ST Math® Instructional Software

Objectives

Second 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	

The Number Line

Description:
Plot points on a number line from 0 to 100 ticked every five or ten, labeled every ten.

Direct Standards:
2.2.E: Locate the position of a given whole number on an open number line., 2.2.F: Name the whole number that corresponds to a specific point on a number line.

Supporting Standards:
2.9.C: Represent whole numbers as distances from any given location on a number line.

Game	Description
Number Line Journey	Move left and right on the number line to locate the given number.
Number Line Trap	Estimate the location of whole numbers between 0 and 20 on the 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.

Skip Counting

Description:
Skip count by 2, 5, or 10 from a multiple of 2, 5, or 10 respectively.

Supporting Standards:
2.2.C: Generate a number that is greater than or less than a given whole number up to 1,200.

Game	Description
Hundreds Pit	Count by 2s, 5s, or 10s to fill the pit so JiJi can cross. Identify patterns in the counting sequence.
Counting On	Skip count by two using both dots and numerals.
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.

Counting with Groups

Description:
Count a set of grouped objects in up to 9 groups of ten and 1-9 single units and record the count using a two-digit number.

Direct Standards:
2.2.B: Use standard, word, and expanded forms to represent numbers up to 1,200.

Supporting Standards:
2.2.A: Use concrete and pictorial models to compose and decompose numbers up to 1,200 in more than one way as a sum of so many thousands, hundreds, tens, and ones.

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.

Addition and Subtraction Situations

Description:
Use addition and subtraction to solve problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in different positions.

Direct Standards:
2.4.A: Recall basic facts to add and subtract within 20 with automaticity.

Supporting Standards:
2.4.C: Solve one-step and multi-step word problems involving addition and subtraction within 1,000 using a variety of strategies based on place value, including algorithms., 2.4.D: Generate and solve problem situations for a given mathematical number sentence involving addition and subtraction of whole numbers within 1,000.

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.

Measurement

Description:
Measure length using objects, metric units, and standard units. Practice measurement skills, including use of rulers. Find the distance between two points on a number line and express this distance as a mathematical expression.

Direct Standards:
2.9.A: Find the length of objects using concrete models for standard units of length., 2.9.D: Determine the length of an object to the nearest marked unit using rulers, yardsticks, meter sticks, or measuring tapes., 2.9.E: Determine a solution to a problem involving length, including estimating lengths.

Supporting Standards:
2.9.B: Describe the inverse relationship between the size of the unit and the number of units needed to equal the length of an object., 2.9.C: Represent whole numbers as distances from any given location on a number line.

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.
Estimate on Number Line	Use the number line to estimate length.
Measure It with Rulers	Measure the length of a gap in US customary and metric units using a ruler. This game also introduces the concept of relative sizes of standard units.
Measuring Perimeter	Calculate the perimeters of rectangles, triangles and other polygons and express them using metric and U.S. customary units.
Measure It with Broken Ruler	Measure length with a broken ruler.
Measure It with Multiple Rulers	Line up two rulers to measure length.
Rolling Equations	Find the missing length needed to reach JiJi.

Operations on the Number Line

Description:
Estimate position of numbers within 100 on number lines. Use the number line to solve addition and subtraction problems and find unknown values.

Direct Standards:

2.2.E: Locate the position of a given whole number on an open number line., 2.4.A: Recall basic facts to add and subtract within 20 with automaticity., 2.9.C: Represent whole numbers as distances from any given location on a number line.

Supporting Standards:

2.7.C: Represent and solve addition and subtraction word problems where unknowns may be any one of the terms in the problem.

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.

Recognizing Shape Attributes

Description:
Identify the attributes of 2D and 3D shapes. Group shapes with similar attributes.

Direct Standards:

2.8.B: Classify and sort three-dimensional solids, including spheres, cones, cylinders, rectangular prisms (including cubes as special rectangular prisms), and triangular prisms, based on attributes using formal geometric language.,
2.8.C: Classify and sort polygons with 12 or fewer sides according to attributes, including identifying the number of sides and number of vertices.

