ST Math
ST Math®
Instructional Software

Objectives

Third Grade

Default Objectives

Intro to ST Math

Description:
Introduce JiJi and the structure of ST Math, including the toolbar. Practice game play mechanisms, including clicking, dragging, and scrolling over items to select answers. Introduce the idea of clearing a path for JiJi to complete a problem.

Game	Description
Build Parts	
JiJi Poses	
Fill Ground	
Estimate On Number Line	

Multiplication Concepts

Description:
Build conceptual understanding of multiplication using concrete representations and repeated addition. Disambiguate multiplication and addition.

Direct Standards:
3.4.E: Represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on a number line, and skip counting.

Supporting Standards:
3.4.K: Solve one-step and two-step problems involving multiplication and division within 100 using strategies based on objects; pictorial models, including arrays, area models, and equal groups; properties of operations; or recall of facts.,
3.5.D: Determine the unknown whole number in a multiplication or division equation relating three whole numbers when the unknown is either a missing factor or product.

Game	Description
Bouncing Shoes	Use repeated addition within the model to determine how many of one animal are needed to fill the given number of shoes.
How Many Legs?	Find the correct number of shoes for each set of creatures by counting or, in later levels, multiplying.
Bouncing Shoes LI	Use multiplication within the model to determine how many of one animal are needed to fill the given number of shoes.
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

Description:
Build conceptual understanding of division using concrete representations. Students manipulate given visuals to represent division problems and associate division with dividing items into equal groups.

Direct Standards:
3.4.H: Determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally.

Supporting Standards:
3.4.K: Solve one-step and two-step problems involving multiplication and division within 100 using strategies based on objects; pictorial models, including arrays, area models, and equal groups; properties of operations; or recall of facts.,
3.5.B: Represent and solve one- and two-step multiplication and division problems within 100 using arrays, strip diagrams, and equations., 3.5.D: Determine the unknown whole number in a multiplication or division equation relating three whole numbers when the unknown is either a missing factor or product.

Game	Description
Equal Division	Divide blocks into equal parts.
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 LI	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 Situations

Description:
Use multiplication and division to solve problems in situations including equal groups. Determine the unknown whole number in a multiplication or division equation relating three whole numbers.

Direct Standards:
3.4.E: Represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on a number line, and skip counting., 3.4.F: Recall facts to multiply up to 10 by 10 with automaticity and recall the corresponding division facts.,
3.4.H: Determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally.,
3.4.K: Solve one-step and two-step problems involving multiplication and division within 100 using strategies based on objects; pictorial models, including arrays, area models, and equal groups; properties of operations; or recall of facts.,
3.5.B: Represent and solve one- and two-step multiplication and division problems within 100 using arrays, strip diagrams, and equations., 3.5.D: Determine the unknown whole number in a multiplication or division equation relating three whole numbers when the unknown is either a missing factor or product.

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 LI	Multiply whole numbers using repeated addition.
Fair Sharing LI	Determine how many boxes each creature gets and how many remain in an equal sharing game.
Multiplication Facts	Practice multiplication facts. This game reinforces place value concepts as well by having students give their answers as tens and ones.
Select Box LI	Add using visual models and numerals.

Multiplication and Division Relationships

Description:
Explore the differences between multiplication and division through the use of concrete objects and the number line. Then, introduce the inverse relationship between the two operations by viewing division as an unknown-factor problem.

Direct Standards:
3.4.E: Represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on a number line, and skip counting., 3.4.F: Recall facts to multiply up to 10 by 10 with automaticity and recall the corresponding division facts.,
3.4.J: Determine a quotient using the relationship between multiplication and division., 3.4.K: Solve one-step and two-step problems involving multiplication and division within 100 using strategies based on objects; pictorial models, including arrays, area models, and equal groups; properties of operations; or recall of facts.,
3.5.D: Determine the unknown whole number in a multiplication or division equation relating three whole numbers when the unknown is either a missing factor or product.

Supporting Standards:
3.5.B: Represent and solve one- and two-step multiplication and division problems within 100 using arrays, strip diagrams, and equations.

