SCOPE & SEQUENCE
WITH STANDARD ALIGNMENT

- GRADES K-5 -

GEORGIA

JiJi®

ST Math®
Created by MIND Research Institute

JOURNEY AND BONUS JOURNEY OBJECTIVES

Intro to ST Math

Game Name	Game Description
Build Parts	Put JiJi's parts into the outline.
JiJi Poses	Identify the view of JiJi indicated by an outline.
Fill Ground	Fill the outline(s) in the ground with the matching shape or the correct number of shapes.
Estimate On Number Line	Estimate on a number line the length of a given block.

Numbers and Objects to 5

Standards Coverage:

Recommended: MGSEK.CC.2, MGSEK.CC.5a

Related: MGSEK.CC.1, MGSEK.CC.3, MGSEK.CC.4a, MGSEK.CC.4b, MGSEK.CC.5b, MGSEK.OA.1, MGSEK.OA.2

Game Name	Game Description
Dot Count	Count the number of objects that appear in a set by clicking on each object once. Students learn to count to five.
Match Count	Match a given set of shaded circles with a set of empty circles. This game teaches counting and one-to-one correspondence.
How Many Legs	Provide the correct number of shoes for each set of creatures.
Dot Count Symbolic	Count the number of objects that appear in a set by clicking on each object once.
Ten Frame Count	Relate numerical symbols (1-5) to their representations with ten frames.

Subitizing

Standards Coverage:

Related: MGSEK.CC.1

Game Name	Game Description
Subitizing Finger Patterns	Match the number of fingers being held up. Teaches visual representations of numbers up to 5.
Subitizing Fingers and Dice	Choose the die face corresponding to the number of fingers. Teaches visual representations of numbers up to 5.
Subitizing with Dice	Choose the die face corresponding to the number of birds. Teaches visual representations of numbers up to 6.
Double Sided Subitizing	Choose the two die faces that represent the number of birds that appeared on each side of the screen. Teaches visual representations of numbers up to 6.

Numbers and Objects to 10

Standards Coverage:

Recommended: MGSEK.CC.2, MGSEK.CC.5a

Related: MGSEK.CC.1, MGSEK.CC.3, MGSEK.CC.4a, MGSEK.CC.4b, MGSEK.CC.5b, MGSEK.OA.1, MGSEK.OA.2

Game Name	Game Description
Dot Count	Count the number of objects that appear in a set by clicking on each object once. Students learn to count to ten.
Alien Capture	Count up to 10 spaceships.
Match Count	Match a given set of shaded circles with a set of empty circles. This game teaches counting and one-to-one correspondence.
How Many Legs	Provide the correct number of shoes for each set of creatures.
Counting On to 10 Dots	Use visual models to learn the meaning of the numbers 1-10 and to put them in order. Count to 10 using numerals and visual representations.
Number Sticks	Learn the number symbols (1-9) and the quantities they represent.
Number Objects	Represent a numerical symbol (1-9) as a set of objects and provide the number that describes the cardinality of a given set of objects. This game helps students remember the meaning of the numerals.
Dot Count Symbolic	Count the number of objects that appear in a set by clicking on each object once and provide the number that matches the cardinality of the given sets. Students learn to count to ten.

Exploring Shapes

Standards Coverage:

Recommended: MGSEK.G.4

Related: MGSEK.G.1, MGSEK.G.2, MGSEK.G.3, MGSEK.MD.3

Game Name	Game Description
Roll Off	Identify the shapes that will roll away. Shapes that are not round get stuck and block JiJi's path.
Block Stack	Identify which objects can be stacked. Shapes that are not rectangular will roll away or cause the stack to topple.
Wedge	Identify the objects that can be used to move the barrier. Shapes that are not triangles will block JiJi's path since they cannot wedge themselves under the barrier.
Match Shape	Match shapes to their outlines to clear JiJi's path. This game introduces basic geometric shapes and the ideas of direction and position.
Prisms and Cylinders	Identify the shape of the base or side of a prism or cylinder.

Greater Than, Less Than, Equal To

Standards Coverage:

Recommended: MGSEK.CC.6, MGSEK.MD.2

Related: MGSEK.CC.4a, MGSEK.CC.4c, MGSEK.CC.5a, MGSEK.CC.7

Game Name	Game Description
Tug Boat	Rearrange the boats so that the bridge will open. This game teaches addition, subtraction, and the concept of equal amounts.
Order Sort	Order and compare two quantities between 0 and 10.
Parachute	Put JiJi in the correct starting place to parachute down to the ground using inclines and ladders.
More Less Parachute	Select a set of stacked objects that will be greater than, less than, or equal to a given set of stacked objects.
More Less Parachute Unstacked	Select a set of stacked objects that will be greater than, less than, or equal to a given set of unstacked objects.

Understanding Addition and Subtraction within 5

Standards Coverage:

Recommended: MGSEK.OA.1, MGSEK.OA.2, MGSEK.OA.3, MGSEK.OA.4, MGSEK.OA.5

Game Name	Game Description
Push Box Addition	Identify the total number of boxes. This game teaches addition by combining stacks of boxes.
Bird Expressions Addition	Add the number of new birds that arrive to find the total number of birds.
Select Box Addition Symbolic	Add using visual models and numerals.
Push Box Subtraction	Determine how many boxes are needed to create a bridge. Watch out for holes in the ground which remove boxes. This game teaches subtraction via the removal of boxes by holes in the ground.
Bird Expressions Subtraction	Identify how many birds are left on the wire after some of them fly away. This game relates numbers to quantities and teaches subtraction.
Select Box Subtraction Symbolic	Subtract using visual models and numerals.

Analyzing Shapes

Standards Coverage:

Recommended: MGSEK.G.4

Related: MGSEK.MD.3

Game Name	Game Description
How Many Corners	Identify the number of vertices on two-dimensional shapes.
Find the Pair	Given a set of two-dimensional shapes, identify the two that have the same number of vertices.
How Many Sides or Corners	Identify the number of sides or vertices on two-dimensional shapes.
Single Slide Transform	See how various attributes of shapes are changed when different transformations are applied.
Attribute Transform	Choose the correct attribute to change (shape, color, or size) to transform the first shape into the second. This game teaches the idea of a function in a visual way.

Understanding Addition and Subtraction within 10

Standards Coverage:

Recommended: MGSEK.OA.1, MGSEK.OA.2, MGSEK.OA.3, MGSEK.OA.4, MGSEK.OA.5

Game Name	Game Description
Push Box Addition	Identify the total number of boxes. This game teaches addition by combining stacks of boxes.
Bird Expressions Addition	Add the number of new birds that arrive to find the total number of birds.
Select Box Addition Symbolic	Add using visual models and numerals.
Push Box Subtraction	Determine how many boxes are needed to create a bridge. Watch out for holes in the ground which remove boxes. This game teaches subtraction via the removal of boxes by holes in the ground.
Bird Expressions Subtraction	Identify how many birds are left on the wire after some of them fly away. This game relates numbers to quantities and teaches subtraction.
Select Box Subtraction Symbolic	Subtract using visual models and numerals.

Making 10 and Number Pairs

Standards Coverage:

Recommended: MGSEK.OA.1, MGSEK.OA.2, MGSEK.OA.3, MGSEK.OA.4, MGSEK.OA.5

Related: MGSEK.CC.6, MGSEK.NBT.1

Game Name	Game Description
Bouncing Shoes	Use the model to explore the concept of additively constructing a given number within 10.
Bouncing Shoes to 10	Use the model to make several additive pairs for a given number within 10.
Ten Frame	Make ten using ten frames.
Bouncing Shoes with Numbers	Using the symbols, additively decompose numbers within 10.
Partners	Decompose 10 as sums.

Numbers and Objects to 20

Standards Coverage:

Recommended: MGSEK.CC.5a

Related: MGSEK.CC.3, MGSEK.CC.4a, MGSEK.CC.4b, MGSEK.CC.5b, MGSEK.OA.1, MGSEK.OA.2

Game Name	Game Description
How Many Legs	Provide the correct number of shoes for each set of creatures.
Ten Frame to 20	Relate numerical symbols (up to 20) to their representations with ten frames. This game teaches correspondence between numbers and sets of objects and also provides an introduction to ones and tens place value concepts.
Dot Count Symbolic	Identify the numeral that represents the set of dots.
Alien Capture Symbolic	Count up to 20 spaceships.
Ten Frame to 20 Symbolic	Relate numerical symbols (up to 20) to their representations with ten frames. This game teaches correspondence between numbers and sets of objects and also provides an introduction to ones and tens place value concepts.
Alien Capture Counting On Symbolic	Count up to 20 spaceships.

Counting on the Number Line

Standards Coverage:

Recommended: MGSEK.CC.1, MGSEK.CC.2

Related: MGSEK.CC.3, MGSEK.NBT.1, MGSEK.OA.2, MGSEK.OA.3, MGSEK.OA.4

Game Name	Game Description
Bird Expressions	Provide the instance of a whole number within 20 on the number line using the model.
Number Line Journey	Move left and right on the number line to locate the given number.
Number Line Zoom	Plot a whole number within 20 on the number line by first indicating if the number is less than or greater than 10.
Number Line Trap	Estimate the location of a whole number within 20 on the number line with various hash marks and labeled numbers.
What's the Number	Write numerals within 20 on the number line.

Comparing Numbers

Standards Coverage:

Recommended: MGSEK.CC.6, MGSEK.CC.7

Related: MGSEK.CC.4a, MGSEK.CC.4c, MGSEK.CC.5b, MGSEK.MD.2

Game Name	Game Description
More Less Parachute Symbolic	Select a set of stacked objects that will be greater than, less than, or equal to a given number that is then represented as a set of stacked objects. This game displays the meaning of ordering numbers and provides a visual understanding of the greater than, less than, and equal to symbols.
More Less Parachute Multiple Choice	Select a number that will be greater than, less than, or equal to a given number. This game displays the meaning of ordering numbers by representing the numbers as sets of objects and provides a visual understanding of the greater than, less than, and equal to symbols.
Least Most with Number Line	Identify the smallest or largest number in a set using number line concepts.
Order Sort Symbolic	Compare and order two whole numbers written symbolically between 1 and 10.
Least Most	Identify the smallest or largest number in a set using number line concepts.

Counting to 100

Standards Coverage:

Recommended: MGSEK.CC.1, MGSEK.CC.2

Related: MGSEK.CC.3

Game Name	Game Description
Number Line Journey	Move left and right on the number line to locate the given number.
Number Line Journey Zoom	Zoom in on the number line to locate the given number.
Counting On	Count forward to one hundred.
Counting On and Back	Count forward to one hundred and backward from one hundred.

Foundations of Place Value

Standards Coverage:

Recommended: MGSEK.CC.5a, MGSEK.NBT.1

Related: MGSEK.CC.3, MGSEK.CC.4a

Game Name	Game Description
Alien Capture Mothership	Count up to 20 spaceships and represent the number in place value notation using tens and ones.
Alien Capture with Numbers	Represent whole numbers up to 20 using visual models based on place value.
Alien Capture with Numerals	The small spaceships contain one alien each and the larger ones contain 10. Represent the total number (up to 20) in place value notation using tens and ones.
Ten Frame Counting	Decompose a number less than 20 into two parts. Record the decomposition using a visual equation.
Ten Frame Counting Symbolic	Decompose a number less than 20 into two parts. Record the decomposition using a numeric equation.

Composing Shapes

Standards Coverage:

Recommended: MGSEK.G.5, MGSEK.G.6

Related: MGSEK.G.3, MGSEK.G.4

Game Name	Game Description
Bricks	Arrange the shapes to create the composite shape shown.
Composite Shapes	Create a composite shape by arranging the shape parts.
Composite Shapes 3D	Create a composite 3-dimensional shape by arranging the shape parts.

Addition and Subtraction Facts within 5

Standards Coverage:

Recommended: MGSEK.OA.5

Related: MGSEK.OA.1, MGSEK.OA.2

Game Name	Game Description
Select Box Symbolic	Add using visual models and numerals.
Basic Facts	Practice addition and subtraction facts using visual models.
Ten Frame Symbolic	Learn numerals and addition facts using ten frames.

Sorting and Classifying

Standards Coverage:

Recommended: MGSEK.CC.5a, MGSEK.G.4, MGSEK.MD.3

Related: MGSEK.CC.4a

Game Name	Game Description
Paper JiJi	To put JiJi together, locate the square on the grid determined by the given horizontal and vertical positions.
Shapes and Patterns Paper JiJi	To put JiJi together, locate the square on the grid determined corresponding to the given shape and pattern.
Attribute Grid Two Attributes	Identify two attributes (size, shape, or color) of the given shape by placing the shape in the appropriate box in the grid.

Position

Standards Coverage:

Recommended: MGSEK.G.1

Related: MGSEK.G.2

Game Name	Game Description
Match Position	Remove the ball that is blocking JiJi's path. This game teaches orientation and relative position in two dimensions.
Match Shape	Match shapes to their outlines to clear JiJi's path. This game introduces basic geometric shapes and the ideas of direction and position.
Match Direction Top View	Identify which way JiJi needs to turn to remove the ball. This game teaches orientation and relative position in two dimensions.
Upright JiJi	Create a series of rotations needed to change JiJi's current orientation to a new orientation. This game strengthens the ability to visually manipulate objects.

Measurable Attributes

Standards Coverage:

Recommended: MGSEK.MD.1, MGSEK.MD.2

Related: MGSEK.G.4, MGSEK.MD.3

Game Name	Game Description
Swap Sort	Order a set of rectangles from smallest to largest or largest to smallest by swapping their positions.
Two Item Slinky	Order pairs of objects by their weights. Students can use a balance to compare pairs they are unsure of.
Three Item Slinky	Compare and order three objects by their weights using a balance.
Indirect Measurement	Compare the lengths of two objects by placing them vertically in ascending or descending order.

Counting with Pennies

Standards Coverage:

Related: MGSEK.CC.5c

Game Name	Game Description
Toll Bridge Single Coin	Learn the value of each coin.
Toll Bridge Multiple Coin	Choose or count out the coin or combination of coins whose value is equal to the given amount.
Money Notation	Practice reading and writing money amounts using the cent symbol.

Math Challenge K

Game Name	Game Description
Number Line Trap	Estimate the location of a whole number within 20 on the number line with various hash marks and labelled numbers.
Tug Boat	Rearrange the boats so that the bridge will open. This game teaches addition, subtraction, and the concept of equal amounts.
Tug Boat with Pictures	Rearrange the numbers so that the sums on each side are the same. This game teaches addition, subtraction, and the concept of equal amounts.
Push Box	Identify the total number of boxes. This game teaches addition by combining stacks of boxes.
Pie Monster Addition	Use the model to solve addition problems. Includes missing addend.
Pie Monster Subtraction	Use the model to solve subtraction problems. Includes missing subtrahend or minuend.
Treasure Hunt with Boxes	Help JiJi navigate around the map to find the correct destination. This game helps develop spatial reasoning by working with position and direction concepts.
Attribute Grid	Identify attributes of an object including size, color, and shape. Choose the location on a two-dimensional grid that corresponds to a pair of attributes describing an object.
Estimate Length	Estimate length of an object given the distance of platform from end of pathway. Iterate a unit ruler to help estimation accuracy.
Addition with Unknowns	Solve addition problems with unknowns in varying positions and on either side of the equal sign.

Challenge K

Game Name	Game Description
Venn Space	Place the object in the correct section of the Venn diagram according to its attributes.
Venn Space Pick Shape	Identify the object that has the attributes corresponding to a particular section of a Venn diagram.
Attribute Transform	Choose the correct attribute to change (shape, color, or size) to transform the first shape into the second. This game teaches the idea of a function in a visual way.
Bird Brain	Find birds in a grid after a sequence of transformations.
Ice Caves	Identify lines of symmetry in two-dimensional shapes.
Dot Shapes	Connect dots to form shapes which will fill holes in the ground.
Pattern Monkey	Identify and extend patterns of different geometric shapes.
Pattern Monkey 2	Create repeating patterns of varying length with different geometric shapes. Identify repeating patterns of varying length in a sequence of geometric shapes.
Upright JiJi	Find a sequence of rotations to move JiJi into an upright position.
Kick Box	Use lasers and mirrors to move the spheres out of the way so JiJi can pass.

Exploring Patterns

Game Name	Game Description
Pattern Monkey Intro	Create repeating patterns of two-dimensional shapes.
Pattern Monkey	Identify repeating patterns of a sequence of two, three or four geometric shapes.
Pattern Walkway with Shapes	Fit the shapes together to identify and extend a pattern. This will build a bridge for JiJi to walk across.

Advanced Patterns

Game Name	Game Description
Pattern Monkey Intro	Create repeating patterns of two-dimensional shapes.
Pattern Monkey	Identify repeating patterns of a sequence of two, three or four geometric shapes.
Pattern Walkway with Shapes	Fit the shapes together to identify and extend a pattern. This will build a bridge for JiJi to walk across.
Pattern Directions	Extend repeating patterns in various directions. Here the objects all have the same shape; the patterns are based on color, orientation, and rotation.
Pattern Directions Comparing and Filling	Extend the patterns in various directions by filling in the boxes. The patterns are based on the color and orientation of the objects.
Pattern Walkway with Letters	Build a bridge for JiJi by fitting the shapes together to make a pattern. Now the shapes are labeled with letters.