Supporting Standards:

2.8.A: Create two-dimensional shapes based on given attributes, including number of sides and vertices., 2.8.D: Compose two-dimensional shapes and three-dimensional solids with given properties or attributes.,
2.8.E: Decompose two-dimensional shapes such as cutting out a square from a rectangle, dividing a shape in half, or partitioning a rectangle into identical triangles and identify the resulting geometric parts.

Game	Description
Pick Geometric 2D Attributes	Learn the names and number of sides of different polygons.
Find the Pair	Given a set of two-dimensional shapes, identify the two that have the same number of vertices.
Prisms and Cylinders	Pick the shape that is the base of a given prism.
Bricks	Arrange the shapes to create the composite shape shown.
Pick Geometric 3D and 2D Attributes	Identify the number of sides and vertices on two-dimensional shapes.

Addition and Subtraction Situations within 100

Description:
Use addition and subtraction within 100 to solve problems involving situations of adding to, taking from, putting together, taking apart, and comparing with unknowns in different positions. Represent situations with equations.

Direct Standards:

2.4.B: Add up to four two-digit numbers and subtract two-digit numbers using mental strategies and algorithms based on knowledge of place value and properties of operations.

Supporting Standards:

2.4.C: Solve one-step and multi-step word problems involving addition and subtraction within 1,000 using a variety of strategies based on place value, including algorithms., 2.4.D: Generate and solve problem situations for a given mathematical number sentence involving addition and subtraction of whole numbers within 1,000.,
2.7.C: Represent and solve addition and subtraction word problems where unknowns may be any one of the terms in the problem.

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.

Two Step Situations

Description:
Model two-step situations involving addition and subtraction and represent with equations. Use addition and subtraction to solve two-step problems involving situations of adding to, taking from, putting together, taking apart, and comparing with unknowns in different positions.

Direct Standards:

2.4.A: Recall basic facts to add and subtract within 20 with automaticity.

Supporting Standards:

2.4.C: Solve one-step and multi-step word problems involving addition and subtraction within 1,000 using a variety of strategies based on place value, including algorithms., 2.4.D: Generate and solve problem situations for a given mathematical number sentence involving addition and subtraction of whole numbers within 1,000.,
2.7.C: Represent and solve addition and subtraction word problems where unknowns may be any one of the terms in the problem.

Game	Description
Bird Expressions	Subtract to find how many birds are left after some fly away. This game includes subtraction from two-digit numbers as well as from one-digit numbers.
Push Box Two Operations	Identify the total number of boxes. This game teaches addition by combining stacks of boxes.
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.
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.
Push Box LI	Identify the total number of boxes. This game teaches addition by combining stacks of boxes.
Pie Monster LI	Solve two-step addition problems symbolically, but with support from the arena. Includes missing addend.
Push Box Missing Quantity LI	Identify the total number of boxes. This game teaches addition by combining stacks of boxes.

Place Value Concepts

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

Direct Standards:

2.2.A: Use concrete and pictorial models to compose and decompose numbers up to 1,200 in more than one way as a sum of so many thousands, hundreds, tens, and ones., 2.2.B: Use standard, word, and expanded forms to represent numbers up to 1,200., 2.2.C: Generate a number that is greater than or less than a given whole number up to 1,200.

Supporting Standards:

2.2.D: Use place value to compare and order whole numbers up to 1,200 using comparative language, numbers, and symbols.

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.

Comparing Three-Digit Numbers

Description:
Estimate and compare quantities to 1000 using the number line as well as the symbols for <, >, and =. Find the number that is least or most in a group of numbers.

Direct Standards:

2.2.D: Use place value to compare and order whole numbers up to 1,200 using comparative language, numbers, and symbols., 2.2.E: Locate the position of a given whole number on an open number line., 2.2.F: Name the whole number that corresponds to a specific point on a number line.

Supporting Standards:

2.2.C: Generate a number that is greater than or less than a given whole number up to 1,200.

