ST Math® Instructional Software

Objectives

Fifth Grade

Default Objectives

The Coordinate Plane

Description:
Plot ordered pairs to a location on a coordinate plane. Use functional relationships to plot points and explore changing the slope and y-intercept of a line.

Direct Standards:

5.8.A: Describe the key attributes of the coordinate plane, including perpendicular number lines (axes) where the intersection (origin) of the two lines coincides with zero on each number line and the given point (0, 0); the x-coordinate, the first number in an ordered pair, indicates movement parallel to the x-axis starting at the origin; and the y-coordinate, the second number, indicates movement parallel to the y-axis starting at the origin.,
5.8.C: Graph in the first quadrant of the coordinate plane ordered pairs of numbers arising from mathematical and real-world problems, including those generated by number patterns or found in an input-output table.

Supporting Standards:

5.8.B: Describe the process for graphing ordered pairs of numbers in the first quadrant of the coordinate plane.

Game	Description
Parallel or Perpendicular	Identify parallel, perpendicular, and intersecting lines within a given set of lines.
Venn Grid	Use the model to plot an ordered pair without the explicit notation.
Coordinate Trap	Select the location of a coordinate pair on a coordinate grid.
Ordered Pairs	Name the coordinate pair for a given point located on a coordinate grid.

Shapes and Properties

Description:
Identify 2D geometric shapes based on the number of sides and angles. Classify quadrilaterals based on their properties.

Supporting Standards:

5.5: Classify two-dimensional figures in a hierarchy of sets and subsets using graphic organizers based on their attributes and properties.

Game	Description
Pick Geometric Shapes 2D	Match the name of a two-dimensional shape with the number of vertices or edges it has.
Shape Names	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.
Shape Types	Identify different types of triangles (equilateral, acute, etc.) and different types of polygons (rectangle, rhombus, etc).

Using Parentheses

Description:
Use order of operations to simplify expressions, including expressions with parentheses.

Direct Standards:

5.4.F: Simplify numerical expressions that do not involve exponents, including up to two levels of grouping.

Supporting Standards:

5.4.B: Represent and solve multi-step problems involving the four operations with whole numbers using equations with a letter standing for the unknown quantity., 5.4.E: Describe the meaning of parentheses and brackets in a numeric expression.

Game	Description
Operation Race	Evaluate numerical expressions using the correct order of operations.
Complete Box	Write an expression to describe the area. Includes adding or deducting from the area and nonstandard shapes.
Operation Race with Parentheses	Identify the operator precedence for numerical expressions involving arithmetic operations and parentheses.
Multiplying with Parentheses	Learn the meaning of and how to simplify expressions involving variables and parentheses.
Which Parentheses?	Identify where the parentheses should be placed to make the expression equal to the given value.

Patterns and Relationships

Description:
Examine visual and numeric patterns, and solve problems by determining inputs, outputs, or functional relationships. Examine linear relationships using tables and plots.

Supporting Standards:

5.4.C: Generate a numerical pattern when given a rule in the form y = ax or y = x + a and graph., 5.4.D: Recognize the difference between additive and multiplicative numerical patterns given in a table or graph.

Game	Description
Robot Patterns	Identify and extend geometric patterns of colored squares on a grid.
Pattern Directions	Extend repeating patterns in various directions. Here the objects all have the same shape; the patterns are based on color, orientation, and rotation.
Helicopter	Identify the number of stacks the helicopter should drop in order to fill the hole in the ground. Teaches proportional relationships.
Helicopter Table	Fill in the empty boxes in the table with the correct number of blocks for the given the number of helicopters or with the number of helicopters given the number of blocks.
Make it Linear	Determine the number of blocks needed to make the sequence linear.
Linear Transform	Select the number that will allow JiJi to cross to the other side. This game teaches the concept of equality through problems involving multiple operations.
Linear Transform Table	Fill in the table with the missing inputs or outputs for a given linear function, or, in other levels, identify the function that corresponds to the given table of inputs and outputs.
Line Capture from Table	Represent the table of input and output values with a straight line in the coordinate plane.

Prime and Composite Numbers

Description:
Find factors for whole numbers in the range 1 to 100. Identify multiples. Determine whether a given whole number in the range 1 to 100 is prime or composite and factor.

Direct Standards:

5.4.A: Identify prime and composite numbers.

