Mathematics Standards Clarification for

Grade 3

The Nevada Ready! Network

Designed for teachers by teachers!

2019

The Nevada Ready! Network

Standards-Based Instruction for ALL Nevada Students

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Operations & Algebraic Thinking

Cluster

Represent and solve problems involving multiplication and division.

NVACS 3.OA.A.1 (Major Work)

Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as 5 × 7.*

Element	Exemplars
Standards for Mathematical Practice	• MP 4 Students will model with mathematics to include a variety of representations showing equal-sized groups, arrays, area models, and use contextual situations to lay the foundations for multiplication and division of whole numbers. • MP 7 Students will look for and make use of structure and notice patterns in mathematics as they make models and when they skip count (e.g., when building arrays, students may notice that changing the order of the factors doesn't impact the product.). • MP 8 Students will look for and express regularity in repeated reasoning for patterns and relationships with regard to multiples, within products up to 100 with two or more factors.
Instructional Strategies	• Developing conceptions: Students often misinterpret factors as addends. • Provide students contexts for using concrete models, such as chips, counters, cubes, straws, etc… to represent groups in real world multiplication situations (e.g. Here are three bicycles. Each bicycle has two wheels. There are six wheels altogether.). • Ask students to identify the number of groups and the number of items in each group then total the items. • Use of number lines to show repeated addition; use of bar diagrams and area models. • Use the concrete, representational/pictorial, abstract progression when providing instruction. • Use 100s chart to see the patterns in multiples. • Show a variety of models of multiplication. (i.e. 3 groups of 5 counters can be written as 3 × 5.). • Provide a variety of contexts and tasks so that students will have opportunities to develop and use thinking strategies to support and reinforce learning of basic multiplication and division facts.
Prerequisite Skills	• Skip count by 2, 5, and 10. • Develop an understanding of rows and columns. • Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends (i.e. repeated addition).

Element	Exemplars
Connections Within and Beyond Grade Level	Within: • Understand commutative property (e.g. 3 x 7 = 21 is the same as 7 x 3 = 21). • See multiplication as area. (See Measurement and Data Standards for Grade 3, 3.MD.C.). • Understand distributive property by adding the products of two arrays (e.g. 5 x 7 = 35 is the same as (3 x 7) + (2 x 7) = 21+ 14 = 35). Students in third grade do not need to know the formal term for the distributive property. • Understand associative property (e.g. 3 x 5 x 2 can be found by 3 x 5 = 15, then 15 x 2 = 30, or by 5 x 2 = 10, then 3 x 10 = 30). Students in third grade do not need to know the formal term for the associative property. Beyond: • This knowledge builds the fundamental understanding of multiplication that is essential as students work toward the sixth grade standards of fluency with multi-digit multiplication and division.
Instructional Examples/Lessons/Tasks	• Georgia Standards of Excellence Curriculum Frameworks Relationship Between Multiplication and Division Performance Tasks (Georgia Framework-Unit 2 pgs. 16–18) • Inside Mathematics OA Activities/Lessons and Performance Tasks (Inside Mathematics) • Khan Academy Khan Academy OA Practice (Khan Academy) • Achieve the Core Multiplication and the Meaning of Factors (Achieve the Core) • Math Solutions Which has More? (Math Solutions) • Better Lesson The Story of Multiplication (Better Lesson) Equal Groups on a Number Line (Better Lesson) • Graham Fletcher Progression of Multiplication Video (Graham Fletcher) • ACT Academy Plans, Videos, Games, and Assessment (ACT Academy)
Assessment Examples	• Sample SBAC Assessment Item SBAC Sample Questions (Grades 3–8) Smarter Balanced Assessment Item (Achieve the Core) • Embarc Item Multiplication (Arrays/Groups) (Embarc)

Operations & Algebraic Thinking

Cluster

Represent and solve problems involving multiplication and division.

NVACS 3.OA.A.2 (Major Work)

Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. *For example, describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.*

Element	Exemplars
Standards for Mathematical Practice	• MP 2 Students reason abstractly and quantitatively and describe a context for situations involving problems with whole number quotients. • MP 4 Students model with mathematics and use a variety of representations showing equal-sized groups, arrays, and area models to lay the foundation for multiplication and division of whole numbers. • MP 5 Students use appropriate tools strategically and connect arrays to bar diagrams and number lines.
Instructional Strategies	• Developing conceptions: Since multiplication is commutative (3 x 7 = 7 x 3), some students think that 21 ÷ 3 and 3 ÷ 21 mean the same thing. • Reinforce the meaning of division by having students read 3 ÷ 21 as "21 divided by 3" or "How many groups of 3 are in 21?" • Introduce division symbols and terminology (÷, factor, missing factor, product, divisor, dividend, and quotient). • Use concrete materials and pictorial representations to model various real-world division situations (e.g. there are 18 marbles and each player needs 6 marbles. How many people can play?). • Use both partitioning/fair share and repeated subtraction. • Create multiplication problem situations that interpret the missing factor as the number of shares or number of objects in a group and write a division expression. • Create division problem situations that interpret the quotient of whole numbers as the number of shares or number of objects in a group.
Prerequisite Skills	• Group objects and count by equal groups and write an equation to represent the multiplication fact (e.g. 3 x 7 = 21 or 7 x 3 = 21). • Understand and use vocabulary: *factor, product, groups of*

Element	Exemplars
Connections Within and Beyond Grade Level	Within: • Make connections to the commutative property of multiplication (e.g. 3 x 7 = 21 is the same as 7 x 3 = 21). Beyond: • This knowledge builds the foundation for understanding fractions as division in fifth grade. • This knowledge builds the fundamental understanding of multiplication that is essential as students work toward the sixth grade standards of fluency with multi-digit multiplication and division.
Instructional Examples/Lessons/Tasks	• Georgia Standards of Excellence Curriculum Frameworks Relationship Between Multiplication and Division Performance Tasks (Georgia Framework--Unit 2 pgs. 16–18). • Inside Mathematics OA Activities/Lessons and Performance Tasks (Inside Mathematics). • Khan Academy Khan Academy OA Practice (Khan Academy) • Illustrative Mathematics: Fish Tanks (Illustrative Mathematics) Markers in Boxes (Illustrative Mathematics) • ACT Academy Videos, Plans, Games, and Assessments (ACT Academy)
Assessment Examples	Baking Cookies (CCSS Activities - Performance Task) Division as unknown factor quiz (Embarc) PARCC Assessment Item (Achieve the Core)

Operations & Algebraic Thinking

Cluster

Represent and solve problems involving multiplication and division.

NVACS 3.OA.A.3 (Major Work)

Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

Element	Exemplars
Standards for Mathematical Practice	• MP 2 Students reason abstractly and quantitatively to make sense of their relationships in problem situations. Students decontextualize a given situation and represent it pictorially and/or symbolically (e.g. 24 cookies are being shared by 4 children equally and each child gets 6 cookies is shown and written as 24 ÷ 4 = 6). Students contextualize quantities that can be represented in a picture and/or story (e.g. 24 ÷ 4 = 6 to 24 cookies are being shared by 4 children equally. Each child gets 6 cookies). • MP 4 Students will model with mathematics to include a variety of representations showing equal-sized groups, arrays, and area models in order to solve word problems. • MP 8 Students look for and express regularity in repeated reasoning to solve multiplication and division word problems.
Instructional Strategies	• Developing conceptions: Students may have trouble identifying information in a problem situation (e.g. which number represents the total, the number of groups and/or the number of items in a group). Students may need more experience in making explicit connections between their concrete models or pictures and the numbers in the problem. • Model a variety of equal group multiplication situations. • Discuss representations and explain thinking to connect models to problem situations. • Solve problems in a variety of ways to show the same idea and explain thinking verbally and in writing to compare strategies.
Prerequisite Skills	• Students are proficient in the instructional strategies referenced in 3.OA.A1 and 3.OA.A2.
Connections Within and Beyond Grade Level	Within: • Students may use concrete materials to model situations and identify the number of groups and the number of items in a group and may use models such as pictures and number lines as representations of multiplication. Beyond: • This knowledge builds the foundation necessary for problem solving using all four operations in fourth grade.

Element	Exemplars
Instructional Examples/Lessons/Tasks	• Georgia Standards of Excellence Curriculum Frameworks Relationship Between Multiplication and Division Performance Tasks (Georgia Framework-Unit 2 pgs. 16–18) • Inside Mathematics OA Activities/Lessons and Performance Tasks (Inside Mathematics) • Khan Academy Khan Academy OA Practice (Khan Academy) • Illustrative Mathematics Gifts from Grandma (Illustrative Mathematics) Two Interpretations of Division (Illustrative Mathematics) • Inside Mathematics Interpreting Multiplication & Division (Inside Mathematics) Two Interpretations of Division (Illustrative Mathematics) • 101 Questions The Chocolate Chip Problem • ACT Academy Videos, Games, Plans, and Assessments, (ACT Academy)
Assessment Examples	• Sample SBAC Assessment Items SBAC Sample Questions (Grades 3-8) (Smarter Balance) Smarter Balanced Assessment Item (Achieve the Core) • Howard County Public Schools Word Problem Sample Assessments (Howard County)

Operations & Algebraic Thinking

Cluster

Represent and solve problems involving multiplication and division.