Game	Description
Build Expressions	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.
Answer Check	Remove a number from a given multiplication or division equation and find another equation that finds the missing number.
Number Line Division	Divide whole numbers and locate the quotients on a number line.
Select Box	Subtract using visual models and numerals.

Multiplication and Area

Description:
Determine the area of rectangles. Generate different rectangles with given areas. Use models to solve problems involving area.

Direct Standards:
3.4.K: Solve one-step and two-step problems involving multiplication and division within 100 using strategies based on objects; pictorial models, including arrays, area models, and equal groups; properties of operations; or recall of facts.,
3.6.C: Determine the area of rectangles with whole number side lengths in problems using multiplication related to the number of rows times the number of unit squares in each row., 3.6.D: Decompose composite figures formed by rectangles into non-overlapping rectangles to determine the area of the original figure using the additive property of area.

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.

Place Value Concepts

Description:
Learn how to represent a quantity of objects using groups of thousands, hundreds, ten and ones. Students read and write four-digit numbers using the digits 0-9 by writing the quantity of thousands, hundreds, tens and ones in the correct order.

Direct Standards:
3.2.A: Compose and decompose numbers up to 100,000 as a sum of so many ten thousands, so many thousands, so many hundreds, so many tens, and so many ones using objects, pictorial models, and numbers, including expanded notation as appropriate.

Supporting Standards:
3.2.B: Describe the mathematical relationships found in the base-10 place value system through the hundred thousands place., 3.2.D: Compare and order whole numbers up to 100,000 and represent comparisons using symbols.

Game	Description
Petals Multiple Choice	Represent ones, tens, hundreds and thousands using words, numerals and visual models.
How Many Petals?	Write a two-digit or three-digit number to represent the pile of petals.
Petals Place Value	Given a four-digit whole number, identify the number of thousands, hundreds, tens, and ones.

Rounding Three-Digit Numbers

Description:
Round two and three-digit numbers to the nearest ten or hundred. Students utilize the number line and develop strategies based on place value to round whole numbers.

Direct Standards:
3.2.C: Represent a number on a number line as being between two consecutive multiples of 10; 100; 1,000; or 10,000 and use words to describe relative size of numbers in order to round whole numbers.

Supporting Standards:
3.4.B: Round to the nearest 10 or 100 or use compatible numbers to estimate solutions to addition and subtraction problems.

Game	Description
Number Funnels Highest Place	Round decimals to the nearest given value. The game also teaches place value concepts up to the tenths place.
Number Funnels Tens Place	Round decimals to the nearest given value. The game also teaches place value concepts up to the tenths place.

Fraction Concepts

Description:
Represent fractions using multiple visual models as well as numerical notation. Represent a whole number as a fraction.

Direct Standards:
3.3.A: Represent fractions greater than zero and less than or equal to one with denominators of 2, 3, 4, 6, and 8 using concrete objects and pictorial models, including strip diagrams and number lines.

Supporting Standards:
3.3.C: Explain that the unit fraction 1/b represents the quantity formed by one part of a whole that has been partitioned into b equal parts where b is a non-zero whole number., 3.3.D: Compose and decompose a fraction a/b with a numerator greater than zero and less than or equal to b as a sum of parts 1/b.,
3.6.E: Decompose two congruent two-dimensional figures into parts with equal areas and express the area of each part as a unit fraction of the whole and recognize that equal shares of identical wholes need not have the same shape.

Game	Description
Equal Areas	Determine which figure is divided up equally based on area.
Equal Division	Divide blocks into equal parts.
Balance Pies	Represent given fractions as circular diagrams displaying equal parts of a whole.
Pie Monster	Represent the given fraction or whole number with circles divided into equal parts.
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.
Numerator Denominator	Identify the numerator and denominator of a fraction represented as a diagram, symbol, or word using the terms numerator and denominator.

Fractions on the Number Line

Description:
Represent fractions on the number line. Represent a whole number as a fraction on the number line.

