

Mathematics Standards Clarification for Grade 1



 **The**
Nevada Ready!
Network

Standards-Based Instruction for
ALL Nevada Students



Table of Contents

Operations and Algebraic Thinking	3
Numbers and Operations in Base Ten	16
Measurement and Data	29
Geometry	36

Operations & Algebraic Thinking

Students will be able to represent and solve problems involving addition and subtraction, understand and apply properties of operations and the relationship between addition and subtraction, add and subtract within 20, and work with addition and subtraction equations.

Cluster

Represent and solve problems involving addition and subtraction.

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

Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.¹

Element	Exemplars
Standards for Mathematical Practice	<ul style="list-style-type: none"> ● MP 1 As students explore solving word problems using adding and subtracting within 20, they will make sense of the problem and persevere when needed. ● MP 2 Students will be able to represent a word problem using symbols, pictures and numbers. ● MP 3 Student will be able to analyze, construct arguments and ask questions about a given problem. ● MP 4 Students will be able to make models and connect those models to help solve problems.
Instructional Strategies	<ul style="list-style-type: none"> ● Use real life examples (word problems)-Survey class and see how many students like dogs, how many students like cats and find the sum and difference. ● Have student use white boards to model word problems. Bill had 6 marbles and Tom had 3 marbles. How many marbles do they have in all? $6 + 3 = 9$ ● Use Anchor charts to model addition and subtraction word problems: Students explain strategies they used to solve: <ul style="list-style-type: none"> *Fingers or other concrete manipulates *Number Sentence *Count On *Tally Marks *Number Line
Prerequisite Skills	<ul style="list-style-type: none"> ● Counting on and count back to solve addition and subtraction problems. ● Composing (put together) and decomposing (take apart) within 10.
Connections Within and Beyond Grade Level	<p>Within:</p> <ul style="list-style-type: none"> ● Students will need to add up to three addends. ● Add and subtract to interpret data. <p>Beyond:</p> <ul style="list-style-type: none"> ● Students need to be fluent adding and subtracting within 20. ● Students will be able to add and subtract within 1,000.

Element	Exemplars
Instructional Examples/Lessons/Tasks	<ul style="list-style-type: none"> ● Lesson 1 ● Adding and Subtracting Math Facts Games ● Link Cube Addition ● Fish Bowl (Combinations) ● Math Detectives!
Assessment Examples	<ul style="list-style-type: none"> ● Engage NY Module 1 End-of Module Assessment:

Operations & Algebraic Thinking

Cluster

Represent and solve problems involving addition and subtraction.

NVACS 1.OA.A.2 (Major Work)

Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.

Element	Exemplars
Standards for Mathematical Practice	<ul style="list-style-type: none"> ● MP 2 Students will be able to represent a word problem using symbols, pictures and numbers. ● MP 3 Student will be able to analyze, construct arguments and ask questions about a given problem. ● MP 4 Students will be able to make models and connect those models to help make sense of the problems. ● MP 8 Students will use strategies and shortcuts to help them solve problems
Instructional Strategies	<ul style="list-style-type: none"> ● Provide students with a variety of materials to model the problem ● Counting on making 10s with 10 frames ● Drawing objects represented in the word problem ● Ask students if the answer is reasonable? ● Survey students by asking a question with a choice of 3 answers: What is your favorite ice cream flavor? Vanilla, Chocolate, or Strawberry? Write the first 2 addends on the board and have students find the final addend to find the total. $5 + 8 + ? = 16$
Prerequisite Skills	<ul style="list-style-type: none"> ● Understanding addition and subtraction as “adding to” and “taking apart”
Connections Within and Beyond Grade Level	<p>Within:</p> <ul style="list-style-type: none"> ● Solve word problems using addition and subtraction up to 20 ● Add and subtract up to 20 ● Finding a missing number within an equation $8 + ? = 12$ <p>Beyond:</p> <ul style="list-style-type: none"> ● Students will continue using strategies to model and justify with addition and subtraction problems up to 20.
Instructional Examples/Lessons/Tasks	<ul style="list-style-type: none"> ● At the Park Illustrative Mathematics Task ● Engage NY Lessons
Assessment Examples	<ul style="list-style-type: none"> ● Engage NY

Operations & Algebraic Thinking

Cluster

Understand and apply properties of operations and the relationship between addition and subtraction.

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

Apply properties of operations as strategies to add and subtract.² *Examples: If $8 + 3 = 11$ is known, then $3 + 8 = 11$ is also known. (Commutative property of addition.) To add $2 + 6 + 4$, the second two numbers can be added to make a ten, so $2 + 6 + 4 = 2 + 10 = 12$. (Associative property of addition.)*

Element	Exemplars
Standards for Mathematical Practice	<ul style="list-style-type: none"> ● MP 2 Students will be able to represent a word problem using symbols, pictures and numbers. ● MP 3 Student will be able to analyze, construct arguments and ask questions about a given problem. ● MP 4 Students will be able to make models and connect those models to help make sense of problems. ● MP 7 Students will use strategies to see a pattern and/or break the problem into simpler parts
Instructional Strategies	<ul style="list-style-type: none"> ● Present students a variety of addition examples using concrete representations where order of addends does not change the total. ● Use 10 frames to model $7 + 4 = 11$, next reverse models to show that $4 + 7 = 11$ and explain commutative property. ● Using the Commutative Property, give one side of the problem and have students create the other side $7 + 5 = ? + ?$ ● Using the Associative Property have students insert parentheses to show that both sides of the equation are equal $4 + (6 + 3) = (4 + 6) + 3$ ● Identity Property of addition: The identity of the number doesn't change just as people don't change. Ex. I am still Mrs. Wolf today and tomorrow no matter what. Numbers don't change when adding 0 to them. ● Although subtraction is not commutative, it is important not to contribute to a potential misconception by saying that you cannot take a larger number from a smaller number. It is appropriate to say $8 - 5$ is not equal $5 - 8$.
Prerequisite Skills	<ul style="list-style-type: none"> ● Students understand that putting together is addition and taking apart is subtraction
Connections Within and Beyond Grade Level	<p>Within:</p> <ul style="list-style-type: none"> ● Adding and subtracting with fluency within 20 <p>Beyond:</p> <ul style="list-style-type: none"> ● Mentally adding and subtracting 10's or 100's to a given number from 100 to 900
Instructional Examples/Lessons/Tasks	<ul style="list-style-type: none"> ● Illustrative Mathematics ● EngageNY Lesson
Assessment Examples	<ul style="list-style-type: none"> ● EngageNY ● RPDP

Operations & Algebraic Thinking

Cluster

Understand and apply properties of operations and the relationship between addition and subtraction.