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

Multi-Digit Multiplication

Description:
Use area models to learn how to multiply two two-digit whole numbers using strategies based on place value. Develop strategies and algorithms to multiply up to four-digit whole numbers by a single digit whole number.

Direct Standards:

5.3.B: Multiply with fluency a three-digit number by a two-digit number using the standard algorithm.

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

Multi-Digit Division

Description:
Use strategies and algorithms based on place value to divide up to four-digit whole numbers by a single digit whole number.

Direct Standards:

5.3.C: Solve with proficiency for quotients of up to a four-digit dividend by a two-digit divisor using strategies and the standard algorithm.

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

Fraction and Decimal Concepts

Description:
Represent fractions and decimals using multiple visual models as well as numerical notation. This includes mixed numbers, improper fractions, and decimals. Build up the relationship of decimal place value (to hundredths) to fractions.

Direct Standards:

5.2.A: Represent the value of the digit in decimals through the thousandths using expanded notation and numerals.

Supporting Standards:

5.3.H: Represent and solve addition and subtraction of fractions with unequal denominators referring to the same whole using objects and pictorial models and properties of operation.

Game	Description
Match Fraction	Represent a given fraction using a visual model by first dividing a whole into equal parts and then shading the correct number of parts.
Crank Pies	Represent given fractions, improper fractions, and mixed numbers as circular diagrams displaying equal parts of a whole. This game also teaches the idea of equivalent fractions.
Alien Bridge	Use pies divided into fourths to create a fraction diagram to match the given one.
Fraction Grid	Identify the fraction equivalents of numbers using the given model.
Complementary Fractions	Add unit fractions to equal a given decimal which is a multiple of 0.10.
Decimal Grid	Identify the decimal equivalents of numbers using the given model.
Fractions and Decimals Grid	Identify the decimal and fraction equivalents of numbers using the given model.
Fraction Decimal Trap	Estimate on a number line the location of fourths and halves in fraction and decimal form.
Place Value Clouds	Identify the place of a given digit within a decimal up to the hundredths place. The places are expressed with the words or symbols for the powers of ten.

Fractions on the Number Line

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

Supporting Standards:

5.3.A: Estimate to determine solutions to mathematical and real-world problems involving addition, subtraction, multiplication, or division.

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.

Unlike Denominator Concepts and Strategies

Description:
Identify and generate equivalent fractions, including improper fractions.

Direct Standards:

5.3.H: Represent and solve addition and subtraction of fractions with unequal denominators referring to the same whole using objects and pictorial models and properties of operation.

Game	Description
Number Line Equivalence	Identify equivalent fractions using a number line model.
Fraction Grid	Write one- and two-place decimals as fractions with denominators of 2, 4, 10, or 100.
Equivalent Fractions	Identify equivalent fractions using rectangular diagrams displaying equal parts of a whole.
Pie Monster	Implicitly add two fractions together.

Unlike Denominator Addition and Subtraction

Description:
Add and subtract fractions that have the uncommon denominators.

Direct Standards:

5.3.H: Represent and solve addition and subtraction of fractions with unequal denominators referring to the same whole using objects and pictorial models and properties of operation.

Game	Description
JiJi Cycle Select Basket	Estimate the location of a fraction represented with a diagram on the number line.
Common Denominator	Match the partitioning of two rectangular blocks.
Fraction Robot Addition	Add proper and improper fractions with like and unlike denominators using rectangular diagrams displaying equal parts of a whole.
Scale Fraction Visual	Add and subtract fractions and mixed numbers on the number line. The fractions and mixed numbers are presented using visual models.
Alien Bridge	Learn the meaning of fraction addition using visual models.
Common Denominator LI	Match the partitioning of two rectangular blocks in order to create fractions with a common denominator.
Alien Bridge LI	Learn the meaning of fraction addition using visual models.
Fraction Grid	Write one- and two-place decimals as fractions with denominators of 2, 4, 10, or 100. Select a number of partitions on a given grid to represent the the sum or difference of two decimal fractions.
Scale Fraction	Add and subtract fractions and mixed numbers on the number line. The fractions and mixed numbers are presented using visual models.
Crank Pies Addition and Subtraction	Add fractions and mixed numbers with like and unlike denominators.

Volume

Description:
Understand concepts of volume. Find the volume of a right rectangular prism by packing it with unit cubes. Relate volume to multiplication and apply the volume formula for rectangular prisms.

