SCOPE & SEQUENCE
WITH STANDARD ALIGNMENT

- GRADES 6-8 & AUTO-ASSIGNMENTS -
VIRGINIA

JiJi®

ST Math®
Created by MIND Research Institute

JOURNEY AND BONUS JOURNEY OBJECTIVES

Negative Numbers

Standards Coverage:

Recommended: 6.6c

Game Name	Game Description
Temperature Changes	Determine the temperature change or the new temperature by reading and comparing the temperature on two thermometers, or by reading the original temperature and the description of the change.
Negative Number Line Trap	Plot positive and negative integers on a number line, presented in simplest form or with two or more leading negative signs.
Fraction and Decimal Trap	Plot positive and negative fractions, mixed numbers, and decimals on a number line.

Coordinates and Distances

Standards Coverage:

Recommended: 6.8b

Game Name	Game Description
Coordinate Trap	Select the location of a coordinate pair from the first quandrant.
Ordered Pairs	Name the coordinate pair for a given point located on a coordinate grid.
Coordinate Trap Negatives	Select the location of a coordinate pair on a coordinate grid.
Number Line Distances	Represent the distance between two points on a number line as a numerical expression.
Grid Distances	Find the distance between two points that lie on the same vertical or horizontal line in a coordinate plane.

Proportional Reasoning

Standards Coverage:

Recommended: 6.1, 6.4

Game Name	Game Description
Ratio Monster	Select a number of monster arms and mouths according the given ratio. In the last level, chose a ratio first and then select the parts.
Build-A-Monster	Identify the ratio of the monster arms to monster mouths.
Stretch-A-Block	Scale blocks by whole number factors using a visual model.
Kaboomerang!!	Remove the ornament potholes from JiJi's path by choosing the configuration that can be scaled to match the one on the ground.
Build-A-Monster Symbolic	Write a ratio to describe the data.
Ornaments Proportions	Arrange ornaments into different configurations representing equivalent ratios. Then scale up or down to match the ornaments to the outlines in the ground.
Ornaments Pick-a-Proportion	Choose one of two lines of ornaments to complete and scale up or down to match the arrangement in the ground.

Percents

Standards Coverage:

Recommended: 6.4

Related: 6.2a

Game Name	Game Description
Percent Objects	Convert the given fraction into a percent. This game relates common fractions to percents using a model.
Percent Objects Symbolic	Convert the given fraction into a percent. This game relates common fractions to percents using a model.
Percent Grid	Identify the decimal, fraction, and percent equivalents of numbers using the given model.
Percent Coin	Estimate the location of fractions, decimals, and percents on the number line.
Percent Strategy	Estimate the location of fractions, decimals, and percents on the number line.
Percent Expression	Estimate the location of fractions, decimals, and percents on the number line.

Representing Ratios and Rates

Standards Coverage:

Recommended: 6.1, 6.4

Game Name	Game Description
Hungry Monsters	Given a ratio, find the missing monsters or missing fruit.
Blob Price	Solve unit rate problems involving unit pricing.
Monster Graphs	Given a rate, plot equivalent rates on a graph.
Monster Graphs Build Rates	Given a graph of equivalent rates, determine an additional or reduced rate.
Monster Tables	Given a rate, write equivalent rates in a table.
Monster Tables Build Rates	Given a table of equivalent rates, determine an additional or reduced rate.

Multiplying Fractions

Standards Coverage:

Related: 6.5a

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

Fraction Division

Standards Coverage:

Recommended: 6.5c, 6.4

Game Name	Game Description
Select Peanuts	Given the rate of peanuts per elephant and the whole or fractional number of elephants to feed, select the total number of peanuts.
Select Elephants	Select the whole or fractional number of elephants needed to eat the given quantity of peanuts.
Select Peanuts per Elephant	Given the number of peanuts and the whole or fractional number of elephants, select the rate of peanuts per elephant.
Select Peanut or Elephant Multiplier	Multiply and divide whole numbers by whole numbers and by fractions using the elephants and peanuts model.
Model Peanuts Equation	Given a numeric division prompt of a whole number divided by a whole number or by a unit fraction, use the model to generate the corresponding scenario.
Build Peanuts Equation	Fill in the blanks to write a division expression that represents the situation.
Peanuts - Whole Numbers and Unit Fractions	Divide whole numbers by whole numbers and by unit fractions.
Visual Fraction Division	Divide fractions by unit fractions using the elephants and peanuts model, now with fractional peanuts as well as whole peanuts.
Model Division	Given an expression showing a whole number divided by a fraction or a fraction divided by a unit fraction, select elephants and peanuts to model the expression.
Convert to Multiplication	Rewrite a fraction division expression as a multiplication expression.
Fraction Division Symbolic	Divide whole numbers and fractions by fractions.