NVACS 1.OA.B.4 (Major Work)

Understand subtraction as an unknown-addend problem. *For example, subtract $10 - 8$ by finding the number that makes 10 when added to 8*

Element	Exemplars
Standards for Mathematical Practice	<ul style="list-style-type: none"> ● MP 2 Students will be able to represent a word problem using symbols, pictures and numbers. ● MP 3 Student will be able to analyze, construct arguments and ask questions about a given problem. ● MP 4 Students will be able to make models and connect those models to help make sense of the problems. ● MP 5 Students use the correct tools (Ex: cubes) to model how to add on ● MP 7 Students will use strategies to see a pattern and/or break the problem into simpler parts
Instructional Strategies	<ul style="list-style-type: none"> ● Use vocabulary: addend + addend = total ($7 + 4 = 11$) addend + missing addend = total ($7 + ? = 11$) ● Provide opportunities for students to practice addition and subtraction using fact families ($8+2=10$, $10-8=2$) ● Use part-part-whole model to help students make connection between addition and subtraction. ● Use a specific number of cubes and tell the students how many cubes you have, show students a specific amount and hide the rest behind your back for students to figure out the missing addend. * I have a total of 10 cubes. Show students 6. Give students time to add on to find the missing addend behind the teacher's back.
Prerequisite Skills	<ul style="list-style-type: none"> ● Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.
Connections Within and Beyond Grade Level	<p>Within:</p> <ul style="list-style-type: none"> ● Students will work with addition and subtraction equations <p>Beyond:</p> <ul style="list-style-type: none"> ● Students will use this one-step skill and move to solving two-step problems. (2.OA.A.1) *Sam had 25 pencils, she bought 5 more. She then gave her friend 8 pencils. How many does she have left? $25 + 5 = ?$; $? - 8 = ?$ or $25 + 5 - 8 = 22$

Element	Exemplars
Instructional Examples/Lessons/Tasks	<ul style="list-style-type: none"> ● Students use models to represent terms: addend, missing addend, and total <ul style="list-style-type: none"> *4 cubes + 3 cubes = 7 cubes (addend) + (addend) = (total) *4 cubes + ? cubes = 7 cubes (addend) + (missing addend) = (total) ● Smarter Balance
Assessment Examples	<ul style="list-style-type: none"> ● Identify Addition ● Domino Math

Operations & Algebraic Thinking

Cluster

Add and subtract within 20.

NVACS 1.OA.C.5 (Major Work)

Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).

Element	Exemplars
Standards for Mathematical Practice	<ul style="list-style-type: none"> ● MP 1 As students add and subtract within 20, they will make sense of the problem and persevere when needed. ● MP 2 Students will be able to represent a addition or subtraction problem using pictures and numbers. ● MP 3 Student will be able to analyze, construct arguments and ask questions about a given problem. ● MP 4 Students will be able to make models and connect those models to help make sense of the problems. ● MP 5 Students use the correct tools (Ex: cubes) to model how to add and subtract. ● MP 7 Students will use strategies to see a pattern and/or break the problem into simpler parts.
Instructional Strategies	<ul style="list-style-type: none"> ● As students move from counting strategies to more sophisticated strategies such as making tens, doubles, and doubles plus 1 or 2, they notice patterns and the structure of how numbers fit together. ● Use number charts and have students skip count by 2s to show adding 2, 5's by adding 5's, 10's by adding tens. Identify patterns that are being seen on the number chart. ● Add and subtract using manipulatives. ● Use a Number Path or Number Line to add and subtract. ● Adding and subtracting using dice and card games. ● Have students explain their thinking using a counting strategy for finding the answer to an addition or subtraction problem.
Prerequisite Skills	<ul style="list-style-type: none"> ● Students apply addition and subtraction within 10. ● Students add and subtract facts with sums of 5.
Connections Within and Beyond Grade Level	<p>Within:</p> <ul style="list-style-type: none"> ● Review adding on and taking away. <p>Beyond:</p> <ul style="list-style-type: none"> ● Fluently add and subtract within 20 using mental strategies.
Instructional Examples/Lessons/Tasks	<ul style="list-style-type: none"> ● Lesson ● Number Line
Assessment Examples	<ul style="list-style-type: none"> ● Sample Assessment Task #1 ● Sample Assessment Task #2

Operations & Algebraic Thinking

Cluster

Add and subtract within 20.

NVACS 1.OA.C.6 (Major Work)

Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$).

Element	Exemplars
Standards for Mathematical Practice	<ul style="list-style-type: none"> ● MP 1 As students add and subtract within 20, they will make sense of the problem and persevere when needed. ● MP 2 Students will be able to represent a addition or subtraction problem using pictures and numbers. ● MP 4 Students will be able to make models and connect those models to help make sense of the problems by composing and decomposing numbers. ● MP 7 Students will use strategies and look for patterns to solve problems (Ex: by creating 10s, using double facts, doubles plus 1) ● MP 8 Students will look for shortcuts and strategies for helping to count on and taking away.
Instructional Strategies	<ul style="list-style-type: none"> ● Provide a variety of experiences using concrete materials to help students develop and use thinking strategies. ● Find patterns and have students add and subtract 0 and see that the number does not change. ● Find patterns and have students add and subtract 1 to see that the number increases or decreases by 1. ● Use double 10 frames to model a variety of ways to get to a specific number. ● Use several strategies: Mentally adding up and/or down, use a number path, use counting tools (fingers, cubes, etc.). ● Have students verbally explain what they did to solve the problem.
Prerequisite Skills	<ul style="list-style-type: none"> ● Add and subtract within 10. ● Fluently add and subtract within 5.
Connections Within and Beyond Grade Level	<p>Within:</p> <ul style="list-style-type: none"> ● Fluently add and subtract. <p>Beyond:</p> <ul style="list-style-type: none"> ● Find Unknown numbers. ● Fluently add and subtract within 20 using mental strategies.

Element	Exemplars
Instructional Examples/Lessons/Tasks	<ul style="list-style-type: none"> ● Verbally have students solve $5 + 6 = 11$. Ask how students solved this problem. *Example answers: start with 5, fill in 5 more on my ten frame then add 1. Start at 5 and count on. ● Give students a number, 16. Have them create an addition and subtraction math problem. Example: ($14 + 2 = 16$ and $20 - 4 = 16$) ● Give students a number with 3 number choices and see if they can circle the two that are used to add to get to the number. <p>*Example: 11 4, 5, 6 Students would state 5 and 6 make 11</p>
Assessment Examples	<ul style="list-style-type: none"> ● Sample Assessment Task ● Engage NY

Operations & Algebraic Thinking

Cluster

Work with addition and subtraction equations.

NVACS 1.OA.D.7 (Major Work)

Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false? $6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$.