Position Symbolic

Game Name	Game Description
Match Position Side View Symbolic Intro	Remove the ball that is blocking JiJi's path by identifying its position relative to JiJi using the terms "behind", "in front", "above" and "below".
Match Direction Top View Symbolic	Remove the ball that is blocking JiJi's path by identifying its position relative to JiJi using the terms "forward", "backward", "to the right", and "to the left".
Upright JiJi	Create a series of rotations needed to change JiJi's current orientation to a new orientation. This game strengthens the ability to visually manipulate objects.
Treasure Hunt with Squares	Help JiJi navigate around the map to find the correct destination. This game helps develop spatial reasoning by working with position and direction concepts.
Match Position Side View Symbolic	Remove the ball that is blocking JiJi's path by identifying its position relative to JiJi using the terms "behind", "in front", "above" and "below".
Match Direction Top View with Turns Symbolic	Remove the ball that is blocking JiJi's path by identifying its position relative to JiJi using the terms "forward", "backward", "to the right", and "to the left". JiJi's path to the door is not necessarily direct.

OPTIONAL OBJECTIVES

Technology Interaction

Game Name	Game Description
Defog JiJi	This game teaches students how to use a mouse, while clearing the fog away from JiJi.

STANDARDS INDEX

CC - Counting and Cardinality

Standard	Objective(s)
MGSEK.CC.1	Count to 100 by ones and by tens.
	Recommended: Counting on the Number Line; Counting to 100
	Related: Numbers and Objects to 5; Subitizing; Numbers and Objects to 10
MGSEK.CC.2	Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
	Recommended: Numbers and Objects to 5; Numbers and Objects to 10; Counting on the Number Line; Counting to 100
MGSEK.CC.3	Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).
	Related: Numbers and Objects to 5; Numbers and Objects to 10; Numbers and Objects to 20; Counting on the Number Line; Counting to 100; Foundations of Place Value
MGSEK.CC.4a	When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object. (one-to-one correspondence)
	Related: Numbers and Objects to 5; Numbers and Objects to 10; Greater Than, Less Than, Equal To; Numbers and Objects to 20; Comparing Numbers; Foundations of Place Value; Sorting and Classifying

Standard	Objective(s)
MGSEK.CC.4b	Understand that the last number name said tells the number of objects counted (cardinality). The number of objects is the same regardless of their arrangement or the order in which they were counted. *Related: Numbers and Objects to 5; Numbers and Objects to 10; Numbers and Objects to 20*
MGSEK.CC.4c	Understand that each successive number name refers to a quantity that is one larger. *Related: Greater Than, Less Than, Equal To; Comparing Numbers*
MGSEK.CC.5a	Count to answer 'how many?' questions about as many as 20 things arranged in a variety of ways (in a line, a rectangular array, or a circle), or as many as 10 things in a scattered configuration. **Recommended: Numbers and Objects to 5; Numbers and Objects to 10; Numbers and Objects to 20; Foundations of Place Value; Sorting and Classifying** *Related: Greater Than, Less Than, Equal To*
MGSEK.CC.5b	Given a number from 1-20, count out that many objects. *Related: Numbers and Objects to 5; Numbers and Objects to 10; Numbers and Objects to 20; Comparing Numbers*
MGSEK.CC.5c	Identify and be able to count pennies within 20. (Use pennies as manipulatives in multiple mathematical contexts.) *Related: Counting with Pennies*

CC - Counting and Cardinality (continued)

Standard	Objective(s)
MGSEK.CC.6	Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.
	Recommended: Greater Than, Less Than, Equal To; Comparing Numbers
	Related: Making 10 and Number Pairs
MGSEK.CC.7	Compare two numbers between 1 and 10 presented as written numerals.
	Recommended: Comparing Numbers
	Related: Greater Than, Less Than, Equal To

OA - Operations and Algebraic Thinking

Standard	Objective(s)

MGSEK.OA.1   Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.

Recommended: Understanding Addition and Subtraction within 5; Understanding Addition and Subtraction within 10; Making 10 and Number Pairs

Related: Numbers and Objects to 5; Numbers and Objects to 10; Numbers and Objects to 20; Addition and Subtraction Facts within 5

MGSEK.OA.2   Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.

Recommended: Understanding Addition and Subtraction within 5; Understanding Addition and Subtraction within 10; Making 10 and Number Pairs

Related: Numbers and Objects to 5; Numbers and Objects to 10; Numbers and Objects to 20; Counting on the Number Line; Addition and Subtraction Facts within 5

MGSEK.OA.3   Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (drawings need not include an equation).

Recommended: Understanding Addition and Subtraction within 5; Understanding Addition and Subtraction within 10; Making 10 and Number Pairs

Related: Counting on the Number Line

OA - Operations and Algebraic Thinking (continued)

Standard	Objective(s)
MGSEK.OA.4	For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation. **Recommended: Understanding Addition and Subtraction within 5; Understanding Addition and Subtraction within 10; Making 10 and Number Pairs** *Related: Counting on the Number Line*
MGSEK.OA.5	Fluently add and subtract within 5. **Recommended: Understanding Addition and Subtraction within 5; Understanding Addition and Subtraction within 10; Making 10 and Number Pairs; Addition and Subtraction Facts within 5**

NBT - Number and Operations in Base Ten

Standard	Objective(s)
MGSEK.NBT.1	1 Compose and decompose numbers from 11 to 19 into ten ones and some further ones to understand that these numbers are composed of ten ones and one, two, three, four, five, six , seven, eight, or nine ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., 18 = 10 + 8). **Recommended: Foundations of Place Value** *Related: Making 10 and Number Pairs; Counting on the Number Line*

MD - Measurement and Data

Standard	Objective(s)
MGSEK.MD.1	Describe measurable attributes of objects, such as length or weight. **Recommended: Measurable Attributes**
MGSEK.MD.2	Directly compare two objects with a measurable attribute in common, to see which object has 'more of'/'less of' the attribute, and describe the difference. For example, directly compare the heights of two children and describe one child as taller/shorter. **Recommended: Greater Than, Less Than, Equal To; Measurable Attributes** *Related: Comparing Numbers*
MGSEK.MD.3	Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. **Recommended: Sorting and Classifying** *Related: Exploring Shapes; Analyzing Shapes; Measurable Attributes*

G - Geometry

Standard	Objective(s)

MGSEK.G.1   Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind, and next to.

Recommended: Position

Related: Exploring Shapes

MGSEK.G.2   Correctly name shapes regardless of their orientations or overall size.

Related: Exploring Shapes; Position

MGSEK.G.3   Identify shapes as two-dimensional (lying in a plane, 'flat') or three-dimensional ('solid').

Related: Exploring Shapes; Composing Shapes

MGSEK.G.4   Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/'corners') and other attributes (e.g., having sides of equal length).

Recommended: Exploring Shapes; Analyzing Shapes; Sorting and Classifying

Related: Composing Shapes; Measurable Attributes

MGSEK.G.5   Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.

Recommended: Composing Shapes

Standard	Objective(s)
MGSEK.G.6	Compose simple shapes to form larger shapes. For example, 'Can you join these two triangles with full sides touching to make a rectangle?'
	Recommended: Composing Shapes

JOURNEY AND BONUS JOURNEY OBJECTIVES

Intro to ST Math

Game Name	Game Description
Build Parts	Put JiJi's parts into the outline.
JiJi Poses	Identify the view of JiJi indicated by an outline.
Fill Ground	Fill the outline(s) in the ground with the matching shape or the correct number of shapes.
Estimate On Number Line	Estimate on a number line the length of a given block.

Addition and Subtraction Within 10

Standards Coverage:

Recommended: MGSE1.OA.8

Related: MGSE1.NBT.4, MGSE1.OA.5, MGSE1.OA.6a, MGSE1.OA.6b

Game Name	Game Description
Push Box Addition	Identify the total number of boxes. This game teaches addition by combining stacks of boxes.
Select Box Addition Symbolic	Add using visual models and numerals.
Ten Frame Addition	Practice addition facts using ten frames.
Push Box Subtraction	Determine how many boxes are needed to create a bridge. Watch out for holes in the ground which remove boxes. This game teaches subtraction via the removal of boxes by holes in the ground.
Pie Monster	Use the model to solve subtraction problems.
Push Box Estimation	Estimate the height of blocks being added or subtracted.
Basic Facts Subtraction Symbolic	Practice addition and subtraction facts using visual models.
Pie Monster Symbolic	Use the model to solve subtraction problems.

Measurement Concepts

Standards Coverage:

Recommended: MGSE1.MD.1, MGSE1.MD.2

Game Name	Game Description
Order Sort	Order a set of rectangles from smallest to largest or largest to smallest by clicking on each rectangle in order from smallest to largest or largest to smallest.
Indirect Measurement	Compare the lengths of two or three objects by placing them vertically in ascending or descending order.
Estimate Length	Estimate length of an object given the distance of platform from end of pathway. Iterate a unit ruler to help estimation accuracy.
Measure Length	Measure length of one or two objects by iterating a unit ruler and select length of gap on number line.

Addition, Subtraction and Equations

Standards Coverage:

Recommended: MGSE1.OA.1, MGSE1.OA.2, MGSE1.OA.4, MGSE1.OA.7

Related: MGSE1.NBT.4, MGSE1.OA.5, MGSE1.OA.6a, MGSE1.OA.6b

Game Name	Game Description
Bird Expressions	Model two-step addition and subtraction of single digit numbers.
Build Expression	Model addition or subtraction of whole numbers within 20 and find the sum or difference.
Meaning of Equal Sign	Determine if equations are true or false and represent symbolically by choosing the "equal" or "does not equal" sign.

Number Pairs and Making 10

Standards Coverage:

Recommended: MGSE1.NBT.2a, MGSE1.NBT.2c, MGSE1.OA.1, MGSE1.OA.5, MGSE1.OA.8

Related: MGSE1.NBT.4, MGSE1.OA.3, MGSE1.OA.6a, MGSE1.OA.6b

Game Name	Game Description
Tug Boat	Rearrange the boats so that the bridge will open. This game teaches addition, subtraction, and the concept of equal amounts.
Bouncing Shoes	Use the model to make several additive pairs for a given number within 10.
Bouncing Shoes with Numbers	Using symbols, additively decompose numbers within 10.
Building Blocks	Fill in the missing addend to make a sum of 10.
Partners	Decompose 10 as sums.

Counting by Tens

Standards Coverage:

Recommended: MGSE1.NBT.2a, MGSE1.NBT.2c, MGSE1.NBT.4, MGSE1.NBT.5, MGSE1.OA.5

Related: MGSE1.NBT.1, MGSE1.NBT.6, MGSE1.OA.6a

Game Name	Game Description
Hundreds Pit	Skip count from a given number less than 90 by various amounts.
Counting by Ones on the Hundreds Chart	Use a hundreds chart to count on by ones.
Counting by Tens on the Hundreds Chart	Use a hundreds chart to count on by tens.
Counting by Tens on the Number Line	Add multiple tens to a given number where the sum is less than 100.
Ten Frame Counting	Decompose a number less than 20 into two parts. Record the decomposition using a visual equation.
Ten Frame Counting Symbolic	Decompose a number less than 20 into two parts. Record the decomposition using a numeric equation.

Counting Ones and Tens

Standards Coverage:

Recommended: MGSE1.NBT.2a, MGSE1.NBT.2c, MGSE1.OA.5

Related: MGSE1.NBT.1

Game Name	Game Description
Alien Capture	Separately, count up to 20 alien ships or 10 motherships.
Motherships and Aliens	Count up to 10 motherships and then alien ships together in an organized arrangement.
Motherships Groups	Determine the number of motherships needed and how many alien ships are still left when counting a group of alien ships and record the result on ten frames.
Motherships and Aliens Bubble Select	Count up to 10 motherships and then alien ships together in an organized arrangement. Record the answer numerically.
Motherships Groups Bubble Select	Determine the number of motherships needed and how many alien ships are still left when counting a group of alien ships and record the result numerically.

Counting to 120

Standards Coverage:

Recommended: MGSE1.NBT.1

Related: MGSE1.OA.5

Game Name	Game Description
Number Line Journey	Locate a given number within 120 on a number line.
Number Line Journey Zoom	Zoom in on the number line to locate the given number.
Counting On	Count forward to one hundred.
Number Line Trap	Estimate the location of whole numbers (1-120) on the number line. The student is also introduced to place value concepts with ones and tens.
Counting On and Back	Count on or back from a given sequence of numbers up to 120.

Addition and Subtraction with Unknowns

Standards Coverage:

Recommended: MGSE1.OA.1, MGSE1.OA.2, MGSE1.OA.4, MGSE1.OA.7, MGSE1.OA.8

Related: MGSE1.NBT.4, MGSE1.OA.5, MGSE1.OA.6a, MGSE1.OA.6b

Game Name	Game Description
Pie Monster Addition	Use the model to solve addition problems. Includes missing addend.
Pie Monster Subtraction	Use the model to solve subtraction problems. Includes missing subtrahend or minuend.
Push Box	Identify the total number of boxes. This game teaches addition by combining stacks of boxes.
Addition with Unknowns	Solve addition problems with unknowns in varying positions and on either side of the equal sign.
Subtraction with Unknowns	Solve subtraction problems with unknowns in varying positions and on either side of the equal sign.
Equations with Unknowns	Model and solve mixed operation problems with unknowns in varying positions and on either side of the equal sign.
Push Box Symbolic	Identify the total number of boxes. This game teaches addition by combining stacks of boxes.
Missing Addend	Select the other addend to make a given sum.

Place Value Concepts

Standards Coverage:

Recommended: MGSE1.NBT.2a, MGSE1.NBT.2c

Related: MGSE1.NBT.1

Game Name	Game Description
Multiple Choice Petals	Represent ones, tens and hundreds using words, numerals and visual models.
Pulling Petals	Gain an understanding of place value by transforming the pile of petals into tens (flowers with 10 petals each) ones (single petals).
Bee Petals	Represent numbers using a place value based flower petal model. In some levels, students determine the order of magnitude, given a number and a pile of petals (e.g. given the number 7, identify the size of the pile as 7 ones, 7 tens, or 7 hundreds).
Petals Place Value	Given a one- or two-digit whole number, identify the number of tens and the number of ones.
Petals Bubble Select	Find the total number of petals by counting the flowers (tens) and single petals (ones) and then filling in the tens and ones places with the correct numerals.
How Many Petals	Write the numeral for how many petals are in a given pile.

Adding and Subtracting by Tens

Standards Coverage:

Recommended: MGSE1.NBT.4, MGSE1.NBT.5, MGSE1.NBT.6, MGSE1.OA.5

Related: MGSE1.NBT.1

Game Name	Game Description
Petals Place Value	Given a one- or two-digit whole number, identify the number of tens and the number of ones.
Add or Subtract by 1 or 10	Add and subtract 1 and 10 from two-digit whole numbers using mental arithmetic.
Add or Subtract Single Place Numbers	Add and subtract 1 and 10 from two-digit whole numbers using mental arithmetic.
Table Directions	Add and subtract one-digit and two-digit whole numbers using a number table.
Addition and Subtraction on the Number Line	Add two-digit whole numbers and mark the sum on a number line. Most of the sums and differences involve numbers that are multiples of 5 or 10.

Composite Shapes

Standards Coverage:

Recommended: MGSE1.G.2

Related: MGSE1.G.3

Game Name	Game Description
Dot Shapes	Connect dots to form shapes which will fill holes in the ground.
Bricks	Arrange the shapes to create the composite shape shown.
Composite Shapes 2D	Create a composite shape by arranging the shape parts.
Composite Shapes 3D	Create a composite 3D shape by arranging the given 3D shapes.

Using Place Value to Add

Standards Coverage:

Recommended: MGSE1.NBT.4, MGSE1.NBT.5

Related: MGSE1.OA.6a, MGSE1.OA.6b

Game Name	Game Description
Petals Addition	This game introduces the standard algorithm for addition using a visual model, with ones represented as single petals and tens represented as flowers.
Petals Addition Method	Use the standard algorithm to add two-digit whole numbers without regrouping. Verify with the model.

Comparing Two-Digit Numbers

Standards Coverage:

Recommended: MGSE1.MD.1, MGSE1.NBT.3, MGSE1.OA.7

Game Name	Game Description
Order Sort	Order sets of stacked objects from smallest to largest or largest to smallest.
Order Sort Same Digits	From smallest to largest, order two-digit numbers that share the same digit in either place value.
Order Sort Two Digit Numbers	From smallest to largest, order two-digit numbers.
Numberline Trap	Use estimation and an understanding of place value to plot whole numbers (up to two digits) on a number line.
Least or Most	Identify the smallest or largest number in a set using number line concepts.
Comparison Signs	Order sets of objects and whole numbers using the symbols for less than, greater than, and equal to.
Number Comparison	Order whole numbers using both methods based on place value and the symbols for less than, greater than, and equal to.