Direct Standards:

5.4.G: Use concrete objects and pictorial models to develop the formulas for the volume of a rectangular prism, including the special form for a cube (V = l x w x h, V = s x s x s, and V = Bh)., 5.4.H: Represent and solve problems related to perimeter and/or area and related to volume.,
5.6.A: Recognize a cube with side length of one unit as a unit cube having one cubic unit of volume and the volume of a three-dimensional figure as the number of unit cubes (n cubic units) needed to fill it with no gaps or overlaps if possible.,
5.6.B: Determine the volume of a rectangular prism with whole number side lengths in problems related to the number of layers times the number of unit cubes in the area of the base.

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

Decimal Place Value

Description:
Identify the place value of decimals to thousandths. Represent decimals with objects and expanded notation. Plot decimals on the number line.

Direct Standards:

5.2.A: Represent the value of the digit in decimals through the thousandths using expanded notation and numerals.

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

Comparing with Decimals

Description:
Order concrete objects and numbers. Compare decimal fractions using the symbols <, >, and =. Find the number that is the least or most in a group of numbers.

Direct Standards:

5.2.B: Compare and order two decimals to thousandths and represent comparisons using symbols.

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

Rounding Decimals

Description:
Round decimals to thousandths to any place. Students utilize the number line and develop strategies based on place value to round decimals.

Direct Standards:

5.2.C: Round decimals to tenths or hundredths.

Game	Description
Number Line Journey	Represent one-, two-, and three-place decimals on a number line by first zooming in on the correct segment on the line.
Decimal Round Off	Use the number line to round three-place decimals to the nearest whole number.
Number Funnels	Round decimals to the nearest whole number. The game also teaches place value concepts up to the hundredths place.
Decimal Number Round	Use the number line to round decimals to the nearest given place value.
Decimal Number Funnels	Round decimals to the nearest given place value.

Fraction Multiplication

Description:
Multiply fractions using models, symbols, and the number line. Find the area of a rectangle with fractional lengths.

Direct Standards:

5.3.I: Represent and solve multiplication of a whole number and a fraction that refers to the same whole using objects and pictorial models, including area models.

Game	Description
Alien Bridge	Learn to multiply fractions by a whole number using a visual model.
Alien Bridge LI	Learn to multiply fractions by a whole number using a visual model. This game integrates the symbolic notation for recording the multiplication equation displayed in the visual model.
Unit Multiples	Multiply fractions and whole numbers using an area model.
Unit Multiplication on the Number Line	Multiply fractions and estimate the locations of the products on a number line.
Fraction Area	Multiply fractions and whole numbers using an area model.

Fraction Division

Description:
Use both models and symbols to divide whole numbers by unit fractions.

Direct Standards:

5.3.J: Represent division of a unit fraction by a whole number and the division of a whole number by a unit fraction such as 1/3 divided by 7 and 7 divided by 1/3 using objects and pictorial models, including area models., 5.3.L: Divide whole numbers by unit fractions and unit fractions by whole numbers.

Game	Description
Select Peanuts	Multiply whole numbers using the model.
Select Elephants	Divide whole numbers using the model.
Select Peanuts per Elephant	Use the model to divide whole numbers by unit fractions.
Select Peanut or Elephant Multiplier	Introduce numbers into the various aspects of the game.
Model Peanuts Equation	Given a numeric division prompt of a whole number divided by a unit fraction, use the model to generate the corresponding scenario.
Build Peanuts Equation	Given a visual division situation, write the corresponding division equation symbolically.
Peanuts - Whole Numbers and Unit Fractions	Symbolically divide whole numbers by unit fractions.
Area Divide	Divide whole numbers by unit fractions. The answers are demonstrated using an area model.
Linear Transform	Multiply and divide whole numbers by unit fractions. In the last level, identify the operation that will transform the first number into the second.

The Coordinate Plane, Extended

Description:
Explicitly, but informally, explore linear relationships between ordered pairs of positive numbers on a coordinate plane.

Direct Standards:

5.8.A: Describe the key attributes of the coordinate plane, including perpendicular number lines (axes) where the intersection (origin) of the two lines coincides with zero on each number line and the given point (0, 0); the x-coordinate, the first number in an ordered pair, indicates movement parallel to the x-axis starting at the origin; and the y-coordinate, the second number, indicates movement parallel to the y-axis starting at the origin.,
5.8.C: Graph in the first quadrant of the coordinate plane ordered pairs of numbers arising from mathematical and real-world problems, including those generated by number patterns or found in an input-output table.