Game	Description
Number Line Journey	Zoom in on the number line, to plot a three-digit number.
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.

Adding and Subtracting Tens and Hundreds

Description:
Develop place value strategies to add or subtract 1, 10 or 100 from a given three-digit number. This objective builds on base ten concepts developed in previous objectives to expand students' understanding of adding and subtracting by hundreds, tens and ones.

Direct Standards:

2.2.A: Use concrete and pictorial models to compose and decompose numbers up to 1,200 in more than one way as a sum of so many thousands, hundreds, tens, and ones., 2.2.B: Use standard, word, and expanded forms to represent numbers up to 1,200., 2.2.E: Locate the position of a given whole number on an open number line., 2.4.B: Add up to four two-digit numbers and subtract two-digit numbers using mental strategies and algorithms based on knowledge of place value and properties of operations., 2.7.B: Use an understanding of place value to determine the number that is 10 or 100 more or less than a given number up to 1,200.

Supporting Standards:

2.2.C: Generate a number that is greater than or less than a given whole number up to 1,200., 2.2.F: Name the whole number that corresponds to a specific point on a number line., 2.4.C: Solve one-step and multi-step word problems involving addition and subtraction within 1,000 using a variety of strategies based on place value, including algorithms., 2.4.D: Generate and solve problem situations for a given mathematical number sentence involving addition and subtraction of whole numbers within 1,000.

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.

Using Place Value to Add and Subtract

Description:
Use strategies based on place value to add two numbers with up to three digits each. This objective uses visual models to develop understanding that when adding or subtracting two or three digit numbers, the digits in the hundreds, tens and ones place represent amounts of hundreds, tens and ones, and like units are added to like units.

Direct Standards:

2.4.B: Add up to four two-digit numbers and subtract two-digit numbers using mental strategies and algorithms based on knowledge of place value and properties of operations.

Supporting Standards:

2.4.C: Solve one-step and multi-step word problems involving addition and subtraction within 1,000 using a variety of strategies based on place value, including algorithms.

Game	Description
Petals Addition and Subtraction	Use the model to add and subtract whole numbers, with and without regrouping required.
Petals Addition and Subtraction Method	Use the model to add whole numbers. Most of the problems in this game require regrouping ones into tens (e.g. 16 + 37).

Counting to 1,000

Description:
Count within 1,000. Opportunities are given to count on and back from a given number between 1 and 999, focusing on the patterns within and across decades. Number line activities reinforce the count sequence and patterns in reading and writing three-digit numbers.

Direct Standards:

2.2.E: Locate the position of a given whole number on an open number line.

Supporting Standards:

2.2.F: Name the whole number that corresponds to a specific point on a number line.

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.

Equal Groups

Description:
Solve problem situations involving array and equal group models. Represent solutions with equations to express the total as a sum of equal addends. Identify multiplication expressions as equivalent to repeated addition. Determine whether a group of objects (up to 20) has an odd or even number of members.

Direct Standards:

2.6.A: Model, create, and describe contextual multiplication situations in which equivalent sets of concrete objects are joined., 2.6.B: Model, create, and describe contextual division situations in which a set of concrete objects is separated into equivalent sets., 2.7.A: Determine whether a number up to 40 is even or odd using pairings of objects to represent the number., 2.7.B: Use an understanding of place value to determine the number that is 10 or 100 more or less than a given number up to 1,200., 2.9.F: Use concrete models of square units to find the area of a rectangle by covering it with no gaps or overlaps, counting to find the total number of square units, and describing the measurement using a number and the unit.

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	Determine how many instances of a given animal are needed to fill the boots.
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.
Staircase	Skip count to move JiJi up the stairs. This game builds a foundation for understanding multiplication as repeated addition.
Complete Box	Represent numerical expressions using an area model.
Bouncing Shoes Multiple Groups	For more than one animal, find the number of instances needed to fill the boots.
Even or Odd	Learn the concept of even and odd numbers using a visual model.
Even or Odd LI	Using the terms “even” and “odd”, state the parity of the various numbers.