NVACS 3.OA.A.4 (Major Work)

Determine the unknown whole number in a multiplication or division equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = _ ÷ 3, 6 × 6 = ?*

Element	Exemplars
Standards for Mathematical Practice	• MP 7 Students look for and make use of structure to compose and decompose numbers and use fact families to understand the relationship between multiplication and division (e.g. 4 x 5 = 20, 5 x 4 = 20, 20 ÷ 4 = 5, 20 ÷ 5 = 4). The understanding of this structure makes finding the unknown number more predictable.
Instructional Strategies	• Developing conceptions: Students may read equations inaccurately when moving from multiplication to division. • Read and write related multiplication and division equations with missing factors. • Build fact families and explain the relationship among the facts. • Justify thinking about related facts with models or drawings. For example, determine the unknown whole number in 27 ÷ __ = 3 by using the related multiplication fact of 3 × 9 = 27.
Prerequisite Skills	• Students are proficient in the instructional strategies referenced in 3.OA.A1 and 3.OA.A2. • Students must be able to model and explain situations related to symbolic notation.
Connections Within and Beyond Grade Level	Within: • Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers. Beyond: • This knowledge builds the foundation for the use of area and perimeter formulas with unknown side lengths in fourth grade.

Element	Exemplars
Instructional Examples/Lessons/Tasks	• Georgia Standards of Excellence Curriculum Frameworks: Relationship Between Multiplication and Division Performance Tasks (Georgia Framework--Unit 2 pgs 16–18) • Inside Mathematics: OA Activities/Lessons and Performance Tasks (Inside Mathematics) The Wheel Shop (Inside Mathematics) • Khan Academy: Khan Academy OA Practice (Khan Academy) • Illustrative Mathematics: Finding the Unknown in Division Problem(Illustrative Mathematics) • ACT Academy Videos, Plans, Games, and Assessments (ACT Academy)
Assessment Examples	• Inside Mathematics The Answer is 36 (Inside Mathematics) • Embarc Item Unknown Factors Quiz (Embarc) • Sample PARC Assessment Item PARC Assessment Item (Achieve the Core)

Operations & Algebraic Thinking

Cluster

Understand properties of multiplication and the relationship between multiplication and division.

NVACS 3.OA.B.5 (Major Work)

Apply properties of operations as strategies to multiply and divide. *Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.)*

Element	Exemplars
Standards for Mathematical Practice	• MP 3 Students construct viable arguments and critique the reasoning of others. Students develop precise language of multiplication and division in order to explain their thinking about individual operations and how the operations relate to each other. • MP 4 Students model with mathematics through the use of concrete models, pictures, words, and numbers to justify their understanding of multiplication and division. • MP 6 Students attend to precision and apply commutative, associative, and distributive properties to multiply and divide. • MP 7 Students look for and make use of structure to describe patterns they notice as they work with multiplication and division facts.
Instructional Strategies	• Developing conceptions: Students may confuse multiplying by zero with adding zero. • Incorporate properties of operations to develop strategies and patterns for multiplication and division. • Multiply by a factor of 1 to discover 1 as the identity element for multiplication. • Apply the commutative property of multiplication to show related facts. • Explore the distributive property in the context of composing and decomposing factors, including using arrays to break apart products. • Use associative property to multiply three or more factors by grouping the numbers strategically. • Note: Students need to apply properties of operations (commutative, associative, and distributive) as strategies to multiply and divide. Applying the concept involved is more important than students knowing the name of the property.
Prerequisite Skills	• Interpret products of whole numbers (e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each.) For example, describe a context in which a total number of objects can be expressed as 5 × 7. (3.OA.1)

Element	Exemplars
Connections Within and Beyond Grade Level	Within: • Use tiling to show concretely that the area of a rectangle with whole-number side lengths a and b + c is the sum of a × b and a × c. Use area models to represent the distributive property in mathematical reasoning. (3.MD.7c) Beyond: • This knowledge builds the foundation for solving two-step word problems using the four operations.
Instructional Examples/Lessons/Tasks	• Georgia Standards of Excellence Curriculum Frameworks: Relationship Between Multiplication and Division Performance Tasks (Georgia Framework--Unit 2 pgs 16–18) • Inside Mathematics: OA Activities/Lessons and Performance Tasks (Inside Mathematics) • Khan Academy: Khan Academy OA Practice (Khan Academy) • Illustrative Mathematics: Valid Equalities? (Illustrative Mathematics) • Better Lesson: Decomposing Arrays Day 1 (Better Lesson) Distributive Property Day 1 (Better Lesson) • ACT Academy: Videos, Plans, Games, and Assessments (ACT Academy)
Assessment Examples	• Inside Mathematics Boxing the Pots (Inside Mathematics) • Sample SBAC Assessment Item Smarter Balanced Assessment Item (Achieve the Core) • Howard County Public Schools Properties of Operations (Howard County)

Operations & Algebraic Thinking

Cluster

Understand properties of multiplication and the relationship between multiplication and division.

NVACS 3.OA.B.6 (Major Work)

Understand division as an unknown-factor problem. *For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.*

Element	Exemplars
Standards for Mathematical Practice	• MP 7 Students look for and make use of structure and focus on the relationship between multiplication and division and understand the commutative property (e.g. 4 x 5 = 20, 5 x 4 = 20, 20 ÷ 4 = 5, 20 ÷ 5 = 4).
Instructional Strategies	• Developing conceptions: Students may view multiplication and division as discrete operations and may not recognize the importance of the relationship as while learning basic facts or solving problems. • Model and solve problems with missing factors. • Make explicit connections between the model, the written multiplication equation, and the related division equations.
Prerequisite Skills	• Understand that the part/whole relationship is critical in knowing the connection between multiplication and division. • Extend work from 3.OA.A.3 and 3.OA.A.4. • Understand division as finding a missing factor and relate this work to writing division expressions and equations.
Connections Within and Beyond Grade Level	Within: • Knowledge of fact families. • Model the connection between multiplication and division. Beyond: • This knowledge builds the foundation for multi-digit arithmetic in fourth grade and multiplying and dividing fractions in fifth grade.
Instructional Examples/Lessons/Tasks	• Georgia Standards of Excellence Curriculum Frameworks: Relationship Between Multiplication and Division Performance Tasks (Georgia Framework--Unit 2 pgs. 16–18) • Inside Mathematics: OA Activities/Lessons and Performance Tasks (Inside Mathematics) Boxing the Pots (Inside Mathematics) • Khan Academy: Khan Academy OA Practice (Khan Academy) • Act Academy: Videos, Plans, Games, and Assessments (ACT Academy)

Element	Exemplars
Assessment Examples	• Sample SBAC Assessment Item SBAC Sample Questions (Grades 3-8) (Smarter Balance) Smarter Balanced Assessment Item (Achieve the Core) • Embarc Item Unknown Factor Quiz (Embarc)

Operations & Algebraic Thinking

Cluster

Multiply and divide within 100.

NVACS 3.OA.C.7 (Major Work)

Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Element	Exemplars
Standards for Mathematical Practice	• MP 6 Students attend to precision and calculate with exactness. • MP 7 Students look for and make use of structure and focus on the relationship between multiplication and division, including understanding multiples.

Instructional Strategies	• Developing Conceptions: Students do not see the inverse relationship between multiplication and division. When using a derived strategy in multiplication to add or subtract a group students lose track of the group size. Develop conceptual understanding before practice and fluency exercises.
	• Use counting strategies including skip counting to arrive at answers.
	• Learn the foundational facts, 1's, 2's, 5's, and 10's, to develop derived facts.
	• Incorporate reasoning strategies:
	  ○ Use known/derived facts to logically determine unknown facts. (e.g. 6 x 6. Student knows 6 x 5 equals 30, so one more group on 6 is 36.)
	  ○ Use doubling and halving (e.g. 6 x 6 is the same as 3 x 6 doubled).
	• Teach properties of multiplication.

Prerequisite Skills	• Use concrete materials to model multiplication and division. • Understand division as terms of finding a missing factor.
Connections Within and Beyond Grade Level	Within: • Explore concrete to pictorial representations to be able to fluently multiply within 100 through the use of strategies. (3.OA.A.7) • Use games that include models and representations to develop multiplication fact recall. Beyond: • This knowledge builds the fundamental understanding for multi-digit multiplication and division in fourth grade.

