Grade 4 Math Performance Level Descriptors

4th Grade Mathematics

Contents

Cluster: 4.OA.A

Use the four operations with whole numbers to solve problems.

Standards:

4.OA.1 - Interpret a multiplication equation as a comparison, (e.g. interpret 35 = 5 · 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5.) Represent verbal statements of multiplicative comparisons as multiplication equations.

4.OA.2 - Multiply or divide to solve word problems involving multiplicative comparison, (e.g. by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.)

4.OA.3 - Solve multi-step word problem posed with whole numbers and having whole number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using situation equations and/or solution equations with a letter or symbol standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

Standard: 4.OA.1

Interpret a multiplication equation as a comparison, (e.g. interpret 35 = 5 · 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5.) Represent verbal statements of multiplicative comparisons as multiplication equations.

Evidence Statement			
1. The student represents and solves word problems involving multiplicative comparisons.			
Performance Level Descriptors (PLDs)			
Level 1 **Students at level 1 show a *limited* ability to demonstrate their knowledge and skills such as:**	**Level 2** **Students at level 2 show a *basic* ability to demonstrate their knowledge and skills such as:**	**Level 3** **Students at level 3 show a *proficient* ability to demonstrate their knowledge and skills such as:**	**Level 4** **Students at level 4 show an *advanced* ability to demonstrate their knowledge and skills such as:**
• Students should be able to use the commutative property of multiplication to explain that the first factor multiplied by the second factor is equal to the second factor multiplied by the first factor.	• Students should be able to interpret a multiplication equation as a comparison in one way (e.g., 4 × 5 = 20 means 20 is 5 times as many as 4).	• Students should be able to interpret a multiplication equation as a comparison in mathematical problems and single-step word problems, in more than one way. • Students should be able to represent verbal statements of multiplicative comparisons using multiplication equations.	• Students should be able to represent multistep problems with verbal statements of multiplicative comparisons using multiplication equations. • Students should be able to use multiple comparing sentences for a multiplicative equation (e.g., by using division or unit fraction language).

Standard: 4.OA.2

Multiply or divide to solve word problems involving multiplicative comparison, (e.g. by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.)

Evidence Statement			
1. The student represents multistep word problems using situation and solution equations with a letter or symbol standing for the unknown quantity.			

Performance Level Descriptors (PLDs)			
Level 1 **Students at level 1 show a *limited* ability to demonstrate their knowledge and skills such as:**	**Level 2** **Students at level 2 show a *basic* ability to demonstrate their knowledge and skills such as:**	**Level 3** **Students at level 3 show a *proficient* ability to demonstrate their knowledge and skills such as:**	**Level 4** **Students at level 4 show an *advanced* ability to demonstrate their knowledge and skills such as:**
• Students should be able to explain why a problem is best solved through multiplication instead of addition.	• Students should be able to multiply or divide to solve one-step word problems involving multiplicative comparison. • Students should be able to explain why a problem requires multiplication or division. • Students should be able to use a letter or symbol standing for the unknown quantity in a word problem involving multiplicative comparison.	• Students should be able to multiply or divide to solve one- and two-step word problems involving multiplicative comparison. • Students should be able to use a letter or symbol standing for the unknown quantity and then solve for the letter or symbol. • Students should be able to assess the reasonableness of their answers.	• Students should be able to use all four operations to solve multistep word problems involving multiplicative comparison, in problems without remainders, where the unknown value is a letter or symbol. • Students should be able to critique solutions to multistep word problems that use multiplicative comparison.

Standard: 4.OA.3

Solve multi-step word problem posed with whole numbers and having whole number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using situation equations and/or solution equations with a letter or symbol standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

Evidence Statements
1. The student uses the four operations to solve multistep word problems and assesses the reasonableness of answers.
2. The student represents multistep word problems using situation and solution equations with a letter or symbol standing for the unknown quantity.

Performance Level Descriptors (PLDs)			
Level 1 **Students at level 1 show a *limited* ability to demonstrate their knowledge and skills such as:**	**Level 2** **Students at level 2 show a *basic* ability to demonstrate their knowledge and skills such as:**	**Level 3** **Students at level 3 show a *proficient* ability to demonstrate their knowledge and skills such as:**	**Level 4** **Students at level 4 show an *advanced* ability to demonstrate their knowledge and skills such as:**
• Students should be able to solve one-step word problems posed with whole numbers and having whole-number answers using the four operations, in problems without remainders. • Students should be able to explain why they used an operation to solve a problem.	• Students should be able to solve one- and two-step word problems posed with whole numbers and having whole-number answers using the four operations, in problems without remainders. • Students should be able to assess the reasonableness of answers using mental computation strategies.	• Students should be able to solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. • Students should be able to represent problems using situation equations and/or solution equations with a letter or symbol standing for the unknown quantity.	• Students should be able to generate multistep word problems and create scenarios for given expressions and equations with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. • Students should be able to represent multistep problems using situation equations and/or solution equations with a letter or symbol standing

		• Students should be able to assess the reasonableness of answers using mental computation and estimation strategies, including rounding.	for the unknown quantity. • Students should be able to critique solutions using mental computation and estimation strategies, including rounding.

Cluster: 4.OA.B

Gain familiarity with multiples.

Standards:

4.OA.4 - Find all factor pairs for a whole number in the range 1 to 100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1 to 100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1 to 100 is prime or composite.

Standard: 4.OA.4

Find all factor pairs for a whole number in the range 1 to 100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1 to 100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1 to 100 is prime or composite.

