

- ▌Students will create, recognize, justify, compare and decompose fractions. 4.NF.1- 4.NF.2, 4.NF.3.a.b
- ▌Students will understand a fraction as a sum of fractions. 4.NF.B.3.cd

Learning Targets				
I can explain why a fraction *a*/*b* is equivalent to a fraction (n x a)/(n x b) by using visual fraction models. 4.NF.A.1				
I can explain how the number and size of the parts of equivalent fractions differ even though the two fractions themselves are the same size. 4.NF.A.1				
I can recognize and generate equivalent fractions.4.NF.A.1				
I can use benchmark fractions (such as a half) to compare two fractions with different numerators and different denominators. 4.NF.A.2				
I can create common denominators or numerators to compare two fractions with different numerators and different denominators. 4.NF.A.2				
I can write comparisons with symbols >, =, or < and justify my reasonings. 4.NF.A.2				
I understand addition and subtraction of fractions as joining and separating parts referring to the same whole. 4.NF.B.3.a				
I can decompose a fraction into a sum of fractions with the same denominator (such as 3/8=1/8+1/8+1/8 or 3/8=1/8+2/8). 4.NF.B.3b				

Vocabulary:

Fraction unit fractions Equivalent mixed number Numerator improper fraction
Denominator decompose benchmark fractions compare

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Question 8: How do the operations of addition, subtraction and multiplication apply to fractions?

Suggested Days: **3-4 Weeks** .4.NF.B.3.cd 4.NF.B.4 4.NF.C.5 ▌Major Content 4.MD.B.4 ⊡ Supporting Content

Essential Learning Outcome :
▌Students will understand a fraction as a sum of fractions.4.NF.B.3.cd
▌Students will use models and equations to multiply a fraction by a whole number. 4.NF.B.4.abc
▌Students will understand decimal notation and use that knowledge to compare fractions. 4.NF.C.5
⊡Students will make a line plot to display a data set of measurements in fractions of a unit and use the data to solve addition and subtraction problems. 4.MD.B.4

Learning Targets				
Addition & Subtraction of Fractions I can add and subtract mixed numbers with like denominators. 4.NF.B.3.c				
I can solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators (by using visual fraction models and equations to represent the problem). 4.NF.B.3.d				
I can create line plots displaying fractions and use them to solve addition and subtraction problems. 4.MD.B.4				
Multiplying of Fractions by a Whole Number I can understand and represent a fraction as a multiple of another fraction by using a visual fraction model. 4.NF.B.4.a				
I can understand a multiple of a fraction as a multiple of another fraction, and use this understanding to multiply a fraction by a whole number. (*For example, use a visual fraction model to express 3 × (2/5) as 6 × (1/5), recognizing this product as 6/5. (In general, n × (a/b) = (n × a)/b.)* 4.NF.B.4.b				
I can solve word problems involving multiplication of a fraction by a whole number by using visual fraction models and equations to represent the problem. 4.NF.B.4.c				

Vocabulary:
improper fraction mixed number numerator denominator common denominator line plot

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Question 9: How are shapes defined by properties?

Suggested Days: 3 Weeks 4.G.1 , 4.G.2, 4.G.3 Additional Content

Essential Learning Outcome : Students will precisely draw, label, and identify lines, angles, and classify shapes based on properties. 4.G.1, 4.G.2, 4.G.3				
Learning Targets				
I can draw and identify points, lines, line segments, rays, angles, and perpendicular and parallel lines, **in two-dimensional figures.** 4.GA.1				
I can classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines and angle properties. 4.GA.2				
I can recognize and identify right triangles. 4.GA.2				
I can identify symmetrical shapes and draw lines of symmetry. 4.GA.3				

Vocabulary

Point parallel perpendicular intersecting line line segment ray point vertex endpoint degrees right angle acute angle obtuse angle straight angle congruent symmetry line of symmetry
quadrilateral (Identifying Types/classification) parallelogram rectangle rhombus square trapezoid
Triangle (Identifying Types/classification) equilateral, isosceles, scalene, acute, right, obtuse

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Question 10: How are angles classified and measured?

Suggested Days: 2 Weeks 4.MD.C.5, 4.MD.C.6, 4.MD.C.7 Additional Content

Essential Learning Outcome : Students will understand concepts of angles and measure angles using appropriate tools, and recognize angle measure as additive.4.MD.C.5, 4.MD.C.6, 4.MD.C.7				
Learning Targets				
I understand that an angle's measure is related to the fraction of a circle it represents, and that the unit is degrees. 4.MD.C.5B				
I understand that angles are formed by two rays with the same endpoints. 4.MD.C.5				
I can measure angles using a protractor. 4.MD.C.5A				
I can draw angles using a protractor. 4.MD.C.6				
I can identify the angle measurement as the sum of its decomposed angles. 4.MD.C.7				
I can solve addition and subtraction problems with unknown angles. 4.MD.C.7				
Vocabulary: Obtuse acute right straight angle protractor perpendicular parallel symmetry 2D quadrilateral				

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Question 8: How are appropriate measurements selected, converted and displayed?

Suggested Days: 2-3 Weeks 4.MD.A.1, 4.MD.A.2 ⊡ **Supporting Content**

Essential Learning Outcome :

⊡ Students will know relative sizes of measurement units within one system, express measurements in a larger unit in terms of a smaller unit. Students will represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. 4.MD.A.1

⊡ Students will 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,4.MD.A.2

Learning Targets				
I can give a reasonable unit of measure for a given object. 4.MD.A.1				
I can compare size of units within one system of measurement to another. 4.MD.A.1				
I can record measurement equivalents in a two-column table. 4.MD.A.1				
I can solve word problems that require expressing measurements given in a larger unit in terms of a smaller unit. 4.MD.A.2				
I can solve word problems about distance, liquid volume, solid mass, money, and time, including problems that use simple fractions and decimals. 4.MD.A.2				
I can use the four operations to solve word problems involving measurement and money. 4.MD.A.2				
I can convert between units of measure including: time, length, weight, and capacity. 4.MD.A.2				

Vocabulary:

Metric	Standard	Conversion	Mass	liter	Capacity	ounces
Feet	pounds	Inches	kilogram	Yards	milliliter	Miles
gram	Meter	kilometer	Centimeter	Seconds	minutes	hours