Addition and Subtraction Within 20

Standards Coverage:

Related: MGSE1.NBT.4, MGSE1.OA.6a, MGSE1.OA.6b

Game Name	Game Description
Ten Frame Addition	Practice addition facts using ten frames.
Ten Frame Addition 2	Practice addition facts using ten frames.
Basic Facts	Practice addition and subtraction facts using visual models.
Ten Frame Subtraction	Practice addition facts using ten frames.

Equal Shares and Partitioning

Standards Coverage:

Related: MGSE1.G.3

Game Name	Game Description
Equal Areas	Determine which figure is divided up equally based on area.
Equal Division	Divide blocks into equal parts.
Match Partitions	Match the partitioning of two rectangular blocks.
Fraction Bricks	Represent the same length using different partitionings.
Alien Bridge	Combine the shaded parts of two equivalent wholes together.
Balance Pies	Match the area of one side of a balance using parts of a whole.
Pie Monster	Implicitly add two shaded regions together.

Organizing Data

Standards Coverage:

Recommended: MGSE1.MD.4

Game Name	Game Description
Paper JiJi	To put JiJi together, locate the square on the grid determined by the given horizontal and vertical positions.
Attribute Grid	Identify attributes of an object including size, color, and shape. Choose the location on a two-dimensional grid that corresponds to a pair of attributes describing an object.
Shapes and Attributes Paper JiJi	Graph the given data by locating the type of shape on the vertical axis and the number of shapes on the horizontal axis.
Tally Marks	Use tally marks to record and represent the numbers and objects from one to ten.
Bar Graph Bridge	Construct bar graphs for a data set given as single observations or in a table.

Telling Time

Standards Coverage:

Recommended: MGSE1.MD.3

Game Name	Game Description
Hours and Minutes	Choose the correct hand corresponding to hours, minutes, and seconds on an analog clock. The game prepares students to tell and record time on an analog clock.
Telling Time	Students place the hands on a clock in the correct position to represent time to the hour and half-hour on an analog clock.
Time on a Line	Read an analog clock to the hour and half-hour and select the correct time on a number line. This game helps to build a foundation for the idea of elapsed time presented in later grades.
Hours and Minutes, Digital	Choose the correct location on a digital clock that displays the hours, minutes, and seconds. The game prepares students to tell and write time on a digital clock.
Telling Time, Digital	Students read an analog clock to the hour and half-hour and record the time on a digital clock.

Shape Differences

Standards Coverage:

Recommended: MGSE1.G.2

Related: MGSE1.G.1

Game Name	Game Description
Pick Geometric Shapes 2D	Identify the number of edges and vertices on two-dimensional shapes.
Shape Names	Identify the given polygon.
Pick Geometric Shapes 2D Symbolic	Learn the names and number of edges of different polygons.
Prisms and Cylinders	Pick the shape that is the base of a given prism.
Pick Geometric Shapes 3D2D with Vertices	Identify the number of edges and vertices on two-dimensional shapes.

Math Challenge 1

Game Name	Game Description
Pie Monster	Use the model to solve two-step addition problems. Includes missing addend.
Push Box Missing Quantity	Identify the total number of boxes. This game teaches addition by combining stacks of boxes.
Measurement Estimation	Estimate or measure lengths of objects needed to create a platform distance.
Tug Boat with Pictures	Rearrange the numbers so that the sums on each side are the same. This game teaches addition, subtraction, and the concept of equal amounts.
Mice Island	Fill in the missing number to make the equation true. This game teaches addition and subtraction of one- and two-digit whole numbers.
Balance Pies	Match the area of one side of a balance using parts of a whole.
Venn Space	Identify the object that has the attributes corresponding to a particular section of a Venn diagram.
Venn Space Pick Shape	Identify the object that has the attributes corresponding to a particular section of a Venn diagram.
Bricks	Arrange the shapes to create the composite shape shown.
Alien Bridge	Combine the shaded parts of two equivalent wholes together.
Bouncing Shoes	Determine how many instances of a given animal are needed to fill the boots.

Challenge 1

Game Name	Game Description
Dot Shapes	Connect dots to form shapes which will fill holes in the ground.
Attribute Transform	Choose the correct attribute to change (shape, color, or size) to transform the first shape into the second. This game teaches the idea of a function in a visual way.
Ice Caves	Identify lines of symmetry in two-dimensional shapes.
Bird Brain	Find birds in a grid after a sequence of transformations.
Big Seed	Find a sequence of actions that will unfold the given image into the desired shape.
Kick Box	Use lasers and mirrors to move the spheres out of the way so JiJi can pass.
Upright JiJi	Find a sequence of rotations to move JiJi into an upright position.

Money (G1)

Game Name	Game Description
Identify Coin	Learn the value of each coin.
Money Place Value	Express a whole number using currency and place value concepts.
Money Swapper	Order coins and combinations of coins by their values.
Toll Bridge	Choose or count out the coin or combination of coins whose value is equal to the given amount.

Equal Shares and Partitioning Symbolic

Game Name	Game Description
Fraction of Shape Symbolic	Both symbolically and linguistically state what portion of the shape is shaded.
Crank Pies	Match the shaded region to the terms 'ones', 'halves', and 'fourths'. Determine how many of these are given.
Match Fraction Symbolic	Represent a given fraction using a visual model by first dividing a whole into equal parts and then shading the correct number of parts.

Two-Digit Number Words

Game Name	Game Description
Place Value Builder	Identify the digit values of given whole numbers using models based on place value. This game covers expanded notation and place value concepts up to the tens place while enforcing the skills of reading and writing whole numbers.
Expanded Form	Provide a number when given its representation in expanded notation. This game also covers place value concepts to the tens place while enforcing the skills of reading and writing whole numbers.
Numbers to Words	Convert two-digit whole numbers from symbols to words.
Words to Numbers	Convert two-digit whole numbers from words to symbols.

OPTIONAL OBJECTIVES

Addition and Subtraction Facts

Game Name	Game Description
Push Box Addition Facts	Practice addition facts using visual block representations for sums under 10.
Select Box Addition Facts	Practice addition facts using alternate visual block representations for sums under 10.
Basic Subtraction Facts	Practice subtraction facts under 10 using visual block representations.
Select Box Subtraction Facts	Practice subtraction facts under 10 using alternate block representations.
Ten Frame Addition Facts	Practice addition facts to 20 using ten frames.
Ten Frame Subtraction Facts	Practice subtraction facts using ten frames.
Mixed Facts	Practice addition and subtraction facts using visual block representations.
Addition and Subtraction Facts on the Number Line	Practice addition and subtraction facts using a number line representation.
Add Facts Bridge	Practice addition facts using a tricky inverted format.
Concentration Numbers	Practice multiple addition and subtraction facts quickly in sequence.

STANDARDS INDEX

OA - Operations and Algebraic Thinking

Standard	Objective(s)
MGSE1.OA.1	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. **Recommended: Addition, Subtraction and Equations; Number Pairs and Making 10; Addition and Subtraction with Unknowns**
MGSE1.OA.2	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. **Recommended: Addition, Subtraction and Equations; Addition and Subtraction with Unknowns**
MGSE1.OA.3	Apply properties of operations as strategies to add and subtract. 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.) *Related: Number Pairs and Making 10*
MGSE1.OA.4	Understand subtraction as an unknown-addend problem. For example, subtract 10 - 8 by finding the number that makes 10 when added to 8. **Recommended: Addition, Subtraction and Equations; Addition and Subtraction with Unknowns**

OA - Operations and Algebraic Thinking (continued)

Standard	Objective(s)
MGSE1.OA.5	Relate counting to addition and subtraction (e.g., by counting on 2 to add 2). **Recommended: Number Pairs and Making 10; Counting by Tens; Counting Ones and Tens; Adding and Subtracting by Tens** *Related: Addition and Subtraction Within 10; Addition, Subtraction and Equations; Counting to 120; Addition and Subtraction with Unknowns*
MGSE1.OA.6a	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 $6 + 6 + 1 = 12 + 1 = 13$). *Related: Addition and Subtraction Within 10; Addition, Subtraction and Equations; Number Pairs and Making 10; Counting by Tens; Addition and Subtraction with Unknowns; Using Place Value to Add; Addition and Subtraction Within 20*
MGSE1.OA.6b	Fluently add and subtract within 10. *Related: Addition and Subtraction Within 10; Addition, Subtraction and Equations; Number Pairs and Making 10; Addition and Subtraction with Unknowns; Using Place Value to Add; Addition and Subtraction Within 20*
MGSE1.OA.7	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? $6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$. **Recommended: Addition, Subtraction and Equations; Addition and Subtraction with Unknowns; Comparing Two-Digit Numbers**

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OA - Operations and Algebraic Thinking (continued)

Standard	Objective(s)
MGSE1.OA.8	Determine the unknown whole number in an addition or subtraction equation relating to three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations $8 + ? = 11$, $5 = \_ - 3$, $6 + 6 = \_$.
	Recommended: Addition and Subtraction Within 10; Number Pairs and Making 10; Addition and Subtraction with Unknowns

NBT - Number and Operations in Base Ten

Standard	Objective(s)
MGSE1.NBT.1	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.
	Recommended: Counting to 120
	Related: Counting by Tens; Counting Ones and Tens; Place Value Concepts; Adding and Subtracting by Tens
MGSE1.NBT.2a	Understand that 10 can be thought of as a bundle of ten ones - called a 'ten.'
	Recommended: Number Pairs and Making 10; Counting by Tens; Counting Ones and Tens; Place Value Concepts
MGSE1.NBT.2c	Understand that 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).
	Recommended: Number Pairs and Making 10; Counting by Tens; Counting Ones and Tens; Place Value Concepts

Standard	Objective(s)
MGSE1.NBT.3	Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols for greater than, less than, and equal to. **Recommended: Comparing Two-Digit Numbers**
MGSE1.NBT.4	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. **Recommended: Counting by Tens; Adding and Subtracting by Tens; Using Place Value to Add** *Related: Addition and Subtraction Within 10; Addition, Subtraction and Equations; Number Pairs and Making 10; Addition and Subtraction with Unknowns; Addition and Subtraction Within 20*
MGSE1.NBT.5	Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used. **Recommended: Counting by Tens; Adding and Subtracting by Tens; Using Place Value to Add**
MGSE1.NBT.6	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. **Recommended: Adding and Subtracting by Tens** *Related: Counting by Tens*

MD - Measurement and Data

Standard	Objective(s)
MGSE1.MD.1	Order three objects by length; compare the lengths of two objects indirectly by using a third object. **Recommended: Measurement Concepts; Comparing Two-Digit Numbers**
MGSE1.MD.2	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. **Recommended: Measurement Concepts**
MGSE1.MD.3	Tell and write time in hours and half-hours using analog and digital clocks. **Recommended: Telling Time**
MGSE1.MD.4	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. **Recommended: Organizing Data**

G - Geometry

Standard	Objective(s)
MGSE1.G.1	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. *Related: Shape Differences*
MGSE1.G.2	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. **Recommended: Composite Shapes; Shape Differences**
MGSE1.G.3	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. *Related: Composite Shapes; Equal Shares and Partitioning*

JOURNEY AND BONUS JOURNEY OBJECTIVES

Intro to ST Math

Game Name	Game Description
Build Parts	Put JiJi's parts into the outline.
JiJi Poses	Identify the view of JiJi indicated by an outline.
Fill Ground	Fill the outline(s) in the ground with the matching shape or the correct number of shapes.
Estimate On Number Line	Estimate on a number line the length of a given block.

Skip Counting

Standards Coverage:

Recommended: MGSE2.NBT.2

Game Name	Game Description
Staircase	Skip count to move JiJi up the stairs. This game builds a foundation for understanding multiplication as repeated addition.
Counting by Ones on the Hundreds Chart	Use a hundreds chart to count on by 1s, 2s, 3s, 4s or 5s.
Counting by Tens on the Hundreds Chart	Use a hundreds chart to count by tens.
Counting by Tens on the Number Line	Add multiple tens to a given number where the sum is less than 100.

Addition and Subtraction Situations

Standards Coverage:

Related: MGSE2.NBT.5, MGSE2.NBT.6, MGSE2.NBT.7, MGSE2.NBT.9, MGSE2.OA.1, MGSE2.OA.2

Game Name	Game Description
Push Box	Identify the total number of boxes. This game teaches addition by combining stacks of boxes.
Pie Monster	Use the model to solve addition problems. Includes missing addend.
Ten Frame Addition	Learn numerals and addition facts using ten frames.
Push Box Subtraction	Determine how many boxes are needed to create a bridge. Watch out for holes in the ground which remove boxes. This game teaches subtraction via the removal of boxes by holes in the ground.
Pie Monster Subtraction	Use the model to solve subtraction problems. Includes missing subtrahend or minuend.
How Many More	Describe the difference between two whole numbers using the words less, greater, and equal.

The Number Line

Standards Coverage:

Recommended: MGSE2.MD.6

Related: MGSE2.NBT.2, MGSE2.NBT.3

Game Name	Game Description
Number Line Trap	Select locations of numbers within 20 on a number line and estimate the location of numbers up to 100 on a number line.
Number Line Journey Zoom	Zoom in on the number line to locate the given number.
Number Line to 100	Estimate the location of a two-digit whole number on the number line.
Number Line to 100 Bubble Select	Write numerals within 100 on the number line.

Addition and Subtraction Situations within 100

Standards Coverage:

Related: MGSE2.NBT.5, MGSE2.NBT.6, MGSE2.NBT.7, MGSE2.NBT.9, MGSE2.OA.1, MGSE2.OA.2

Game Name	Game Description
Mice Island Two-Digit Addition	Fill in the missing number to make the equation true. This game teaches addition and subtraction of one- and two-digit whole numbers.
Critter Two-Digit Addition	Add one-digit and two-digit whole numbers using visual models.
Mice Island Two-Digit Subtraction	Fill in the missing number to make the equation true. This game teaches addition and subtraction of one- and two-digit whole numbers.
Missing Addend	Select the other addend to make a given sum.

Operations on the Number Line

Standards Coverage:

Recommended: MGSE2.MD.6

Related: MGSE2.NBT.2, MGSE2.OA.2

Game Name	Game Description
Adding with Jumps	On the number line, add multiple ones to a given whole number within 20.
Creating Jumps	On the number line, add multiple ones to a given whole number within 20.
Adding on the Number Line	Add two whole numbers on the number line where the sum is within 20.

Measurement

Standards Coverage:

Recommended: MGSE2.MD.1

Related: MGSE2.MD.2, MGSE2.MD.3, MGSE2.MD.4, MGSE2.MD.5, MGSE2.MD.6, MGSE2.MD.9

Game Name	Game Description
Measure It with Objects	Measure the length of a gap using various nonstandard units. This game also introduces the concept of relative sizes of units.
Measurement Estimation	Estimate or measure lengths of objects needed to create a platform distance.
Measurement Concepts	Use rulers and measuring tapes to measure objects and create corresponding lengths on a number line.

Addition and Subtraction with Measurement

Standards Coverage:

Recommended: MGSE2.MD.5

Related: MGSE2.MD.4

Game Name	Game Description
Measurement Addition	Measure and add the lengths of two objects to create an equal distance on a number line.
Measurement Addition With Comparisons	Add lengths of objects to create an equal distance between platforms or to close a gap between platforms.

Place Value to 1,000

Standards Coverage:

Recommended: MGSE2.NBT.1a, MGSE2.NBT.1b, MGSE2.NBT.3

Game Name	Game Description
Petals Multiple Choice	Represent ones, tens, hundreds and thousands using words, numerals and visual models.
Pulling Petals	Gain an understanding of place value by transforming the pile of petals into hundreds (bouquets with 100 petals each), tens (flowers with 10 petals each), and ones (single petals).
Bee Petals	Represent numbers using the visual model. In some levels, students determine the order of magnitude, given a number and a pile of petals (e.g. given the number 4, identify the size of the pile as 4 ones, 4 tens, or 4 hundreds).
Petals Bubble Select	Given a three-digit whole number, identify the number of hundreds, tens, and ones.
How Many Petals	Write a numeral to represent the pile of petals.
Petals Place Value	Find the total number of petals by counting the bouquets (hundreds), flowers (tens) and single petals (ones) and then filling in the hundreds, tens and ones places with the correct numerals.

Represent Numbers to 1000

Standards Coverage:

Recommended: MGSE2.NBT.3

Related: MGSE2.NBT.1a, MGSE2.NBT.1b

Game Name	Game Description
Place Value Builder	Identify the digit values of given whole numbers using place value based models. This game covers expanded notation and place value concepts up to the tens place while enforcing the skills of reading and writing whole numbers.
Expanded Form	Provide a number when given its representation in expanded notation. This game also covers place value concepts to the tens place while enforcing the skills of reading and writing whole numbers.
Place Value Pushers	Identify the digit that is in the ones, tens, or hundreds place of a whole number. The student also learns the numerical and word representations for each place.