Direct Standards:
3.3.A: Represent fractions greater than zero and less than or equal to one with denominators of 2, 3, 4, 6, and 8 using concrete objects and pictorial models, including strip diagrams and number lines., 3.3.B: Determine the corresponding fraction greater than and less than or equal to one with denominators of 2, 3, 4, 6, and 8 given a specified point on a number line.,
3.7.A: Represent fractions of halves, fourths, and eighths as distances from zero on a number line.

Supporting Standards:
3.3.C: Explain that the unit fraction 1/b represents the quantity formed by one part of a whole that has been partitioned into b equal parts where b is a non-zero whole number., 3.3.D: Compose and decompose a fraction a/b with a numerator greater than zero and less than or equal to b as a sum of parts 1/b.

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 LI	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.

Comparing Fractions

Description:
Compare fractions with either the same numerator or same denominator using visual models as well as the symbols <, =, and >.

Direct Standards:
3.3.A: Represent fractions greater than zero and less than or equal to one with denominators of 2, 3, 4, 6, and 8 using concrete objects and pictorial models, including strip diagrams and number lines., 3.3.F: Represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines.,
3.3.H: Compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models.,
3.6.E: Decompose two congruent two-dimensional figures into parts with equal areas and express the area of each part as a unit fraction of the whole and recognize that equal shares of identical wholes need not have the same shape.

Supporting Standards:
3.3.B: Determine the corresponding fraction greater than and less than or equal to one with denominators of 2, 3, 4, 6, and 8 given a specified point on a number line., 3.3.C: Explain that the unit fraction 1/b represents the quantity formed by one part of a whole that has been partitioned into b equal parts where b is a non-zero whole number.,
3.3.D: Compose and decompose a fraction a/b with a numerator greater than zero and less than or equal to b as a sum of parts 1/b., 3.3.G: Explain that two fractions are equivalent if and only if they are both represented by the same point on the number line or represent the same portion of a same size whole for an area model.

Game	Description
Fricks	Represent the same length using different partitionings.
Equivalent Fractions	Identify equivalent fractions using rectangular diagrams displaying equal parts of a whole.
Equivalent Fractions LI	Identify equivalent fractions using rectangular diagrams displaying equal parts of a whole.
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.

Area and Perimeter

Description:
Determine the area and perimeter of rectangles. Generate different rectangles with given areas and perimeters.

Direct Standards:
3.6.C: Determine the area of rectangles with whole number side lengths in problems using multiplication related to the number of rows times the number of unit squares in each row., 3.7.B: Determine the perimeter of a polygon or a missing length when given perimeter and remaining side lengths in problems.

Game	Description
Bricks	Arrange the shapes to create the composite shape shown.
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.

Number Patterns

Description:
Show simple linear functions visually as patterns. Connect linear equations to multiplication.

Game	Description
Counting On	Skip count by two using both dots and numerals.
Even or Odd	Learn the concept of even and odd numbers using a visual model.
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.
Table Directions	Using a hundreds chart, add and subtract multiples of ten and one from a given number.
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.

Multiplication

Description:
Multiply and divide within 100.

Direct Standards:

    3.4.E: Represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on a number line, and skip counting., 3.4.F: Recall facts to multiply up to 10 by 10 with automaticity and recall the corresponding division facts.,
    3.4.G: Use strategies and algorithms, including the standard algorithm, to multiply a two-digit number by a one-digit number. Strategies may include mental math, partial products, and the commutative, associative, and distributive properties.,
    3.4.K: Solve one-step and two-step problems involving multiplication and division within 100 using strategies based on objects; pictorial models, including arrays, area models, and equal groups; properties of operations; or recall of facts.

Game	Description
How Many Legs? Multiplication LI	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

Description:
Practice interpreting division expressions and solving division problems. Visual models strengthen the understanding of division as dividing items into equal groups. Students also discover that the quotient is the number of shares each group has as a result of dividing equally.