Supporting Standards:

5.8.B: Describe the process for graphing ordered pairs of numbers in the first quadrant of the coordinate plane.

Game	Description
Line Balloons	Move a line on the plane so that all of the balloons are located on the line.
Line Capture	Fit a line to a set of points in the coordinate plane. In later levels, place a point in the plane so that it will be on the line through the given points.
Line Capture from Table	Represent the table of input and output values with a straight line in the coordinate plane.

Decimal Addition and Subtraction

Description:
Estimate and compute sums and differences of one- and two-place decimals.

Direct Standards:

5.3.A: Estimate to determine solutions to mathematical and real-world problems involving addition, subtraction, multiplication, or division.

Game	Description
Estimate Total Cost	Estimate the total cost of the items placed in the shopping cart and plot the cost on the number line.
Shop Total Cost	Choose items whose total cost adds up to a given amount.
Place Value Align	Set up addition and subtraction problems involving whole numbers and decimals by aligning their digits by place value.
Arithmetic Algorithm	Add and subtract decimal money amounts using the standard algorithm.
Estimate Addition and Subtraction Number Line	Compute and estimate sums and differences of whole numbers and decimals on a number line.
Arithmetic Algorithm	Add one- and two-place decimals using the standard algorithm.

Multiplying with Decimals

Description:
Multiply decimal fractions by whole numbers using strategies based on place value and the standard algorithm.

Direct Standards:

5.3.E: Solve for products of decimals to the hundredths, including situations involving money, using strategies based on place-value understandings, properties of operations, and the relationship to the multiplication of whole numbers.

Supporting Standards:

5.3.D: Represent multiplication of decimals with products to the hundredths using objects and pictorial models, including area models.

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

Dividing with Decimals

Description:
Divide whole numbers by single digit whole numbers with decimal fraction quotients. Divide decimal fractions by whole numbers using strategies based on place value and the standard algorithm.

Direct Standards:

5.3.G: Solve for quotients of decimals to the hundredths, up to four-digit dividends and two-digit whole number divisors, using strategies and algorithms, including the standard algorithm.

Supporting Standards:

5.3.F: Represent quotients of decimals to the hundredths, up to four-digit dividends and two-digit whole number divisors, using objects and pictorial models, including area models.

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

Line Plot Intro: Decimals and Mode

Description:
Generate decimal 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:

5.9.A: Represent categorical data with bar graphs or frequency tables and numerical data, including data sets of measurements in fractions or decimals, with dot plots or stem-and-leaf plots., 5.9.C: Solve one- and two-step problems using data from a frequency table, dot plot, bar graph, stem-and-leaf plot, or scatterplot.

Game	Description
Soccer Dot Plots Eighths	Record fraction measurements on a number line to create a dot plot.
Dot Plot Dimension Analysis	Identify which dimension of the given collection of rectangles is represented by the dot plot shown.
Mode Magnet Decimals	Identify the minimum, maximum, or mode value of a distribution of whole numbers and/or decimals shown in a dot plot.
Mode Is Most Decimals	Identify the mode of a given collection of decimal numbers.

Converting Measurements

Description:
Solve problems involving conversions. Convert between cups, pints, quarts, and gallons.

Supporting Standards:

5.7: Solve problems by calculating conversions within a measurement system, customary or metric.

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.
Rate Objects	Find an equivalent rate to the one given.
Capacity	Learn how to convert between cups, pints, quarts and gallons. Practice converting liquid quantities between different units.
Unit Conversion	Convert between different units of time using a number line.

Using Data and Graphs

Description:
Construct and interpret bar graphs and pie charts based on data represented pictorially, as a percent, or in a table.

Direct Standards:

5.9.A: Represent categorical data with bar graphs or frequency tables and numerical data, including data sets of measurements in fractions or decimals, with dot plots or stem-and-leaf plots., 5.9.C: Solve one- and two-step problems using data from a frequency table, dot plot, bar graph, stem-and-leaf plot, or scatterplot.