Element	Exemplars
Standards for Mathematical Practice	<ul style="list-style-type: none"> ● MP 2 Students will be able to represent how both sides of an equation are equal to each other and determine if equations are true. ● MP 4 Students will be able to make models and connect those models to help make sense of the problems by determining if equations are true or false. ● MP 6 Students will communicate precisely with others to determine if the equal sign correctly states that both sides are the same. ● MP 8 Students will look for shortcuts to help them determine if two sides of an equation are true.
Instructional Strategies	<ul style="list-style-type: none"> ● Use a balancing scale to demonstrate how to make two differently represented objects equal to each other. ● Demonstrate/Model how numbers are equal to each other (Ex: 3 cookies is the same as 3 cookies, 4 cookies is NOT equal to 3 cookies). ● Develop the concept of the <i>same amount</i> as students use physical objects in joining and separating situations.
Prerequisite Skills	<ul style="list-style-type: none"> ● Numbers 11 – 19, understanding that numbers are composed of ten ones and 1 – 9 ones.
Connections Within and Beyond Grade Level	<p>Within:</p> <ul style="list-style-type: none"> ● Students Represent and solve problems involving addition and subtraction. <p>Beyond:</p> <ul style="list-style-type: none"> ● Represent and solve problems with addition and subtraction. ● Represent and solve problems involving addition and subtraction, work with equal groups of objects to gain a foundation for multiplication.

Element	Exemplars
Instructional Examples/Lessons/Tasks	<ul style="list-style-type: none"> ● The equal sign means the same. Explain that both sides must be the same. *Example: Write $5 + 2 = ?$ on the board. Have students tell you the answer on the other side (watch the different strategies that are being used to solve the problem-counting on, doubles, doubles plus 1, using fingers). Once students answer 7, have students explain why and how they got 7. ● Give students equations with addition/subtraction on one side and answers on the other side of the equation and ask if they are true or false. Remember to use smaller numbers at first and then move onto larger numbers *Example: $4 + 3 = 7$ (true), $8 = 6 + 3$ (false) $9 - 3 = 6$ (true), $4 = 6 - 3$ (false) ● Give students equations with addition and subtraction on both side of the equation and ask if they are true or false. Remember to use smaller numbers at first and then move onto larger numbers *Example: $3 + 5 = 6 + 2$ (true), $3 + 6 = 4 + 4$ (false) $5 - 2 = 6 - 3$ (true), $8 - 5 = 5 - 1$ (false) ● Virtual Manipulative: Balance ● Balanced Equations ● Determining the meaning of the equal sign
Assessment Examples	<ul style="list-style-type: none"> ● Make it the Same ● True or False? ● Solving Problems

Operations & Algebraic Thinking

Cluster

Work with addition and subtraction equations.

NVACS 1.OA.D.8 (Major Work)

Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations $8 + ? = 11$, $5 = ? - 3$, $6 + 6 = ?$.*

Element	Exemplars
Standards for Mathematical Practice	<ul style="list-style-type: none"> ● MP 2 Students will be able to represent how both sides of an equation are equal to each other and determine if equations are true. ● MP 4 Students will be able to make models to show whether or not equations are true or false. ● MP 6 Students will communicate with each other to determine that the equations are precisely the same. ● MP 8 Students will use strategies and shortcuts from addition and subtraction to see that two sides of an equation are true, counting up, taking away.
Instructional Strategies	<ul style="list-style-type: none"> ● Give students equations with the unknown value in various places. ● Have students use pictures first to create equations with missing addends before going to writing equations. ● Have students solve problems by modeling with concrete materials or pictures; then give students the opportunity to write an equation in addition to their model. *Example: I have 7 cupcakes. I gave some away to my sister. and now have 4 left. How many did I give to my sister? ● Have students explain how they found their unknown value.
Prerequisite Skills	<ul style="list-style-type: none"> ● Numbers 11 – 19 understanding place value. (K.NBT.A.1)
Connections Within and Beyond Grade Level	<p>Within:</p> <ul style="list-style-type: none"> ● Students Represent and solve problems involving addition and subtraction. (1.OA.A.1, 1.OA.A.2, 1.OA.B.4, 1.OA.C.6) <p>Beyond:</p> <ul style="list-style-type: none"> ● Represent and solve problems with addition and subtraction. (2.OA.A.1, 2.OA.C.3, 2.OA.C.4)
Instructional Examples/Lessons/Tasks	<ul style="list-style-type: none"> ● Give students equations with the unknown value in different places. ● 20 Tickets ● Kiri's Mathematics Match Game

Element	Exemplars
Assessment Examples	<ul style="list-style-type: none"> ● Use formative assessment to include questions, activities, and student explanations to assess if students can find the unknown value both addition and subtraction. <p>*Example: Show students $2+9 = 11$ with blocks. Now take 2 cubes away so students can't see them. Ask students, "I have 9 cubes, how many are behind my back?" Do this again with the 9 cubes out of site and ask students, "I have 2 cubes, how many more do I need to equal 11?"</p> <p>*Example: Show students 13 cubes and take 4 away. $13 - 4 = 9$. Ask students "I have 13 cubes, how many do I need to take away to have 8? Listen to answers and take that many away. Ask students, "If I remove? do I have 8 left?"</p> <ul style="list-style-type: none"> ● RPDP- Missing Addend to 10 ● Domino Math

Number & Operations in Base Ten

Domain Overview

Students will be able to extend the counting sequence, understand place value and use place value understanding and properties of operations to add and subtract.

Cluster

Extend the counting sequence.

NVACS 1.NBT.A.1 (Major Work)

Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.

Element	Exemplars
Standards for Mathematical Practice	<ul style="list-style-type: none"> ● MP 2 Students will be able to represent and make sense of a given number. ● MP 5 Students will use appropriate tools to count objects. ● MP 6 Students will communicate with each other to determine what number is represented, to count on, to explain their thinking and to recognize numerals up to 120.
Instructional Strategies	<ul style="list-style-type: none"> ● Begin by having students continue to count with objects and write the numeral for each count of objects. ● Give students a number to count on to within a range of numbers. For example, student should be able to count on from 25 to 50. ● Use the hundreds chart for activities that provide opportunities for students to recognize written numerals and begin to recognize patterns on the hundreds chart. For example, <ul style="list-style-type: none"> ○ All of the numbers in a column have the same digit in the ones place. ○ The number that follows a given number is one more than the number (22 is more than 21). ○ The number that precedes a given number is one less than the number (24 is less than 25). ● Provide activities and tasks that guide the students to see the difference between reversed numbers, such as 24 and 42. ● Interactive Hundreds Chart and Number Line ● Start/Stop Counting II
Prerequisite Skills	<ul style="list-style-type: none"> ● Builds on the understandings of place value (K.NBT.A).
Connections Within and Beyond Grade Level	<p>Within:</p> <ul style="list-style-type: none"> ● Lays foundation for using place value understanding to add and subtract using various strategies. (1.OA.C.5) ● Understand place value. (1.NBT.B) <p>Beyond</p> <ul style="list-style-type: none"> ● Place value understanding, addition, and subtraction, and counting to 1,000. (2.NBT.A.2, 2.NBT.B)

Element	Exemplars
Instructional Examples/Lessons/Tasks	<ul style="list-style-type: none"> ● Counting Circles II ● The Cookie Monster (3 Act Task, G.Fletcher) ● The Juggler (3 Act Task, G.Fletcher)
Assessment Examples	<ul style="list-style-type: none"> ● Use cubes to model a number. ● How many groups of ten are there? ● What is the value of the tens? ● How many groups of ones are there? ● What is the value of the ones? ● How many altogether? ● Give students a blank hundred chart have them fill the chart in starting at 25 and ending at 98. ● Give students a blank hundred chart with the number 75 filled in. Ask students to work backwards from 75, completing the chart until they reach 29. ● Give students a completed 120 hundreds chart that is cut in eight sections. Have them put it back together and justify the puzzle placements. ● Give students a 120 hundreds chart with only 20 random numbers filled in. Can you complete the chart using what you know about one more/less and ten more/less? ● Use 8 base ten blocks to make a number. Can you make a different number with a different set of 8 blocks? ● Draw a number line with the endpoints of 0 and 120. Place a dot on the number line. What number on the number line does the dot represent? How do you know?