Direct Standards:

    3.4.E: Represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on a number line, and skip counting., 3.4.F: Recall facts to multiply up to 10 by 10 with automaticity and recall the corresponding division facts.,
    3.4.H: Determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally.,
    3.4.K: Solve one-step and two-step problems involving multiplication and division within 100 using strategies based on objects; pictorial models, including arrays, area models, and equal groups; properties of operations; or recall of facts.

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? LI	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.

Place Value Bundles - Ten, Hundred, Thousand

Description:
Students build on place value knowledge developed in earlier objectives to learn the relationship between the ones and tens place, the tens and hundreds place, and the hundreds and thousands place. Students develop and apply knowledge of a ten, hundred, or thousand as a bundle of 10 ones, tens or hundreds. This objective prepares students to learn addition and subtraction strategies based on place value by developing the ability to compose and decompose tens, hundreds and thousands.

Direct Standards:

    3.2.A: Compose and decompose numbers up to 100,000 as a sum of so many ten thousands, so many thousands, so many hundreds, so many tens, and so many ones using objects, pictorial models, and numbers, including expanded notation as appropriate.

Supporting Standards:

    3.2.B: Describe the mathematical relationships found in the base-10 place value system through the hundred thousands place.

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.

Addition and Subtraction with Regrouping

Description:
Learn and apply strategies for regrouping in addition and subtraction. Numbers are restricted up through three digits.

Direct Standards:

    3.4.A: Solve with fluency one-step and two-step problems involving addition and subtraction within 1,000 using strategies based on place value, properties of operations, and the relationship between addition and subtraction.

Supporting Standards:

    3.4.B: Round to the nearest 10 or 100 or use compatible numbers to estimate solutions to addition and subtraction problems.

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	Symbolically add and subtract 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	Symbolically subtract two three-digit whole numbers with regrouping in the ones or tens place. Use the petals model as support.

Volume and Weight

Description:
Compare weight of up to four objects and measure weight using scales. Using models, find the volume of a solid object in cubic units.

Direct Standards:

    3.7.E: Determine liquid volume (capacity) or weight using appropriate units and tools.

Supporting Standards:

    3.7.D: Determine when it is appropriate to use measurements of liquid volume (capacity) or weight.

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.
Volume Fill	Calculate volume and learn the formula for the volume of a right rectangular prism.

Scale and Measurement in Graphing

Description:
Read and graph quantities when the axis is marked incrementally. Draw and read bar graphs from scaled keys. Identify one or more modes of a categorical data set.

Direct Standards:

    3.8.A: Summarize a data set with multiple categories using a frequency table, dot plot, pictograph, or bar graph with scaled intervals.

Supporting Standards:

    3.8.B: Solve one- and two-step problems using categorical data represented with a frequency table, dot plot, pictograph, or bar graph with scaled intervals.

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.
Scaled Bar Graph Bridge	Construct a bar graph for a data set from either a visual representation or a description of the data.

Line Plots and Mode

Description:
Generate fractional measurement data and show the variability by making a line plot. Discern between multiple population attributes and identify one variable that is expressed in a line plot. Identify the mode, minimum, and maximum given a line plot.

Direct Standards:
3.8.A: Summarize a data set with multiple categories using a frequency table, dot plot, pictograph, or bar graph with scaled intervals.

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.
Mode Is Most	Identify the mode of a given collection of shapes or letters.
Mode Magnet	Identify the minimum, maximum, or mode value of a distribution shown in a dot plot.
Mode Is Most Numeric	Identify the mode of a given collection of numbers.

Shapes

Description:
Identify 2D geometric shapes and their attributes, including name, type, number of edges, and number of vertices.

Direct Standards:
3.6.A: Classify and sort two- and three-dimensional figures, including cones, cylinders, spheres, triangular and rectangular prisms, and cubes, based on attributes using formal geometric language.,
3.6.B: Use attributes to recognize rhombuses, parallelograms, trapezoids, rectangles, and squares as examples of quadrilaterals and draw examples of quadrilaterals that do not belong to any of these subcategories.