Counting to 1,000

Standards Coverage:

Recommended: MGSE2.NBT.2, MGSE2.NBT.3

Game Name	Game Description
Number Line Journey	Move left and right and zoom in on the number line to locate the given number.
Counting On	Count forward to one hundred.
Number Line Trap	Estimate the location of whole numbers (1-100) on the number line. The student is also introduced to place value concepts with ones and tens.

Comparing Three-Digit Numbers

Standards Coverage:

Recommended: MGSE2.NBT.4

Related: MGSE2.NBT.1a, MGSE2.NBT.1b

Game Name	Game Description
Number Line Trap	Use estimation and an understanding of place value to plot whole numbers (up to three digits) on a number line.
Least Most	Identify the least or greatest element in a set of whole numbers (up to three digits).
Comparison Signs	Order sets of objects and whole numbers using the symbols for less than, greater than, and equal to.
Number Comparison	Order whole numbers (up to three digits) using the symbols for less than, greater than, and equal to.

Two Step Situations

Standards Coverage:

Recommended: MGSE2.OA.1

Related: MGSE2.NBT.5, MGSE2.NBT.7, MGSE2.NBT.9, MGSE2.OA.2

Game Name	Game Description
Pie Monster	Use the model to solve two-step addition problems. Includes missing addend.
Push Box Missing Quantity	Identify the total number of boxes. This game teaches addition by combining stacks of boxes.
Pie Monster Symbolic	Solve two-step addition problems symbolically, but with support from the arena. Includes missing addend.
Push Box Missing Quantity Symbolic	Identify the total number of boxes. This game teaches addition by combining stacks of boxes.
Two Step Length Problems	Find missing lengths of objects or of parts of objects. Create and add lengths that equal the distance between platforms.

Adding and Subtracting Tens and Hundreds

Standards Coverage:

Recommended: MGSE2.NBT.7

Related: MGSE2.NBT.5, MGSE2.NBT.8, MGSE2.NBT.9, MGSE2.OA.2

Game Name	Game Description
Add or Subtract by 1, 10 or 100	To a three-digit whole number, add or subtract 1, 10, or 100 using the model.
Add or Subtract Single Place Numbers	Add or subtract a multiple of 1, 10, or 100 to a given number without regrouping.
Table Directions	Add and subtract one-digit and two-digit whole numbers using a number table.
Addition and Subtraction on the Number Line	Estimate differences of whole numbers (up to four digits) on a number line.

Place Value Bundles - Ten and Hundred

Standards Coverage:

Recommended: MGSE2.NBT.1a, MGSE2.NBT.1b, MGSE2.NBT.3

Game Name	Game Description
Greenies Bubble Select	Produce the number that is represented by a given place value based representation. This game covers expanded notation and place value concepts up to the thousands place while enforcing the skills of reading and writing whole numbers.
Greenies Regrouping	Regroup the ones or tens or both in order to represent the total number in standard expanded form.
Intro to Building	Fill in the missing addend to make a sum of 10, or to make a sum of 100 using addends that are multiples of 10 (e.g. 30 + 70).
Petals Regrouping	Given a model of bouquets (hundreds), flowers (tens), and ones (individual petals), regroup in order to represent the total number of petals as a numeral in standard place value notation.
Petals Random Regrouping Ones	Find the total number of petals by counting the bouquets (hundreds), flowers (tens), and ones (individual petals) and regrouping using mental arithmetic.
Petals Random Regrouping Tens	Find the total number of petals by counting the bouquets (hundreds), flowers (tens), and ones (individual petals) and regrouping using mental arithmetic.
Building Blocks	Fill in the missing addend to make a sum of 10 or 100.

Using Place Value to Add and Subtract

Standards Coverage:

Recommended: MGSE2.NBT.7

Related: MGSE2.NBT.5, MGSE2.NBT.9, MGSE2.OA.2

Game Name	Game Description
Petals Addition and Subtraction	Add or subtract 2- and 3- digit numbers using a quantity model of the standard algorithm. Numbers are presented as quantities of petals.
Petals Addition and Subtraction Method	Add or subtract 2- and 3- digit numbers using the quantity model alongside the usual numerical representation of the standard algorithm.

Even and Odd Numbers

Standards Coverage:

Recommended: MGSE2.OA.3, MGSE2.OA.4

Game Name	Game Description
Tug Boat	Rearrange the boats so that the bridge will open. This game teaches addition, subtraction, and the concept of equal amounts.
Fruit Monster	Determine how many pieces of fruit are needed to feed the monsters. Students explore the relationship between inputs and outputs using ratios within a visual model.
Complete Box	Represent numerical expressions using an area model.
Even or Odd	Learn the concept of even and odd numbers using a visual model.
Even or Odd Symbolic	Using the terms "even" and "odd", state the parity of the various numbers.

Intro to Arrays

Standards Coverage:

Recommended: MGSE2.G.2, MGSE2.OA.4

Game Name	Game Description
Bricks	Arrange the shapes to create the composite shape shown.
Count Blocks	Learn how to calculate the area and perimeter of a rectangle.
Create Rectangle	Construct a rectangle with a given area and/or perimeter.
Create Multiple Rectangles	Multiply whole numbers using an area model.
Bird Brain	Find birds in a grid after a sequence of transformations.

Shapes

Standards Coverage:

Recommended: MGSE2.G.1

Game Name	Game Description
Pick Geometric 2D Attributes	Learn the names and number of sides of different polygons.
Prisms and Cylinders	Pick the shape that is the base of a given prism.
Pick Geometric 3D and 2D Attributes	Identify the number of sides and vertices on two-dimensional shapes.
Match Shape Symbolic	Match shapes to their outlines to clear JiJi's path. This game introduces basic geometric shapes and the ideas of direction and position.
Shape Types Symbolic	Identify the given polygon.
Pick Geometric Shapes 2D Symbolic	Learn the names and number of edges of different polygons.

Partitioning into Equal Shares

Standards Coverage:

Recommended: MGSE2.G.3

Game Name	Game Description
Equal Areas	Determine which figure is divided up equally based on area.
Equal Division	Divide blocks into equal parts.
Match Partition	Match the partitioning of two rectangular blocks.
Pie Monster	Implicitly add two shaded regions together.

Money

Standards Coverage:

Recommended: MGSE2.MD.8

Related: MGSE2.NBT.3

Game Name	Game Description
Identify Coin	Choose or count out the coin amount whose value is equal to the given amount.
Buy Items	Choose the monetary amount needed to purchase a given item.
Toll Bridge	Count out multiple coin and bill combinations whose value is equal to the given amount.
Toll Bridge Multiple Choice	Amongst various distractors, choose the correct combination for the given amount.

Time

Standards Coverage:

Recommended: MGSE2.MD.7

Game Name	Game Description
Hours and Minutes	Choose the correct hand corresponding to hours, minutes, and seconds on an analog clock. The game prepares students to tell and write time on an analog clock.
Telling Time	Students place the hands on a clock in the correct position to represent time to the quarter-hour on an analog clock.
Time on a Line	Read an analog clock to the quarter hour and select the correct time on a number line. This game helps to build a foundation for the idea of elapsed time presented in later grades.
Hours and Minutes Digital	Choose the correct location on a digital clock that displays the hours, minutes, and seconds. The game prepares students to tell and write time on a digital clock.
Telling Time Digital	Students read an analog clock to the quarter hour and record the time on a digital clock.

Model Addition and Subtraction within 1000

Standards Coverage:

Recommended: MGSE2.NBT.7

Game Name	Game Description
Intro to Regrouping with Addition	Using the petals model, add two three-digit whole numbers with regrouping in the ones or tens place.
Regrouping Dual Mode Addition	Symbolically add two three-digit whole numbers with regrouping in the ones or tens place. Use the petals model as support.
Intro to Regrouping with Subtraction	Using the petals model, subtract two three-digit whole numbers with regrouping in the ones or tens place.
Regrouping Dual Mode Subtraction	Symbolically subtract two three-digit whole numbers with regrouping in the ones or tens place. Use the petals model as support.

Creating Graphs

Standards Coverage:

Recommended: MGSE2.MD.10

Game Name	Game Description
Attribute Grid	Identify attributes of an object including size, color and shape. Choose the location on a two-dimensional grid that corresponds to a pair of attributes describing an object.
Bar Graph Bridge	Construct bar graphs for a data set given as single observations or in a table.
Bar Graph Bridge 2	Construct bar graphs for a data set given as single observations or in a table.

Intro to Line Plots

Standards Coverage:

Recommended: MGSE2.MD.9

Game Name	Game Description
Soccer Dot Plots	Record measurements on a number line to create a dot plot.
Dot Plot Dimension Intro	Identify which dimension of the given collection of rectangles is represented by the dot plot shown.

Addition and Subtraction within 100

Standards Coverage:

Recommended: MGSE2.NBT.6, MGSE2.NBT.7

Related: MGSE2.NBT.5, MGSE2.NBT.9, MGSE2.OA.1, MGSE2.OA.2

Game Name	Game Description
Candy Factory	Identify the number of tens and ones for a given two-digit whole number.
Candy Factory Addition	Add one-digit and two-digit whole numbers using place value concepts.
Petals Addition and Subtraction	Use the standard algorithm to add and subtract whole numbers, with and without regrouping required.
Addition and Subtraction on the Number Line	Add two-digit whole numbers and mark the sum on a number line. Most of the sums and differences involve numbers that are multiples of 5 or 10.
Addition Algorithm	Add four-digit whole numbers using the standard algorithm.
Candy Factory Subtraction	Subtract one-digit and two-digit whole numbers using place value concepts.

Math Challenge 2

Game Name	Game Description
Unknowns with Addition	Solve addition problems with unknowns in varying positions and on either side of the equal sign.
Unknowns with Subtraction	Solve subtraction problems with unknowns in varying positions and on either side of the equal sign.
Unknowns with Equations	Model and solve mixed operation problems with unknowns in varying positions and on either side of the equal sign.
Estimate on Number Line	Use the number line to estimate length.
Rolling Equations	Find the missing length needed to reach JiJi.
Shape Types Symbolic with Rectangles and Quadrilaterals	Identify the given polygon.
Alien Bridge	Combine the shaded parts of two equivalent wholes together.
Balance Pies	Represent given fractions as circular diagrams displaying equal parts of a whole.
Fair Sharing	Determine how many boxes each creature gets, when given a description of an equal sharing situation.
How Many Creatures	Each creature has the same number of legs. Given the total number of legs, determine the number of creatures.
Fruit Monster	Determine how many pieces of fruit are needed to feed the monsters. Students explore the relationship between inputs and outputs using ratios within a visual model.

Challenge 2

Game Name	Game Description
Venn Space	Place the object in the correct section of the Venn diagram according to its attributes.
Dot Shapes	Connect dots to form shapes which will fill holes in the ground.
Ice Caves	Identify lines of symmetry in two-dimensional shapes.
Big Seed	Find a sequence of actions that will unfold the given image into the desired shape. Teaches the concept of symmetry and the idea of a function or transformation.
Attribute Transform	Choose the correct attribute to change (shape, color, or size) to transform the first shape into the second. This game teaches the idea of a function in a visual way.
Bird Brain	Find birds in a grid after a sequence of transformations.
Venn Space Pick Shape	Identify the object that has the attributes corresponding to a particular section of a Venn diagram.
Upright JiJi	Find a sequence of rotations to move JiJi into an upright position.
Kick Box	Use lasers and mirrors to move the spheres out of the way so JiJi can pass.

Money, Extended

Game Name	Game Description
Fruit Toll Bridge	Choose or count out the combination of fruits whose total cost is equal to the given amount.
Total Cost	Estimate the total cost of the items in the shopping cart with whole number or decimal prices using the number line.
Buy Multiple Items	Determine how many quantities of the given item can be purchased based on the displayed amount of money.
Unit Cost	Given the total cost for a quantity of the same item, determine the cost of the individual item.
Making Change	Make change when the displayed monetary amount is greater than the purchase price.

Partitioning Symbolic

Game Name	Game Description
Crank Pies	Identify equivalent fractions using both circular and rectangular diagrams.
Equivalent Fractions	Identify equivalent fractions using rectangular diagrams displaying equal parts of a whole.
Fraction of Shape Symbolic	Determine the word best describing the shaded region (fourth, half, whole, etc). Select how many of these 'units' are present.
Match Fraction Symbolic	Represent a given fraction using a visual model by first dividing a whole into equal parts and then shading the correct number of parts.
Crank Pies Symbolic	Determine the word best describing the shaded region (fourth, half, whole, etc). Select how many of these 'units' are present.

OPTIONAL OBJECTIVES

Addition and Subtraction Facts

Game Name	Game Description
Push Box Addition Facts	Practice addition facts using visual block representations for sums under 10.
Select Box Addition Facts	Practice addition facts using alternate visual block representations for sums under 10.
Basic Subtraction Facts	Practice subtraction facts under 10 using visual block representations.
Select Box Subtraction Facts	Practice subtraction facts under 10 using alternate block representations.
Ten Frame Addition Facts	Practice addition facts to 20 using ten frames.
Ten Frame Subtraction Facts	Practice subtraction facts using ten frames.
Mixed Facts	Practice addition and subtraction facts using visual block representations.
Addition and Subtraction Facts on the Number Line	Practice addition and subtraction facts using a number line representation.
Add Facts Bridge	Practice addition facts using a tricky inverted format.
Concentration Numbers	Practice multiple addition and subtraction facts quickly in sequence.

STANDARDS INDEX

OA - Operations and Algebraic Thinking

Standard	Objective(s)

MGSE2.OA.1   Use addition and subtraction within 100 to solve one- and two-step word problems s by using drawings and equations with a symbol for the unknown number to represent the problem.Problems include contexts that involve adding to, taking from, putting together/taking apart (part/part/whole) and comparing with unknowns in all positions.

Recommended: Two Step Situations

Related: Addition and Subtraction Situations; Addition and Subtraction Situations within 100; Addition and Subtraction within 100

MGSE2.OA.2   Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.

Related: Addition and Subtraction Situations; Addition and Subtraction Situations within 100; Operations on the Number Line; Two Step Situations; Adding and Subtracting Tens and Hundreds; Using Place Value to Add and Subtract; Addition and Subtraction within 100

MGSE2.OA.3   Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.

Recommended: Even and Odd Numbers

MGSE2.OA.4   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.

Recommended: Even and Odd Numbers; Intro to Arrays

NBT - Number and Operations in Base Ten

Standard	Objective(s)
MGSE2.NBT.1a	Understand that 100 can be thought of as a bundle of ten tens - called a 'hundred.'
	Recommended: Place Value to 1,000; Place Value Bundles - Ten and Hundred
	Related: Represent Numbers to 1000; Comparing Three-Digit Numbers
MGSE2.NBT.1b	Understand that the numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).
	Recommended: Place Value to 1,000; Place Value Bundles - Ten and Hundred
	Related: Represent Numbers to 1000; Comparing Three-Digit Numbers
MGSE2.NBT.2	Count within 1000; skip-count by 5s, 10s, and 100s.
	Recommended: Skip Counting; Counting to 1,000
	Related: The Number Line; Operations on the Number Line
MGSE2.NBT.3	Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.
	Recommended: Place Value to 1,000; Represent Numbers to 1000; Counting to 1,000; Place Value Bundles - Ten and Hundred
	Related: The Number Line; Money
MGSE2.NBT.4	Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using the symbols for greater than, less than, and equal to to record the results of comparisons.
	Recommended: Comparing Three-Digit Numbers

NBT - Number and Operations in Base Ten (continued)

Standard	Objective(s)

MGSE2.NBT.5 Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

Related: Addition and Subtraction Situations; Addition and Subtraction Situations within 100; Two Step Situations; Adding and Subtracting Tens and Hundreds; Using Place Value to Add and Subtract; Addition and Subtraction within 100

MGSE2.NBT.6 Add up to four two-digit numbers using strategies based on place value and properties of operations.

Recommended: Addition and Subtraction within 100

Related: Addition and Subtraction Situations; Addition and Subtraction Situations within 100

MGSE2.NBT.7 Add and subtract within 1000, 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.

Recommended: Adding and Subtracting Tens and Hundreds; Using Place Value to Add and Subtract; Model Addition and Subtraction within 1000; Addition and Subtraction within 100

Related: Addition and Subtraction Situations; Addition and Subtraction Situations within 100; Two Step Situations

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MGSE2.NBT.8 Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900.

Related: Adding and Subtracting Tens and Hundreds

NBT - Number and Operations in Base Ten (continued)

Standard	Objective(s)
MGSE2.NBT.9	Explain why addition and subtraction strategies work, using place value and the properties of operations.

Related: Addition and Subtraction Situations; Addition and Subtraction Situations within 100; Two Step Situations; Adding and Subtracting Tens and Hundreds; Using Place Value to Add and Subtract; Addition and Subtraction within 100 |

MD - Measurement and Data

Standard	Objective(s)
MGSE2.MD.1	Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.

Recommended: Measurement |
| **MGSE2.MD.2** | Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen. Understand the relative size of units in different systems of measurement

Related: Measurement |
| **MGSE2.MD.3** | Estimate lengths using units of inches, feet, centimeters, and meters.