Rows and Columns

Description:
Introduction to rectangular area. Build rectangles and determine their area using a grid.

Direct Standards:

2.3.A: Partition objects into equal parts and name the parts, including halves, fourths, and eighths, using words., 2.9.F: Use concrete models of square units to find the area of a rectangle by covering it with no gaps or overlaps, counting to find the total number of square units, and describing the measurement using a number and the unit.

Supporting Standards:

2.8.D: Compose two-dimensional shapes and three-dimensional solids with given properties or attributes., 2.8.E: Decompose two-dimensional shapes such as cutting out a square from a rectangle, dividing a shape in half, or partitioning a rectangle into identical triangles and identify the resulting geometric parts.

Game	Description
Equal Areas	Determine which figure is divided up equally based on area.
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.
Match Dimensions to Count Blocks	Using a grid, calculate the area by setting up a shape with the same dimensions as the one given.
Use Width and Height to Count Blocks	Calculate the area of a rectangle.

Partitioning

Description:
Partition shapes into equally sized pieces. Identify fractional amounts using visual models.

Direct Standards:

2.3.A: Partition objects into equal parts and name the parts, including halves, fourths, and eighths, using words.

Supporting Standards:

2.3.B: Explain that the more fractional parts used to make a whole, the smaller the part; and the fewer the fractional parts, the larger the part., 2.3.C: Use concrete models to count fractional parts beyond one whole using words and recognize how many parts it takes to equal one whole., 2.3.D: Identify examples and non-examples of halves, fourths, and eighths.

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.
Fricks	Represent the same length using different partitionings.
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.
Pie Monster	Implicitly add two shaded regions together.

Place Value Bundles - Ten and Hundred

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

Direct Standards:

2.2.A: Use concrete and pictorial models to compose and decompose numbers up to 1,200 in more than one way as a sum of so many thousands, hundreds, tens, and ones., 2.2.B: Use standard, word, and expanded forms to represent numbers up to 1,200.

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 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 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 100 or 1000.

Composing Tens and Hundreds

Description:
Learn that in adding two three digit numbers, it is necessary to make a hundred or ten if there are ten or more tens or ones. This objective builds on earlier place value objectives that develop the concept of grouping tens and ones to form hundreds and tens.

Direct Standards:

2.4.B: Add up to four two-digit numbers and subtract two-digit numbers using mental strategies and algorithms based on knowledge of place value and properties of operations.

Supporting Standards:

2.4.C: Solve one-step and multi-step word problems involving addition and subtraction within 1,000 using a variety of strategies based on place value, including algorithms.

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

Decomposing Tens and Hundreds

Description:
Learn that in subtracting two three digit numbers, it is necessary to decompose a hundred or ten if there are not enough tens or ones to perform the subtraction. This objective builds on earlier place value objectives that develop the concept of grouping tens and ones to form hundreds and tens.

Direct Standards:

2.4.B: Add up to four two-digit numbers and subtract two-digit numbers using mental strategies and algorithms based on knowledge of place value and properties of operations.

Supporting Standards:

2.4.C: Solve one-step and multi-step word problems involving addition and subtraction within 1,000 using a variety of strategies based on place value, including algorithms.

Game	Description
Intro to Regrouping	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.

Identifying Shapes

Description:
Introduce visual vocabulary to describe shapes. Identify number of sides, vertices, and names of 2D shapes.

Direct Standards:

2.8.B: Classify and sort three-dimensional solids, including spheres, cones, cylinders, rectangular prisms (including cubes as special rectangular prisms), and triangular prisms, based on attributes using formal geometric language.,
2.8.C: Classify and sort polygons with 12 or fewer sides according to attributes, including identifying the number of sides and number of vertices.

Game	Description
Match Shape LI	Match shapes to their outlines to clear JiJi's path. This game introduces basic geometric shapes and the ideas of direction and position.
Pick Geometric Shapes 2D	Identify the number of edges and vertices on two-dimensional shapes.
Shape Types LI	Identify the given polygon.
Dot Shapes	Connect dots to form shapes which will fill holes in the ground.
Shape Types LI with Rectangles and Quadrilaterals	Identify the given polygon.
Pick Geometric Shapes 2D LI	Learn the names and number of edges of different polygons.
Find the Pair	Given a set of two-dimensional shapes, identify the two that have the same number of vertices.