Element	Exemplars
Instructional Examples/Lessons/Tasks	• Georgia Standards of Excellence Curriculum Frameworks Relationship Between Multiplication and Division Performance Tasks (Georgia Framework--Unit 2 pgs. 16–18) • Inside Mathematics: OA Activities/Lessons and Performance Tasks (Inside Mathematics) • Khan Academy Khan Academy OA Practice (Khan Academy) • Illustrative Mathematics Kiri's Multiplication Match Game (Illustrative Mathematics) • ACT Academy Videos, Plans, Games, and Assessments (ACT Academy)
Assessment Examples	• Embarc Quiz Multiplication and Division Quiz (Embarc) • Sample Parc Assessment Item PARC Assessment Item (Achieve the Core)

Operations & Algebraic Thinking

Cluster

Solve problems involving the four operations, and identify and explain patterns in arithmetic.

NVACS 3.OA.D.8 (Major Work)

Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

Element	Exemplars
Standards for Mathematical Practice	• MP 1 Students make sense of problems and persevere in solving them and use the steps in the thinking process: Understand the question, have a starting point, locate the necessary data, know what to do with the data/which operation/s should be used, make a plan, evaluate the reasonableness of their answer, determine if another strategy is needed. Have a repertoire of strategies; Draw a picture, Find a Pattern, Make a Table, Guess and Check, Make an Organized List, Use Logical Reasoning, Work Backward. • MP 2 Students reason abstractly and quantitatively and make sense of quantities and their relationships in problem situations. Students need to decontextualize - to abstract a given situation and represent it symbolically. Use quantitative reasoning that entails creating coherent representations. • MP 6 Students attend to precision and ask themselves if a task can be completed using mental computation, estimation, or paper and pencil. Use appropriate mathematical vocabulary and accurate units of measure when asked to explain a process; steps and order are key elements. Writing ideas in a numbered list helps to clearly organize and communicate the steps of the process.
Instructional Strategies	• Developing Conceptions: Students often struggle making sense of the problem. • Provide opportunities for students to solve problems using models, pictures, words, and numbers. • Scaffold problems that provide use of all four operations, including two-step problems. • Support students to interpret problems, including identifying given, needed, and wanted information. • Provide opportunities for students to explain their solution strategies and to justify why their solution makes sense using accurate mathematical vocabulary. • Provide opportunities for students to represent problem situations with concrete or pictorial models. • Provide opportunities for students to determine the reasonableness of the solution to all problems using mental computations and estimation strategies.
Prerequisite Skills	• Use concrete materials to model multiplication and division.

Element	Exemplars
Connections Within and Beyond Grade Level	Within: • Apply knowledge of the four operations to solve problems. Beyond: • This knowledge builds the foundation for solving problems using all four operations with larger numbers in fourth grade.
Instructional Examples/Lessons/Tasks	• Georgia Standards of Excellence Curriculum Frameworks: • Patterns in Addition and Multiplication Performance Tasks (Georgia Framework--Unit 3 pgs. 13–15) • Inside Mathematics • OA Activities/Lessons and Performance Tasks (Inside Mathematics) • Khan Academy Khan Academy OA Practice (Khan Academy) • Illustrative Mathematics The Stamp Collection (Illustrative Mathematics) • ACT Academy • Videos, Plans, Games, and Assessments (ACT Academy)
Assessment Examples	• Sample SBAC Assessment Item SBAC Sample Questions (Grades 3-8) (Smarter Balance) Smarter Balanced Assessment Item (Achieve the Core) • Embarc Item Word Problem Quiz (Embarc)

Operations & Algebraic Thinking

Cluster

Solve problems involving the four operations, and identify and explain patterns in arithmetic.

NVACS 3.OA.D.9 (Major Work)

Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. *For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.*

Element	Exemplars
Standards for Mathematical Practice	• MP 1 Students make sense of problems and persevere in solving them by using the following steps in the thinking process: Understand the question; have a starting point; locate the necessary data; know what to do with the data/which operation/s should be used; make a plan; evaluate the reasonableness of their answer; determine if another strategy is needed. Have a repertoire of strategies: Draw a picture; Find a Pattern; Make a Table; Guess and Check; Make an Organized List; Use Logical Reasoning; Work Backward. • MP 2 Students reason abstractly and quantitatively and make sense of quantities and their relationships in problem situations. Students need to decontextualize - to abstract a given situation and represent it symbolically. Use quantitative reasoning that entails creating coherent representations. • MP 6 Students attend to precision and ask themselves if a task can be completed using mental computation, estimation, or paper and pencil. Students can use appropriate mathematical vocabulary and accurate units of measure when asked to explain a process; steps and order are key elements. Writing ideas in a numbered list helps to clearly organize and communicate the steps of the process. • MP 7 Students look for and make use of structure patterns to help them understand the structure of the four operations; should also be connected to the work in the NBT domain.
Instructional Strategies	• Developing conceptions: Students have difficulty finding and describing patterns. Using visual patterns may help develop this skill. • Provide ample opportunities for students to generate, discuss, and describe patterns on multiplication or addition tables. Ask questions like “How do you know?” or “Does this always work?” • Support students in organizing information and representing important information accurately on the tables. • Provide ample opportunities for students to share and explain, and their solutions with their peers. • Provide ample opportunities for students to critique the reasoning and solutions of others.

Element	Exemplars
Prerequisite Skills	• Understand and recognize patterns. • Skip count by single-digit numbers. • Understand foundational properties of operations.
Connections Within and Beyond Grade Level	Within: • Apply the commutative, associative, and distributive properties and strategies for multiplication and division. Beyond: • This knowledge builds the foundational skills for generating a number or shape pattern that follows a given rule in fourth grade.
Instructional Examples/Lessons/Tasks	• Georgia Standards of Excellence Curriculum Frameworks • Patterns in Addition and Multiplication Performance Tasks (Georgia Framework-Unit 3 pgs.13–15) • Inside Mathematics OA Activities/Lessons and Performance Tasks (Inside Mathematics) The Wheel Shop (Inside Mathematics) • Khan Academy: • Khan Academy OA Practice (Khan Academy) • Illustrative Mathematics: Patterns in the Multiplication Table (Illustrative Mathematics) • ACT Academy: Videos, Games, Plans and Assessments (ACT Academy)
Assessment Examples	• Sample SBAC Assessment Item SBAC Sample Questions (Grades 3-8) (Smarter Balance) • Inside Mathematics Houses in a Row (Inside Mathematics)

Number & Operations in Base Ten

Cluster

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

NVACS 3.NBT.A.1 (Additional Work)

Use place value understanding to round whole numbers to the nearest 10 or 100.

Element	Exemplars
Standards for Mathematical Practice	• MP 3 Students construct viable arguments and critique the reasoning of others. Students can listen to the reasoning of others, compare arguments, and decide if the arguments of others make sense because teachers provide opportunities for students to listen to or read the conclusions and arguments of others. Students can make reasonable guesses to explore their ideas because teachers avoid giving too much assistance (e.g., providing answers or procedures). • MP 6 Students attend to precision and calculate accurately and efficiently because teachers recognize and model efficient strategies for computation. Students can explain their thinking using mathematics vocabulary because teachers use (and challenge students to use) mathematics.
Instructional Strategies	• Developing conception: Students have difficulty understanding the mid-point when rounding. • Provide opportunities to round using a vertical number line. • Start rounding to the nearest ten, then move to rounding to the nearest 100.
Prerequisite Skills	• Understand place value to 999.
Connections Within and Beyond Grade Level	Within: • Estimate to the nearest 10 or 100 using metric measurement units and strategies (e.g. number line, length, and weight). Beyond: • This knowledge builds foundational understanding to round multi-digit numbers to any place value in fourth grade.
Instructional Examples/Lessons/Tasks	• Inside Mathematics: Activities/Lessons and Performance Tasks (Inside Mathematics) • Khan Academy Khan Academy Practice for NBT (Khan Academy) • Rounding Race: Rounding Race • Georgia Standards of Excellence Curriculum Frameworks Performance Tasks for NBT (Georgia Framework-Unit 1 pgs. 13–15) • ACT Academy Assessments, Videos, Plans and Homework

Element	Exemplars
Assessment Examples	• Embarc Item Rounding Quiz (Embarc) • Sample SBAC Item and Task Smarter Balanced Tasks (Smarter Balanced) Smarter Balanced Assessment Item (Achieve the Core)

Number & Operations in Base Ten

Cluster

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

NVACS 3.NBT.A.2 (Additional Work)

Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Element	Exemplars
Standards for Mathematical Practice	• MP 5 Students use appropriate tools strategically, including place value charts and manipulatives, to solve addition and subtraction problems. • MP 6 Students attend to precision. Students calculate accurately and efficiently because teachers recognize and model efficient strategies for computation. Students can explain their thinking using mathematical vocabulary because teachers use (and challenging students to use) mathematical vocabulary precisely and consistently. • MP 7 Students look for and make use of structure. Students can look for, develop, and generalize relationships and patterns because teachers ask questions about the application of patterns. Students can apply reasonable thoughts about patterns and properties to new situations because teachers highlight different approaches for solving problems. • MP 8 Students look for and express regularity in repeated reasoning. Students can look for patterns and repeated calculations because the teacher provides tasks and problems with patterns. Students can evaluate the reasonableness of results and solutions because teachers ask about possible answers before and after computations.
Instructional Strategies	Note: Multiple algorithms are acceptable in this standard. • Developing conceptions: When subtracting, students often choose whichever number is larger within the place value column (ones, tens, etc.) to subtract the other number from instead of regrouping, if the larger number is actually the amount that needs to be taken away. • Provide students with opportunities to use manipulatives, models, and place value charts to add and subtract.
Prerequisite Skills	• Understand the meaning of addition and subtraction and fluently add and subtract within 100. • Know from memory all sums of two one-digit numbers.
Connections Within and Beyond Grade Level	Within: • Apply addition and subtraction within 1000 to solve word problems. Beyond: • This knowledge builds fluency towards adding and subtracting multi-digit numbers, using standard algorithm.