Number & Operations in Base Ten

Cluster

Understand place value.

NVACS 1.NBT.B.2 (Major Work)

Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:

- a. 10 can be thought of as a bundle of ten ones — called a “ten.”
- b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.
- c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).

Element	Exemplars
Standards for Mathematical Practice	<ul style="list-style-type: none"> ● MP 2 Students will be able to represent and make sense of a given number and determine if it is a one or two digit number. ● MP 4 Students will correctly model one and/or two digit numbers. ● MP 5 Students will use appropriate tools to represent any number from 0 – 99. ● MP 6 Students will communicate with each other to determine what number is represented, explain their thinking and to recognize numerals up to 120.
Instructional Strategies	<ul style="list-style-type: none"> ● How many different ways can you represent 82 using tens and ones? ● Does 4 tens and 8 ones have the same value as 3 tens and 18 ones? Explain your thinking. ● Do 2 tens and 6 ones have the same value as 2 ones and 6 tens? Use models and/or hundreds chart to help explain your answer. ● A two-digit number has more tens than ones. What could the number be? What is another possibility? ● The sum of the digits of a two-digit number is 12. Use a hundred chart, what could the number be? What is another possibility? ● How are the numbers 30 and 35 alike? How are they different? ● Christie made a two-digit number with a 6 in the ones place. What possible numbers could she have made?
Prerequisite Skills	<ul style="list-style-type: none"> ● Compose and decompose numbers from 11 to 19 into ten ones and some ones (K.NBT.1)

Element	Exemplars
Connections Within and Beyond Grade Level	<p>Within:</p> <ul style="list-style-type: none"> ● Lays foundation for: <ul style="list-style-type: none"> ○ Ten can be thought of as a bundle. Example: Represent 10 as ten ones. ○ Represent 11 to 19 as a ten and some ones. Example: Students can transfer this idea of place value to numbers 21-29, 31-39, etc. ○ Represent multiple sets of ten using models, drawings, and number names. Example: 2 tens is 20. <p>Beyond:</p> <ul style="list-style-type: none"> ● Understanding of place value and bundling. (2.NBT.1)

Element	Exemplars
<p>Instructional Examples/Lessons/Tasks</p>	<ul style="list-style-type: none"> ● Groups of 10 (Van de Walle, K-3, 130) Prepare bags of counters of different types. Bags may have toothpicks, buttons, beans, plastic chips, connecting cubes, craft sticks, or other items. The bags can be placed at stations around the room, or each pair of children can be given one. Children dump out the contents, groups sets of ten, then determine the total. The students record the contents by indicating the number of tens and singles. Bags are traded or children move to another station after returning all counters to the bag. ● Patterns on A Hundreds Chart (Van de Walle, K-3, p 57). Have children work in pairs to find patterns on the hundreds chart. Solicit ideas orally from the class. Have children explain patterns found by others to be sure that all understand the ideas that are being suggested. ● Give the students unifix cubes, digi-blocks, or base ten blocks and show them a two-digit number such as 53. Ask them to represent this number using the manipulatives. Watch to see if the student shows five tens and three ones. Often times students who do not understand place value will show 5 ones and 3 ones as a representation of 53. ● Ask the students to show you a number that is between 42 and 62. Watch to see if the students understand the values of those numbers. ● Tell me about the number 23. Look for responses such as it is less than 30. It is more than 20. It is 10 more than 13. ● What numbers can you make below 100 that have a 4 in the tens place? ● What numbers can you make with a 6 and 2. Explain your thinking. ● What numbers can you make that are less than 100 and have a 6 in the tens place? ● I'm thinking of a number between 10 and 100. It has only one 9 in it. What might my number be? ● What two-digit numbers contain exactly one 4? ● Using base 10 blocks how many ways can you show the number 25? ● Choose a number that is greater than 10 but less than 100. Represent that number using sticks of 10 unifix cubes and single cubes. Record your thinking. Select another number and repeat. ● Choose a number that is greater than 10 but less than 100. Represent that number using base 10 blocks. Record your thinking. Select another number and repeat. ● The Very Hungry Caterpillar ● Roll and Build ● Numbers Numbers 11-19 (Utah Core Academy Lesson)
<p>Assessment Examples</p>	<ul style="list-style-type: none"> ● Formative Assessment 1.NBT.2a Assessment Task ● Cut Apart Number Chart Represent Numbers 11 to 19 as a Ten and Some Ones (Performance Task) 1.NBT.2c Performance Task

Number & Operations in Base Ten

Cluster

Understand place value.

NVACS 1.NBT.B.3 (Major Supporting Work)

Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols $>$, $=$, and $<$.

Element	Exemplars
Standards for Mathematical Practice	<ul style="list-style-type: none"> ● MP 2 Students will be able to represent and determine when a number is greater than, less than or equal to another number. ● MP 3 Students can construct viable arguments and critique the reasoning of whether or not a number is greater than, less than or equal to another number. ● MP 4 Students will correctly model how to compare two digit numbers. ● MP 5 Students will use appropriate tools to represent a comparison of two different numbers. ● MP 6 Students will communicate with each other to determine if a given number is larger or smaller than another given number. ● MP 7 Students will look for and make use of structure when representing a number using tools such as base ten blocks, hundred charts, etc.
Instructional Strategies	<ul style="list-style-type: none"> ● Provide students with a variety of concrete materials and place value charts for representing 2 digit numbers for making comparisons. ● A number is about 110, but it's not 110. What might it be? ● How are 62 and 26 alike and different? ● One number is a lot more than another one. Both numbers are greater 50. What could the two numbers be? ● My number is more than 16, but less than 34, use your hundred chart to tell me what my number could be? ● Pick two digits from 4, 9, and 7 to create the largest possible two-digit number. Now pick two digits to create the smallest possible two-digit number. ● Summer and Tara are comparing numbers. Summer wrote 59 and Tara wrote 112. Summer says you start at the left when comparing numbers, so she says her number is largest because 5 is greater than 1. Tara says her number is largest because it has more digits. Who is correct and why? Use what you know about place value to explain your answer. ● What are three numbers that are greater than 90 but less than 120? Prove one of your answers by representing the number.
Prerequisite Skills	<ul style="list-style-type: none"> ● Compare two numbers between 1 and 10 presented as written numerals (K.CC.7)

Element	Exemplars
Connections Within and Beyond Grade Level	<p>Within:</p> <ul style="list-style-type: none"> ● First grade students connect the vocabulary to the symbols: greater than ($>$), less than ($<$), equal to ($=$). <p>Beyond:</p> <ul style="list-style-type: none"> ● Students will compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using $>$, $=$, and $<$ symbols to record the results of comparisons. (2.NBT.4)
Instructional Examples/Lessons/Tasks	<ul style="list-style-type: none"> ● Double Function Machine Compare Numbers ● Comparing Numbers Comparing Numbers ● Ordering Numbers Ordering Numbers
Assessment Examples	<ul style="list-style-type: none"> ● Greater Than Less Than Determine Greater Than and Less Than 1 ● Number Operations in Base 10 Explain Why a Two-Digit Number is Greater Than, Less Than, or Equal (Performance Task)

Number & Operations in Base Ten

Cluster

Use place value understanding and properties of operations to add and subtract.