Evidence Statements
1. The student determines factors and factor pairs for a given whole number (from 1 to 100).
2. The student recognizes that a whole number (from 1 to 100) is a multiple of each of its factors.
3. The student determines whether a whole number (from 1 to 100) is a multiple of a given one-digit number.
4. The student determines whether a whole number (from 1 to 100) is prime or composite.

Performance Level Descriptors (PLDs)			
Level 1 Students at level 1 show a *limited* ability to demonstrate their knowledge and skills such as:	**Level 2** Students at level 2 show a *basic* ability to demonstrate their knowledge and skills such as:	**Level 3** Students at level 3 show a *proficient* ability to demonstrate their knowledge and skills such as:	**Level 4** Students at level 4 show an *advanced* ability to demonstrate their knowledge and skills such as:
• Students should be able to find all factor pairs for each whole number in the range 1 to 20. • Students should be able to determine whether a given whole number in the range 1 to 20 is prime or composite.	• Students should be able to find all factor pairs for a whole number in the range 1 to 50 and recognize that a whole number is a multiple of each of its factors. • Students should be able to determine whether a given whole number in the range 1 to 50 is a multiple of a given one-digit number. • Students should be able to determine whether a given whole number in the range 1 to 50 is	• Students should be able to find all factor pairs for a whole number in the range 1 to 100 and recognize that a whole number is a multiple of each of its factors. • Students should be able to determine whether a given whole number in the range 1 to 100 is a multiple of a given one-digit number. • Students should be able to determine whether a given whole number in the range 1 to 100	• Students should be able to explain why a whole number is a multiple of each of its factors.

	prime or composite.	is prime or composite.	

Cluster: 4.OA.C

Generate and analyze patterns.

Standards:

4.OA.5 - 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. For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.

Standard: 4.OA.5

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. For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.

Evidence Statements
1. The student generates number patterns that follow a given rule.
2. The student generates shape patterns that follow a given rule.
3. The student analyzes number and shape patterns to identify and explain features that are not explicitly stated in the pattern rules.

Performance Level Descriptors (PLDs)			
Level 1 **Students at level 1 show a *limited* ability to demonstrate their knowledge and skills such as:**	**Level 2** **Students at level 2 show a *basic* ability to demonstrate their knowledge and skills such as:**	**Level 3** **Students at level 3 show a *proficient* ability to demonstrate their knowledge and skills such as:**	**Level 4** **Students at level 4 show an *advanced* ability to demonstrate their knowledge and skills such as:**
• Students should be able to extend a pattern that follows a given one-step pattern rule to the next number or shape.	• Students should be able to generate a number or shape pattern that follows a given one-step pattern rule.	• Students should be able to generate a number or shape pattern that follows a given pattern rule. • Students should be able to describe pattern features not given in the rule.	• Students should be able to identify pattern rules and generate patterns that combine addition or subtraction with multiplication or division.

Cluster: 4.NBT.A

Generalize place value understanding for multi-digit whole numbers.

Standards:

4.NBT.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. *For example, recognize that 700 ÷ 70 = 10 by applying concepts of place value and division.*

4.NBT.2 - Read and write multi-digit whole numbers using base-ten numerals, number names, expanded form, and unit form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, <, =, and ≠ symbols to record the results of comparisons. *(Note: Students should demonstrate understanding and application of place value decomposition. For example, 127 can be 1 hundred, 2 tens, 7 ones or 12 tens, 7 ones Refer to 2.NBT.1)*

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

Standard: 4.NBT.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. *For example, recognize that 700 ÷ 70 = 10 by applying concepts of place value and division.*

Evidence Statement			
1. The student compares digits in a multi-digit whole number based on place value.			
Performance Level Descriptors (PLDs)			
Level 1	**Level 2**	**Level 3**	**Level 4**
Students at level 1 show a *limited* ability to demonstrate their knowledge and skills such as:	**Students at level 2 show a *basic* ability to demonstrate their knowledge and skills such as:**	**Students at level 3 show a *proficient* ability to demonstrate their knowledge and skills such as:**	**Students at level 4 show an *advanced* ability to demonstrate their knowledge and skills such as:**
• Students should be able to identify different place values within a multi-digit number in the range 1 to 9,999.	• Students should be able to recognize that in a two-digit whole number, a digit in the tens place represents 10 times the value it represents in the ones place.	• Students should be able to recognize that in a multi-digit whole number, a digit in one place represents 10 times the value it represents in the place to its right.	• Students should be able to recognize that in a multi-digit whole number, a digit in one place represents 100 times the value it represents two places to its right and 1,000 times the value it represents three places to its right.

Standard: 4.NBT.2

Read and write multi-digit whole numbers using base-ten numerals, number names, expanded form, and unit form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, <, =, and ≠ symbols to record the results of comparisons. *(Note: Students should demonstrate understanding and application of place value decomposition. For example, 127 can be 1 hundred, 2 tens, 7 ones or 12 tens, 7 ones Refer to 2.NBT.1)*

Evidence Statements
1. The student reads and writes multi-digit whole numbers using base-ten numerals, number names, expanded form, and unit form.
2. The student compares two multi-digit whole numbers, written in the same form or in different forms, using >, <, =, and ≠ symbols.