Element	Exemplars
Instructional Examples/Lessons/Tasks	• Illustrative Math Classroom Supplies (Illustrative Math) • Georgia Standards of Excellence Curriculum Frameworks Performance Tasks for NBT (Georgia Framework-Unit 1 pgs. 13–15) • Inside Mathematics Activities/Lessons and Performance Tasks (Inside Mathematics) • Khan Academy Khan Academy Practice for NBT (Khan Academy) • ACT Academy Videos, Games, Plans, and Assessments (ACT Academy)
Assessment Examples	• Embarc Item Adding and Subtracting Quiz (Embarc Subtracting Quiz(Embarc) • Sample SBA Item and Task Smarter Balanced Tasks (Smarter Balanced) Smarter Balanced Assessment Item (Achieve the Core)

Number & Operations in Base Ten

Cluster

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

NVACS 3.NBT.A.3 (Additional Work)

Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations.

Element	Exemplars
Standards for Mathematical Practice	• MP 2 Students reason abstractly and quantitatively. Students can explain their thinking because teachers facilitate discussion through guided questions and representations. Students can examine the reasonableness of their answers/calculations because teachers ask students to explain their thinking regardless of accuracy. • MP 3 Students construct viable arguments and critique the reasoning of others. Students can listen to the reasoning of others, compare arguments, and decide if the arguments of others make sense because teachers provide opportunities for students to listen to or read the conclusions and arguments of others. Students can make reasonable guesses to explore their ideas because teachers avoid giving too much assistance (e.g., providing answers or procedures). • MP 4 Students model with mathematics. Students can justify solutions and approaches because teachers model desired behaviors (think alouds) and thought processes (questioning, revision, reflection/written). Students can ask clarifying questions because teachers provide meaningful, real-world, authentic, performance-based tasks (nontraditional work problems). • MP 6 Students attend to precision. Students calculate accurately and efficiently because teachers recognize and model efficient strategies for computation. Students can explain their thinking using mathematical vocabulary because teachers use (and challenging students to use) mathematical vocabulary precisely and consistently. • MP 7 Students look for and make use of structure. Students can look for, develop, and generalize relationships and patterns because teachers ask questions about the application of patterns. Students can apply reasonable thoughts about patterns and properties to new situations because teachers highlight different approaches for solving problems. • MP 8 Students look for and express regularity in repeated reasoning. Students can look for methods and shortcuts in patterns and repeated calculations because the teacher provides tasks and problems with patterns. Students can evaluate the reasonableness of results and solutions because teachers ask about possible answers before and reasonableness after computations.

Element	Exemplars
Instructional Strategies	• Developing conceptions: Students are often taught to add a zero to the number being multiplied by ten. • Provide opportunities for students to use place value charts to develop conceptual understanding of multiplying by 10. • Model multiplication using pictures, diagrams, or concrete manipulatives.
Prerequisite Skills	• Skip count by multiples of 10. • Understand relationship of columns in the place value chart.
Connections Within and Beyond Grade Level	Within: • Apply properties of operations to multiply. Beyond: • This knowledge builds foundational understanding necessary to multiply two and three digit numbers.
Instructional Examples/Lessons/Tasks	• Georgia Standards of Excellence Curriculum Frameworks Performance Tasks for NBT (Georgia Framework--Unit 1 pgs. 13–15) Relationship Between Multiplication and Division Performance Tasks (Georgia Framework-Unit 2 pgs. 16–18) • Inside Mathematics Activities/Lessons and Performance Tasks (Inside Mathematics) • Khan Academy Khan Academy Practice for NBT (Khan Academy) • ACT Academy Videos, Games, Plans, and Assessments (ACT Academy)
Assessment Examples	• Sample SBAC Assessment Item Smarter Balanced Tasks (Smarter Balanced) • Embarc Item Multiplication (0/10) (Embarc) • Sample PARCC Assessment Item PARCC Assessment Item (Achieve the Core)

Number & Operations – Fractions

Cluster

Develop understanding of fractions as numbers.

NVACS 3.NF.A.1 (Major Work)

Understand a fraction 1/*b* as the quantity formed by 1 part when a whole is partitioned into *b* equal parts; understand a fraction *a*/*b* as the quantity formed by *a* parts of size 1/*b*.

Element	Exemplars
Standards for Mathematical Practice	• MP 4 Students model with mathematics. Students can justify solutions and approaches because teachers model desired behaviors (think alouds) and thought processes (questioning, revision, reflection/written). Students can ask clarifying questions because teachers provide meaningful, real world, authentic, performance-based tasks (nontraditional work problems). • MP 6 Students attend to precision. Students calculate accurately and efficiently because teachers recognize and model efficient strategies for computation. Students can explain their thinking using mathematical vocabulary because teachers use (and challenging students to use) mathematical vocabulary precisely and consistently. • MP 7 Students look for and make use of structure. Students can look for, develop, and generalize relationships and patterns because teachers ask questions about the application of patterns. Students can apply reasonable thoughts about patterns and properties to new situations because teachers highlight different approaches for solving problems. • MP 8 Students look for and express regularity in repeated reasoning. Students can look for methods and shortcuts in patterns and repeated calculations because teacher provide tasks and problems with patterns. Students can evaluate the reasonableness of results and solutions because teachers ask about possible answers before and reasonableness after computations.

Element	Exemplars

Instructional Strategies	• Expected work for this domain is limited to work with the denominators 2, 3, 4, 6, and 8.
	• Developing conceptions: Students often can see the shaded sections as the numerator, but forget to count all of the pieces to identify the denominator. They tend to forget to include the shaded pieces in the total number of pieces when naming the denominator.
	• Provide varied and repeated opportunities to construct the understanding of fractions using:
	  ○ Fraction strips (having students create these)
	  ○ Partitioning shapes or composing shapes and naming the parts connected to the whole.
	  ○ Connecting the parts to the whole.
	  ○ Discussing the whole in relation to the parts.
	• Use different models, such as fraction bars and number lines, to allow students to compare unit fractions to reason about their sizes.
	• Present shapes other than circles, squares or rectangles to prevent students from overgeneralizing that all shapes can be divided the same way.

Prerequisite Skills	• Partition circles and rectangles in to two, three, or four equal shares.
Connections Within and Beyond Grade Level	Within: • Partition shapes into parts with equal areas expressing the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal area, and describe the area of each part as ¼ of the area of the shape. • Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. She the data by making a line plot, where the horizontal scale is marked off in appropriate units - whole numbers, halves, or quarters. • Understand a fraction as a number on the number line. • Represent fractions on a number line diagram. • Understand equivalent (equal) fractions (using number lines). • Recognize simple equivalent fractions. • Express whole numbers as fractions. • Recognize fractions that are equivalent to whole numbers. • Compare two fractions with the same numerator by reasoning about their size. • Compare two fractions with the same denominator by reasoning about their size. • Record the results of comparisons with the symbols >, +, < by using a visual fraction model. Beyond: • This knowledge prepares students to be able to add, subtract, multiply, and divide fractions, including mixed numbers.

Element	Exemplars
Instructional Examples/Lessons/Tasks	• Illustrative Mathematics • Naming the Whole for a Fraction (Illustrative Mathematics) • Georgia Standards of Excellence Curriculum Frameworks • Performance Tasks for Fractions (Georgia Framework-Unit 5 pgs. 10–12) • Inside Mathematics Activities/Lessons and Performance Tasks (Inside Mathematics) • Khan Academy Khan Academy Practice for NF (Khan Academy) • ACT Academy 3.NF.A.1 Classroom Assessments, Homework, Videos, Lesson Plans (ACT Academy)
Assessment Examples	• Embarc Item Fraction Quiz (Embarc) • Sample SBAC Assessment Item Smarter Balanced Tasks (Smarter Balanced) • Inside Mathematics • Leap Frog Fractions (Inside Mathematics)

Number & Operations – Fractions

Cluster

Develop understanding of fractions as numbers.