Related: Measurement |

MD - Measurement and Data (continued)

Standard	Objective(s)
MGSE2.MD.4	Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit. *Related: Measurement; Addition and Subtraction with Measurement*
MGSE2.MD.5	Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem. **Recommended: Addition and Subtraction with Measurement** *Related: Measurement*
MGSE2.MD.6	Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram. **Recommended: The Number Line; Operations on the Number Line** *Related: Measurement*
MGSE2.MD.7	Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m. **Recommended: Time**
MGSE2.MD.8	Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and cents symbols appropriately. Example: If you have 2 dimes and 3 pennies, how many cents do you have? **Recommended: Money**

Standard	Objective(s)
MGSE2.MD.9	Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units. **Recommended: Intro to Line Plots** *Related: Measurement*
MGSE2.MD.10	Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. **Recommended: Creating Graphs**

G - Geometry

Standard	Objective(s)
MGSE2.G.1	Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes. **Recommended: Shapes**
MGSE2.G.2	Partition a rectangle into rows and columns of same-size squares and count to find the total number of them. **Recommended: Intro to Arrays**
MGSE2.G.3	Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape. **Recommended: Partitioning into Equal Shares**

JOURNEY AND BONUS JOURNEY OBJECTIVES

Intro to ST Math

Game Name	Game Description
Build Parts	Put JiJi's parts into the outline.
JiJi Poses	Identify the view of JiJi indicated by an outline.
Fill Ground	Fill the outline(s) in the ground with the matching shape or the correct number of shapes.
Estimate On Number Line	Estimate on a number line the length of a given block.

Multiplication Concepts

Standards Coverage:

Recommended: MGSE3.OA.1, MGSE3.OA.3

Related: MGSE3.OA.5, MGSE3.OA.6, MGSE3.OA.7

Game Name	Game Description
How Many Legs	Find the correct number of shoes for each set of creatures by counting or, in later levels, multiplying.
Number Line Multiplication	Multiply whole numbers using a number line.
Build Expressions	Add and multiply whole numbers using visual models.
Repeated Expressions	Interpret a multiplication expression as repeated addition.

Division Concepts

Standards Coverage:

Recommended: MGSE3.G.2, MGSE3.OA.2, MGSE3.OA.3, MGSE3.OA.9

Related: MGSE3.OA.6, MGSE3.OA.7

Game Name	Game Description
Set Split	Divide a set of objects into two equal subsets.
Fair Sharing	Determine how many boxes each creature gets, when given a description of an equal sharing situation.
How Many Creatures	Each creature has the same number of legs. Given the total number of legs, determine the number of creatures.
Fair Sharing Symbolic	Determine how many boxes each creature gets and how many remain in an equal sharing game.
Build Expressions	Divide whole numbers by forming equal groups of dots.

Multiplication and Division Relationships

Standards Coverage:

Recommended: MGSE3.OA.1, MGSE3.OA.2, MGSE3.OA.3, MGSE3.OA.4, MGSE3.OA.5, MGSE3.OA.6, MGSE3.OA.9

Related: MGSE3.OA.7

Game Name	Game Description
Fruit Monster	Determine how many pieces of fruit are needed to feed the monsters. Students explore the relationship between inputs and outputs using ratios within a visual model.
Leg Drape Symbolic	Multiply whole numbers using repeated addition.
Multiplication Facts	Practice multiplication facts. This game reinforces place value concepts as well by having students give their answers as tens and ones.
Build Expression	Divide whole numbers by forming equal groups of dots.
Multiplication Division Fact Family	Create related number sentences by selecting the correct numbers and operation. This game teaches multiplication and division facts and the inverse relationship between the two operations.
Number Line Division	Divide whole numbers and locate the quotients on a number line.
Select Box	Practice multiplication and division facts with missing factors, divisors, or dividends. Groups of boxes illustrate each fact.

Rounding Three-Digit Numbers

Standards Coverage:

Recommended: MGSE3.NBT.1

Game Name	Game Description
Number Funnels Highest Place	Round two-digit numbers to the nearest 10 and three-digit numbers to the nearest 100.
Number Funnels Tens Place	Round two-digit and three-digit numbers to the nearest 10.

Place Value Bundles

Standards Coverage:

Related: MGSE3.NBT.2

Game Name	Game Description
Intro to Building	Fill in the missing addend to make a sum of 10, or to make a sum of 100 using addends that are multiples of 10 (e.g. 30 + 70).
Petals Regrouping	Given a model of bouquets (hundreds), flowers (tens), and ones (individual petals), regroup in order to represent the total number of petals as a numeral in standard place value notation.
Petals Random Regrouping Ones	Find the total number of petals by counting the bouquets (hundreds), flowers (tens), and ones (individual petals) and regrouping using mental arithmetic.
Petals Random Regrouping Tens	Find the total number of petals by counting the bouquets (hundreds), flowers (tens), and ones (individual petals) and regrouping using mental arithmetic.
Building Blocks	Fill in the missing addend to make a sum of 10 or 100.

Addition and Subtraction with Regrouping

Standards Coverage:

Recommended: MGSE3.NBT.2

Game Name	Game Description
Intro to Regrouping	Using the petals model, add two three-digit whole numbers with regrouping in the ones or tens place.
Regrouping Dual Mode Addition	Symbolically add two three-digit whole numbers with regrouping in the ones or tens place. Use the petals model as support.
Intro to Borrowing	Using the petals model, subtract two three-digit whole numbers with regrouping in the ones or tens place.
Regrouping Dual Mode Subtraction	Symbolically subtract two three-digit whole numbers with regrouping in the ones or tens place. Use the petals model as support.

Multiplication and Area

Standards Coverage:

Recommended: MGSE3.MD.5a, MGSE3.MD.5b, MGSE3.MD.6, MGSE3.MD.7b, MGSE3.OA.1

Related: MGSE3.MD.7a, MGSE3.MD.7c, MGSE3.MD.8, MGSE3.OA.7

Game Name	Game Description
Grid Expressions	Multiply whole numbers using an area model.
Area Select	Calculate the area of rectangles using a formula.
Complete Box	Fill the space with unit squares - both standard and nonstandard shapes. Illustrate the additive nature of area.
Complete Box Fill	Given so many unit squares, determine the shape needed to hold those squares.

Properties of Multiplication

Standards Coverage:

Recommended: MGSE3.OA.5, MGSE3.NBT.3

Game Name	Game Description
Distributive Fruits	Introduces distribution of multiplication over addition through visual models of groups of fruit.
Distributive Fruit Modeling	Select templates for distribution of multiplication to match visual models of groups. Complete distribution templates to represent visual models of groups and symbolic products.
Distributive Boxes	Apply the distributive property of multiplication to solve problems involving arrays and areas.
Multiplying By 10s	Model products of one digit and a multiple of 10 using visual, word, and symbolic representations.

Multiplication Facts and Strategies

Standards Coverage:

Recommended: MGSE3.OA.1, MGSE3.OA.6, MGSE3.OA.9

Related: MGSE3.NBT.3, MGSE3.OA.7

Game Name	Game Description
How Many Legs Multiplication Symbolic	Multiply whole numbers using repeated addition.
Multiplication Stacks	Identify the number that should be multiplied by the given number to obtain the given product.
Multiplication Facts	Practice multiplication facts. This game reinforces place value concepts as well by having students give their answers as tens and ones.
Multiplication Algorithm	Multiply multi-digit whole numbers by one-digit whole numbers using the standard algorithm.

Division Facts and Strategies

Standards Coverage:

Recommended: MGSE3.OA.2, MGSE3.OA.9

Related: MGSE3.OA.6, MGSE3.OA.7

Game Name	Game Description
Area Divide	Divide the tiles into equal groups, with and without remainders. The correct answer is demonstrated using an area model.
How Many Creatures Symbolic	Each creature has the same number of legs. Given the total number of legs, determine the number of creatures.
Fair Sharing Expression	Determine how many boxes each creature gets and how many remain in an equal sharing game.
Number Line Division	Divide whole numbers and locate the quotients on a number line.

Fraction Concepts

Standards Coverage:

Recommended: MGSE3.G.2, MGSE3.NF.1, MGSE3.NF.2a, MGSE3.NF.3a, MGSE3.NF.3b, MGSE3.NF.3c

Game Name	Game Description
Equal Areas	Determine which figure is divided up equally based on area.
Balance Pies	Represent given fractions as circular diagrams displaying equal parts of a whole.
Match Fraction	Represent a given fraction using a visual model by first dividing a whole into equal parts and then shading the correct number of parts.
Fraction of Shape	Create the symbolic notation for a fraction of an irregular shape.
Crank Pies	Represent fractions as equal parts of a whole using visual models.
Alien Bridge	Represent fractions as equal parts of a whole using visual models.

Fractions on the Number Line

Standards Coverage:

Recommended: MGSE3.NF.1, MGSE3.NF.2a, MGSE3.NF.2b, MGSE3.NF.3c, MGSE3.NF.3d

Related: MGSE3.NF.3a, MGSE3.NF.3b

Game Name	Game Description
JiJi Cycle Basket	Estimate the location of a fraction represented with a diagram on the number line.
Scale Fraction	Plot the combined length of a collection of rectangles on the number line.
JiJi Cycle	Select the fraction corresponding to the marked point on the number line. The fractions are represented visually as equal parts of a circle.
JiJi Cycle Select Wheel Symbolic	Relate a collection of fractions to a single point on the number line.
Estimate Fractions on a Number Line	Estimate the location of fractions on the number line.
Fraction Trap	Estimate on a number line the location of fractions.
Bubble Fraction Trap	Write the fraction shown on the number line.

Fraction Equivalence and Ordering

Standards Coverage:

Recommended: MGSE3.NF.1, MGSE3.NF.2a, MGSE3.NF.3b, MGSE3.NF.3d

Game Name	Game Description
Fraction Bricks	Represent the same length using different partitionings.
Equivalent Fractions	Generate equivalent fractions using visual fraction models.
Number Line Trap	Estimate the location of the given fraction on a number line.
Fractions on Number Line	Estimate the location of the given fraction on a number line.
More or Less	Compare fractions with either the same numerator or same denominator using visual models.
Fraction Order Fill	Help Jiji cross the pit by ordering fractions from least to greatest.

Number Patterns

Standards Coverage:

Recommended: MGSE3.OA.9

Related: MGSE3.OA.3, MGSE3.OA.7

Game Name	Game Description
Make It Linear	Identify the common difference in an increasing or decreasing arithmetic sequence represented in numerical form and with virtual manipulatives in order to extend a sequence of numbers or identify missing numbers in a sequence.
Hundreds Pit	Count by 2s, 5s, or 10s to fill the pit so JiJi can cross. Identify patterns in the counting sequence.
Multiplication Table Parts	Find locations in the multiplication table that correspond to multiplication facts with a given product. Investigate relationships between nearby rows and columns with puzzles that have multiple products.
Multiplication Pattern Strings	Multiply whole numbers using a place value model.
Pattern Machine	Extend increasing arithmetic sequences of numbers represented on a number line.

Mass and Volume

Standards Coverage:

Related: MGSE3.MD.2

Game Name	Game Description
Slinky Objects	Compare and order familiar objects by weight using a balance.
Slinky Weights	Compare and order objects by weight using a balance.
Slinky with Units	Weigh objects and compare weights using U.S customary units.
Arctic Volume Addition and Subtraction	Solve one-step addition and subtraction problems involving liquid volumes using beakers with a measurement scale.
Arctic Volume Multiplication and Division	Solve one-step multiplication and division problems involving liquid volumes using beakers with a measurement scale.
Helicopter Volume	Identify the number of stacks the helicopter should drop in order to fill the hole in the ground.
Volume Fill	Count cubes to determine the volume of a figure.

Solve Two-Step Problems

Standards Coverage:

Recommended: MGSE3.OA.1, MGSE3.OA.3, MGSE3.OA.5

Related: MGSE3.OA.7, MGSE3.OA.8

Game Name	Game Description
Pie Monster	Determine how many pies to add or subtract to the conveyer belt so two monsters can remove the crates blocking JiJi's path.
How Many Legs	Multiply whole numbers using repeated addition.
How Many Creatures	Multiply whole numbers using repeated addition.
Two Step Problems with Volume	Solve two-step addition, subtraction, multiplication, or division problems involving liquid volumes in beakers with a measurement scale.

Area and Perimeter

Standards Coverage:

Recommended: MGSE3.MD.5a, MGSE3.MD.5b, MGSE3.MD.6, MGSE3.MD.8

Related: MGSE3.MD.7a, MGSE3.MD.7b

Game Name	Game Description
Perimeter Select	Calculate the perimeter of a variety of shapes including triangles, rectangles, parallelograms, and trapezoids.
Select Area Perimeter	Learn how to calculate the area and perimeter of a rectangle.
Area Perimeter Select Shape	Construct a rectangle with a given area and/or perimeter.

Time to the Minute

Standards Coverage:

Recommended: MGSE3.MD.1

Game Name	Game Description
Hours and Minutes	Choose the correct hand corresponding to hours, minutes, and seconds on an analog clock. The game prepares students to tell and write time on an analog clock.
Telling Time	Tell time on an analog clock and record the time on a digital clock.
Time on a Line	Read an analog clock to the quarter hour and select the correct time on a number line. This game helps to build a foundation for the idea of elapsed time presented in later grades.
Hours and Minutes Digital	Choose the correct location on a digital clock that displays the hours, minutes, and seconds. The game prepares students to tell and write time on a digital clock.
Telling Time Digital	Students read an analog clock to the quarter hour and record the time on a digital clock.

Intervals of Time

Standards Coverage:

Recommended: MGSE3.MD.1

Game Name	Game Description
Move Hands	Determine elapsed time between two specified times on analog clocks by relating the movement of the hour and minute hands to lengths of time.
Clock Monster Set Time	Set a clock to display the new time after a given amount of elapsed time from a specified time.
Clock Monster	Find the difference between times represented on separate analog clocks.
Clock Monster Symbolic	Find the difference between times represented on separate analog clocks.
Time Unroll	Determine elapsed time by selecting an appropriately sized gap that will fit the difference between two specified times.
Time Unroll With Clocks	Determine elapsed time by selecting an appropriately sized gap that will fit the difference between two specified times.
Clock Monster Timeline	Find the difference between times represented on separate analog clocks.
Clock Monster Timeline 2	Find the difference between times represented on separate analog clocks.

Scale and Measurement in Graphing

Standards Coverage:

Recommended: MGSE3.MD.3

Game Name	Game Description
Bar Graph Bridge	Construct vertical and horizontal bar graphs for a data set given as single observations or in a table.
Bar Graph Bridge 2	Construct vertical and horizontal bar graphs for a data set given as single observations or in a table.

Line Plots

Standards Coverage:

Recommended: MGSE3.MD.4

Game Name	Game Description
Soccer Dot Plots Fractions	Record whole number and fraction measurements on a number line to create a dot plot.
Dot Plot Dimension Intro	Identify which dimension of the given group of rectangles is represented by the dot plot shown.

Shape Attributes

Standards Coverage:

Recommended: MGSE3.G.1

Game Name	Game Description
Shape Types	Identify the given polygon.
Shape Types with Quadrilaterals	Identify the given polygon.
Pick Geometric Shapes 2D	Match the name of a two-dimensional shape with the number of vertices or edges it has.
Pick Geometric Shapes 2D Symbolic	Match the name of a two-dimensional shape with the number of vertices or edges it has.

Math Challenge 3

Game Name	Game Description
Measurement Estimation	Estimate or measure lengths of objects needed to create a platform distance.
Measurement Addition Subtraction	Apply addition and subtraction strategies to solve problems involving length measurements.
Add Sub Comparing Lengths	Measurment arithmetic problems.
Bouncing Shoes	Use repeated addition within the model to determine how many of one animal are needed to fill the given number of shoes.
Bouncing Shoes Symbolic	Use multiplication within the model to determine how many of one animal are needed to fill the given number of shoes.
Pie Monster	Represent the given fraction or whole number with circles divided into equal parts.
Pattern Machine	Generate numerical patterns on the number line by finding consecutive terms.
Which Parentheses	Identify where the parentheses should be placed to make the expression represent the given model.
Scale Fraction	Plot the combined length of a collection of rectangles on the number line.
Estimate Fractions on the Number Line	Estimate the location fractions on the number line.
JiJi Cycle Select Wheel	Relate a collection of fractions represented with circular diagrams to a single point on the number line.
JiJi Cycle Select Basket	Relate a collection of fractions represented with circular diagrams to a single point on the number line.

Challenge 3

Game Name	Game Description
Treasure Hunt	Help JiJi navigate around the map to find the correct destination. This game helps develop spatial reasoning by working with position and direction concepts.
Attribute Transform	Choose the correct attribute to change (shape, color, or size) to transform the first shape into the second. This game teaches the idea of a function in a visual way.
Bird Brain	Find birds in a grid after a sequence of transformations.
Big Seed	Find a sequence of actions that will unfold the given image into the desired shape. Teaches the concept of symmetry and the idea of a function or transformation.
Venn Space	Place the object in the correct section of the Venn diagram according to its attributes.
Venn Space Pick Shape	Identify the object that has the attributes corresponding to a particular section of a Venn diagram.
Ice Caves	Identify lines of symmetry in two-dimensional shapes.
Dot Shapes	Connect dots to form shapes which will fill holes in the ground.
Upright JiJi	Find a sequence of rotations to move JiJi into an upright position.
Kick Box	Use lasers and mirrors to move the spheres out of the way so JiJi can pass.