Performance Level Descriptors (PLDs)			
Level 1	**Level 2**	**Level 3**	**Level 4**
Students at level 1 show a *limited* ability to demonstrate their knowledge and skills such as:	**Students at level 2 show a *basic* ability to demonstrate their knowledge and skills such as:**	**Students at level 3 show a *proficient* ability to demonstrate their knowledge and skills such as:**	**Students at level 4 show an *advanced* ability to demonstrate their knowledge and skills such as:**
• Students should be able to read multi-digit whole numbers using base-ten numerals. • Students should be able to decompose a number in the range 1 to 1,000 into hundreds, tens, and ones. • Students should be able to compare two three-digit numbers based on the meaning of the digit in each place, using >, <, =, and ≠ symbols to record the results of comparisons.	• Students should be able to read multi-digit whole numbers using base-ten numerals, number names, expanded form, and unit form. • Students should be able to compare two four-digit numbers based on the meaning of the digit in each place, using >, <, =, and ≠ symbols to record the results of comparisons. • Students should be able to decompose a number in the range 1 to 10,000 into thousands, hundreds, tens,	• Students should be able to read and write multi-digit whole numbers using base-ten numerals, number names, expanded form, and unit form. • Students should be able to compare two numbers in any form (base-ten numerals, number names, expanded form, and unit form), each with up to seven digits, based on the meaning of the digit in each place, using >, <, =, and ≠ symbols to record	• Students should be able to read, write, and order from least to greatest a given set of at least three numbers in any form (base-ten numerals, number names, expanded form, and unit form), each with up to seven digits, based on the meaning of the digit in each place, using >, <, =, and ≠ symbols to record the results of comparisons.

	and ones in multiple ways.	the results of comparisons. • Students should be able to decompose a number in the range 1 to 1,000,000 into millions, thousands, hundreds, tens, and ones in multiple ways.	

Standard: 4.NBT.3

Use place value understanding to round multi-digit whole numbers to any place.

Evidence Statement			
1. The student rounds multi-digit whole numbers to any place.			
Performance Level Descriptors (PLDs)			
Level 1	**Level 2**	**Level 3**	**Level 4**
Students at level 1 show a *limited* ability to demonstrate their knowledge and skills such as:	**Students at level 2 show a *basic* ability to demonstrate their knowledge and skills such as:**	**Students at level 3 show a *proficient* ability to demonstrate their knowledge and skills such as:**	**Students at level 4 show an *advanced* ability to demonstrate their knowledge and skills such as:**
• Students should be able to identify the value of each digit in a multi-digit number in the range 1 to 999. • Students should be able to use place value understanding to round whole numbers up to three digits to any place.	• Students should be able to use place value understanding to round whole numbers up to four digits to any place.	• Students should be able to use place value understanding to round whole numbers up to six digits to any place.	• Students should be able to determine ways to use rounding appropriate to the context.

Cluster: 4.NBT.B

Use place value understanding and properties of operations to perform multi-digit arithmetic.

Standards:

4.NBT.4 - Fluently (efficiently, accurately, and flexibly) add and subtract multi-digit whole numbers using an efficient algorithm (including, but not limited to: traditional, partial-sums, etc.), based on place value understanding and the properties of operations.

4.NBT.5 - Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

4.NBT.6 - Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Standard: 4.NBT.4

Fluently (efficiently, accurately, and flexibly) add and subtract multi-digit whole numbers using an efficient algorithm (including, but not limited to: traditional, partial-sums, etc.), based on place value understanding and the properties of operations.

Evidence Statement			
1. The student adds and subtracts multi-digit whole numbers.			
Performance Level Descriptors (PLDs)			
Level 1	**Level 2**	**Level 3**	**Level 4**
Students at level 1 show a _limited_ ability to demonstrate their knowledge and skills such as:	**Students at level 2 show a _basic_ ability to demonstrate their knowledge and skills such as:**	**Students at level 3 show a _proficient_ ability to demonstrate their knowledge and skills such as:**	**Students at level 4 show an _advanced_ ability to demonstrate their knowledge and skills such as:**
• Students should be able to fluently (efficiently, accurately, and flexibly) add two-digit whole numbers using place value understanding and the properties of operations.	• Students should be able to fluently (efficiently, accurately, and flexibly) add and subtract two- and three-digit whole numbers using place value understanding and the properties of operations.	• Students should be able to use strategies to fluently (efficiently, accurately, and flexibly) add and subtract multi-digit whole numbers, using an efficient algorithm (including but not limited to traditional, partial sums, etc.) based on place value understanding and the properties of operations.	• Students should be able to use strategies to fluently (efficiently, accurately, and flexibly) solve multistep problems that involve adding and subtracting multi-digit whole numbers, using an efficient algorithm (including but not limited to traditional, partial sums, etc.) based on place value understanding and the properties of operations.

Standard: 4.NBT.5

Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Evidence Statements
1. The student multiplies whole numbers (up to four digits by one digit or two digits by two digits) using strategies based on place value understanding and properties of operations.
2. The student illustrates and explains multiplication calculations using equations, rectangular arrays, and area models.

Performance Level Descriptors (PLDs)			
Level 1 **Students at level 1 show a *limited* ability to demonstrate their knowledge and skills such as:**	**Level 2** **Students at level 2 show a *basic* ability to demonstrate their knowledge and skills such as:**	**Level 3** **Students at level 3 show a *proficient* ability to demonstrate their knowledge and skills such as:**	**Level 4** **Students at level 4 show an *advanced* ability to demonstrate their knowledge and skills such as:**
• Students should be able to use place value understanding to multiply any one-digit number by 10 or 100. • Students should be able to use arrays to illustrate their solution.	• Students should be able to multiply a whole number of up to three digits by a one-digit whole number, using strategies based on place value and the properties of operations. • Students should be able to illustrate the solution by using rectangular arrays and/or area models.	• Students should be able to multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. • Students should be able to illustrate and explain the solution by using equations, rectangular arrays, and/or area models.	• Students should be able to multiply a whole number of at least three digits by a whole number of at least two digits, using strategies based on place value and the properties of operations. • Students should be able to identify mistakes in sample student work and explain how to correctly arrive at the solution by using equations, rectangular arrays, and/or area models.