Game	Description
Dot Shapes	Construct quadrilaterals and other shapes by connecting vertices.
Pick Geometric Shapes 2D	Match the name of a two-dimensional shape with the number of vertices or edges it has.
Find the Pair	Given a set of two-dimensional shapes, identify the two that have the same number of vertices.
Shape Types	Identify the given polygon.
Shape Types with Quadrilaterals	Identify the given polygon.
Pick Geometric Shapes 2D LI	Match the name of a two-dimensional shape with the number of vertices or edges it has.

Unknowns in Two-Step Problems

Description:
Solve two-step word problems using the four operations. Represent these problems using equations.

Direct Standards:
3.5.A: Represent one- and two-step problems involving addition and subtraction of whole numbers to 1,000 using pictorial models, number lines, and equations.

Game	Description
Mice Island Two-Step Problems	Fill in the missing number to make the equation true. This game teaches addition and subtraction of one- and two-digit whole numbers.
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.
Operation Race	Evaluate numerical expressions using the correct order of operations.
Complete Box	Represent numerical expressions using an area model.
Which Parentheses	Identify where the parentheses should be placed to make the expression equal to the given value.

Time to the Minute

Description:
Identify parts of both analog and digital clocks. Tell time to the minute using both analog and digital clocks.

Supporting Standards:
3.7.C: Determine the solutions to problems involving addition and subtraction of time intervals in minutes using pictorial models or tools such as a 15-minute event plus a 30-minute event equals 45 minutes.

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

Description:
Determine time elapsed to 5 minute intervals using analog clocks.

Direct Standards:
3.7.C: Determine the solutions to problems involving addition and subtraction of time intervals in minutes using pictorial models or tools such as a 15-minute event plus a 30-minute event equals 45 minutes.

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 LI	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.

Addition and Subtraction within 1,000

Description:
Add two whole numbers with up to three digits using algorithms based on place value strategies. Estimate addition and subtraction on a number line.

Direct Standards:
3.4.A: Solve with fluency one-step and two-step problems involving addition and subtraction within 1,000 using strategies based on place value, properties of operations, and the relationship between addition and subtraction.

Supporting Standards:
3.5.A: Represent one- and two-step problems involving addition and subtraction of whole numbers to 1,000 using pictorial models, number lines, and equations.

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.
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.

Challenge

Description:
Use spatial reasoning to solve challenging multi-step puzzles that explore symmetry, reflections, rotations, and analytical thinking.

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.

Patterns and Functions

Description:
Show simple linear functions as patterns, both visually and as skip counting. Connect linear equations to multiplication, and introduce the table as an organizational tool for functions.

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 LI	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 LI	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

Description:
Read, measure and solve problems using thermometers. Using given rates, convert between cups, pints, quarts and gallons.

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.

Third Grade
Optional Objectives

Multiplication and Division Facts

Description:
Review Multiplication and Division facts to 100. Use visual representations to model problems.

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

Description:
Review addition and subtraction facts to 20. Use visual representations to model problems, including ten frames, number lines, and blocks.

Game	Description
PushBox Addition Facts	Practice addition facts using visual block represenations for sums under 10
SelectBox Addition Facts	Practice addition facts using alternate visual block represenations for sums under 10
Basic Subtraction Facts	Practice Subtraction facts under 10 using visual block represenations.
SelectBox Subtraction Facts	Practice Subtraction facts under 10 using alternate block represenations.
TenFrame Addition Facts	Practice addition facts to 20 using Ten Frames
TenFrame Subtraction Facts	Practice subtraction facts using visual block represenations.
Mixed Facts	Practice addition and subtraction facts using visual block represenations.
Addition and Subtraction facts on the numberline	Practice addition and subtraction facts using a numberline represenation.
AddFacts Bridge	Practice addition facts using a tricky inverted format.
Concentration numbers	Practice multiple addition and subtraction facts quickly in sequence

Standards

Third Grade

Number and Operations

3.2.A: Compose and decompose numbers up to 100,000 as a sum of so many ten thousands, so many thousands, so many hundreds, so many tens, and so many ones using objects, pictorial models, and numbers, including expanded notation as appropriate.