NVACS 3.NF.A.2.a and NVACS 3.NF.A.2.b (Major Work)

Understand a fraction as a number on the number line; represent fractions on a number line diagram.

a. Represent a fraction 1/*b* on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into *b* equal parts. Recognize that each part has size 1/*b* and that the endpoint of the part based at 0 locates the number 1/*b* on the number line.
b. Represent a fraction *a*/*b* on a number line diagram by marking off a lengths 1/*b* from 0. Recognize that the resulting interval has size *a*/*b* and that its endpoint locates the number *a*/*b* on the number line.

Element	Exemplars
Standards for Mathematical Practice	• MP 4 Students model with mathematics. Students reason with models including area models, number lines, fraction strips, and tape diagrams to develop an understanding of unit fractions conceptually. They start to develop an understanding of the essential meaning of the numerator and the denominator. • MP 5 Students use appropriate tools strategically. Connecting area models to fraction strips and number lines; tape diagrams provide a meaningful progression of the use of tools strategically. • MP 6 Students attend to precision. Students calculate accurately and efficiently because teachers recognize and model efficient strategies for computation. Students can explain their thinking using mathematical vocabulary because teachers use (and challenging students to use) mathematical vocabulary precisely and consistently. • MP 8 Students look for and express regularity in repeated reasoning. Students use repeated reasoning to compose other fractions from unit fractions. The use of models help students to make generalizations as they develop an understanding of the meaning of common fractions and fractions greater than one. This understanding is used to find equivalent fractions as well as compare them.

Element	Exemplars

Instructional Strategies	• Expected work for this domain is limited to work with the denominators 2, 3, 4, 6, and 8.
	• Developing conception: Students often have difficulty understanding that one location on the number line can have two names, i.e. ½ and 2/4. Students need help recognizing that the same pattern that exists between 0 and 1 repeats itself between all whole numbers.
	• Use varied and repeated opportunities to construct the understanding of fractions using:
	  ○ Fraction strips and number lines to transfer the parts from the strips to the number line.
	  ○ By modeling for students the labeling of iterated fraction intervals on the number line.

Prerequisite Skills	• Partition circles and rectangles into two, three, or four equal shares. • Represent whole numbers on a number line with equal spacing between the numbers.
Connections Within and Beyond Grade Level	Within: • Partition shapes into parts with equal areas expressing the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal area, and describe the area of each part as ¼ of the area of the shape. • Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. She the data by making a line plot, where the horizontal scale is marked off in appropriate units - whole numbers, halves, or quarters. • Understand a fraction as a number on the number line. • Represent fractions on a number line diagram. • Understand equivalent (equal) fractions (using number lines). • Recognize simple equivalent fractions. • Express whole numbers as fractions. • Recognize fractions that are equivalent to whole numbers. • Compare two fractions with the same numerator by reasoning about their size. • Compare two fractions with the same denominator by reasoning about their size. • Record the results of comparisons with the symbols >, +, < by using a visual fraction model. Beyond: • This knowledge is foundational for making a line plot to display a data set of measurements in fractions of a unit.

Element	Exemplars
Instructional Examples/Lessons/Tasks	• Georgia Standards of Excellence Curriculum Frameworks Performance Tasks for Fractions (Georgia Framework-Unit 5 pgs. 10–12) • Inside Mathematics Activities/Lessons and Performance Tasks (Inside Mathematics) • Khan Academy Khan Academy Practice for NF (Khan Academy) • Illustrative Mathematics Closest to 1/2 (Illustrative Mathematics) Find 1 (Illustrative Mathematics) Locating Fractions Less Than 1 on the Number Line (Illustrative Mathematics) • ACT Academy Classroom Assessments, Homework, Videos, Lesson Plans (ACT Academy)
Assessment Examples	• Illustrative Mathematics Assessment Item 3.NF.2 Assessments (Illustrative Mathematics) • Embarc Item Fraction Quiz (Embarc) • Sample SBAC Assessment Item Smarter Balanced Assessment Item (Achieve the Core)

Number & Operations – Fractions

Cluster

Develop understanding of fractions as numbers.

NVACS 3.NF.A.3.a and NVACS 3.NF.A.3.b and NVACS 3.NF.A.3.c (Major Work)

a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.
b. Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3. Explain why the fractions are equivalent, e.g., by using a visual fraction model.
c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. *Examples: Express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram.*

Element	Exemplars
Standards for Mathematical Practice	• MP 3 Students construct viable arguments and critique the reasoning of others. Students can listen to the reasoning of others, compare arguments, and decide if the arguments of others make sense because teachers provide opportunities for students to listen to or read the conclusions and arguments of others. Students can make reasonable guesses to explore their ideas because teachers avoid giving too much assistance (e.g., providing answers or procedures). • MP 4 Students model with mathematics. Students reason with models including area models, number lines, and fraction strips; tape diagrams are used to develop an understanding of unit fractions conceptually. They start to develop an understanding of the essential meaning of the numerator and the denominator. • MP 7 Students look for and make use of structure. Students can look for, develop, and generalize relationships and patterns because teachers ask questions about the application of patterns. Students can apply reasonable thoughts about patterns and properties to new situations because teachers highlight different approaches for solving problems. • MP 8 Students look for and express regularity in repeated reasoning. Students use repeated reasoning to compose other fractions from unit fractions. The use of models help students to make generalizations as they develop an understanding of the meaning of common fractions and fractions greater than one. This understanding is used to find equivalent fractions as well as compare them.

Element	Exemplars
Instructional Strategies	• The use of algorithms or procedures are not an expectation of this grade. • Use models to help students develop conceptual understanding of equivalent fractions. • Use concrete experiences to gradually transition to using number lines to determine equivalent fractions. • Provide support for students to reason and justify why fractions are equivalent using visual models. • Provide opportunities for students to recognize that a whole number can be expressed as a fraction with a denominator of 1.
Prerequisite Skills	• Partition circles and rectangles into two, three, or four equal shares. • Describe the whole as two halves, three thirds, four fourths. • Represent whole numbers as lengths from 0 on a number line with equally spaced points corresponding to the numbers 0, 1, 2… etc. • Place fractions on a number line.
Connections Within and Beyond Grade Level	Within: • Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. She the data by making a line plot, where the horizontal scale is marked off in appropriate units - whole numbers, halves, or quarters. • Compare two fractions with the same numerator by reasoning about their size. • Compare two fractions with the same denominator by reasoning about their size. • Record the results of comparisons with the symbols >, +, < by using a visual fraction model. Beyond: • This knowledge is the basis finding equivalent fractions with more diverse denominators.
Instructional Examples/Lessons/Tasks	• Georgia Standards of Excellence Curriculum Frameworks Performance Tasks for Fractions (Georgia Framework-Unit 5 pgs. 10–12) • Inside Mathematics Activities/Lessons and Performance Tasks (Inside Mathematics) • Khan Academy Khan Academy Practice for NF (Khan Academy) • Illustrative Mathematics Find 7/4 starting at 1 (Illustrative Mathematics) • ACT Academy: Classroom Assessments, Homework, Videos, Lesson Plans (ACT Academy)
Assessment Examples	• Sample SBAC Assessment Item and Task Smarter Balanced Assessment Item (Achieve the Core) Smarter Balanced Tasks (Smarter Balanced) • Embarc Item Fraction Quiz (Embarc)

Number & Operations – Fractions

Cluster

Develop understanding of fractions as numbers.

NVACS 3.NF.A.3.d (Major Work)

Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, <, and justify the conclusions, e.g., by using a visual fraction model.

Element	Exemplars
Standards for Mathematical Practice	• MP 2 Students reason abstractly and quantitatively. Students can explain why equivalent fractions must describe the same size whole. • MP 3 Students construct viable arguments and critique the reasoning of others. Students can listen to the reasoning of others, compare arguments, and decide if the arguments of others make sense while analyzing the relationship to the whole. • MP 4 Students model with mathematics. Students can reason with models including area models, number lines, and fraction strips, tape diagrams to develop an understanding of unit fractions conceptually. They start to develop an understanding of the essential meaning of the numerator and the denominator. • MP 7 Students look for and make use of structure. Students can look for, develop, and generalize relationships between fractions. Students can explain equivalent fractions with representations including color tiles, pattern blocks, Cuisenaire rods, and fraction tiles. • MP 8 Students look for and express regularity in repeated reasoning. Students use repeated reasoning to compose equivalent fractions from unit fractions. The use of models help students to make generalizations as they develop an understanding of the meaning of common fractions and fractions greater than one. This understanding is used to find equivalent fractions as well as compare them.
Instructional Strategies	• Use visual fraction models. • Plot fractions on a number line.
Prerequisite Skills	• Understand and generate simple equivalent fractions.
Connections Within and Beyond Grade Level	• This knowledge is the basis comparing fractions with more diverse denominators.