Standard: 4.NBT.6

Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Evidence Statements
1. The student illustrates and explains multiplication and division calculations using equations, rectangular arrays, and area models.
2. The student finds whole-number quotients and remainders (up to four-digit dividends and one-digit divisors) using strategies based on place value understanding, properties of operations, and the relationship between multiplication and division.

Performance Level Descriptors (PLDs)			
Level 1 **Students at level 1 show a *limited* ability to demonstrate their knowledge and skills such as:**	**Level 2** **Students at level 2 show a *basic* ability to demonstrate their knowledge and skills such as:**	**Level 3** **Students at level 3 show a *proficient* ability to demonstrate their knowledge and skills such as:**	**Level 4** **Students at level 4 show an *advanced* ability to demonstrate their knowledge and skills such as:**
• Students should be able to find whole-number quotients, without remainders, of up to two-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. • Students should be able to use arrays to illustrate their solution.	• Students should be able to find whole-number quotients, with remainders, of up to two-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. • Students should be able to illustrate the calculation by using rectangular arrays and/or area models.	• Students should be able to find whole-number quotients, with remainders, of up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. • Students should be able to illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	• Students should be able to find whole-number quotients, with remainders, of at least four-digit dividends and two-digit divisors that are multiples of 10, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. • Students should be able to critique solutions by illustrating and explaining calculations using equations,

			rectangular arrays, and/or area models.

Cluster: 4.NF.A

Extend understanding of fraction equivalence and ordering.

Standards:

4.NF.1 - Explain why a fraction a/b is equivalent to a fraction $(n \cdot a)/(n \cdot b)$ 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.2 - Compare two fractions with different numerators and different denominators, *(e.g. by creating common numerators or denominators, or by comparing to a benchmark fraction such as 1/2 .)* Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with relational symbols >, <, =, or ≠, and justify the conclusions, *(e.g. by using visual fraction models.)*

Standard: 4.NF.1

Explain why a fraction a/b is equivalent to a fraction $(n \cdot a)/(n \cdot b)$ 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.

Evidence Statements			
1. The student recognizes and explains when two or more fractions are equivalent by using visual fraction models. 2. The student generates equivalent fractions given an initial fraction or fraction model.			
Performance Level Descriptors (PLDs)			
Level 1 Students at level 1 show a *limited* ability to demonstrate their knowledge and skills such as:	**Level 2** Students at level 2 show a *basic* ability to demonstrate their knowledge and skills such as:	**Level 3** Students at level 3 show a *proficient* ability to demonstrate their knowledge and skills such as:	**Level 4** Students at level 4 show an *advanced* ability to demonstrate their knowledge and skills such as:
• Students should be able to create and use visual fraction models to generate equivalent proper fractions when one of the fractions is a unit fraction with denominator 2, 3, 4, or 5.	• Students should be able to use visual fraction models to explain why two proper fractions with denominators 2 through 10 can be equivalent even when the number and size of the parts in the models differ. • Students should be able to generate equivalent proper fractions by creating and using visual fraction models.	• Students should be able to use visual fraction models to explain why two proper fractions with any denominators are equivalent when the number and size of the parts in the models differ. • Students should be able to generate equivalent fractions.	• Students should be able to use visual fraction models to explain why two improper fractions are equivalent when the number and size of the parts in the models differ. • Students should be able to generate equivalent improper fractions.

Standard: 4.NF.2

Compare two fractions with different numerators and different denominators, *(e.g. by creating common numerators or denominators, or by comparing to a benchmark fraction such as 1/2 .)* Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with relational symbols >, <, =, or ≠, and justify the conclusions, *(e.g. by using visual fraction models.)*

Evidence Statement
1. The student compares two fractions with different numerators and different denominators using >, <, =, and ≠ symbols, including using visual fraction models.

Performance Level Descriptors (PLDs)			
Level 1 **Students at level 1 show a *limited* ability to demonstrate their knowledge and skills such as:**	**Level 2** **Students at level 2 show a *basic* ability to demonstrate their knowledge and skills such as:**	**Level 3** **Students at level 3 show a *proficient* ability to demonstrate their knowledge and skills such as:**	**Level 4** **Students at level 4 show an *advanced* ability to demonstrate their knowledge and skills such as:**
• Students should be able to compare two fractions that either have the same numerator and different denominators, or different numerators and the same denominator. • Students should be able to record the results of comparisons with the relational symbols >, <, =, and ≠.	• Students should be able to compare two fractions, one that is greater than 1/2 and another that is less than 1/2, with different numerators and different denominators, by comparing to the benchmark fraction 1/2. • Students should be able to record the results of comparisons with the relational symbols >, <, =, and ≠, and explain how they used the benchmark fraction 1/2 to arrive at the result.	• Students should be able to compare two fractions with different numerators and different denominators. • Students should be able to record the results of comparisons with the relational symbols >, <, =, and ≠, and justify the conclusions.	• Students should be able to compare a list of three or more fractions with different numerators and different denominators and create a sequence that orders the fractions from least to greatest. • Students should be able to record the results of comparisons among at least three fractions with the relational symbols >, <, =, and ≠, and justify the conclusions.

Cluster: 4.NF.B

Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.