Direct Objectives
- Place Value Concepts
- Place Value Bundles - Ten, Hundred, Thousand

3.2.B: Describe the mathematical relationships found in the base-10 place value system through the hundred thousands place.

Supporting Objectives
- Place Value Concepts
- Place Value Bundles - Ten, Hundred, Thousand

3.2.C: Represent a number on a number line as being between two consecutive multiples of 10; 100; 1,000; or 10,000 and use words to describe relative size of numbers in order to round whole numbers.

Direct Objectives
- Rounding Three-Digit Numbers

3.2.D: Compare and order whole numbers up to 100,000 and represent comparisons using symbols.

Supporting Objectives
- Place Value Concepts

3.3.A: Represent fractions greater than zero and less than or equal to one with denominators of 2, 3, 4, 6, and 8 using concrete objects and pictorial models, including strip diagrams and number lines.

Direct Objectives
- Fraction Concepts
- Fractions on the Number Line
- Comparing Fractions

3.3.B: Determine the corresponding fraction greater than zero and less than or equal to one with denominators of 2, 3, 4, 6, and 8 given a specified point on a number line.

Direct Objectives
- Fractions on the Number Line

Supporting Objectives
- Comparing Fractions

3.3.C: Explain that the unit fraction 1/b represents the quantity formed by one part of a whole that has been partitioned into b equal parts where b is a non-zero whole number.

Supporting Objectives
- Fraction Concepts
- Fractions on the Number Line
- Comparing Fractions

3.3.D: Compose and decompose a fraction a/b with a numerator greater than zero and less than or equal to b as a sum of parts 1/b.

Supporting Objectives
- Fraction Concepts
- Fractions on the Number Line

- Comparing Fractions

3.3.E: Solve problems involving partitioning an object or a set of objects among two or more recipients using pictorial representations of fractions with denominators of 2, 3, 4, 6, and 8.

3.3.F: Represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines.

Direct Objectives
- Comparing Fractions

3.3.G: Explain that two fractions are equivalent if and only if they are both represented by the same point on the number line or represent the same portion of a same size whole for an area model.

Supporting Objectives
- Comparing Fractions

3.3.H: Compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models.

Direct Objectives
- Comparing Fractions

3.4.A: Solve with fluency one-step and two-step problems involving addition and subtraction within 1,000 using strategies based on place value, properties of operations, and the relationship between addition and subtraction.

Direct Objectives
- Addition and Subtraction with Regrouping
- Addition and Subtraction within 1,000

3.4.B: Round to the nearest 10 or 100 or use compatible numbers to estimate solutions to addition and subtraction problems.

Supporting Objectives
- Rounding Three-Digit Numbers
- Addition and Subtraction with Regrouping

3.4.C: Determine the value of a collection of coins and bills.

3.4.D: Determine the total number of objects when equally-sized groups of objects are combined or arranged in arrays up to 10 by 10.

3.4.E: Represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on a number line, and skip counting.

Direct Objectives
- Multiplication Concepts
- Multiplication and Division Situations
- Multiplication and Division Relationships
- Multiplication
- Division

3.4.F: Recall facts to multiply up to 10 by 10 with automaticity and recall the corresponding division facts.

Direct Objectives
- Multiplication and Division Situations
- Multiplication and Division Relationships
- Multiplication
- Division

3.4.G: Use strategies and algorithms, including the standard algorithm, to multiply a two-digit number by a one-digit number. Strategies may include mental math, partial products, and the commutative, associative, and distributive properties.

Direct Objectives
- Multiplication

3.4.H: Determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally.

Direct Objectives
- Division Concepts
- Multiplication and Division Situations
- Division

3.4.I: Determine if a number is even or odd using divisibility rules.

3.4.J: Determine a quotient using the relationship between multiplication and division.

Direct Objectives
- Multiplication and Division Relationships

3.4.K: Solve one-step and two-step problems involving multiplication and division within 100 using strategies based on objects; pictorial models, including arrays, area models, and equal groups; properties of operations; or recall of facts.