NVACS 1.NBT.C.4 (Major Supporting Work)

Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.

Element	Exemplars
Standards for Mathematical Practice	<ul style="list-style-type: none"> ● MP 1 Students will make sense of adding problems within 100 and persevere in solving them. ● MP 3 Students will construct viable arguments and critique the reasoning of others when adding numbers within 100. ● MP 4 Students will correctly model and demonstrate different ways to add two digit numbers. ● MP 5 Students will use appropriate tools to represent the sum when adding two digit numbers. ● MP 6 Students will communicate with each other to determine what number is represented, explain their thinking and to recognize the sum of an addition problem. ● MP 8 Students will look for shortcuts and strategies to help with adding two-digit numbers.
Instructional Strategies	<ul style="list-style-type: none"> ● Provide problem contexts to have students model addition using concrete materials such as linking cubes, ten frames, and straws with place value charts. ● Pose questions that require students to think about the strategies they are using to add. For example, if students are adding $35 + 24$, you might ask: <ul style="list-style-type: none"> ○ What did you do first? (Note the various strategies in the following student responses) <ul style="list-style-type: none"> ■ (Student A) I used the hundreds chart and added 10 to 35 to get to 45. The teacher then asks why the student did that and then ask, what did you do next? ■ (Student B) I added the 5 and the 4. The teacher then asks why the student did that and then ask, what did you next? ■ (Student C) I added 3 and 2. The teacher would follow with questions to ask about the meaning of the 3 and the 2 to be sure the student understands that they represent 3 tens and 2 tens
Prerequisite Skills	<ul style="list-style-type: none"> ● Making groups of ten and using place value charts.

Element	Exemplars
Connections Within and Beyond Grade Level	<p>Within:</p> <ul style="list-style-type: none"> ● First grade students connect the vocabulary to the symbols: greater than (>), less than (<), equal to (=). <p>Beyond:</p> <ul style="list-style-type: none"> ● Fluently add and subtract within 100. (2.NBT.5) ● Use addition and subtraction to solve one- and two-step word problems. (2.OA.1)
Instructional Examples/Lessons/Tasks	<ul style="list-style-type: none"> ● Sugar, Sugar Sugar, Sugar! (CC Betterlesson) ● Adding Big Numbers Adding Big Numbers with Butterflies (CC Betterlesson) ● Use Models to Add Use Models to Add (CC Betterlesson) ● Pringle Ringle Pringle Ringle (3 Acts) ● Graham Crackers Graham Crackers (3 Acts)
Assessment Examples	<ul style="list-style-type: none"> ● Break Apart Numbers Assessment for 1.NBT.4

Number & Operations in Base Ten

Cluster

Use place value understanding and properties of operations to add and subtract.

NVACS 1.NBT.C.5 (Major Supporting Work)

Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.

Element	Exemplars
Standards for Mathematical Practice	<ul style="list-style-type: none"> ● MP 1 Students will make sense of finding 10 more and 10 less of a number without having to count. ● MP 3 Students will construct viable arguments and critique the reasoning of others when adding 10 more or 10 less to a number. ● MP 6 Students will communicate with each other to determine 10 more and 10 less of number and explain their reasoning. ● MP 7 Students will look for and make use of structure when mentally finding 10 more or 10 less than a number.
Instructional Strategies	<ul style="list-style-type: none"> ● Pam said 86 is ten more than 96. Is she correct? Explain how you know. Use tools (hundred chart, etc.) in your explanation if needed. ● On the hundreds chart start at 36, if you were to move down the hundreds chart 3 spaces, what number would you land on? Did you increase or decrease your number by tens? ● Claudia started at 28. She is counting by tens, what are some numbers she might say? ● How does a hundred chart help you when you are adding and subtracting 10 from a number like 57? (or multiple groups of 10 such as 30 and 50) ● Starting at 94 how many groups of 10 will you subtract to get to 24? How does knowing what is “10 less” than a number help you with this problem?
Prerequisite Skills	<ul style="list-style-type: none"> ● Compose and decompose numbers from 11 to 19 into ten ones and some ones (K.NBT.1)
Connections Within and Beyond Grade Level	<p>Within:</p> <ul style="list-style-type: none"> ● Broadens use of place value understanding to add and subtract. (1.NBT.B). <p>Beyond:</p> <ul style="list-style-type: none"> ● Fluently add and subtract within 100. (2.NBT.5) ● Use addition and subtraction to solve one- and two-step word problems. (2.OA.1)

Element	Exemplars
Instructional Examples/Lessons/Tasks	<ul style="list-style-type: none"> ● Repeated Vacations Repeated Vacations (Utah Core Academy Lesson) ● Pumpkin Patch Pumpkin Patch (Utah Core Academy Lesson) ● Toy Sale Toy Sale (Utah Core Academy Lesson) ● Reading Books Reading Books (Utah Core Academy Lesson) ● McDonald's Adding McDonald's Adding 10 (Utah Core Academy Lesson) ● Pinata Candy Pinata Candy (Utah Core Academy Lesson) ● Hundred Magic Board 100 Chart Magic (print resource) ● Finding 10 More and 10 Less 10 More 10 Less <p>Additional small group practice:</p> <ul style="list-style-type: none"> ● Determine 10 more and 10 less of any two-digit number using physical tool, hundred charts, and number lines. ● Recall 10 more for any two-digit number (e.g., $32 + 10 = 42$) without using a tool or representation. ● Recall 10 less for any two-digit number (e.g., $32 - 10 = 22$) without using a tool or representation. ● Explain why the tens digit changes and why the ones place does not change when finding ten more or ten less.
Assessment Examples	<ul style="list-style-type: none"> ● 10 More and 10 Less Determine 10 More and 10 Less Using Hundred Chart ● Write 10 More and 10 Less Recall 10 More and 10 Less Without Using a Tool

Number & Operations in Base Ten

Cluster

Use place value understanding and properties of operations to add and subtract.