Standards:

4.NF.3 - Understand a fraction a/b with a > 1 as a sum of fractions $1/b$.

> 4.NF.3a - Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.

> 4.NF.3b - 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, *e.g. by using a visual fraction model. Examples: 3/8 = 1/8 + 1/8 + 1/8 ; 3/8 = 1/8 + 2/8 ; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.*

> 4.NF.3c - Add and subtract mixed numbers with like denominators, *e.g. by replacing each mixed number with an equivalent fraction (simplest form is not an expectation), and/or by using properties of operations and the relationship between addition and subtraction.*

> 4.NF.3d - Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, *e.g. by using visual fraction models and equations to represent the problem.*

4.NF.4 - Apply and extend previous understandings of multiplication (refer to 2.OA.3, 2.OA.4, 3.OA.1, 3.NF.1, 3.NF.2) to multiply a fraction by a whole number.

> 4.NF.4a - Understand a fraction a/b as a multiple of 1/b. *For example, use a visual fraction model to represent 5/4 as 5 copies of 1/4, recording the conclusion by the equation 5/4 = 5 1/4.*

> 4.NF.4b - Understand a multiple of a/b as a multiple of 1/b, 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.4c - Solve word problems involving multiplication of a fraction by a whole number, (See Table 2) *(e.g. by using visual fraction models and equations to represent the problem.) For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?*

Standard: 4.NF.3

Understand a fraction a/b with a > 1 as a sum of fractions $1/b$.

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

4.NF.3b - 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, *e.g. by using a visual fraction model. Examples: 3/8 = 1/8 + 1/8 + 1/8 ; 3/8 = 1/8 + 2/8 ; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.*

4.NF.3c - Add and subtract mixed numbers with like denominators, *e.g. by replacing each mixed number with an equivalent fraction (simplest form is not an expectation), and/or by using properties of operations and the relationship between addition and subtraction.*

4.NF.3d - Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, *e.g. by using visual fraction models and equations to represent the problem.*

Evidence Statements
1. The student expresses an equivalent form of a fraction or mixed number by considering each as a sum of fractions with the same denominator.
2. The student adds and subtracts fractions and mixed numbers with like denominators in real-world and mathematical problems, including using visual fraction models and equations to represent the problem (limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12, and 100).

Performance Level Descriptors (PLDs)			
Level 1	**Level 2**	**Level 3**	**Level 4**
Students at level 1 show a *limited* ability to demonstrate their knowledge and skills such as:	Students at level 2 show a *basic* ability to demonstrate their knowledge and skills such as:	Students at level 3 show a *proficient* ability to demonstrate their knowledge and skills such as:	Students at level 4 show an *advanced* ability to demonstrate their knowledge and skills such as:
• Students should be able to decompose a proper fraction into a sum of fractions with the same denominator in one way, recording each decomposition by an equation. • Students should be able use a visual model to convert a	• Students should be able to decompose a fraction or mixed number into a sum of fractions with the same denominator in multiple ways, recording each decomposition by an equation. • Students should be able to add or	• Students should be able to explain, using examples, that a fraction with a > 1 is the sum of l fractions $1/b$. • Students should be able to explain addition and subtraction of fractions as joining and separating parts.	• Students should be able to add and subtract mixed numbers with like denominators in multistep problems. • Students should be able to solve multistep word problems involving addition and subtraction of

mixed number into an improper fraction with the same denominator.	subtract a fraction and a mixed number with the same denominator by converting the mixed number into a fraction with the same denominator. • Students should be able to solve one-step word problems involving addition or subtraction of fractions with like denominators.	• Students should be able to decompose a fraction or mixed number into a sum of fractions with the same denominator in multiple ways, recording each decomposition by an equation, and justifying each decomposition. • Students should be able to add and subtract mixed numbers with like denominators. • Students should be able to solve word problems involving addition and subtraction of fractions and mixed numbers with like denominators.	fractions and mixed numbers with like denominators.

Standard: 4.NF.4

Apply and extend previous understandings of multiplication (refer to 2.OA.3, 2.OA.4, 3.OA.1, 3.NF.1, 3.NF.2) to multiply a fraction by a whole number.

4.NF.4a - Understand a fraction *a/b* as a multiple of 1/*b*. *For example, use a visual fraction model to represent 5/4 as 5 copies of 1/4, recording the conclusion by the equation 5/4 = 5 1/4.*

4.NF.4b - Understand a multiple of *a/b* as a multiple of 1/b, 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.4c - Solve word problems involving multiplication of a fraction by a whole number, (See Table 2) *(e.g. by using visual fraction models and equations to represent the problem.) For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?*

Evidence Statements
1. The student represents a fraction *a/b* as a multiple of 1/*b*.
2. The student multiplies a fraction by a whole number in real-world and mathematical problems, including using visual fraction models and equations to represent the problem.

Performance Level Descriptors (PLDs)			
Level 1 **Students at level 1 show a *limited* ability to demonstrate their knowledge and skills such as:**	**Level 2** **Students at level 2 show a *basic* ability to demonstrate their knowledge and skills such as:**	**Level 3** **Students at level 3 show a *proficient* ability to demonstrate their knowledge and skills such as:**	**Level 4** **Students at level 4 show an *advanced* ability to demonstrate their knowledge and skills such as:**
• Students should be able to identify visual models that demonstrate understanding that a fraction *a/b* is a multiple of 1/*b*.	• Students should be able to identify equations and generate visual models that demonstrate understanding that a fraction *a/b* is a multiple of 1/*b*. • Students should be able to solve one-step mathematical problems involving multiplying a unit fraction by a whole	• Students should be able to generate equations and visual models to demonstrate understanding that a fraction *a/b* is a multiple of 1/*b*. • Students should be able to solve two-step mathematical and word problems that involve multiplying a fraction by a whole number, including	• Students should be able to solve multistep mathematical and word problems that involve multiplying a fraction by a whole number.

	number using visual models.	usage of visual models and equations.	