Cognitive Training

Game Name	Game Description
Sorting Fruit	Working memory tasks - help animals collect hidden fruit sequences moving along a conveyor belt.
Shape Match	Working memory tasks - track moving shapes on a grid to match outlines.

Patterns and Functions

Game Name	Game Description
Hundreds Pit	Skip count (by 2s, 3s, 5s, 9s, or 10s) to fill the pit so JiJi can cross. Identify patterns in the counting sequence.
Even or Odd	Learn the concept of even and odd numbers using a visual model.
Robot Patterns	Identify and extend geometric patterns of colored squares on a grid.
Make It Linear	Identify the common difference in an increasing or decreasing arithmetic sequence represented in numerical form and with virtual manipulatives in order to extend a sequence of numbers or identify missing numbers in a sequence.
Helicopter	Determine how many helicopters are needed to transport blocks to fill a hole so JiJi can cross to the other side. Students explore the relationship between inputs and outputs using rates within a visual model.
Make It Linear Symbolic	Identify the common difference in an increasing or decreasing arithmetic sequence presented as a list and in a table in order to extend a sequence of numbers or identify missing numbers in a sequence.
Helicopter Symbolic	Determine how many helicopters are needed to transport blocks to fill a hole so JiJi can cross to the other side. Students explore the relationship between inputs and outputs using rates within a visual model.
Helicopter Table	Identify missing values in a table of values exhibiting a linear relationship.
Make It Linear Table	Identify the common difference in an increasing or decreasing arithmetic sequence presented as a list and in a table in order to extend a sequence of numbers or identify missing numbers in a sequence.

Temperature and Capacity

Game Name	Game Description
Thermometer	Learn to read the temperature on a thermometer.
Temperature Changes	Determine the temperature change by reading and comparing the temperature on two thermometers.
Capacity	Learn how to convert between cups, pints, quarts and gallons. Practice converting liquid quantities between different units.

Place Value Bundles - Ten, Hundred, Thousand

Game Name	Game Description
Intro to Building	Fill in the missing addend to make a sum of 100 or 1000.
Intro to Building 2	Fill in the missing addend to make a sum of 100 or 1000.
Petals Regrouping	Given a model of bouquets (hundreds), flowers (tens), and ones (individual petals), regroup in order to represent the total number of petals as a numeral in standard place value notation.
Petals Random Regrouping	Find the total number of petals by counting the bouquets (hundreds), flowers (tens), and ones (individual petals) and regrouping using mental arithmetic.
Building Blocks to 100	Fill in the missing addend to make a sum of 100 or 1000.
Petals Random Regrouping Hundreds	Find the total number of petals by counting the bouquets (hundreds), flowers (tens), and ones (individual petals) and regrouping using mental arithmetic.
Building Blocks to 1000	Fill in the missing addend to make a sum of 100 or 1000.

OPTIONAL OBJECTIVES

Multiplication and Division Facts

Game Name	Game Description
Leg Drape	Practice multiplication facts with a visual scaffold.
Leg Drape Symbolic	Practice multiplication facts using symbolic language.
Multiplication Facts	Practice Facts with an alternate representation.
Fair Sharing Visual	Practice division via fair sharing.
Fair Sharing Symbolic	Practice symbolic division facts via fair sharing.
Area Divide	Practice division facts using an area represenation.
Multiplication Table	Practice multiplication facts in reverse by placing products on the multiplication table.
Multiplication Table Grouped	Practice multiplication facts in reverse by placing groups of products on the multiplication table.
Concentration Numbers	Practice multiplication facts quickly in sequence.

Addition and Subtraction Facts

Game Name	Game Description
Push Box Addition Facts	Practice addition facts using visual block representations for sums under 10.
Select Box Addition Facts	Practice addition facts using alternate visual block representations for sums under 10.
Basic Subtraction Facts	Practice subtraction facts under 10 using visual block representations.
Select Box Subtraction Facts	Practice subtraction facts under 10 using alternate block representations.
Ten Frame Addition Facts	Practice addition facts to 20 using ten frames.
Ten Frame Subtraction Facts	Practice subtraction facts using ten frames.
Mixed Facts	Practice addition and subtraction facts using visual block representations.
Addition and Subtraction Facts on the Number Line	Practice addition and subtraction facts using a number line representation.
Add Facts Bridge	Practice addition facts using a tricky inverted format.
Concentration Numbers	Practice multiple addition and subtraction facts quickly in sequence.

STANDARDS INDEX

OA - Operations and Algebraic Thinking

Standard	Objective(s)
MGSE3.OA.1	Interpret products of whole numbers, e.g., interpret 5 x 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 x 7. **Recommended: Multiplication Concepts; Multiplication and Division Relationships; Multiplication and Area; Multiplication Facts and Strategies; Solve Two-Step Problems**
MGSE3.OA.2	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. **Recommended: Division Concepts; Multiplication and Division Relationships; Division Facts and Strategies**
MGSE3.OA.3	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. **Recommended: Multiplication Concepts; Division Concepts; Multiplication and Division Relationships; Solve Two-Step Problems** *Related: Number Patterns*
MGSE3.OA.4	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 x ? = 48, 5 = _ / 3, 6 x 6 = ?. **Recommended: Multiplication and Division Relationships**

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OA - Operations and Algebraic Thinking (continued)

Standard	Objective(s)

MGSE3.OA.5　　Apply properties of operations as strategies to multiply and divide. Examples: If 6 x 4 = 24 is known, then 4 x 6 = 24 is also known. (Commutative property of multiplication.) 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. (Associative property of multiplication.) Knowing that 8 x 5 = 40 and 8 x 2 = 16, one can find 8 x 7 as 8 x (5 + 2) = (8 x 5) + (8 x 2) = 40 + 16 = 56. (Distributive property.)

Recommended: Multiplication and Division Relationships; Properties of Multiplication; Solve Two-Step Problems

Related: Multiplication Concepts

MGSE3.OA.6　　Understand division as an unknown-factor problem. For example, find 32 / 8 by finding the number that makes 32 when multiplied by 8.

Recommended: Multiplication and Division Relationships; Multiplication Facts and Strategies

Related: Multiplication Concepts; Division Concepts; Division Facts and Strategies

MGSE3.OA.7　　Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 x 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.

Related: Multiplication Concepts; Division Concepts; Multiplication and Division Relationships; Multiplication and Area; Multiplication Facts and Strategies; Division Facts and Strategies; Number Patterns; Solve Two-Step Problems

MGSE3.OA.8　　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.

Related: Solve Two-Step Problems

OA - Operations and Algebraic Thinking (continued)

Standard	Objective(s)
MGSE3.OA.9	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. **Recommended: Division Concepts; Multiplication and Division Relationships; Multiplication Facts and Strategies; Division Facts and Strategies; Number Patterns**

NBT - Number and Operations in Base Ten

Standard	Objective(s)
MGSE3.NBT.1	Use place value understanding to round whole numbers to the nearest 10 or 100. **Recommended: Rounding Three-Digit Numbers**
MGSE3.NBT.2	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. **Recommended: Addition and Subtraction with Regrouping** *Related: Place Value Bundles*
MGSE3.NBT.3	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. **Recommended: Properties of Multiplication** *Related: Multiplication Facts and Strategies*

NF - Number and Operations-Fractions

Standard	Objective(s)
MGSE3.NF.1	Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts (unit fraction); understand a fraction a/b as the quantity formed by a parts of size 1/b. **Recommended: Fraction Concepts; Fractions on the Number Line; Fraction Equivalence and Ordering**
MGSE3.NF.2a	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. Recognize that a unit fraction 1/b is located 1/b whole unit from 0 on the number line. **Recommended: Fraction Concepts; Fractions on the Number Line; Fraction Equivalence and Ordering**
MGSE3.NF.2b	Represent a non-unit fraction a/b on a number line diagram by marking off a lengths of 1/b (unit fractions) from 0. Recognize that the resulting interval has size a/bb and that its endpoint locates the non-unit fraction a/b on the number line. **Recommended: Fractions on the Number Line**
MGSE3.NF.3a	Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. **Recommended: Fraction Concepts** *Related: Fractions on the Number Line*
MGSE3.NF.3b	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. **Recommended: Fraction Concepts; Fraction Equivalence and Ordering** *Related: Fractions on the Number Line*

NF - Number and Operations-Fractions (continued)

Standard	Objective(s)
MGSE3.NF.3c	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. **Recommended: Fraction Concepts; Fractions on the Number Line**
MGSE3.NF.3d	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 for greater than, less than, or equal to and justify the conclusions, e.g., by using a visual fraction model. **Recommended: Fractions on the Number Line; Fraction Equivalence and Ordering**

MD - Measurement and Data

Standard	Objective(s)
MGSE3.MD.1	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, drawing a pictorial representation on a clock face, etc. **Recommended: Time to the Minute; Intervals of Time**
MGSE3.MD.2	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. *Related: Mass and Volume*
MGSE3.MD.3	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. **Recommended: Scale and Measurement in Graphing**
MGSE3.MD.4	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. **Recommended: Line Plots**
MGSE3.MD.5a	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. **Recommended: Multiplication and Area; Area and Perimeter**

MD - Measurement and Data (continued)

Standard	Objective(s)
MGSE3.MD.5b	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. **Recommended: Multiplication and Area; Area and Perimeter**
MGSE3.MD.6	Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units). **Recommended: Multiplication and Area; Area and Perimeter**
MGSE3.MD.7a	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. *Related: Multiplication and Area; Area and Perimeter*
MGSE3.MD.7b	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. **Recommended: Multiplication and Area** *Related: Area and Perimeter*
MGSE3.MD.7c	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 x b and a x c. Use area models to represent the distributive property in mathematical reasoning. *Related: Multiplication and Area*

MD - Measurement and Data (continued)

Standard	Objective(s)
MGSE3.MD.8	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. **Recommended: Area and Perimeter** *Related: Multiplication and Area*

G - Geometry

Standard	Objective(s)
MGSE3.G.1	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. **Recommended: Shape Attributes**
MGSE3.G.2	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. **Recommended: Division Concepts; Fraction Concepts**

JOURNEY AND BONUS JOURNEY OBJECTIVES

Place Value

Standards Coverage:

Recommended: MGSE4.NBT.1, MGSE4.NBT.2

Game Name	Game Description
Number Line Journey	Move left and right on the number line to locate the given number.
Expanded Form	Provide a number when given its representation in expanded notation. This game also covers place value concepts to the millions place while enforcing the skills of reading and writing whole numbers.
Commas	Correctly place commas on large whole numbers and identify the place values of the points where the commas are placed.
Place Value Clouds	Identify the place value of a given digit of a whole number up to the millions place. The place values are expressed with the words or symbols for the powers of ten.

Rounding Whole Numbers

Standards Coverage:

Recommended: MGSE4.NBT.2, MGSE4.NBT.3

Game Name	Game Description
Number Funnels	Round whole numbers to the nearest given place value. The game also teaches place value concepts up to the hundred thousands place.

Comparing Whole Numbers

Standards Coverage:

Recommended: MGSE4.NBT.2

Game Name	Game Description
Large Number Comparison	Order whole numbers up to seven digits using the symbols for less than, greater than, and equal to.
Least Most Symbolic	Identify the least or greatest element in a set of whole numbers (up to six digits) and learn the meaning of the words "least" and "greatest".
Large Number Comparison Symbolic	Order whole numbers up to seven digits using the phrases "less than", "greater than", and "equal to".
Order Fill	Choose the numbers in order from least to greatest in order to fill the pit so JiJi can cross.

Addition and Subtraction Algorithm

Standards Coverage:

Recommended: MGSE4.NBT.4

Game Name	Game Description
Arithmetic Number Line	Add and subtract whole numbers (up to five digits) and estimate sums and differences on a number line.
Addition and Subtraction Algorithm	Add and subtract whole numbers (up to five digits) using the standard algorithm.
Missing Digits	Fill in the missing digit(s) in a multi-digit addition or subtraction computation.

Multi-Step Addition and Subtraction Problems

Standards Coverage:

Related: MGSE4.OA.3, MGSE4.MD.2

Game Name	Game Description
Multi-Step Adding and Subtracting Lengths	Solve multi-step addition and subtraction problems involving lengths of objects with unknowns in a varying positions.
Multi-Step Addition and Subtraction with Volume	Solve multi-step addition and subtraction problems involving liquid volumes using beakers with a measurement scale.

Multiplicative Comparison

Standards Coverage:

Related: MGSE4.OA.1a, MGSE4.OA.1b, MGSE4.OA.2

Game Name	Game Description
Comparison Bridge Estimation	Use estimation to solve multiplicative or additive comparison problems. Differentiate between multiplicative and additive comparisons.
Comparison Bridge	Solve multiplicative or additive comparison problems.
Comparison Bridge Symbolic	Use language to solve multiplicative or additive comparison problems.

Factors and Multiples

Standards Coverage:

Recommended: MGSE4.OA.4

Related: MGSE4.OA.1a, MGSE4.OA.1b, MGSE4.OA.5

Game Name	Game Description
Multiples	Identify multiples of a given whole number.
Factors	Identify factors of a given whole number.
Multiples and Factors	Identify factors or multiples of a given whole number.
Find the Primes	Identify which of the numbers in a given set are primes.
Prime Factorization	Find prime factorizations for given whole numbers using tree diagrams.
Prime Factorization Bubble	Find prime factorizations for given whole numbers and fill in the bubbles to create the prime factorization expression.
Prime Factorization Bubble Symbolic	Find prime factorizations for given whole numbers and fill in the bubbles to create the prime factorization expression.

Patterns

Standards Coverage:

Recommended: MGSE4.OA.4, MGSE4.OA.5

Game Name	Game Description
Pattern Wheel	Identify and extend patterns of different geometric shapes.
Pattern Machine	Generate numerical patterns on the number line by finding consecutive terms.
Robot Patterns	Identify and extend geometric patterns of colored squares on a grid.
Pattern Machine Advanced	Find consecutive and non-consecutive terms for a numerical pattern.

Multi-Step Problems Using 4 Operations

Standards Coverage:

Related: MGSE4.OA.2, MGSE4.OA.3

Game Name	Game Description
Linear Transform	Select the number that will allow JiJi to cross to the other side. This game teaches the concept of equality through problems involving multiple operations.
Leg Drape Boots	Multiply whole numbers using repeated addition.
Leg Drape Creatures	Multiply whole numbers using repeated addition.
Multi-Step Mixed Operations with Volume	Solve multi-step mixed operation problems involving liquid volumes using beakers with a measurement scale.
Which Parentheses	Identify where the parentheses should be placed to make the expression represent the given model.

Applying Area and Perimeter

Standards Coverage:

Recommended: MGSE4.MD.3

Related: MGSE4.MD.8

Game Name	Game Description
Perimeter Select	Calculate the perimeter of a variety of shapes including triangles, squares, trapezoids, parallelograms, rectangles, and rhombuses.
Area Select	Calculate the area of rectangles using a formula.
Area or Perimeter	Calculate the area of rectangles using a formula.
Area Perimeter with Units	Learn the units for measuring area and perimeter and explore pairs of different rectangles with equivalent perimeters or areas.

Mixed Numbers

Standards Coverage:

Related: MGSE4.NF.1, MGSE4.NF.3c

Game Name	Game Description
Match Fraction	Represent a given fraction using a visual model by first dividing a whole into equal parts and then shading the correct number of parts.
Alien Bridge	Use pies divided into fourths to create a fraction diagram to match the given one.
JiJi Cycle Select Wheel	Relate a collection of fractions represented with circular diagrams to a single point on the number line.
Scale Fraction	Plot the combined length of a collection of rectangles on the number line.
Estimate Fractions on the Number Line	Estimate the location fractions on the number line.
Fraction Trap	Estimate on a number line the location of Fractions

Fraction Equivalence

Standards Coverage:

Recommended: MGSE4.NF.1, MGSE4.NF.2

Related: MGSE4.NF.7

Game Name	Game Description
Equivalent Fractions	Generate equivalent fractions using visual fraction models.
Common Denominator Monster	Partion a fraction to create an equivalent fraction using models.
Common Denominator Monster Advanced	Partion fractions to create common denominators using models.
Fraction More or Less	Compare fractions with the same numerator or the same denominator using models.

Addition and Subtraction with Fractions

Standards Coverage:

Recommended: MGSE4.NF.3a, MGSE4.NF.3c, MGSE4.NF.3d

Game Name	Game Description
Alien Bridge	Learn the meaning of fraction addition using visual models.
JiJi Cycle Select Basket	Relate a collection of fractions represented with circular diagrams to a single point on the number line.
Scale Fraction Addition and Subtraction	Add and subtract fractions and mixed numbers on the number line. The fractions and mixed numbers are presented using visual models.
Alien Bridge Symbolic	Add fractions with the same denominator. In some levels, students fill in the missing addend when given one addend and the sum.
JiJi Cycle Select Basket Symbolic	Relate a collection of fractions to a single point on the number line.
Crank Pies Addition and Subtraction Symbolic	Add proper and improper fractions with like denominators. This game extends the visual model of fractions to numeric representations.
Scale Fraction Addition and Subtraction Symbolic	Add and subtract fractions and mixed numbers with like and unlike denominators on the number line.
Pie Monster Symbolic	Represent the given fraction or whole number with circles divided into equal parts.