Direct Objectives
- Multiplication and Division Situations
- Multiplication and Division Relationships
- Multiplication and Area
- Multiplication
- Division

Supporting Objectives
- Multiplication Concepts
- Division Concepts

Algebraic Reasoning

3.5.A: Represent one- and two-step problems involving addition and subtraction of whole numbers to 1,000 using pictorial models, number lines, and equations.

Direct Objectives
- Unknowns in Two-Step Problems

Supporting Objectives
- Addition and Subtraction within 1,000

3.5.B: Represent and solve one- and two-step multiplication and division problems within 100 using arrays, strip diagrams, and equations.

Direct Objectives
- Multiplication and Division Situations

Supporting Objectives
- Division Concepts
- Multiplication and Division Relationships

3.5.C: Describe a multiplication expression as a comparison such as 3 x 24 represents 3 times as much as 24.

3.5.D: Determine the unknown whole number in a multiplication or division equation relating three whole numbers when the unknown is either a missing factor or product.

Direct Objectives
- Multiplication and Division Situations
- Multiplication and Division Relationships

Supporting Objectives
- Multiplication Concepts
- Division Concepts

3.5.E: Represent real-world relationships using number pairs in a table and verbal descriptions.

Geometry and Measurement

3.6.A: Classify and sort two- and three-dimensional figures, including cones, cylinders, spheres, triangular and rectangular prisms, and cubes, based on attributes using formal geometric language.

Direct Objectives
- Shapes

3.6.B: Use attributes to recognize rhombuses, parallelograms, trapezoids, rectangles, and squares as examples of quadrilaterals and draw examples of quadrilaterals that do not belong to any of these subcategories.

Direct Objectives
- Shapes

3.6.C: Determine the area of rectangles with whole number side lengths in problems using multiplication related to the number of rows times the number of unit squares in each row.

Direct Objectives
- Multiplication and Area
- Area and Perimeter

3.6.D: Decompose composite figures formed by rectangles into non-overlapping rectangles to determine the area of the original figure using the additive property of area.

Direct Objectives
- Multiplication and Area

3.6.E: Decompose two congruent two-dimensional figures into parts with equal areas and express the area of each part as a unit fraction of the whole and recognize that equal shares of identical wholes need not have the same shape.

Direct Objectives

- Comparing Fractions

Supporting Objectives

- Fraction Concepts

3.7.A: Represent fractions of halves, fourths, and eighths as distances from zero on a number line.

Direct Objectives

- Fractions on the Number Line

3.7.B: Determine the perimeter of a polygon or a missing length when given perimeter and remaining side lengths in problems.

Direct Objectives

- Area and Perimeter

3.7.C: Determine the solutions to problems involving addition and subtraction of time intervals in minutes using pictorial models or tools such as a 15-minute event plus a 30-minute event equals 45 minutes.

Direct Objectives

- Intervals of Time

Supporting Objectives

- Time to the Minute

3.7.D: Determine when it is appropriate to use measurements of liquid volume (capacity) or weight.

Supporting Objectives

- Volume and Weight

3.7.E: Determine liquid volume (capacity) or weight using appropriate units and tools.

Direct Objectives

- Volume and Weight

Data Analysis

3.8.A: Summarize a data set with multiple categories using a frequency table, dot plot, pictograph, or bar graph with scaled intervals.

Direct Objectives

- Scale and Measurement in Graphing
- Line Plots and Mode

3.8.B: Solve one- and two-step problems using categorical data represented with a frequency table, dot plot, pictograph, or bar graph with scaled intervals.

Supporting Objectives

- Scale and Measurement in Graphing

Personal Financial Literacy

3.9.A: Explain the connection between human capital/labor and income.

3.9.B: Describe the relationship between the availability or scarcity of resources and how that impacts cost.

3.9.C: Identify the costs and benefits of planned and unplanned spending decisions.

3.9.D: Explain that credit is used when wants or needs exceed the ability to pay and that it is the borrower's responsibility to pay it back to the lender, usually with interest.

3.9.E: List reasons to save and explain the benefit of a savings plan, including for college.

3.9.F: Identify decisions involving income, spending, saving, credit, and charitable giving