NVACS 1.NBT.C.6 (Major Supporting Work)

Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

Element	Exemplars
Standards for Mathematical Practice	<ul style="list-style-type: none"> ● MP 1 Students will make sense of subtracting multiples of 10. ● MP 3 Students will construct viable arguments and critique the reasoning of others when subtracting multiples of 10. ● MP 4 Students will correctly model and demonstrate different ways to subtract multiples of 10. ● MP 5 Students will use appropriate tools to represent the difference when subtracting multiples of 10. ● MP 6 Students will communicate with each other to determine what number is represented, explain their thinking and to recognize the difference of a subtraction problem. ● MP 8 Students will look for shortcuts and strategies to help with subtracting multiples of 10.
Instructional Strategies	<ul style="list-style-type: none"> ● Starting at 90, count backwards by tens, will you land on 33? How do you know? ● What number on the hundred chart could you start with and count backwards by ten to land on 33? ● Show multiple representations for the subtraction problem $90 - 40 =$. (hundred chart, open number line, base ten blocks, etc.) ● What patterns do you see in these equations: <ul style="list-style-type: none"> ● $30 - 10 = 20$, $90 - 30 = 60$, $50 - 40 = 10$ ● Start with a two-digit multiple of 10 such as 80. Build 80 with base ten blocks (specifically ten rods). Roll a die and subtract that many tens from the 80. How many tens (and what value) do you have left? How many more tens do you need to subtract to get to 0? Enrichment: Use any two-digit number. For example, build 73 and subtract groups of ten.
Prerequisite Skills	<ul style="list-style-type: none"> ● Compose and decompose numbers from 11 to 19 into ten ones and some ones (K.NBT.1)
Connections Within and Beyond Grade Level	<p>Within:</p> <ul style="list-style-type: none"> ● Broadens use of place value understanding to add and subtract. (1.NBT.B) <p>Beyond:</p> <ul style="list-style-type: none"> ● Fluently add and subtract within 100. (2.NBT.5) ● Use addition and subtraction to solve one- and two-step word problems. (2.OA.1)

Element	Exemplars
Instructional Examples/Lessons/Tasks	<ul style="list-style-type: none"> ● Find the difference of two multiples of 10 (e.g. $90 - 40$) using models, drawings, hundred charts, and number lines. ● Subtract a multiple of 10 from a multiple of 10. (e.g., subtract $90 - 40$) ● Explain the difference between two multiples of 10 by relating it to subtracting the tens digit. ● Explain why the ones place does not change when subtracting multiples of 10.
Assessment Examples	<ul style="list-style-type: none"> ● Subtract Multiples of 10 Find the Difference of 2 Multiples of 10 Using Number Line (Performance Task) ● Subtraction with Number Path Find the Difference of 2 Multiples of 10 Using Number Line ● Subtract Multiples of 10 Subtract a Multiple of 10 From a Multiple of 10

Measurement & Data

Domain Overview

First graders will learn what measurement is, how to measure accurately, tell time, and collect, interpret, and analyze data.

Cluster

Measure lengths indirectly and by iterating length units.

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

Order three objects by length; compare the lengths of two objects indirectly by using a third object.

Element	Exemplars
Standards for Mathematical Practice	<ul style="list-style-type: none"> ● MP5 Students use nonstandard tools to estimate and measure objects. They also compare lengths of three different objects. ● MP 6 Students attend to precision using appropriate vocabulary to describe direct comparisons and the alignment of objects.
Instructional Strategies	<ul style="list-style-type: none"> ● Give students a stick that is about 4 inches long. Ask students to find an object in the room that is shorter than and longer than the the stick. Ask students to determine which object is longer/shorter and explain their reasoning. ● Find three things in the room that are shorter than your pencil. ● Find three school supplies. Draw or trace them in order from shortest to longest. Label each school supply. ● Shanna and Christie both measured the same marker but got different lengths. How could this have happened? (different unit of measure- one used large paper clips and the other student used small paper clips) ● How can you figure out the length of different objects when you do not compare them side by side? Provide an example to support your answer. ● Have students use measurement vocabulary to first estimate, describe, and then compare the measurable attributes.
Prerequisite Skills	<ul style="list-style-type: none"> ● Directly compare two objects (K.MD.2)
Connections Within and Beyond Grade Level	<p>Within:</p> <ul style="list-style-type: none"> ● Express the length of an object as a whole number by length units. (1.MD.A.2) <p>Beyond:</p> <ul style="list-style-type: none"> ● Measure the length of an object (2.MD.1)
Instructional Examples/Lessons/Tasks	<ul style="list-style-type: none"> ● Compare and Order (Utah Core Academy Lesson) ● Object Sort (Utah Core Academy Lesson) ● Cedar Painting Project (Utah Core Academy Lesson)
Assessment Examples	<ul style="list-style-type: none"> ● Identify Shortest/Longest of Three Objects ● Identify Shortest/Longest of Three Objects 2 ● Identify Shortest/Longest of Three Objects 3 ● Identify Shortest/Longest of Three Objects 4 ● Organize Three Objects by Length

Measurement & Data

Cluster

Measure lengths indirectly and by iterating length units.

NVACS 1.MD.A.2 (Major Supporting Work)

Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. *Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.*

Element	Exemplars
Standards for Mathematical Practice	<ul style="list-style-type: none"> ● MP 5 Students use nonstandard tools to estimate and measure objects. ● MP 6 Students attend to precision when finding the measurement of an object using same-size length units with no gaps or overlaps.
Instructional Strategies	<ul style="list-style-type: none"> ● How can you describe how long your pencil is to a friend without using a ruler? For example, provide students with possible non-standard units to be used to measure. ● Use two different non-standard units to measure the same object in the room. For example, the length of a school box or student desk. How are your measurements alike and/or different? ● Measure three different objects using the same non-standard unit of measure. Order the three objects shortest to longest using the whole number results. ● Which is longer, the distance from your elbow to your wrist or the length of your foot? Use models and tools to support your answer. ● Both Nick and Ben measured the length of the teacher’s desk using large paper clips. Nick rushed and did not match up the paper clips as he lined them up. Nick came up with a measurement of 46 paper clips. Ben was careful to lay the paper clips end to end, without overlaps or gaps. Ben’s measurement is 42 paper clips. Who do you think is right and why do you think that?
Prerequisite Skills	<ul style="list-style-type: none"> ● Directly compare two objects (K.MD.2)
Connections Within and Beyond Grade Level	<p>Within:</p> <ul style="list-style-type: none"> ● Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols $>$, $=$, and $<$. (1.NBT.B.3) <p>Beyond:</p> <ul style="list-style-type: none"> ● Measure the length of an object (2.MD.1)

Element	Exemplars
Instructional Examples/Lessons/Tasks	<ul style="list-style-type: none"> ● How Long? ● Measure Me! ● Growing Bean Plants ● Measuring Blocks ● A School Walk (Utah Core Academy Lesson) ● How Big Is a Foot? (Utah Core Academy Lesson) ● Moving Furniture (Utah Core Academy Lesson) ● Books on a Shelf (Utah Core Academy Lesson) ● Measuring a Bookshelf (Utah Core Academy Lesson) ● Measuring Flowers Non-Standard (Utah Core Academy Lesson) ● Ribbon (Utah Core Academy Lesson)
Assessment Examples	<ul style="list-style-type: none"> ● Measure Objects and Report Length as Number of Smaller Objects (performance task) ● Measure Objects and Report Length as Number of Smaller Objects 2 (performance task) ● Measure an Object with Two Different Smaller Objects.