Creating Graphs

Description:
Understand the organization of charts and tables by finding the intersection of rows and columns. Construct and interpret bar graphs to compare quantities, and compare points in line plots.

Direct Standards:

2.10.B: Organize a collection of data with up to four categories using pictographs and bar graphs with intervals of one or more.

Supporting Standards:

2.10.A: Explain that the length of a bar in a bar graph or the number of pictures in a pictograph represents the number of data points for a given category., 2.10.D: Draw conclusions and make predictions from information in a graph.

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.

Money

Description:
Identify coin values and write money amounts using both cent and dollar notations. Calculate the value of collections of coins and bills, show multiple ways to represent the same value, and make change. Estimate and use given amounts to shop for real world objects and calculate the cost of individual items based on total cost.

Direct Standards:

2.5.A: Determine the value of a collection of coins up to one dollar., 2.5.B: Use the cent symbol, dollar sign, and the decimal point to name the value of a collection of coins.

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.
Money Swapper	Order coins and combinations of coins by their values.

Time

Description:
Identify parts of both analog and digital clocks including hour, minute, and second hands. Tell time to 5 minute intervals using both analog and digital clocks. Use vocabulary and clocks to identify the time of day.

Direct Standards:

2.9.G: Read and write time to the nearest one-minute increment using analog and digital clocks and distinguish between a.m. and p.m.

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.
Time of Day Earth	Identify approximate time of day based on orientation of the Earth and the concepts of morning, afternoon, and evening.
Telling Time with Words	Students read an analog clock to the quarter hour and record the time on a digital clock.

Three-Digit Number Words

Description:
Write three-digit numbers given in expanded notation. Use expanded notation representations to read and write three-digit numbers using number names.

Direct Standards:

2.2.A: Use concrete and pictorial models to compose and decompose numbers up to 1,200 in more than one way as a sum of so many thousands, hundreds, tens, and ones., 2.2.B: Use standard, word, and expanded forms to represent numbers up to 1,200.

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.
Numbers to Words	Convert three-digit whole numbers from symbols to words.
Words to Numbers	Convert three-digit whole numbers from words to symbols.

Addition and Subtraction within 100

Description:
Practice addition and subtraction strategies and algorithms developed in earlier objectives to improve speed and accuracy. Learn how to add up to four two-digit numbers.

Direct Standards:

2.2.A: Use concrete and pictorial models to compose and decompose numbers up to 1,200 in more than one way as a sum of so many thousands, hundreds, tens, and ones., 2.2.B: Use standard, word, and expanded forms to represent numbers up to 1,200., 2.4.B: Add up to four two-digit numbers and subtract two-digit numbers using mental strategies and algorithms based on knowledge of place value and properties of operations.

Supporting Standards:

2.4.C: Solve one-step and multi-step word problems involving addition and subtraction within 1,000 using a variety of strategies based on place value, including algorithms.

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.

Money Place Value

Description:
Skip count by various coin amounts. Develop place value concepts using dollars, dimes, and pennies.

Direct Standards:

2.5.A: Determine the value of a collection of coins up to one dollar., 2.5.B: Use the cent symbol, dollar sign, and the decimal point to name the value of a collection of coins.

Game	Description
Skip Counting Amounts	Develop skip counting strategies when identifying and counting coins.
Two-Digit Amounts	Use skip counting strategies with monetary amounts within one dollar.
Buy Items	Choose the monetary amount needed to purchase a given item.
Money Place Value	Express a whole number using currency and place value concepts.

Challenge

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

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.

Partitioning LI

Description:
Introduce fraction vocabulary and notation. Relate vocabulary to visual models.