Element	Exemplars
Instructional Examples/Lessons/Tasks	• Georgia Standards of Excellence Curriculum Frameworks • Performance Tasks for Fractions (Georgia Framework-Unit 5 pgs. 10–12) • Inside Mathematics Activities/Lessons and Performance Tasks (Inside Mathematics) • Khan Academy Khan Academy Practice for NF (Khan Academy) • Illustrative Mathematics Comparing Fractions Task (Illustrative Mathematics) Ordering Fractions (Illustrative Mathematics)
Assessment Examples	• Illustrative Mathematics sample Fraction Comparisons (Illustrative Mathematics) • Howard County Public Schools 3.NF.3 Assessment Tasks (Howard County Public Schools) • Embarc Item Fraction Quiz (Embarc) • Sample SBAC Assessment Item Smarter Balanced Assessment Item (Achieve the Core)

Measurement & Data

Cluster

Solve problems involving measurement and estimation.

NVACS 3.MD.A.1 (Major Work)

Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.

Element	Exemplars
Standards for Mathematical Practice	• MP 1 Students make sense of problems and persevere in solving them. Students will model intervals of time by adding or subtracting time on a number line diagram. • MP 4 Students model with mathematics. Students can justify solutions using an analog clock. Students can ask clarifying questions because teachers provide meaningful, real world, authentic, performance-based tasks (nontraditional work problems). • MP 5 Students use appropriate tools strategically. Students will use estimation as they find time to the nearest minute. • MP 6 Students will attend to precision by using appropriate mathematical language.

Instructional Strategies	• Developing conceptions: Some students may have a difficult time reading a clock. Before starting, make sure students can tell time to the minute on an analog clock.
	• Develop the understanding that the duration of an event is called elapsed time and it can be measured.
	• Use questions like:
	  ○ What does it mean to tell time to the nearest minute?
	  ○ What connections can I make between a clock and a number line?
	  ○ How can I use what I know about number lines to help me figure out how much time has passed between two events?
	  ○ How can we determine the amount of time that passes between two events?
	  ○ What part does elapsed time play in our daily living?

Prerequisite Skills	• Tell time to the nearest five minutes on an analog clock.
Connections Within and Beyond Grade Level	Beyond: • Telling time is a functional life skill.

Element	Exemplars
Instructional Examples/Lessons/Tasks	• Georgia Standards of Excellence Curriculum Frameworks Performance Tasks for Measurement (Georgia Dept. of Education-Unit 6 pgs. 12–16) Let's Talk about Time (Georgia Dept. of Education-Pgs. 14–17) Time to Get Clean (Georgia Dept. of Education-Pgs.18–22) Daily Schedule (Georgia Dept. of Education-Pgs. 23–37) Plane Ride (Georgia Dept. of Education-Pgs. 28–40) Enduring Understandings (Georgia Dept. of Education pg. 5) • Inside Mathematics Activities/Lessons and Performance Tasks (Inside Mathematics) • Khan Academy Khan Academy Practice for MD (Khan Academy) • ACT Academy 3.NF.A.1 Classroom Assessments, Homework, Videos, Lesson Plans (ACT Academy)
Assessment Examples	• Howard County Public Schools 3.MD.1 Assessment Tasks (Howard County Public Schools) • Embarc Item Telling Time Assessment (Embarc) • Sample SBAC Assessment Item Smarter Balanced Assessment Item (Achieve The Core)

Measurement & Data

Cluster

Solve problems involving measurement and estimation.

NVACS 3.MD.A.2 (Major Work)

Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.

Element	Exemplars
Standards for Mathematical Practice	• MP 1 Students make sense of problems and persevere in solving them. Students will interpret, analyze, and solve word problems involving volume and mass. • MP 2 Students reason abstractly and quantitatively. Students can explain their thinking because teachers facilitate discussion through guided questions and representations. Students can examine the reasonableness of their answers/calculations because teachers ask students to explain their thinking regardless of accuracy. • MP 4 Students model with mathematics. Students can justify solutions and approaches because teachers model desired behaviors (think alouds) and thought processes (questioning, revision, reflection/written). Students can ask clarifying questions because teachers provide meaningful, real world, authentic, performance-based tasks (non-traditional work problems). • MP 5 Students use appropriate tools strategically. Students will handle and touch all objects before they give an estimate. • MP 6 Students will attend to precision by using appropriate mathematical language and drawings to represent the problem. • MP 7 Students look for and make use of structure. Students can look for, develop, and generalize relationships and patterns because teachers ask questions about the application of patterns.

Instructional Strategies	• Developing conceptions: Students may accidently think of size and not mass.
	• Provide many hands on activities for students to develop an understanding about mass and volume.
	• Review vocabulary about the difference between mass and volume.
	• Estimate and weigh a variety of objects in order to comprehend the weight and size of a liter, gram, and kilogram.
	• Scavenger Hunt around the classroom
	  ○ Have students find items around the classroom that are close to gram or kilogram.
	  ○ Students are to estimate and then record their findings.

Element	Exemplars
Prerequisite Skills	• Use a scale to weigh objects. • Understand how to read horizontal and vertical number lines, including with larger numbers.
Connections Within and Beyond Grade Level	Beyond: • This knowledge is foundational for converting measurements from larger units to smaller units.
Instructional Examples/Lessons/Tasks	• Georgia Standards of Excellence Curriculum Frameworks Performance Tasks for Measurement (Georgia Framework-Unit 6 pgs. 12–14) • Inside Mathematics Activities/Lessons and Performance Tasks (Inside Mathematics) • Khan Academy: Khan Academy Practice for MD (Khan Academy) • RPDP: How many paper clips (Pgs. 47–52) Making a Kilogram (Pg. 53–58)
Assessment Examples	• Howard County Public School 3.MD.2 Assessment Tasks (Howard County Public School) • Embarc Item Measurement (Liquid and Mass) Quiz (Embarc) • Sample SBAC Assessment Item Smarter Balanced Assessment Item (Achieve The Core)

Measurement & Data

Cluster

Represent and interpret data.

NVACS 3.MD.B.3 (Supporting Work)

Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets*.

Element	Exemplars
Standards for Mathematical Practice	• MP 1 Students make sense of problems and persevere in solving them. Students can analyze and explain that a scaled picture graph contains a key that indicates what every symbol stands for. • MP 4 Students model with mathematics. Students will use real life data to create graphs and answer real life questions regarding that data. • MP 6 Students attend to precision. Students calculate accurately and efficiently having learned that you compare the data of the graphs with the corresponding scales in order to draw conclusions and make generalizations.
Instructional Strategies	• Developing conception: Students want to read graphs from left to right. • Create a variety of graphs to show data in different ways. • Provide opportunities for students to create scaled bar graphs. • Provide opportunities for students to collect data and represent it graphically.
Prerequisite Skills	• Generate measurement data to the nearest whole and place on line plots. • Draw picture graphs and bar graphs with up to four categories and solve simple math problems based upon the given graph.
Connections Within and Beyond Grade Level	Within: • This standard provides opportunity to connect science and mathematics and other cross-curricular activities.

Element	Exemplars
Instructional Examples/Lessons/Tasks	• Georgia Standards of Excellence Curriculum Frameworks Performance Tasks for Measurement (Georgia Framework-Unit 6- pgs. 12–15) Performance Tasks for Measurement (Georgia Framework-Unit 3- pgs. 13–15) Performance Tasks for Measurement (Georgia Framework-Unit 2- pgs. 16–18) Performance Tasks for Measurement (Georgia Framework-Unit 1- pgs. 13–15) Performance Tasks for Measurement (Georgia Framework-Unit 4- pg. 14–16) Performance Tasks for Measurement (Georgia Framework-Unit 5- pgs.10–12) • Inside Mathematics Activities/Lessons and Performance Tasks (Inside Mathematics) • Khan Academy: Khan Academy Practice for MD (Khan Academy)
Assessment Examples	• Howard County Public Schools 3.MD.3 Assessment Tasks (Howard County Public School) • Embarc Item Graphing Quiz (Embarc) • Sample SBAC Assessment Item Smarter Balanced Assessment Item (Achieve The Core)

Measurement & Data

Cluster

Represent and interpret data.

NVACS 3.MD.B.4 (Supporting Work)

Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters.

Element	Exemplars
Standards for Mathematical Practice	• MP 1 Students make sense of problems and persevere in solving them. Students can analyze and explain the horizontal scale used. Students will understand that the distance between two points is also the length. Students can actively engage in problem solving: develop, carry out, and refine a plan because teachers provide opportunities and time for cooperative problem solving while gathering the data needed to create the line plot. • MP 4 Students model with mathematics. Students will use real life data to create line plots and that answer real life questions regarding that data. Students can justify solutions and approaches through the use of cooperative groups and discourse. Students can ask clarifying questions about the data and create alternate meaningful, real world, authentic situations. • MP 5 Students use appropriate tools strategically. Students can use technology, tools, and resources to solve problems and deepen understanding. Students should understand that they do not have to begin at the zero on a ruler when measuring between 2 points. Students can select and use tools strategically (and flexibly) to visualize, explore, and compare information because teachers use tools with their instruction.
Instructional Strategies	• Provide opportunities for students to create line graphs using data from lengths using inches, halves, and fourths. • Provide opportunities for students to collect data with rulers and represent it graphically.
Prerequisite Skills	• Measure lengths of objects using the appropriate measuring tool and generate measurement data by measuring objects to the nearest whole unit and place on line plot.
Connections Within and Beyond Grade Level	Within: • Measure lengths of objects with a ruler to the nearest ½ and ¼ inch and place on line plot. Beyond: • Students will continue this work in fourth grade, by making line plots that display fractional units (½, ¼, ⅛) and solving addition and subtraction word problems.