Measurement & Data

Cluster

Tell and write time.

NVACS 1.MD.B.3 (Major Supporting Work)

Tell and write time in hours and half-hours using analog and digital clocks.

Element

Exemplars

Standards for Mathematical Practice	<ul style="list-style-type: none"> ● MP 6 Students will attend to precision with specific vocabulary to describe and tell time such as half past the hour. ● MP 7 Students will use a clock to tell time noticing that sixty minutes is the same as one hour.
Instructional Strategies	<ul style="list-style-type: none"> ● How does the hour hand look different from the minute hand? ● (Display 3 analog clocks showing 11:30, 1:30 and 12:30) Which clock shows half past 12 o'clock? Explain your thinking. ● Why is 4:30 also known as half past 4? ● You eat lunch between 11:00 am and 1:00 pm. What are some possible times you can eat? ● What difference do you notice between the hour hands for 3:00 and 3:30? Why does it change?
Prerequisite Skills	<ul style="list-style-type: none"> ● This concept is not taught prior to grade 1.
Connections Within and Beyond Grade Level	<p>Within:</p> <ul style="list-style-type: none"> ● Partition circles into 2 equal shares. Describe shares using the word halves (1.G.2) <p>Beyond:</p> <ul style="list-style-type: none"> ● Tell and write time to the nearest five minutes with a.m. and p.m. (2.MD.7)
Instructional Examples/Lessons /Tasks	<ul style="list-style-type: none"> ● Introduction to Analog Clocks (Utah Core Academy Lesson) ● Grouchy Ladybug Time (Utah Core Academy Lesson) ● Time to Match (Utah Core Academy Lesson) ● Teaching Time (Utah Core Academy Lesson), Teaching Time Workmat ● Travel Time (Utah Core Academy Lesson) ● Stop the Clock ● Reading an Analog Clock ● Identify the differences between an analog clock and a digital clock. ● Identify the hours and minutes on a digital and analog clock. ● Tell how many minutes are in an hour and a half-hour. ● Tell time to the hour and half-hour using an analog clock. ● Tell time to the hour and half-hour using a digital clock. ● Write a time when given a time verbally. ● Draw hands on a clock to show a given time. ● Relate time on an analog clock to a digital clock. ● Relate time on a digital clock to an analog clock. ● Explain what "o'clock" and "thirty" mean.

Element

Exemplars

**Assessment
Examples**

- Distinguish Between Analog and Digital Clocks.
- Tell Time to Hour on Analog Clocks
- Tell Time to Half-Hour on Analog Clocks

Measurement & Data

Cluster

Represent and interpret data.

NVACS 1.MD.C.4 (Major Supporting Work)

Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

Element	Exemplars
Standards for Mathematical Practice	<ul style="list-style-type: none"> ● MP 2 Students will analyze and use reasoning to summarize and interpret data collected. They must make sense of the quantities counted in each category of their tables or charts. ● MP 4 First graders will pose questions and collect data to answer their questions. Students will organize and represent their data. ● MP 6 Students will communicate by explaining what the information means with the data they collected.
Instructional Strategies	<ul style="list-style-type: none"> ● How could you sort a group of toys (stuffed animals, balls, and trains) and make a graph to show how many toys are in the different groups? ● Think about a question you might ask your classmates to which there are three possible answers. Conduct a survey and then graph the results by using either a pictograph or a bar graph. ● Use measurement vocabulary when analyzing data (use terms such as most, more than, less than, etc.) ● Consider the following data. Should the class use a bar graph or a picture graph to show this data? Why? Favorite Ice Cream Flavor by number of students Vanilla 12 Chocolate 9 Strawberry 3
Prerequisite Skills	<ul style="list-style-type: none"> ● Classify objects into given categories, count, and sort by count (K.MD.3)
Connections Within and Beyond Grade Level	<p>Within:</p> <ul style="list-style-type: none"> ● Compare two digit numbers based on meaning of tens and ones digit (1.NBT.B.3) <p>Beyond:</p> <ul style="list-style-type: none"> ● Draw a picture graph and bar graph to represent a data set with up to four categories. (2.MD.D.10) ● Draw picture graphs and bar graphs (2.MD.10)

Element	Exemplars
Instructional Examples/Lessons/Tasks	<ul style="list-style-type: none"> ● Favorite Ice Cream Flavor (Illustrative Mathematics) ● Weather Graph Data (Illustrative Mathematics) ● Treasure Hunt (Utah Core Academy Lesson) ● Party Cake (Utah Core Academy Lesson) ● Fish Graphing (Utah Core Academy Lesson) ● Lemonade (Utah Core Academy Lesson) ● Pictograph Game Links to an external site. (student-facing resources) ● Organize data in up to three categories. ● Represent data in up to three categories. ● Answer questions about the total number of data points. ● Answer questions about how many data points are in each category.
Assessment Examples	<ul style="list-style-type: none"> ● Represent Data in up to Three Categories (performance task) ● Organize & Interpret Data in up to Three Categories (performance task)

Geometry

Domain Overview

First grade students will identify defining attributes of two- and three-dimensional shapes and describe shapes geometric attributes to determine how they are similar and different, create larger composite shapes understanding the part-part-whole relationship, and partition circles and rectangles into halves, fourths, and quarters

Cluster

Reason with shapes and their attributes.

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

Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.

Element	Exemplars
Standards for Mathematical Practice	<ul style="list-style-type: none"> ● MP 1 Students will become problem solvers as they arrange shapes to create new composite shapes and as they recompose the pieces into different shapes. ● MP 6 Students will use clear, specific definitions to define attributes and use terms such as halves, fourth, and quarters to describe the partitioning of shapes.
Instructional Strategies	<ul style="list-style-type: none"> ● Use 20 toothpicks to make three shapes. None of the shapes can use the same number of toothpicks. Describe your shapes. ● What is the relationship between a square and a rectangle? Is a square always a rectangle? Is a rectangle always a square? ● Student reaches into a bag and feels the hidden three-dimensional shape. Student describes the hidden shape using defining attributes. ● I am a three-dimensional shape. I have two circle faces and one curved surface, what shape am I? ● Display a cube and a rectangular prism. How are they alike and how are they different? ● Choose 2 different attribute blocks. Draw your shapes. Write about all the ways the two shapes are alike and all the ways they are different. ● Create a picture using less than 15 pattern blocks. Record your picture and the number of each shape used.
Prerequisite Skills	<ul style="list-style-type: none"> ● Analyze and compare two- and three-dimensional shapes (K.G.4) ● Draw and make models of shapes (K.G.5)
Connections Within and Beyond Grade Level	<p>Within:</p> <ul style="list-style-type: none"> ● Composing 2- and 3-dimensional shapes to create a composite shape. (1.G.A.2) <p>Beyond:</p> <ul style="list-style-type: none"> ● Recognize and draw polygons and other figures (2.G.1)