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 LI	Determine the word best describing the shaded region (fourth, half, whole, etc). Select how many of these 'units' are present.
Match Fraction LI	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 LI	Determine the word best describing the shaded region (fourth, half, whole, etc). Select how many of these 'units' are present.

Second Grade

Optional Objectives

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

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

Standards

Second Grade

Number and Operations

2.2.A: Use concrete and pictorial models to compose and decompose numbers up to 1,200 in more than one way as a sum of so many thousands, hundreds, tens, and ones.

Direct Objectives

- Place Value Concepts
- Adding and Subtracting Tens and Hundreds
- Place Value Bundles - Ten and Hundred
- Three-Digit Number Words
- Addition and Subtraction within 100

Supporting Objectives

- Counting with Groups

2.2.B: Use standard, word, and expanded forms to represent numbers up to 1,200.

Direct Objectives

- Counting with Groups
- Place Value Concepts
- Adding and Subtracting Tens and Hundreds
- Place Value Bundles - Ten and Hundred
- Three-Digit Number Words
- Addition and Subtraction within 100

2.2.C: Generate a number that is greater than or less than a given whole number up to 1,200.

Direct Objectives

- Place Value Concepts

Supporting Objectives

- Skip Counting
- Comparing Three-Digit Numbers
- Adding and Subtracting Tens and Hundreds

2.2.D: Use place value to compare and order whole numbers up to 1,200 using comparative language, numbers, and symbols.

Direct Objectives

- Comparing Three-Digit Numbers

Supporting Objectives

- Place Value Concepts

2.2.E: Locate the position of a given whole number on an open number line.

Direct Objectives

- The Number Line
- Operations on the Number Line
- Comparing Three-Digit Numbers
- Adding and Subtracting Tens and Hundreds
- Counting to 1,000

2.2.F: Name the whole number that corresponds to a specific point on a number line.

Direct Objectives

- The Number Line
- Comparing Three-Digit Numbers

Supporting Objectives

- Adding and Subtracting Tens and Hundreds
- Counting to 1,000

2.3.A: Partition objects into equal parts and name the parts, including halves, fourths, and eighths, using words.

Direct Objectives

- Rows and Columns
- Partitioning

2.3.B: Explain that the more fractional parts used to make a whole, the smaller the part; and the fewer the fractional parts, the larger the part.

Supporting Objectives

- Partitioning

2.3.C: Use concrete models to count fractional parts beyond one whole using words and recognize how many parts it takes to equal one whole.

Supporting Objectives

- Partitioning

2.3.D: Identify examples and non-examples of halves, fourths, and eighths.

Supporting Objectives

- Partitioning

2.4.A: Recall basic facts to add and subtract within 20 with automaticity.

Direct Objectives

- Addition and Subtraction Situations
- Operations on the Number Line
- Two Step Situations

2.4.B: Add up to four two-digit numbers and subtract two-digit numbers using mental strategies and algorithms based on knowledge of place value and properties of operations.

Direct Objectives

- Addition and Subtraction Situations within 100
- Adding and Subtracting Tens and Hundreds
- Using Place Value to Add and Subtract
- Composing Tens and Hundreds
- Decomposing Tens and Hundreds
- Addition and Subtraction within 100

2.4.C: Solve one-step and multi-step word problems involving addition and subtraction within 1,000 using a variety of strategies based on place value, including algorithms.

Supporting Objectives

- 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
- Composing Tens and Hundreds
- Decomposing Tens and Hundreds
- Addition and Subtraction within 100

2.4.D: Generate and solve problem situations for a given mathematical number sentence involving addition and subtraction of whole numbers within 1,000.

Supporting Objectives

- Addition and Subtraction Situations
- Addition and Subtraction Situations within 100
- Two Step Situations
- Adding and Subtracting Tens and Hundreds

2.5.A: Determine the value of a collection of coins up to one dollar.

Direct Objectives

- Money
- Money Place Value

2.5.B: Use the cent symbol, dollar sign, and the decimal point to name the value of a collection of coins.

Direct Objectives

- Money
- Money Place Value

2.6.A: Model, create, and describe contextual multiplication situations in which equivalent sets of concrete objects are joined.