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 Table	Read a bar graph and answer questions about the data table used to construct the graph.
Pie Chart Fill Chart	Construct a pie chart from a data set given as observations or in a table.
Pie Chart Fill Data	Read a pie chart and create the table used to generate the chart.
Double Bar Graph	Explore double bar graphs by constructing graphs from a table of data. Read a double bar graph and fill in missing values in the data table.

Challenge

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

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

Fifth 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

Line Plots: Median and Mean

Description:
Divide a data set into halves to find the median. Calculate the mean of a small data set. Given a line plot, estimate the mean by visualizing residuals.

Game	Description
Median Diamond Catcher	Order a group of whole numbers, fractions, or decimals in order to find the median value.
Median in the Middle	Identify the median of a group of numbers. This game includes whole numbers, fractions, and decimals, and both an even and odd number of values.
Median Diamond Catcher LI	Identify the median of the given numbers and then locate it on a number line.
Mean Height	Find the mean height of a collection of stacks of blocks, or the mean of a collection of numbers.
Mean Dot Plots	Find the mean of the values displayed in a dot plot.

Angles

Description:
Label angles as acute, right, obtuse, or straight. Find the sum of the angles in a polygon and use that to find the missing angle in a triangle or quadrilateral.

Game	Description
Wedge	Identify the objects that can be used to move the barrier. Triangles that are not oriented correctly will block JiJi's path since they cannot wedge themselves under the barrier.
Which Angle?	Identify an angle as acute, obtuse, straight, or right when given its numerical or pictorial representation.
Missing Angle with Triangles	Find the magnitude of the missing angle on a triangle or quadrilateral using facts about the sums of their interior angles. This game also introduces the use of a protractor as a tool used to measure an angle.
Lines of Symmetry	Identify lines of symmetry in a variety of shapes.
Shape Types	Identify the given polygon.
Bricks	Arrange the shapes to create the composite shape shown.
Angle Sums	Find the sum of a polygon's interior angles by decomposing the polygon into a set of triangles and using the sum of interior angles fact for triangles.
Missing Angle with Quadrilaterals	Find the magnitude of the missing angle on a triangle or quadrilateral using facts about the sums of their interior angles. This game also introduces the use of a protractor as a tool used to measure an angle.

Standards

Fifth Grade

Number and Operations

5.2.A: Represent the value of the digit in decimals through the thousandths using expanded notation and numerals.

Direct Objectives

- Fraction and Decimal Concepts
- Decimal Place Value

5.2.B: Compare and order two decimals to thousandths and represent comparisons using symbols.

Direct Objectives

- Comparing with Decimals

5.2.C: Round decimals to tenths or hundredths.

Direct Objectives

- Rounding Decimals

5.3.A: Estimate to determine solutions to mathematical and real-world problems involving addition, subtraction, multiplication, or division.

Direct Objectives

- Decimal Addition and Subtraction

Supporting Objectives

- Fractions on the Number Line

5.3.B: Multiply with fluency a three-digit number by a two-digit number using the standard algorithm.

Direct Objectives

- Multi-Digit Multiplication

5.3.C: Solve with proficiency for quotients of up to a four-digit dividend by a two-digit divisor using strategies and the standard algorithm.

Direct Objectives

- Multi-Digit Division

5.3.D: Represent multiplication of decimals with products to the hundredths using objects and pictorial models, including area models.

Supporting Objectives

- Multiplying with Decimals

5.3.E: Solve for products of decimals to the hundredths, including situations involving money, using strategies based on place-value understandings, properties of operations, and the relationship to the multiplication of whole numbers.

Direct Objectives

- Multiplying with Decimals

5.3.F: Represent quotients of decimals to the hundredths, up to four-digit dividends and two-digit whole number divisors, using objects and pictorial models, including area models.

Supporting Objectives

- Dividing with Decimals

5.3.G: Solve for quotients of decimals to the hundredths, up to four-digit dividends and two-digit whole number divisors, using strategies and algorithms, including the standard algorithm.

Direct Objectives

- Dividing with Decimals

5.3.H: Represent and solve addition and subtraction of fractions with unequal denominators referring to the same whole using objects and pictorial models and properties of operation.

Direct Objectives

- Unlike Denominator Concepts and Strategies
- Unlike Denominator Addition and Subtraction

Supporting Objectives

- Fraction and Decimal Concepts

5.3.I: Represent and solve multiplication of a whole number and a fraction that refers to the same whole using objects and pictorial models, including area models.