Division Algorithm

Standards Coverage:

Recommended: 6.6a, 6.6b

Game Name	Game Description
Visual Division	This game introduces division as the separation of a set of objects into equally sized subsets.
Long Division Snake	Divide small two-digit numbers by one-digit numbers, with the numbers represented as quantities.
Exploratory Division	Explore division without remainder on the number line using a place value model.
Number Line Sliders	Explore division with remainder on the number line using a place value model.
Number Line Division	Introduction to the full algorithm with single digit divisor and two digit dividends.
Double Digit Divisors	Explore the division algorithm with double-digit divisors.
Number Line Division Algorithm	Carry out the division algorithm using two-digit divisors and large dividends.
Division Snake Sliders	Introduce the idea of partitioning the dividend using strategies of place value and number sense.
Exploratory Number Sense	Select the digits of the quotient in a long division problem.

Properties of Operations (G6)

Standards Coverage:

Recommended: 6.6c

Game Name	Game Description
Operation Race	Evaluate numerical expressions using the correct order of operations.
Multiplying with Parentheses	Learn the meaning of and how to simplify expressions involving variables and parentheses.
Distributive Property	Use the distributive property to show the meaning of expressions with parentheses and variables.
Operation Race with Parentheses	Identify the operator precedence for numerical expressions involving arithmetic operations and parentheses.

Modeling with Expressions (G6)

Standards Coverage:

Related: 6.6c

Game Name	Game Description
Which Parentheses	Identify where the parentheses should be placed to make the expression equal to the given value.
Box Commute	Use the commutative property to transform the given expression into one that represents a different configuration of blocks.
Wall Factory	Choose values for the variables to make the given expression represent the configuration of blocks in the ground.
Wall Factory Modeling	Choose the expression that could represent the given configuration of blocks.

Solving One-Step Equations (G6)

Standards Coverage:

Recommended: 6.13

Related: 6.9

Game Name	Game Description
Variable Stacks	Solve one- and two-step one-variable linear equations involving addition and multiplication. The two sides of the equation are modeled as stacks that need to have equal height.
Solve Equation	Solve one-variable addition, subtraction, or multiplication equations.
Rolling Equations	Use a number line model to solve one-variable addition equations and to find particular solutions to two-variable addition equations, including equations with multiple instances of the variable or variables.
Variable Stacks Symbolic	Solve one- and two-step one-variable addition and multiplication equations that are presented symbolically.

Linear Relationships (G6)

Standards Coverage:

Recommended: 6.4

Related: 6.1

Game Name	Game Description
Make it Linear Table	Given a description of a proportional relationship, fill in missing values in a table of pairs corresponding to the ratio described.
Linear Transform	Given an operation or a sequence of two operations, find the output resulting from a given input, or the input required to produce a given output.
Linear Transform Function	Select the linear function, represented as an operation or sequence of two operations, that is consistent with the given input and output values.
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.

Exponents

Standards Coverage:

Related: 6.6c

Game Name	Game Description
Build Shape	Build the given shape using visual exponentiation.
Circle Exponents	Build the given shape using repeated multiplication.
Exponential Notation	Build the given shape using exponential notation.
Repeated Expressions	Given a exponential or multiplicative expression, select repeated addition or repeated multiplication.
Write Exponential Expressions	Given a repeated multiplication or addition expression, write the expression in exponential or multiplicative notation.
Number Line Exponents	Plot an exponential expression on the number line.
Number Line Exponents Bubble Select	Evaluate an exponential expression.
Number Line Exponents Two Operations	Given an expression with two operations, evaluate it using the number line.
Number Line Exponents Two Ops Bubble Select	Numerically evaluate an expression that has two operations.

Decimal Addition and Subtraction

Standards Coverage:

Recommended: 6.5c

Game Name	Game Description
Place Value Align	Set up addition and subtraction problems involving whole numbers and decimals by aligning their digits by place value.
Arithmetic Algorithm	Add one- and two-place decimals 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.

Decimal Multiplication

Standards Coverage:

Recommended: 6.5c

Game Name	Game Description
Jelly Blocks Fixed Platform	Visually select the multiplicand that solves the problem in this model.
Jelly Blocks	Select the product of two numbers using this model.
Jelly Blocks Number Sense	Numerically select the multiplicand that solves the problem in this model.
Jelly Blocks LI	Given a numeric multipication prompt of an integer with a decimal, determine the product.
Money Multiplication	Multiply money amounts by whole numbers.
Decimal Moves	Given decimal and the corresponding integer, by multilpying by 10 or a tenth to move the decimal that turns the integer into the given decimal.
Decimal Multiplication Algorithm	Set up and carry out the mutliplication algorithm numerically. Finish the question by moving the decimal place appropriately.
High Wire Final Stage	Given two decimals and the product of their integer counterparts, determine where the decimal place should be placed to solve the product of the decimals.