Direct Objectives

- Equal Groups

2.6.B: Model, create, and describe contextual division situations in which a set of concrete objects is separated into equivalent sets.

Direct Objectives

- Equal Groups

Algebraic Reasoning

2.7.A: Determine whether a number up to 40 is even or odd using pairings of objects to represent the number.

Direct Objectives

- Equal Groups

2.7.B: Use an understanding of place value to determine the number that is 10 or 100 more or less than a given number up to 1,200.

Direct Objectives

- Adding and Subtracting Tens and Hundreds
- Equal Groups

2.7.C: Represent and solve addition and subtraction word problems where unknowns may be any one of the terms in the problem.

Supporting Objectives

- Operations on the Number Line
- Addition and Subtraction Situations within 100
- Two Step Situations

Geometry and Measurement

2.8.A: Create two-dimensional shapes based on given attributes, including number of sides and vertices.

Supporting Objectives

- Recognizing Shape Attributes

2.8.B: Classify and sort three-dimensional solids, including spheres, cones, cylinders, rectangular prisms (including cubes as special rectangular prisms), and triangular prisms, based on attributes using formal geometric language.

Direct Objectives

- Recognizing Shape Attributes
- Identifying Shapes

2.8.C: Classify and sort polygons with 12 or fewer sides according to attributes, including identifying the number of sides and number of vertices.

Direct Objectives

- Recognizing Shape Attributes
- Identifying Shapes

2.8.D: Compose two-dimensional shapes and three-dimensional solids with given properties or attributes.

Supporting Objectives

- Recognizing Shape Attributes
- Rows and Columns

2.8.E: Decompose two-dimensional shapes such as cutting out a square from a rectangle, dividing a shape in half, or partitioning a rectangle into identical triangles and identify the resulting geometric parts.

Supporting Objectives

- Recognizing Shape Attributes
- Rows and Columns

2.9.A: Find the length of objects using concrete models for standard units of length.

Direct Objectives

- Measurement

2.9.B: Describe the inverse relationship between the size of the unit and the number of units needed to equal the length of an object.

Supporting Objectives

- Measurement

2.9.C: Represent whole numbers as distances from any given location on a number line.

Direct Objectives

- Operations on the Number Line

Supporting Objectives

- The Number Line
- Measurement

2.9.D: Determine the length of an object to the nearest marked unit using rulers, yardsticks, meter sticks, or measuring tapes.

Direct Objectives

- Measurement

2.9.E: Determine a solution to a problem involving length, including estimating lengths.

Direct Objectives

- Measurement

2.9.F: Use concrete models of square units to find the area of a rectangle by covering it with no gaps or overlaps, counting to find the total number of square units, and describing the measurement using a number and the unit.

Direct Objectives

- Equal Groups
- Rows and Columns

2.9.G: Read and write time to the nearest one-minute increment using analog and digital clocks and distinguish between a.m. and p.m.

Direct Objectives

- Time

Data Analysis

2.10.A: Explain that the length of a bar in a bar graph or the number of pictures in a pictograph represents the number of data points for a given category.

Supporting Objectives

- Creating Graphs

2.10.B: Organize a collection of data with up to four categories using pictographs and bar graphs with intervals of one or more.

Direct Objectives

- Creating Graphs

2.10.C: Write and solve one-step word problems involving addition or subtraction using data represented within pictographs and bar graphs with intervals of one.

2.10.D: Draw conclusions and make predictions from information in a graph.

Supporting Objectives

- Creating Graphs

Personal Financial Literacy

2.11.A: Calculate how money saved can accumulate into a larger amount over time.

2.11.B: Explain that saving is an alternative to spending.

2.11.C: Distinguish between a deposit and a withdrawal.

2.11.D: Identify examples of borrowing and distinguish between responsible and irresponsible borrowing.

2.11.E: Identify examples of lending and use concepts of benefits and costs to evaluate lending decisions.

2.11.F: Differentiate between producers and consumers and calculate the cost to produce a simple item.