Cluster: 4.NF.C

Understand decimal notation for fractions, and compare decimal fractions

Standards:

4.NF.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. *For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.*

4.NF.6 - 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.7 - Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the relational symbols >, < =, or ≠, and justify the conclusions, (*e.g. by using a visual model.*).

Standard: 4.NF.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. *For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.*

Evidence Statements			
1. The student expresses a fraction with denominator 10 as an equivalent fraction with denominator 100.			
2. The student adds two fractions with respective denominators 10 and 100.			
Performance Level Descriptors (PLDs)			
Level 1 Students at level 1 show a *limited* ability to demonstrate their knowledge and skills such as:	**Level 2** Students at level 2 show a *basic* ability to demonstrate their knowledge and skills such as:	**Level 3** Students at level 3 show a *proficient* ability to demonstrate their knowledge and skills such as:	**Level 4** Students at level 4 show an *advanced* ability to demonstrate their knowledge and skills such as:
• Students should be able to identify equivalent fractions, one with denominator 10 and one with denominator 100. • Students should be able to add two fractions, both with denominators of 10 or both with denominators of 100.	• Students should be able use a visual model to recognize when a fraction expressed in tenths is equivalent to a fraction expressed in hundredths. • Students should be able to add two fractions when one has a denominator of 10 and the other has a denominator of 100, when provided with a visual fraction model.	• Students should be able to express a fraction with denominator 10 as an equivalent fraction with denominator 100. • Students should be able to add two fractions with denominators 10 and 100 by expressing the fraction with denominator 10 as a fraction with denominator 100.	• Students should be able to express a fraction with denominator 10 as an equivalent fraction with a denominator that is a power of 10. • Students should be able to add two fractions with denominators that are powers of 10.

Standard: 4.NF.6

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.*

Evidence Statements			
1. The student uses decimal notation to represent fractions with denominator 10 or 100.			
2. The student locates decimal numbers to the hundredths place on a number line.			
Performance Level Descriptors (PLDs)			
Level 1	**Level 2**	**Level 3**	**Level 4**
Students at level 1 show a *limited* ability to demonstrate their knowledge and skills such as:	**Students at level 2 show a *basic* ability to demonstrate their knowledge and skills such as:**	**Students at level 3 show a *proficient* ability to demonstrate their knowledge and skills such as:**	**Students at level 4 show an *advanced* ability to demonstrate their knowledge and skills such as:**
• Students should be able to match unit fractions with denominator 10 or 100 with equivalent unit fractions. • Students should be able to identify decimal notation for fractions with denominator 10.	• Students should be able to use decimal notation for fractions with denominator 10. • Students should be able to locate decimal numbers to the tenths place on a number line.	• Students should be able to use decimal notation for fractions with denominator 10 or 100. • Students should be able to locate decimal numbers to the tenths and hundredths places on a number line.	• Students should be able to use decimal notation for fractions with denominator 1,000. • Students should be able to locate decimal numbers to the thousandths place on a number line.

Standard: 4.NF.7

Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the relational symbols >, < =, or ≠, and justify the conclusions, (*e.g. by using a visual model.)*.

Evidence Statement			
1. The student compares two decimals to the hundredths place by reasoning about their size using >, <, =, and ≠ symbols and visual fraction models.			
Performance Level Descriptors (PLDs)			
Level 1	**Level 2**	**Level 3**	**Level 4**
Students at level 1 show a *limited* ability to demonstrate their knowledge and skills such as:	**Students at level 2 show a *basic* ability to demonstrate their knowledge and skills such as:**	**Students at level 3 show a *proficient* ability to demonstrate their knowledge and skills such as:**	**Students at level 4 show an *advanced* ability to demonstrate their knowledge and skills such as:**
• Students should be able to compare two decimals to tenths by reasoning about their size and recording the results of comparisons with the relational symbols >, <, =, and ≠.	• Students should be able to compare two decimals to hundredths, both with the same number of digits, by reasoning about their size, and record the results of comparisons with the relational symbols >, <, =, and ≠.	• Students should be able to compare any two decimals to hundredths by reasoning about their size; explain the comparison; record the results of comparisons with the relational symbols >, <, =, and ≠; and justify the conclusions.	• Students should be able to compare two decimals to thousandths by reasoning about their size; explain the comparison; record the results of comparisons with the relational symbols >, <, =, and ≠; and justify the conclusions.

Cluster: 4.MD.A

Draw and identify lines and angles and classify shapes by properties of their lines and angles.

Standards:

4.MD.1 - Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz; l, ml; hr, min, sec. 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. For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36),...

4.MD.2 - Use the four operations to solve word problems (See Table 1 and Table 2) 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.3 - Apply the area and perimeter formulas for rectangles in real world and mathematical problems explaining and justifying the appropriate unit of measure. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.

Standard: 4.MD.1

Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz; l, ml; hr, min, sec. 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. *For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36),...*

Evidence Statements
1. The student converts measurements from larger units to smaller units within a single system of units (mi, yd, ft, in.; km, m, cm; lb, oz; kg, g; gal, qt, pt, cup; L, mL; and hr, min, sec).
2. The student records measurement equivalents in a two-column table.