Element	Exemplars
Instructional Examples/Lessons/Tasks	• Georgia Standards of Excellence Curriculum Frameworks Performance Tasks for Measurement (Georgia Framework-Unit 6- pgs. 12–14) Patterns in Addition and Multiplication Performance Tasks (Georgia Framework-Unit 3 pgs. 13–15) Relationship Between Multiplication and Division Performance Tasks (Georgia Framework-Unit 2 pgs.16–18) Performance Tasks for NBT (Georgia Framework-Unit 1 pgs. 13–15) Performance Tasks for Geometry (Georgia Framework-Unit 4 pgs. 14–16) Performance Tasks for Fractions (Georgia Framework-Unit 5 pgs. 10–12) • Inside Mathematics Activities/Lessons and Performance Tasks (Inside Mathematics) • Khan Academy Khan Academy Practice for MD (Khan Academy)
Assessment Examples	• Howard County Public Schools 3.MD.4 Assessment Tasks (Howard County Public Schools) • Embarc Item Graphing Quiz (Embarc) • Sample SBAC Assessment Item Smarter Balanced Assessment Item (Achieve The Core) SBAC Sample Items (Smarter Balance)

Measurement & Data

Cluster

Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

NVACS 3.MD.C.5.a and NVACS 3.MD.C.5.b (Major Work)

a. A square with side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area.
b. A plane figure which can be covered without gaps or overlaps by *n* unit squares is said to have an area of *n* square units.

Element	Exemplars
Standards for Mathematical Practice	• MP 2 Students reason abstractly and quantitatively. Students can explain their thinking because teachers facilitate discussion through guided questions and representations. Students can examine the reasonableness of their answers/calculations because teachers ask students to explain their thinking regardless of accuracy. • MP 4 Students model with mathematics. Students will make use of structure, understanding that 1 unit can also be part of an array. Students can use pentominoes to explore how the same area of 6 square units can have different perimeters. Students can ask clarifying questions because teachers provide meaningful, real world, authentic, performance-based tasks (nontraditional work problems). • MP 6 Students attend to precision. Students calculate accurately and efficiently and gain a thorough understanding of knowing how area and multiplication arrays are related to perimeter.

Element	Exemplars
Instructional Strategies	• Developing conceptions: Students often overlap square units or place them with spaces between them. Students also add dimensions instead of seeing all the square units in an area and eventually multiplying the side lengths. • Cover rectangular shapes with tiles and count the number of units (tiles) to begin developing the idea that area is a measure of covering. Area describes the size of an object that is two-dimensional. *The formulas should not be introduced before students discover the meaning of area.* • Make the connection of the area of a rectangle to the area model (array) used to represent multiplication. • Explore the concept of multiplication as related to the area of rectangles using arrays. Students need to discover that the length of one dimension of a rectangle tells how many squares are in each row of an array and the length of the other dimension of the rectangle tells how many squares are in each column. Ask questions about the dimensions if students do not make these discoveries. For example: ○ How do the squares covering a rectangle compare to an array? ○ How is multiplication used to count the number of objects in an array?
Prerequisite Skills	• Partition rectangles into row and columns of the same sized-squares and count them to find the total area
Connections Within and Beyond Grade Level	Within: • Measure area by counting and tiling unit squares without gaps or overlaps and relate area to multiplication and addition • Partition shapes into equal areas using unit fractions Beyond: • This knowledge builds a foundation for applying area and perimeter formulas to rectangles in real-word and mathematical problems.
Instructional Examples/Lessons/Tasks	• Georgia Standards of Excellence Curriculum Frameworks Performance Tasks for Measurement (Georgia Framework-Unit 6-pgs.12–15) Patterns in Addition and Multiplication Performance Tasks (Georgia Framework-Unit 3 pgs.13–15) • Inside Mathematics Activities/Lessons and Performance Tasks (Inside Mathematics) • ACT Academy Classroom Assessments, Homework, Videos, Lesson Plans (ACT Academy) • Khan Academy Khan Academy Practice for MD (Khan Academy)

Element	Exemplars
Assessment Examples	• Howard County Public Schools 3.MD.5 Assessment Tasks (Howard County Public Schools) • Embarc Item Area Assessments (Embarc) 3.MD.5 Assessment (Embarc) • Inside Mathematics Item Garden Design (Inside Mathematics)

Measurement & Data

Cluster

Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

NVACS 3.MD.C.6 (Major Work)

Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).

Element	Exemplars
Standards for Mathematical Practice	• MP 2 Students reason abstractly and quantitatively. Students can recognize that area is repeated addition, and how it relates to the area formula. Students can examine the reasonableness of their answers/calculations because teachers ask students to explain their thinking regardless of accuracy. • MP 4 Students model with mathematics. Students will make use of structure, understanding that 1 unit can be represented by a tile or pictorial representation. • MP 6 Students attend to precision. Students calculate accurately and efficiently and gain a thorough understanding of knowing that the tile can be representative of any unit measure when modeling area.
Instructional Strategies	• Measure area by counting and tiling unit squares without gaps or overlaps.
Prerequisite Skills	• Skip count by a variety of numbers. • Partition rectangles into row and columns of the same sized-squares and count them to find the total area.
Connections Within and Beyond Grade Level	• This knowledge builds the foundation for students to apply area and perimeter formulas to rectangles in real-word and mathematical problems.
Instructional Examples/Lessons/Tasks	• Georgia Standards of Excellence Curriculum Frameworks Performance Tasks for Measurement (Georgia Framework-Unit 6 pgs.12–14) Patterns in Addition and Multiplication Performance Tasks (Georgia Framework-Unit 3 pgs.13–15) • Inside Mathematics Activities/Lessons and Performance Tasks (Inside Mathematics) • Khan Academy Khan Academy Practice for MD (Khan Academy)
Assessment Examples	• Howard County Public Schools 3.MD.6 Assessment (Howard County Public School) • Embarc Item Tiling (Area) Quiz (Embarc) • Sample Assessment Item PARCC Assessment Item (Achieve The Core) • Illustrative Mathematics Item Finding the Area of Polygons (Illustrative Mathematics)

Measurement & Data

Cluster

Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

NVACS 3.MD.C.7.a and NVACS 3.MD.C.7.b and NVACS 3.MD.C.7.c and NVACS 3.MD.C.7.d (Major Work)

a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.
b. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.
c. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning.
d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.

Element	Exemplars
Standards for Mathematical Practice	• MP 2 Students reason abstractly and quantitatively. Students recognize that area is repeated addition, and how it relates to the area formula. • MP 4 Students model with mathematics. Students will make use of structure, understanding that 1 unit can be represented by a tile or pictorial representation. • MP 6 Students attend to precision. Students calculate accurately and efficiently and gain a thorough understanding of knowing that the tile can be representative of any unit measure when modeling area. • MP 7 Students will make use of structure and recognize tiling and multiplying go together. Students can look for, develop, and generalize relationships and patterns because teachers ask questions about the application of patterns. • MP 8 Students look for and express regularity in repeated reasoning. Explain area as additive (when decomposing irregular figures). Students can evaluate the reasonableness of results and solutions because teachers ask about possible answers before and reasonableness after computations.

Element	Exemplars
Instructional Strategies	• Make connection to arrays: • Use manipulatives: geoboards, tiles, graph paper • Explore how the distributive property can be used to decompose larger rectangles into two smaller rectangles. Students tile the area of a rectangle with 2 different color tiles to show distributive property. For example, 7 x 6 can be determined by finding the area of a 5 x 6 and 2 x 6 rectangle and adding the areas together. • Have students tile a rectangle, then multiply the side lengths to show it is the same. To find the area one could count the squares or multiply.
Prerequisite Skills	• Partition rectangles into row and columns of the same sized-squares and count them to find the total area • Multiply and divide within 100
Connections Within and Beyond Grade Level	Within: • Measure area by counting and tiling unit squares without gaps or overlaps and relate area to multiplication and addition • Multiply side lengths of rectangles to find the total area Beyond: • This knowledge builds the foundation to apply area and perimeter formulas to rectangles in real-word and mathematical problems (4.MD.3)
Instructional Examples/Lessons/Tasks	• Georgia Standards of Excellence Curriculum Frameworks Performance Tasks for Measurement (Georgia Framework-Unit 6 pgs. 12–14) Patterns in Addition and Multiplication Performance Tasks (Georgia Framework-Unit 3 pgs. 13–15) Performance Tasks for Geometry (Georgia Framework-Unit 4 pgs.14–16) • Inside Mathematics Activities/Lessons and Performance Tasks (Inside Mathematics) • Khan Academy Khan Academy Practice for MD (Khan Academy) • YouTube Factor Rainbow-
Assessment Examples	• Howard County Public Schools Finding Area Assessments (Howard County Public Schools) • Embarc Item Area Assessment (Embarc) • Illustrative Mathematics Item Boxing the Pots (Illustrative Mathematics) Lessons & Tasks (Illustrative Mathematics)

Measurement & Data

Cluster

Geometric measurement: recognize perimeter.