Direct Objectives

- Fraction Multiplication

5.3.J: Represent division of a unit fraction by a whole number and the division of a whole number by a unit fraction such as 1/3 divided by 7 and 7 divided by 1/3 using objects and pictorial models, including area models.

Direct Objectives

- Fraction Division

5.3.K: Add and subtract positive rational numbers fluently.

5.3.L: Divide whole numbers by unit fractions and unit fractions by whole numbers.

Direct Objectives

- Fraction Division

Algebraic Reasoning

5.4.A: Identify prime and composite numbers.

Direct Objectives

- Prime and Composite Numbers

5.4.B: Represent and solve multi-step problems involving the four operations with whole numbers using equations with a letter standing for the unknown quantity.

Supporting Objectives

- Using Parentheses

5.4.C: Generate a numerical pattern when given a rule in the form y = ax or y = x + a and graph.

Supporting Objectives

- Patterns and Relationships

5.4.D: Recognize the difference between additive and multiplicative numerical patterns given in a table or graph.

Supporting Objectives

- Patterns and Relationships

5.4.E: Describe the meaning of parentheses and brackets in a numeric expression.

Supporting Objectives

- Using Parentheses

5.4.F: Simplify numerical expressions that do not involve exponents, including up to two levels of grouping.

Direct Objectives

- Using Parentheses

5.4.G: Use concrete objects and pictorial models to develop the formulas for the volume of a rectangular prism, including the special form for a cube (V = l x w x h, V = s x s x s, and V = Bh).

Direct Objectives

- Volume

5.4.H: Represent and solve problems related to perimeter and/or area and related to volume.

Direct Objectives

- Volume

Geometry and Measurement

5.5: Classify two-dimensional figures in a hierarchy of sets and subsets using graphic organizers based on their attributes and properties.

Supporting Objectives

- Shapes and Properties

5.6.A: Recognize a cube with side length of one unit as a unit cube having one cubic unit of volume and the volume of a three-dimensional figure as the number of unit cubes (n cubic units) needed to fill it with no gaps or overlaps if possible.

Direct Objectives

- Volume

5.6.B: Determine the volume of a rectangular prism with whole number side lengths in problems related to the number of layers times the number of unit cubes in the area of the base.

Direct Objectives

- Volume

5.7: Solve problems by calculating conversions within a measurement system, customary or metric.

Supporting Objectives

- Converting Measurements

5.8.A: Describe the key attributes of the coordinate plane, including perpendicular number lines (axes) where the intersection (origin) of the two lines coincides with zero on each number line and the given point (0, 0); the x-coordinate, the first number in an ordered pair, indicates movement parallel to the x-axis starting at the origin; and the y-coordinate, the second number, indicates movement parallel to the y-axis starting at the origin.

Direct Objectives

- The Coordinate Plane
- The Coordinate Plane, Extended

5.8.B: Describe the process for graphing ordered pairs of numbers in the first quadrant of the coordinate plane.

Supporting Objectives

- The Coordinate Plane
- The Coordinate Plane, Extended

5.8.C: Graph in the first quadrant of the coordinate plane ordered pairs of numbers arising from mathematical and real-world problems, including those generated by number patterns or found in an input-output table.

Direct Objectives

- The Coordinate Plane
- The Coordinate Plane, Extended

Data Analysis

5.9.A: Represent categorical data with bar graphs or frequency tables and numerical data, including data sets of measurements in fractions or decimals, with dot plots or stem-and-leaf plots.

Direct Objectives

- Line Plot Intro: Decimals and Mode
- Using Data and Graphs

5.9.B: Represent discrete paired data on a scatterplot.

5.9.C: Solve one- and two-step problems using data from a frequency table, dot plot, bar graph, stem-and-leaf plot, or scatterplot.

Direct Objectives

- Line Plot Intro: Decimals and Mode
- Using Data and Graphs

Personal Financial Literacy

5.10.A: Define income tax, payroll tax, sales tax, and property tax.

5.10.B: Explain the difference between gross income and net income.

5.10.C: Identify the advantages and disadvantages of different methods of payment, including check, credit card, debit card, and electronic payments.

5.10.D: Develop a system for keeping and using financial records.

5.10.E: Describe actions that might be taken to balance a budget when expenses exceed income.