Performance Level Descriptors (PLDs)			
Level 1 **Students at level 1 show a *limited* ability to demonstrate their knowledge and skills such as:**	**Level 2** **Students at level 2 show a *basic* ability to demonstrate their knowledge and skills such as:**	**Level 3** **Students at level 3 show a *proficient* ability to demonstrate their knowledge and skills such as:**	**Level 4** **Students at level 4 show an *advanced* ability to demonstrate their knowledge and skills such as:**
• Students should be able to identify appropriate sizes of objects and measurement units to use for measuring them. • Students should be able to identify which unit within a measurement system is larger or smaller than another.	• Students should be able to convert familiar measurements within a single system of measurement. • Students should be able to express measurements in a larger unit in terms of a smaller unit (hours, minutes, seconds; yards, feet inches; and pounds, ounces). • Students should be able to identify a two-column table that records these measurement equivalents.	• Students should be able to express measurements in a larger unit in terms of a smaller unit within a single system of units (miles, yards, feet, inches; kilometers, meters, centimeters; pounds, ounces; kilograms, grams; gallons, quarts, pints, cups; liters, milliliters; and hours, minutes, seconds). • Students should be able to record measurement equivalents in a two-column table.	• Students should be able to explain how to convert measurements from a larger unit to a smaller unit and from a smaller unit to a larger unit within a single system of measurement.

Standard: 4.MD.2

Use the four operations to solve word problems (See Table 1 and Table 2) 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.

Evidence Statements
1. The student converts measurements from larger units to smaller units within a single system of units (mi, yd, ft, in.; km, m, cm; lb, oz; kg, g; gal, qt, pt, cup; L, mL; and hr, min, sec).
2. The student uses the four operations to solve real-world problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including using diagrams that represent measurement quantities.

Performance Level Descriptors (PLDs)			
Level 1 Students at level 1 show a *limited* ability to demonstrate their knowledge and skills such as:	**Level 2** Students at level 2 show a *basic* ability to demonstrate their knowledge and skills such as:	**Level 3** Students at level 3 show a *proficient* ability to demonstrate their knowledge and skills such as:	**Level 4** Students at level 4 show an *advanced* ability to demonstrate their knowledge and skills such as:
• Students should be able to use addition and subtraction to solve one-step word problems involving distances and intervals of time that use the same unit of measurement.	• Students should be able to use all four operations to solve one-step word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, involving whole numbers, fractions, and decimals, that require expressing measurements given in a larger unit in terms of a smaller unit.	• Students should be able to use the four operations to solve one- and two-step 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. • Students should be able to represent measurement quantities using diagrams, such as	• Students should be able to use the four operations to solve multistep problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple and improper fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. • Students should be able to represent measurement quantities using

		number line diagrams, that feature a measurement scale.	diagrams and number lines with scales greater than 1 or less than 1.

Standard: 4.MD.3

Apply the area and perimeter formulas for rectangles in real world and mathematical problems explaining and justifying the appropriate unit of measure. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.

Evidence Statement
1. The student recalls and applies the area and perimeter formulas for rectangles to solve real-world and mathematical problems.

Performance Level Descriptors (PLDs)			
Level 1 **Students at level 1 show a *limited* ability to demonstrate their knowledge and skills such as:**	**Level 2** **Students at level 2 show a *basic* ability to demonstrate their knowledge and skills such as:**	**Level 3** **Students at level 3 show a *proficient* ability to demonstrate their knowledge and skills such as:**	**Level 4** **Students at level 4 show an *advanced* ability to demonstrate their knowledge and skills such as:**
• Students should be able to solve for the area and perimeter of rectangles when given two side lengths in mathematical problems.	• Students should be able to solve for the area and perimeter of rectangles when given two side lengths in real-world and mathematical problems, and use the appropriate unit of measurement in solutions.	• Students should be able to apply the area and perimeter formulas for rectangles in real-world and mathematical problems to solve for a side length, an area, or a perimeter, explaining and justifying the appropriate unit of measure.	• Students should be able to apply the area and perimeter formulas for rectilinear figures in real-world and mathematical problems to solve for a side length, an area, or a perimeter, explaining and justifying the appropriate unit of measure and the process of arriving at a solution.

Cluster: 4.MD.B

Represent and interpret data.

Standards:

4.MD.4 - Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots.

Standard: 4.MD.4

Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots.

Evidence Statements			
1. The student makes or identifies data displays (line plot, bar graph, pictograph) to represent data sets with measurements in fractions of a unit (1/2, 1/4, 1/8).			
2. The student uses information presented in data displays (line plot, bar graph, pictograph) to solve problems involving addition and subtraction of fractions with like denominators.			
3. The student interprets information presented in data displays (line plot, bar graph, pictograph).			
Performance Level Descriptors (PLDs)			
Level 1 Students at level 1 show a *limited* ability to demonstrate their knowledge and skills such as:	**Level 2** Students at level 2 show a *basic* ability to demonstrate their knowledge and skills such as:	**Level 3** Students at level 3 show a *proficient* ability to demonstrate their knowledge and skills such as:	**Level 4** Students at level 4 show an *advanced* ability to demonstrate their knowledge and skills such as:
• Students should be able to identify features (title, axes, categories, and key) of a line plot that displays a data set of measurements in whole numbers and halves of a unit. • Students should be able to answer basic questions about the features of the data display.	• Students should be able to identify a line plot that displays a given data set of measurements in fractions of a unit (1/2, 1/4, 1/8). • Students should be able to answer questions about the data display.	• Students should be able to create a line plot that displays a given data set of measurements in fractions of a unit (1/2, 1/4, 1/8) and answer questions about the data display. • Students should be able to solve problems involving addition and subtraction of fractions by using information presented in line plots.	• Students should be able to generate measurement data in fractions of a unit (1/2, 1/4, 1/8), create a line plot to display the data set, and critique the data display. • Students should be able to solve problems involving multiplication of fractions by using information presented in line plots.