NVACS 3.MD.D.8 (Additional Work)

Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.

Element	Exemplars
Standards for Mathematical Practice	• MP 1 Students make sense of problems and persevere in solving them. Students can find the perimeter or unknown length of polygons when given the lengths of all sides. • MP 2 Students reason abstractly and quantitatively. Students can explain how rectangles with the same perimeter can have different areas and how different perimeter can have the same area. • MP 4 Students model with mathematics. Students can create representations with manipulatives or paper/pencil and discover the unknown side lengths of polygons when given the perimeter, using the representation to justify their solutions. Students can ask clarifying questions to extend their understanding. • MP 5 Students use appropriate tools strategically. Students can use technology, tools, and resources to solve problems and deepen understanding. • MP 6 Students attend to precision. Students calculate accurately and efficiently while explaining how rectangles with the same perimeter can have different areas and how rectangles with the same area can have different perimeters.
Instructional Strategies	Developing conceptions: Students confuse perimeter and area. Provide examples of both with models. • Explore finding the perimeter of a rectangle, using string, geoboards, and objects. • Explore situations where rectangles have the same perimeter and different areas and vice versa. • Make connections to real world examples.
Prerequisite Skills	• Understand the definitions of area and perimeter. • Understand that division is the inverse of multiplication.
Connections Within and Beyond Grade Level	Beyond: • This knowledge builds a foundation for applying area and perimeter formulas to rectangles in real-word and mathematical problems.

Element	Exemplars
Instructional Examples/Lessons/Tasks	• Georgia Standards of Excellence Curriculum Frameworks Performance Tasks for Measurement (Georgia Framework-Unit 6 pgs. 12–15) Patterns in Addition and Multiplication Performance Tasks (Georgia Framework-Unit 3 pgs. 13–15) Performance Tasks for Geometry (Georgia Framework-Unit 4 pgs.14–16) • Inside Mathematics Activities/Lessons and Performance Tasks (Inside Mathematics) • ACT Academy Videos, Plans, and Assessments (ACT Academy) • Khan Academy • Khan Academy Practice for MD (Khan Academy)
Assessment Examples	• Howard County Public Schools Perimeter Assessment Tasks (Howard County Public Schools) • Embarc Item Perimeter Quiz (Embarc) Perimeter Quiz 2 (Embarc) • Sample Assessment Item PARCC Assessment Item (Achieve The Core)

Geometry

Cluster

Reason with shapes and their attributes.

NVACS 3.G.A.1 (Supporting Work)

Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.

Element	Exemplars
Standards for Mathematical Practice	• MP 6 Students attend to precision. Students can discover the similarities and differences of shape attributes verbally and in writing. • MP 7 Look for and make use of structure. Mathematically proficient students use attributes such as sides, vertices, angles measures to generalize about the behavior of shapes.

Instructional Strategies	• Describe shapes by their attributes.
	• Classify shapes by categories.
	• Define quadrilaterals.
	• Identify and draw quadrilaterals.
	• Explore situations like:
	  ○ A certain shape makes you think of a rectangle, but it is not a rectangle. What could it be and why?
	  ○ You are working on a 5x5 dot grid. What polygons can you create?
	  ○ Show students a square and a rectangle that is not a square. Ask students to explain how the shapes are similar and how they are different. Are they both rectangles? Are they both squares? Are they both quadrilaterals?
	  ○ The shape I am thinking of has 4 equal sides and does not have any right angles. What shape(s) could I be? Am I a quadrilateral?
	  ○ Draw a quadrilateral that has exactly two right angles and no sides are the same length. Compare your shape with your neighbor's shape. Does your shape have a name? (trapezoid)
	  ○ How can I use attributes to compare and contrast shapes?
	  ○ Why are the attributes of shapes important?
	  ○ How it is possible to have a shape that has fits into more than one category?

Prerequisite Skills	• Recognize and draw polygons and other figures.
Connections Within and Beyond Grade Level	Beyond: • This knowledge builds the foundation for drawing and identifying points, lines, line segments, rays, and angles.

Element	Exemplars
Instructional Examples/Lessons/Tasks	• Georgia Standards of Excellence Curriculum Frameworks Performance Tasks for Geometry (Georgia Framework-Unit 4 pgs.14–16) • Inside Mathematics Activities/Lessons and Performance Tasks (Inside Mathematics) • ACT Academy Assessments, Videos and Plans (ACT Academy)
Assessment Examples	• RPDP Assessment Item Identify Rectangles Assessment 3G.1 (RPDP) Draw Quadrilaterals Assessment 3G.1 (RPDP) • Howard County Public Schools Quadrilateral Assessments (Howard County Public Schools) • Embarc Item 2D Shapes (Embarc) • Sample Assessment Item PARCC Assessment Item (Achieve The Core) SBAC Released Items (Smarter Balance)

Geometry

Cluster

Reason with shapes and their attributes.

NVACS 3.G.A.2 (Supporting Work)

Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. *For example, partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape.*

Element	Exemplars
Standards for Mathematical Practice	• MP 6 Students will attend to precision by explaining how a given shape can be divided into equal parts. • MP 7 Students look for and make use of structure. Students may show their understanding of partitioning as they connect the symbolic recording of a fraction to the number of partitions and the number of parts identified.
Instructional Strategies	• Create a design in which a square represents ¼ of the area of the design. • Provide each student with 3 different, but identical rectangles. Can you break each rectangle into sixths differently for each rectangle? • Use pattern blocks to show the students a triangle. If the triangle is ⅓, what does the whole look like? If the triangle is ⅛, what will the whole look like? • Provide students with a rectangle, a triangle, and a square (sizes can vary). For the triangle, tell the students this represents one-fourth of the whole. Have them draw or make the whole. Repeat with rectangle and square. • Draw a small rectangle. Draw a bigger rectangle that the smaller one is a part of. Tell what fraction of the big rectangle the small one is.
Prerequisite Skills	• Partition circles and rectangles.
Connections Within and Beyond Grade Level	Within: • Understand fractions are equal parts.

Element	Exemplars
Instructional Examples/Lessons/Tasks	• Georgia Standards of Excellence Curriculum Frameworks Performance Tasks for Geometry (Georgia Framework-Unit 4 pgs.14–16) • Inside Mathematics Activities/Lessons and Performance Tasks (Inside Mathematics) • Illustrative math Geometric Pictures of One Half (Illustrative Math) Representing Half of a Circle (Illustrative Math) Halves, thirds, and sixths (Illustrative Math) • Cache-County, Utah • Lets Go Fly A Kite (Cache County, Utah Lesson) • Let's Share 1 (Cache County, Utah Lesson) Carpeted Area of Bedroom (Cache County, Utah Lesson) Let's Share (Cache County, Utah Lesson) Play Area Shapes (Cache County, Utah Lesson) Zombies (Cache County, Utah Lesson) • Toolbox Pro Printable Tangram Puzzles (Toolbox Pro) • ACT Academy Assessments, Videos, Plans (ACT Academy)
Assessment Examples	• RPDP Assessment Item Partition Shapes Assessment 3.G.2 (RPDP) • Howard County Public Schools Partition Shapes Assessments Click on Assessment link (Howard Public School) • Embarc Item Fraction Quiz with partitioning (Embarc) • Sample Assessment Item Smarter Balanced Assessment Item (Achieve The Core) SBAC Released Items (Smarter Balance)

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Douglas County School District

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Clark County School District

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Clark County School District

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Elko County School District

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Elko County School District

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Clark County School District

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Clark County School District

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Southern RPDP

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Elko County School District

Kathy Lawrence
Northwest RPDP

Jennifer Loescher
Southern RPDP

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Nye County School District

Christie McKenzie
Clark County School District

Candice Meiries
Southern RPDP

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Clark County School District

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Elko County School District

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Elko County School District

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Elko County School District

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Doral Academy – Las Vegas

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Clark County School District

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Jhone Ebert

Superintendent of Public Instruction

Jonathan Moore, Ed.D

Deputy Superintendent for Student Achievement

Dave Brancamp

Director of Standards and Instructional Support

Tracy Gruber

K-12 Mathematics Education Program Professional

The Nevada Ready! Network

Standards-Based Instruction for ALL Nevada Students