Element	Exemplars
Instructional Examples/Lessons/Tasks	<ul style="list-style-type: none"> ● 3-D Shape Sort ● All Versus Only Some Toy Box Sort (Utah Core Academy Lesson) ● Shape Sort (Utah Core Academy Lesson) ● Shape Riddles 1 (Utah Core Academy Lesson) ● Shape Riddles 2 (Utah Core Academy Lesson) ● Shape Riddles 3 (Utah Core Academy Lesson) ● Shapes in Our Community (Utah Core Academy Lesson) ● Doughnut Problem (Utah Core Academy Lesson) ● Magical Shape Hunt ● Highlight Zone ● Chicken Blast Off ● Shape Sorter (student-facing resource) ● Explain the difference between defining attributes (e.g., sides, angles, faces) and non-defining attributes (e.g., color, orientations, overall size). ● Construct and draw a shape when given defining attributes. ● “I’m thinking of a shape...” (My shape has 4 vertices. My shape has all equal sides. What could my shape be?)
Assessment Examples	<ul style="list-style-type: none"> ● Defining Attributes and Non-Defining Attributes 1 (Performance Task) ● Defining Attributes and Non-Defining Attributes 2 (Performance Task) Links to an external site. ● Defining Attributes and Non-Defining Attributes 3

Geometry

Cluster

Reason with shapes and their attributes.

NVACS 1.G.A.2 (Major Supporting Work)

Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.¹

¹ Students should apply the principle of transitivity of measurement to make indirect comparisons, but they need not use this technical term.

Element	Exemplars
Standards for Mathematical Practice	<p>MP 1 Students will be able to explain the solution to a problem and check their answers to see if it makes sense when creating new shapes from composite shapes.</p> <p>MP 6 Students will precisely communicate to others how they composed their new shapes from composite shapes.</p>
Instructional Strategies	<ul style="list-style-type: none"> ● Begin with a shape of your choice. Cut it into three pieces. Give it to a partner to put together. ● How many different shapes can you make using five green pattern block triangles? Triangles must touch along each complete side. ● Tell which two shapes you think are most alike and why (see image to the right). ● Using your tangram pieces, can you make a trapezoid with two pieces? (parallelogram and medium triangle) Can you make a parallelogram with three pieces? (two small triangles and square) Can you make a square with four pieces?
Prerequisite Skills	Compose simple shapes to form larger shapes (K.G.6)
Connections Within and Beyond Grade Level	<p>Within:</p> <ul style="list-style-type: none"> ● Distinguish between defining attributes versus non-defining attributes, build and draw shapes to possess defining attributes (1.G.1) <p>Beyond:</p> <ul style="list-style-type: none"> ● Recognize area as an attribute of plane figures (3.MD.5)

Element	Exemplars
Instructional Examples/Lessons/Tasks	<ul style="list-style-type: none"> ● Build a Wall (Utah Core Academy Lesson) ● Fossil Hunt (Utah Core Academy Lesson) ● Pattern Block Pictures (Utah Core Academy Lesson) ● Scavenger Hunt (Utah Core Academy Lesson) ● Triangles (Utah Core Academy Lesson) ● Playhouse (Utah Core Academy Lesson) ● Patch Tool (student-facing resource) ● Make Your Own Puzzle (Illustrative Mathematics) ● Grandfathers Tang’s Story (Illustrative Mathematics) ● Identify two-dimensional shapes including rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles ● Identify three-dimensional shapes cubes, right rectangular prisms, right circular cones, and right circular cylinders. ● Create new shapes using two-dimensional and/or three-dimensional shapes. ● Tangram Puzzles
Assessment Examples	<ul style="list-style-type: none"> ● Make a Shape Create New Shapes Using Two-Dimensional Shapes. ● Assessment Task Draw Rows and Columns

Geometry

Cluster

Reason with shapes and their attributes.

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

Partition circles and rectangles into two and four equal shares, describe the shares using the words *halves*, *fourths*, and *quarters*, and use the phrases *half of*, *fourth of*, and *quarter of*. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.

Element	Exemplars
Standards for Mathematical Practice	<ul style="list-style-type: none"> ● MP 1 Students will become problem solvers as they partition shapes into halves, fourths, and quarters. ● MP 6 Students will use clear, specific definitions to define attributes and use terms such as halves, fourth, and quarters to describe the partitioning of shapes.
Instructional Strategies	<ul style="list-style-type: none"> ● Christie and her three friends want to share a square pan of brownies equally. What are the different ways to cut the pan of brownies? ● Show 3 different squares partitioned into fourths and ask students why the diagonally partitioned pieces aren't larger than the others. ● What does it mean when we say a shape has equal parts? Give examples of the many ways we use the word equal in math class. ● Draw 2 lines to make 4 equal parts. What smaller shapes did you make? Divide the rectangle into 4 equal parts another way? What smaller shapes did you make this time? ● Provide students with many identical squares. How many different ways can you divide the squares into fourths? Use examples to support your reasoning. (3 ways: diagonally, horizontal, and perpendicular) ● How many quarter-circles would you need to make a whole circle? How many quarter-circles would you need to make a half-circle? Explain your thinking. ● If you want more pieces, should you cut your shape into halves or quarters? If you want bigger pieces, should you cut your shape into halves or quarters? Explain your thinking.
Prerequisite Skills	<ul style="list-style-type: none"> ● Compose simple shapes to form larger shapes (K.G.6)
Connections Within and Beyond Grade Level	<p>Within:</p> <ul style="list-style-type: none"> ● This standard connects the beginning concepts of equal parts (fractions) and how they relate to shapes. <p>Beyond:</p> <ul style="list-style-type: none"> ● Partition circles and rectangles into two, three, or four equal shares (2.G.3)

Element	Exemplars
Instructional Examples/Lessons/Tasks	<ul style="list-style-type: none"> ● Equal Shares (Illustrative Mathematics) ● Framing Fractions Pictures (Utah Core Academy Lesson) ● Food Fractions (Utah Core Academy Lesson) ● The Doorbell Rang (Utah Core Academy Lesson) ● Birthday Cake (Utah Core Academy Lesson) ● Pizza Party (Utah Core Academy Lesson) ● Quilt Squares (Utah Core Academy Lesson) ● Make the Cake (student-facing resource) <ul style="list-style-type: none"> ● Partition (divide) a circle and rectangle into two and four equal parts. ● Describe the equal parts of a circle and rectangle with words (halves, fourths, and quarters). ● Describe the whole by the number of equal parts (e.g., two halves make a whole). ● Explain the more equal parts in circle or rectangle, the smaller the parts.
Assessment Examples	<ul style="list-style-type: none"> ● Partition a Circle and Rectangle into Two Equal Parts. ● Partition a Circle and Rectangle into Four Equal Parts ● Partition a Circle and Rectangle into Two and Four Equal Parts ● Describe the Equal Parts Using Halves and Fourths (Performance Task)

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