Cluster: 4.G.A

Draw and identify lines and angles and classify shapes by properties of their lines and angles.

Standards:

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

4.G.2 - Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles (right, acute, obtuse, straight, reflex). Recognize and categorize triangles based on angles (right, acute, obtuse, and equiangular) and/or sides (scalene, isosceles, and equilateral).

4.G.3 - Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.

Standard: 4.G.1

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

Evidence Statement			
1. The student draws points, lines, line segments, rays, and angles and identifies these in two-dimensional figures.			
Performance Level Descriptors (PLDs)			
Level 1 **Students at level 1 show a *limited* ability to demonstrate their knowledge and skills such as:**	**Level 2** **Students at level 2 show a *basic* ability to demonstrate their knowledge and skills such as:**	**Level 3** **Students at level 3 show a *proficient* ability to demonstrate their knowledge and skills such as:**	**Level 4** **Students at level 4 show an *advanced* ability to demonstrate their knowledge and skills such as:**
• Students should be able to identify points, lines, line segments, and rays.	• Students should be able to identify points, lines, line segments, rays, angles (right, acute, obtuse, straight, reflex), and perpendicular and parallel lines.	• Students should be able to identify and draw points, lines, line segments, rays, angles (right, acute, obtuse, straight, reflex), and perpendicular and parallel lines. • Students should be able to identify points, lines, line segments, rays, angles (right, acute, obtuse, straight, reflex), and perpendicular and parallel lines in two-dimensional figures.	• Students should be able to apply their knowledge of points, lines, line segments, rays, angles (right, acute, obtuse, straight, reflex), and perpendicular and parallel lines to generate shapes with a given set of constraints.

Standard: 4.G.2

Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles (right, acute, obtuse, straight, reflex). Recognize and categorize triangles based on angles (right, acute, obtuse, and equiangular) and/or sides (scalene, isosceles, and equilateral).

Evidence Statements
1. The student classifies two-dimensional figures based on the presence or absence of parallel or perpendicular lines and types of angles (right, acute, obtuse, straight, reflex).
2. The student categorizes triangles based on angles (right, acute, obtuse, equiangular) and sides (scalene, isosceles, equilateral).

Performance Level Descriptors (PLDs)			
Level 1 Students at level 1 show a *limited* ability to demonstrate their knowledge and skills such as:	**Level 2** Students at level 2 show a *basic* ability to demonstrate their knowledge and skills such as:	**Level 3** Students at level 3 show a *proficient* ability to demonstrate their knowledge and skills such as:	**Level 4** Students at level 4 show an *advanced* ability to demonstrate their knowledge and skills such as:
• Students should be able to identify features of two-dimensional shapes, including parallel lines, perpendicular lines, right angles, acute angles, obtuse angles, and straight angles. • Students should describe each angle in a triangle as right, acute, or obtuse.	• Students should be able to sort two-dimensional figures into categories that include parallel or perpendicular lines, or the presence or absence of angles (right, acute, obtuse, straight, reflex). • Students should be able to recognize and categorize triangles based on angles (right, acute, obtuse, and equiangular).	• Students should be able to classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles (right, acute, obtuse, straight, reflex). • Students should be able to recognize and categorize triangles based on angles (right, acute, obtuse, and equiangular) and/or sides (scalene, isosceles, and equilateral).	• Students should be able to generate quadrilaterals from a list of constraints, such as the number of angles, the presence or absence of parallel or perpendicular lines, or the presence or absence of angles (right, acute, obtuse, straight, reflex). • Students should be able to generate triangles from a list of constraints, including type of angle (right, acute, obtuse, and equiangular) and/or type of sides (scalene,

			isosceles, and equilateral).

Standard: 4.G.3

Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.

Evidence Statement
1. The student identifies and draws lines of symmetry in line-symmetric figures and distinguishes line-symmetric figures from line-asymmetric figures.

Performance Level Descriptors (PLDs)			
Level 1 **Students at level 1 show a *limited* ability to demonstrate their knowledge and skills such as:**	**Level 2** **Students at level 2 show a *basic* ability to demonstrate their knowledge and skills such as:**	**Level 3** **Students at level 3 show a *proficient* ability to demonstrate their knowledge and skills such as:**	**Level 4** **Students at level 4 show an *advanced* ability to demonstrate their knowledge and skills such as:**
• Students should recognize a line of symmetry for a square, rectangle, or circle as a line across the figure so that it can be folded along the line into matching parts. • Students should be able to draw lines of symmetry in squares, rectangles, and circles.	• Students should recognize a line of symmetry for a regular polygon or a circle as a line across the figure so that it can be folded along the line into matching parts. • Students should be able to draw lines of symmetry in regular polygons and in circles.	• Students should be able to recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. • Students should be able to identify line-symmetric figures and draw lines of symmetry.	• Students should be able to identify and draw all lines of symmetry in polygons and other shapes. • Students should be able to identify the number of lines of symmetry for different categories of shapes, including rectangles, squares, isosceles triangles, equilateral triangles, regular pentagons, regular hexagons, regular octagons, parallelograms, rhombuses, and kites.