Fraction Multiplication

Standards Coverage:

Recommended: MGSE4.NF.3b, MGSE4.NF.4a, MGSE4.NF.4b, MGSE4.NF.4c

Related: MGSE4.NF.1, MGSE4.NF.3a

Game Name	Game Description
Alien Bridge	Learn to multiply fractions by a whole number using a visual model.
Alien Bridge Symbolic	Learn to multiply fractions by a whole number using a visual model. This game integrates the symbolic notation for recording the multiplication equation displayed in the visual model.
Crank Pies Fraction Multiplication	Multiply fractions by whole numbers using visual models.
Fraction Multiplication on the Number Line	Multiply fractions and estimate the locations of the products on a number line.

Decimal Fractions

Standards Coverage:

Recommended: MGSE4.NF.5, MGSE4.NF.6

Related: MGSE4.NF.1, MGSE4.NF.7

Game Name	Game Description
Fraction Grid	Identify the fraction, equivalents of numbers using the given model.
Decimal Grid	Identify the decimal equivalents of numbers using the given model.
Fractions and Decimals Grid	Identify the decimal and fraction equivalents of numbers using the given model.
Number Line Trap	Estimate on a number line the location of tenths and hundredths in fraction and decimal form.
Addition on NL	Estimate on a number line the location of fourths and halves in fraction and decimal form.

Comparing Decimals

Standards Coverage:

Recommended: MGSE4.NF.7

Related: MGSE4.NF.6

Game Name	Game Description
What's the Number	Estimate on a number line the location of decimals and whole numbers.
Decimal Order Fill	Help JiJi cross the pit by putting one- and two-place decimals in order from least to greatest.
Decimal Comparison	Order decimals using place value-based methods and the symbols for less than, greater than, and equal to.

Lines and Angles

Standards Coverage:

Recommended: MGSE4.G.1, MGSE4.MD.5a, MGSE4.MD.5b, MGSE4.MD.6

Game Name	Game Description
Parallel and Perpendicular Lines	Use visual icons to identify parallel and perpendicular lines, then apply those concepts to the terms perpendicular and parallel.
Acute Obtuse and Right Angles	Use visual cues to identify acute, obtuse and right angles, then apply those concepts to the terms acute, obtuse and right.
Identify Lines and Angles	Apply visual cues to identify a variety of lines and angles, then apply those concepts to their vocabulary terms.
Draw Lines and Angles	Draw lines or angles given prompt of vocabulary terms.
Do the Lines Intersect	Identify parallel, perpendicular, and intersecting lines within a given set of lines.
Line Capture	Fit a line to a set of points in the coordinate plane. In later levels, place a point in the plane so that it will be on the line through the given points.
Measuring Angles	Measure angles using a protractor and sketch angles of specified measure.

Lines of Symmetry

Standards Coverage:

Recommended: MGSE4.G.3

Game Name	Game Description
Where is the Line of Symmetry	Identify lines of symmetry in a variety of shapes.
Symmetry Grid	Create figures that have bilateral symmetry using a grid to reflect shapes across the symmetry line.
Ice Caves	Shoot lasers through blocks of ice along lines of symmetry. Students identify line-symmetric and asymmetric figures.
Big Seed	Fill all the holes using colored tiles. A group of tiles of the same color can be unfolded along 8 symmetry axes. The color of tiles can also be changed.

Classifying Shapes

Standards Coverage:

Recommended: MGSE4.G.1, MGSE4.G.2

Game Name	Game Description
Shape Names	Identify the given polygon.
Shape Types	Name shapes with 3 through 8 sides and identifying subcategories of triangles and quadrilaterals.

Measurement and Conversions

Standards Coverage:

Recommended: MGSE4.MD.1a, MGSE4.MD.1b, MGSE4.MD.1c

Related: MGSE4.MD.2

Game Name	Game Description
Measure It	Measure the length of a gap in US customary units using a ruler.
Capacity	Learn how to convert between cups, pints, quarts and gallons. Practice converting liquid quantities between different units.
Weight Conversions	Convert between pounds and ounces using visual scales. Enter converted values into a table.
Problem Solving With Mass	Solve multi-step situations involving weight conversions.

Multi-Digit Multiplication

Standards Coverage:

Recommended: MGSE4.NBT.5

Game Name	Game Description
Grid Expressions	Multiply whole numbers using an area model.
Area Multiplication	Multiply two-digit whole numbers using visual models.
Area Multiplication 2	Multiply two-digit whole numbers using visual models.

Multi-Digit Division

Standards Coverage:

Recommended: MGSE4.NBT.6

Game Name	Game Description
Area Divide	Explore the concept of division using an array model to practice division facts.
Long Division	Divide multi-digit numbers by one-digit divisors using a visual model incorporating place value blocks. This game builds conceptual understanding of the division algorithm.
Long Division with Remainder	Divide multi-digit numbers by one-digit divisors with remainders using a visual model incorporating place value blocks.

Line Plots and Range

Standards Coverage:

Recommended: MGSE4.MD.4

Game Name	Game Description
Soccer Dot Plots Eighths	Record fraction measurements on a number line to create a dot plot.
Dot Plot Dimension	Identify which dimension of the given collection of rectangles is represented by the dot plot shown.
What's the Range	Find the range of a list of whole numbers and bubble select to record the answer.

Math Challenge 4

Game Name	Game Description
Fraction Bricks	Represent the same length using different partitionings.
Fraction Trap	Estimate on a number line the location of fractions.
Pie Monster Fractions	Solve multi-step addition and subtraction problems with fractions and mixed numbers.
Pie Monster Symbolic	Fraction and mixed number problems.
Pie Monster Multi-Step	Multi-step fraction problems.
Bricks	Arrange the shapes to create the composite shape shown.
Shape Types	Identify the given polygon.
Missing Angle with Triangles	Find the magnitude of the missing angle on a triangle or quadrilateral using facts about the sums of their interior angles. This game also introduces the use of a protractor as a tool used to measure an angle.
Ice Caves	Shoot lasers through blocks of ice along lines of symmetry. Students identify line-symmetric and asymmetric figures.
Buy Items	Choose the monetary amount needed to purchase a given item.
Fruit Monster	Determine how many pieces of fruit are needed to feed the monsters. Students explore the relationship between inputs and outputs using ratios within a visual model.
Rate Objects	Find an equivalent rate to the one given.

Challenge 4

Game Name	Game Description
Bird Brain	Find birds in a grid after a sequence of transformations.
Venn Space	Place the object in the correct section of the Venn diagram according to its attributes.
Big Seed	Fill all the holes using colored tiles. A group of tiles of the same color can be unfolded along 8 symmetry axes. The color of tiles can also be changed.
Venn Space Pick Shape	Identify the object that has the attributes corresponding to a particular section of a Venn diagram.
Dot Shapes	Connect dots to form shapes which will fill holes in the ground.
Concentration Nums	Practice multiplication facts.
Ice Caves	Identify lines of symmetry in two-dimensional shapes.
Kick Box	Use lasers and mirrors to move the spheres out of the way so JiJi can pass.

Cognitive Training

Game Name	Game Description
Sorting Fruit	Working memory tasks - help animals collect hidden fruit sequences moving along a conveyor belt.
Shape Match	Working memory tasks - track moving shapes on a grid to match outlines.

OPTIONAL OBJECTIVES

Multiplication and Division Facts

Game Name	Game Description
Leg Drape	Practice multiplication facts with a visual scaffold.
Leg Drape Symbolic	Practice multiplication facts using symbolic language.
Multiplication Facts	Practice Facts with an alternate representation.
Fair Sharing Visual	Practice division via fair sharing.
Fair Sharing Symbolic	Practice symbolic division facts via fair sharing.
Area Divide	Practice division facts using an area represenation.
Multiplication Table	Practice multiplication facts in reverse by placing products on the multiplication table.
Multiplication Table Grouped	Practice multiplication facts in reverse by placing groups of products on the multiplication table.
Concentration Numbers	Practice multiplication facts quickly in sequence.

Addition and Subtraction Facts

Game Name	Game Description
Push Box Addition Facts	Practice addition facts using visual block representations for sums under 10.
Select Box Addition Facts	Practice addition facts using alternate visual block representations for sums under 10.
Basic Subtraction Facts	Practice subtraction facts under 10 using visual block representations.
Select Box Subtraction Facts	Practice subtraction facts under 10 using alternate block representations.
Ten Frame Addition Facts	Practice addition facts to 20 using ten frames.
Ten Frame Subtraction Facts	Practice subtraction facts using ten frames.
Mixed Facts	Practice addition and subtraction facts using visual block representations.
Addition and Subtraction Facts on the Number Line	Practice addition and subtraction facts using a number line representation.
Add Facts Bridge	Practice addition facts using a tricky inverted format.
Concentration Numbers	Practice multiple addition and subtraction facts quickly in sequence.

STANDARDS INDEX

OA - Operations and Algebraic Thinking

Standard	Objective(s)
MGSE4.OA.1a	Interpret a multiplication equation as a comparison e.g., interpret $35 = 5 * 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. *Related: Multiplicative Comparison; Factors and Multiples*
MGSE4.OA.1b	Represent verbal statements of multiplicative comparisons as multiplication equations. *Related: Multiplicative Comparison; Factors and Multiples*
MGSE4.OA.2	Multiply or divide to solve word problems involving multiplicative comparison. Use drawings and equations with a symbol or letter for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison. *Related: Multiplicative Comparison; Multi-Step Problems Using 4 Operations*
MGSE4.OA.3	Solve multi-step word problems with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a symbol or letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. *Related: Multi-Step Addition and Subtraction Problems; Multi-Step Problems Using 4 Operations*

OA - Operations and Algebraic Thinking (continued)

Standard	Objective(s)
MGSE4.OA.4	Find all factor pairs for a whole number in the range 1 to 100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1 to 100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1 to 100 is prime or composite. **Recommended: Factors and Multiples; Patterns**
MGSE4.OA.5	Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. Explain informally why the pattern will continue to develop in this way. For example, given the rule 'Add 3' and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. **Recommended: Patterns** *Related: Factors and Multiples*

NBT - Number and Operations in Base Ten

Standard	Objective(s)
MGSE4.NBT.1	Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. For example, recognize that 700 / 70 = 10 by applying concepts of place value and division. **Recommended: Place Value**
MGSE4.NBT.2	Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using the symbols for less than, greater than, and equal to to record the results of comparisons. **Recommended: Place Value; Rounding Whole Numbers; Comparing Whole Numbers**
MGSE4.NBT.3	Use place value understanding to round multi-digit whole numbers to any place. **Recommended: Rounding Whole Numbers**
MGSE4.NBT.4	Fluently add and subtract multi-digit whole numbers using the standard algorithm. **Recommended: Addition and Subtraction Algorithm**
MGSE4.NBT.5	Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. **Recommended: Multi-Digit Multiplication**

NBT - Number and Operations in Base Ten (continued)

Standard	Objective(s)
MGSE4.NBT.6	Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. **Recommended: Multi-Digit Division**

NF - Number and Operations-Fractions

Standard	Objective(s)
MGSE4.NF.1	Explain why a fraction a/b is equivalent to a fraction (n x a)/(n x b) by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. **Recommended: Fraction Equivalence** *Related: Mixed Numbers; Fraction Multiplication; Decimal Fractions*
MGSE4.NF.2	Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols for less than, greater than, or equal to and justify the conclusions. **Recommended: Fraction Equivalence**

NF - Number and Operations-Fractions (continued)

Standard	Objective(s)
MGSE4.NF.3a	Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. **Recommended: Addition and Subtraction with Fractions** *Related: Fraction Multiplication*
MGSE4.NF.3b	Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. Examples: 3/8 = 1/8 + 1/8 + 1/8; 3/8 = 1/8 + 2/8; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8. **Recommended: Fraction Multiplication**
MGSE4.NF.3c	Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction. **Recommended: Addition and Subtraction with Fractions** *Related: Mixed Numbers*
MGSE4.NF.3d	Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem. **Recommended: Addition and Subtraction with Fractions**
MGSE4.NF.4a	Understand a fraction a/b as a multiple of 1/b. For example, use a visual fraction model to represent 5/4 as the product 5 x (1/4), recording the conclusion by the equation 5/4 = 5 x (1/4). **Recommended: Fraction Multiplication**

NF - Number and Operations-Fractions (continued)

Standard	Objective(s)

MGSE4.NF.4b   Understand a multiple of a/b as a multiple of 1/b, and use this understanding to multiply a fraction by a whole number. For example, use a visual fraction model to express 3 x (2/5) as 6 x (1/5), recognizing this product as 6/5. (In general, n x (a/b) = (n x a)/b.)

Recommended: Fraction Multiplication

MGSE4.NF.4c   Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?

Recommended: Fraction Multiplication

MGSE4.NF.5   Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.

Recommended: Decimal Fractions

MGSE4.NF.6   Use decimal notation for fractions with denominators 10 or 100. For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram.

Recommended: Decimal Fractions

Related: Comparing Decimals

NF - Number and Operations-Fractions (continued)

Standard	Objective(s)
MGSE4.NF.7	Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols for greater than, less than, or equal to and justify the conclusions, e.g., by using a visual model. **Recommended: Comparing Decimals** *Related: Fraction Equivalence; Decimal Fractions*

MD - Measurement and Data

Standard	Objective(s)

MGSE4.MD.1a Understand the relationship between gallons, cups, quarts, and pints.

Recommended: Measurement and Conversions

MGSE4.MD.1b Express larger units in terms of smaller units within the same measurement system.

Recommended: Measurement and Conversions

MGSE4.MD.1c Express larger units in terms of smaller units within the same measurement system.

Recommended: Measurement and Conversions

MGSE4.MD.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.

Related: Multi-Step Addition and Subtraction Problems; Measurement and Conversions

MGSE4.MD.3 Apply the area and perimeter formulas for rectangles in real world and mathematical problems. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.

Recommended: Applying Area and Perimeter

continued on next page

MD - Measurement and Data (continued)

Standard	Objective(s)
MGSE4.MD.4	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection. **Recommended: Line Plots and Range**
MGSE4.MD.5a	Understand that an angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a 'one-degree angle,' and can be used to measure angles. **Recommended: Lines and Angles**
MGSE4.MD.5b	Understand that an angle that turns through n one-degree angles is said to have an angle measure of n degrees. **Recommended: Lines and Angles**
MGSE4.MD.6	Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure. **Recommended: Lines and Angles**
MGSE4.MD.8	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. *Related: Applying Area and Perimeter*

G - Geometry

Standard	Objective(s)
MGSE4.G.1	Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. **Recommended: Lines and Angles; Classifying Shapes**
MGSE4.G.2	Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles. **Recommended: Classifying Shapes**
MGSE4.G.3	Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry. **Recommended: Lines of Symmetry**

JOURNEY AND BONUS JOURNEY OBJECTIVES

Decimal Place Value

Standards Coverage:

Recommended: MGSE5.NBT.1, MGSE5.NBT.3a

Game Name	Game Description
Decimal Greenies	Identify and interpret the digit values of given decimals using place value-based models. This game covers expanded notation and place value concepts to the hundredths place while enforcing the skills of reading and writing decimals.
Decimal Greenies Bubble Select	Identify and interpret the digit values of given decimals using place value-based models. This game covers expanded notation and place value concepts to the hundredths place while enforcing the skills of reading and writing decimals.
Number Line Journey	Represent up to three-place decimals on a number line. Some levels require students to decide which direction to move in at each step to find the given number.
Decimal Place Value	Identify the digit values of given whole numbers and decimals using place value-based models. This game covers expanded notation and place value concepts while enforcing the skills of reading and writing whole numbers and decimals.
Decimal Place Value Pushers	Identify the place of a given digit within a decimal up to the thousandths place. The places are expressed with the words or symbols for the powers of ten.
Expanded Form	Provide a number when given its representation in expanded notation. This game also covers place value concepts to the thousands place while enforcing the skills of reading and writing whole numbers.

Comparing with Decimals

Standards Coverage:

Recommended: MGSE5.NBT.3a, MGSE5.NBT.3b

Game Name	Game Description
Decimal Comparison	Order decimals using place value-based methods and the symbols for less than, greater than, and equal to.
Least Most	Identify the least or greatest element in a set of whole numbers (up to four digits).
Decimal Order Fill	Help JiJi cross the pit by putting one-, two-, and three-place decimals in order from least to greatest.

Rounding Decimals

Standards Coverage:

Recommended: MGSE5.NBT.4

Game Name	Game Description
Number Funnels	Round decimals to the nearest whole number. The game also teaches place value concepts up to the hundredths place.
Decimal Number Funnels	Round decimals to the nearest given place value.

Interpret Expressions

Standards Coverage:

Recommended: MGSE5.OA.1

Related: MGSE5.OA.2

Game Name	Game Description
Complete Box	Write an expression to describe the area. Includes adding or deducting from the area and nonstandard shapes.
Multiplying with Parentheses	Learn the meaning of and how to simplify expressions involving variables and parentheses.
Which Parentheses	Identify where the parentheses should be placed to make the expression equal to the given value.

Patterns and Relationships

Standards Coverage:

Recommended: MGSE5.OA.2, MGSE5.OA.3

Related: MGSE5.G.1, MGSE5.G.2

Game Name	Game Description
Robot Patterns	Identify and extend geometric patterns of colored squares on a grid.
Pattern Machine	Generate numerical patterns on the number line.
Pattern Machine Rule	Build a rule that describes the relationship between terms in a sequence.
Linear Transform	Select the number that will allow JiJi to cross to the other side. This game teaches the concept of equality through problems involving multiple operations.
Linear Transform Table	Fill in the table with the missing inputs or outputs for a given linear function, or, in other levels, identify the function that corresponds to the given table of inputs and outputs.

Multiplication Algorithm

Standards Coverage:

Related: MGSE5.NBT.1, MGSE5.NBT.5, MGSE5.OA.2

Game Name	Game Description
Grid Expressions	Multiply whole numbers using an area model.
Area Multiplication	Multiply two-digit whole numbers using visual models.
Multiplication Algorithm	Multiply multi-digit whole numbers by one-digit whole numbers using the standard algorithm.
Area Multiplication 2	Multiply two-digit whole numbers using visual models.

Division Algorithm Strategies

Standards Coverage:

Recommended: MGSE5.NBT.6

Game Name	Game Description
Area Divide	Explore the concept of division using an array model to practice division facts.
Long Division	Divide multi-digit numbers by one-digit divisors using a visual model incorporating place value blocks. This game builds conceptual understanding of the division algorithm.
Long Division with Remainder	Divide multi-digit numbers by one-digit divisors with remainders using a visual model incorporating place value blocks.
Long Division Symbolic	Use the long division algorithm to perform division of multi-digit numbers by one-digit divisors.
Long Division with Remainder Symbolic	Use the long division algorithm to perform division of multi-digit numbers by one-digit divisors with a remainder.

Addition and Subtraction with Decimals

Standards Coverage:

Recommended: MGSE5.NBT.7

Game Name	Game Description
Place Value Align	Learn to align decimals before adding or subtracting.
Estimate Addition and Subtraction Number Line	Estimate sums and differences of whole numbers and decimals on a number line.
Place Value River	Identify which place to increase or decrease in order to obtain the second decimal from the first.
Arithmetic Algorithm	Add one- and two-place decimals using the standard algorithm.

Multiplying Decimals

Standards Coverage:

Recommended: MGSE5.NBT.7

Game Name	Game Description
Money Multiplication	Multiply money amounts by whole numbers.
Multiplying Decimals	Multiply decimals by whole numbers.

Dividing Decimals

Standards Coverage:

Recommended: MGSE5.NBT.7

Game Name	Game Description
Money Division	Divide whole dollar money amounts by whole numbers resulting in decimal money amounts.
Decimal Quotients	Divide whole numbers by whole numbers resulting in decimal quotients.
Dividing Dollars and Cents	Divide money amounts by whole numbers.
Dividing Decimals	Divide decimals by whole numbers.

Common Denominators and Equivalent Fractions

Standards Coverage:

Recommended: MGSE5.NF.1

Game Name	Game Description
Number Line Equivalence	Identify equivalent fractions using a number line model.
Fraction Grid	Write one- and two-place decimals as fractions with denominators of 2, 4, 10, or 100.
Common Denominator Intro	Partion fractions to create common denominators using models.
Pie Monster	Implicitly add two fractions together.

Adding and Subtracting Fractions with Unlike Denominators

Standards Coverage:

Recommended: MGSE5.NF.1

Game Name	Game Description
JiJi Cycle Select Basket	Estimate the location of a fraction represented with a diagram on the number line.
Fraction Robot Addition	Add proper and improper fractions with like and unlike denominators using rectangular diagrams displaying equal parts of a whole.
Scale Fraction Visual	Add and subtract fractions and mixed numbers on the number line. The fractions and mixed numbers are presented using visual models.
Alien Bridge	Learn the meaning of fraction addition using visual models.
Add and Subtract Unlike Denominators	Add and subtract fractions with unlike denominators by creating fractions with common denominators using a visual model.
Fraction Grid	Select a number of partitions on a given grid to represent the the sum or difference of two fractions.
Alien Bridge Symbolic	Learn the meaning of fraction addition using visual models.
Add and Subtract Unlike Denominators Symbolic	Add and subtract fractions with unlike denominators symbolically by creating fractions with common denominators.

Multiplying Fractions

Standards Coverage:

Recommended: MGSE5.NF.4a, MGSE5.NF.4b, MGSE5.NF.6

Game Name	Game Description
Alien Bridge	Learn to multiply fractions by a whole number using a visual model.
Alien Bridge Symbolic	Learn to multiply fractions by a whole number using a visual model. This game integrates the symbolic notation for recording the multiplication equation displayed in the visual model.
Unit Multiples	Multiply fractions and whole numbers using an area model.
Unit Multiplication on the Number Line	Multiply fractions and estimate the locations of the products on a number line.
Fraction Area	Multiply fractions and whole numbers using an area model.
Scalar Multiplication	Interpret multiplication as scaling (resizing) through estimation and reasoning about the relative size of factors and products.

Dividing Fractions

Standards Coverage:

Recommended: MGSE5.NF.4a, MGSE5.NF.7a, MGSE5.NF.7b, MGSE5.NF.7c

Related: MGSE5.NF.3

Game Name	Game Description
Area Divide	Divide whole numbers by unit fractions. The answers are demonstrated using an area model.
Linear Transform	Multiply and divide whole numbers by unit fractions. In the last level, identify the operation that will transform the first number into the second.
Select Blocks Per Critter	Fair share blocks amongst critters for questions with fractional answers or dividends.
Fraction Divisors	Divide a whole number by a unit fraction modeled by fair sharing of blocks.

Volume

Standards Coverage:

Recommended: MGSE5.MD.3a, MGSE5.MD.3b, MGSE5.MD.4, MGSE5.MD.5a, MGSE5.MD.5b, MGSE5.MD.5c

Related: MGSE5.OA.3

Game Name	Game Description
Intro to Volume	Calculate the volume of a right rectangular prism and express it using metric or U.S. customary cubic units.
Helicopter Volume	Identify the number of stacks the helicopter should drop in order to fill the hole in the ground.
Helicopter Volume Symbolic	Identify the number of stacks the helicopter should drop in order to fill the hole in the ground.
Volume Fill	Calculate the volume of a right rectangular prism and express it using metric or U.S. customary cubic units.
Area, Perimeter, Volume Select	Calculate the volumes of rectangular and triangular prisms and express them using metric or U.S. customary cubic units.

Converting Measurements

Standards Coverage:

Recommended: MGSE5.MD.1

Related: MGSE5.G.1, MGSE5.G.2, MGSE5.OA.3

Game Name	Game Description
Rate Objects	Find an equivalent rate to the one given.
Capacity	Learn how to convert between cups, pints, quarts and gallons. Practice converting liquid quantities between different units.
Weight Conversions	Convert between pounds and ounces using visual scales. Enter converted values into a table.
Problem Solving Mass Conversions	Solve multi-step situations involving weight conversions.
Unit Conversion	Convert between different units of time using a number line.

The Coordinate Plane

Standards Coverage:

Recommended: MGSE5.G.1, MGSE5.G.2

Game Name	Game Description
Coordinate Trap	Select the location of a coordinate pair on a coordinate grid.
Ordered Pairs	Name the coordinate pair for a given point located on a coordinate grid.
Line Capture	Fit a line to a set of points in the coordinate plane. In later levels, place a point in the plane so that it will be on the line through the given points.
Line Capture from Table	Represent the table of input and output values with a straight line in the coordinate plane.

Line Plots Decimals and Mode

Standards Coverage:

Recommended: MGSE5.MD.2

Game Name	Game Description
Soccer Dot Plots Eighths	Record fraction measurements on a number line to create a dot plot.
Mode Magnet Decimals	Identify the minimum, maximum, or mode value of a distribution of whole numbers and/or decimals shown in a dot plot.
Mode Is Most Decimals	Identify the mode of a given collection of decimal numbers.
Mean Height	Find the mean height of a collection of stacks of blocks, or the mean of a collection of numbers.
Mean Dot Plots	Find the mean of the values displayed in a dot plot.

Shapes and Properties

Standards Coverage:

Recommended: **MGSE5.G.3, MGSE5.G.4**

Game Name	Game Description
Shape Names	Identify the given polygon.
Shape Types	Identify different types of triangles (equilateral, acute, etc.) and different types of polygons (rectangle, rhombus, etc).

Math Challenge 5

Game Name	Game Description
Build a Monster	Identify the ratio of the monster arms to monster mouths.
Wall Factory	Choose values for the variables to make the given expression represent the configuration of blocks in the ground.
Which Parentheses	Identify where the parentheses should be placed to make the expression equal to the given value.
Hungry Monsters	Apply multiplicative reasoning to solve multi-step multiplication and division problems.
Variable Stacks	Solve linear equations using a model in which the two sides of the equation are modeled as stacks that need to have equal height.
Scalar Multiplication	Interpret multiplication as scaling (resizing) through estimation and reasoning about the relative size of factors and products.
Frac Wall	Solve linear equations using a visual model.
Graph Path	Move the point along a straight line in a coordinate plane.

Challenge 5

Game Name	Game Description
Concentration Nums	Practice multiplication facts.
Big Seed	Find a sequence of actions that will unfold the given image into the desired shape. Teaches the concept of symmetry and the idea of a function or transformation.
Bird Brain	Find birds in a grid after a sequence of transformations.
Dot Shapes	Connect dots to form shapes which will fill holes in the ground.
Ice Caves	Identify lines of symmetry in two-dimensional shapes.
Upright JiJi	Find a sequence of rotations to move JiJi into an upright position.
Kick Box	Use lasers and mirrors to move the spheres out of the way so JiJi can pass.

Cognitive Training

Game Name	Game Description
Sorting Fruit	Working memory tasks - help animals collect hidden fruit sequences moving along a conveyor belt.
Shape Match	Working memory tasks - track moving shapes on a grid to match outlines.

OPTIONAL OBJECTIVES

Multiplication and Division Facts

Game Name	Game Description
Leg Drape	Practice multiplication facts with a visual scaffold.
Leg Drape Symbolic	Practice multiplication facts using symbolic language.
Multiplication Facts	Practice Facts with an alternate representation.
Fair Sharing Visual	Practice division via fair sharing.
Fair Sharing Symbolic	Practice symbolic division facts via fair sharing.
Area Divide	Practice division facts using an area represenation.
Multiplication Table	Practice multiplication facts in reverse by placing products on the multiplication table.
Multiplication Table Grouped	Practice multiplication facts in reverse by placing groups of products on the multiplication table.
Concentration Numbers	Practice multiplication facts quickly in sequence.

Addition and Subtraction Facts

Game Name	Game Description
Push Box Addition Facts	Practice addition facts using visual block representations for sums under 10.
Select Box Addition Facts	Practice addition facts using alternate visual block representations for sums under 10.
Basic Subtraction Facts	Practice subtraction facts under 10 using visual block representations.
Select Box Subtraction Facts	Practice subtraction facts under 10 using alternate block representations.
Ten Frame Addition Facts	Practice addition facts to 20 using ten frames.
Ten Frame Subtraction Facts	Practice subtraction facts using ten frames.
Mixed Facts	Practice addition and subtraction facts using visual block representations.
Addition and Subtraction Facts on the Number Line	Practice addition and subtraction facts using a number line representation.
Add Facts Bridge	Practice addition facts using a tricky inverted format.
Concentration Numbers	Practice multiple addition and subtraction facts quickly in sequence.

STANDARDS INDEX

OA - Operations and Algebraic Thinking

Standard	Objective(s)
MGSE5.OA.1	Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols. **Recommended: Interpret Expressions**
MGSE5.OA.2	Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation 'add 8 and 7, then multiply by 2' as 2 x (8 + 7). Recognize that 3 x (18932 + 921) is three times as large as 18932 + 921, without having to calculate the indicated sum or product. **Recommended: Patterns and Relationships** *Related: Interpret Expressions; Multiplication Algorithm*
MGSE5.OA.3	Generate two numerical patterns using a given rule. Identify apparent relationships between corresponding terms by completing a function table or input/output table. Using the terms created, form and graph ordered pairs on a coordinate plane. **Recommended: Patterns and Relationships** *Related: Volume; Converting Measurements*

NBT - Number and Operations in Base Ten

Standard	Objective(s)
MGSE5.NBT.1	Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left. **Recommended: Decimal Place Value** *Related: Multiplication Algorithm*
MGSE5.NBT.3a	Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., 347.392 = 3 x 100 + 4 x 10 + 7 x 1 + 3 x (1/10) + 9 x (1/100) + 2 x (1/1000). **Recommended: Decimal Place Value; Comparing with Decimals**
MGSE5.NBT.3b	Compare two decimals to thousandths based on meanings of the digits in each place, using the symbols for greater than, less than, and equal to to record the results of comparisons. **Recommended: Comparing with Decimals**
MGSE5.NBT.4	Use place value understanding to round decimals up to the hundredths place. **Recommended: Rounding Decimals**
MGSE5.NBT.5	Fluently multiply multi-digit whole numbers using the standard algorithm (or other strategies demonstrating understanding of multiplication) up to a 3 digit by 2 digit factor. *Related: Multiplication Algorithm*

NBT - Number and Operations in Base Ten (continued)

Standard	Objective(s)
MGSE5.NBT.6	Fluently divide up to 4-digit dividends and 2-digit divisors by using at least one of the following methods: strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations or concrete models. (e.g., rectangular arrays, area models) **Recommended: Division Algorithm Strategies**
MGSE5.NBT.7	Add, subtract, multiply, and divide decimals to hundredths, 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. **Recommended: Addition and Subtraction with Decimals; Multiplying Decimals; Dividing Decimals**

NF - Number and Operations-Fractions

Standard	Objective(s)
MGSE5.NF.1	Add and subtract fractions and mixed numbers with unlike denominators by finding a common denominator and equivalent fractions to produce like denominators. **Recommended: Common Denominators and Equivalent Fractions; Adding and Subtracting Fractions with Unlike Denominators**
MGSE5.NF.3	Interpret a fraction as division of the numerator by the denominator (a/b = a / b). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. *Related: Dividing Fractions*
MGSE5.NF.4a	Apply and use understanding of multiplication to multiply a fraction or whole number by a fraction. **Recommended: Multiplying Fractions; Dividing Fractions**
MGSE5.NF.4b	Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. **Recommended: Multiplying Fractions**
MGSE5.NF.6	Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem. **Recommended: Multiplying Fractions**

NF - Number and Operations-Fractions (continued)

Standard	Objective(s)

MGSE5.NF.7a   Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. For example, create a story context for (1/3) / 4, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that (1/3) / 4 = 1/12 because (1/12) x 4 = 1/3.

Recommended: Dividing Fractions

MGSE5.NF.7b   Interpret division of a whole number by a unit fraction, and compute such quotients. For example, create a story context for 4 / (1/5), and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that 4 / (1/5) = 20 because 20 x (1/5) = 4.

Recommended: Dividing Fractions

MGSE5.NF.7c   Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. For example, how much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 1/3-cup servings are in 2 cups of raisins?

Recommended: Dividing Fractions

MD - Measurement and Data

Standard	Objective(s)
MGSE5.MD.1	Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems. **Recommended: Converting Measurements**
MGSE5.MD.2	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots. For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally. **Recommended: Line Plots Decimals and Mode**
MGSE5.MD.3a	A cube with side length 1 unit, called a 'unit cube,' is said to have 'one cubic unit' of volume, and can be used to measure volume. **Recommended: Volume**
MGSE5.MD.3b	A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units. **Recommended: Volume**
MGSE5.MD.4	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units. **Recommended: Volume**

MD - Measurement and Data (continued)

Standard	Objective(s)
MGSE5.MD.5a	Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication. **Recommended: Volume**
MGSE5.MD.5b	Apply the formulas V = l x w x h and V = b x h for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real world and mathematical problems. **Recommended: Volume**
MGSE5.MD.5c	Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems. **Recommended: Volume**

G - Geometry

Standard	Objective(s)
MGSE5.G.1	Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate). **Recommended: The Coordinate Plane** *Related: Patterns and Relationships; Converting Measurements*
MGSE5.G.2	Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation. **Recommended: The Coordinate Plane** *Related: Patterns and Relationships; Converting Measurements*
MGSE5.G.3	Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles. **Recommended: Shapes and Properties**
MGSE5.G.4	Classify two-dimensional figures in a hierarchy based on properties. **Recommended: Shapes and Properties**