Decimal Division

Standards Coverage:

Recommended: 6.5c

Game Name	Game Description
Exploratory Division	Explore division with decimals. In particular, develop the strategy of appending zeros after the decimal point.
Decimal Snake	Using the model, carry out division by a single digit integer where the dividend may be a decimal and may need to append zeros.
Whole Number Divisors	Carry out the division alogrithm with whole number divisors and dividends that may be decimals and may need to append zeros.
Introduction to Decimal Divisors	Given decimal divisors, first set up an equivalent division question where the divisor becomes an integer.
Decimal Division	Carry out decimal division using the standard algorithm, appending zeros as needed, and setting up an equivalent problem where the divisor becomes an integer.

Area of Polygons

Standards Coverage:

Recommended: 6.10c

Related: 6.9

Game Name	Game Description
Area of Rectangle	Find the area and perimeter of a rectangle using visual models.
Complete Box	Write an expression to describe the area. Includes adding or deducting from the area.
Mean Height	Find the mean height of a collection of stacks of blocks, or the mean of a collection of numbers.
Area Select	Calculate the areas of rectangles, triangles and parallelograms and express them using metric and U.S. customary units.

Line Plot Intro and Histograms

Standards Coverage:

Related: 6.10c

Game Name	Game Description
Soccer Dot Plots Negatives	Record measurements on a number line to create a dot plot. Values include positive and negative fractions and whole numbers.
Dot Plot Dimension Challenge	Identify which dimension of the given collection of rectangles is represented by the dot plot shown.
Histogram Builder	Create histograms by aggregating the recorded dot plot measurements into value bands.

Line Plots and Summary Statistics (G6)

Standards Coverage:

Related: 6.11a

Game Name	Game Description
Dot Plot Sweep Intro	Explore concepts related to the shape of a shape of a distribution, including skew and spread.
Median Diamond Catcher Negatives	Order a group of whole numbers, fractions, or decimals in order to find the median value. Includes positive and negative values.
Mean Dot Plots	Find the mean of the values displayed in a dot plot.
Dot Plot Sweep Mean and Median	Adjust the spread, skew, or position of a given distribution so that it will have the indicated median and mean.
Box Plot Diamond Catcher	Identify the minimum, maximum, median, and first and third quartiles of a distribution.
Dot Plot Sweep Boxplot	Adjust the spread, skew, or position of a given distribution so that it will have the indicated quartiles.
Mean Absolute Deviation	Find the mean absolute deviation of a given distribution.
Dot Plot Sweep MAD and Review	Adjust the spread, skew, or position of a given distribution so that it will have the indicated mean and MAD, or the indicated quartiles.

Challenge 6

Game Name	Game Description
Upright JiJi	Find a sequence of rotations to move JiJi into an upright position.
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.
Kick Box	Use lasers and mirrors to move the spheres out of the way so JiJi can pass.

Cognitive Training

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

Applying Rates and Ratios (G6)

Game Name	Game Description
Seed Worm	Select the number of increments, the length of the increment, or the total distance, when given the other two.
Seed Worms	Determine the missing values for two seed worm problems which have a dependence between them.
Seed Worms Fractions	Determine the missing values for two seed worm problems, now using fractional increments as well as whole number ones.
Speed Worms	Estimate the point at which the seed worms will meet, based on their directions, speeds, and starting locations. In other levels, adjust the speed of one of the worms so that the two worms will meet at the designated spot.

Graphing Proportional Relationships

Game Name	Game Description
Graph Path	Move the point along a straight line in a coordinate plane.
X Beams Proportional	Adjust the y-coordinate of a point so it is on the line that goes through two other points on the plane.
Racing Graphs	Select the relationship that will take JiJi to the given distance in a shorter amount of time.
X Beams XY Scale	Identify the scaling factor that is used on the y-axis of a given coordinate plane graph.
Racing Graphs Scale	Choose the relationship that will take JiJi to the given distance in a shorter amount of time, taking into account the scaling on the y-axis.
Graph Path XY Flip	Move the vertical and horizontal arrows to keep JiJi on the given straight line path.
Racing Graphs XY Flip	Select the relationship that will take JiJi to the given distance in a shorter amount of time, taking into account that distance is on the x-axis and time is on the y-axis.

Summer Bridge Grade 6

Game Name	Game Description
Build-A-Monster	Identify the ratio of the monster arms to monster mouths.
Number Line Exponents	Given an expression with two operations, evaluate it using the number line.
Wall Factory	Choose values for the variables to make the given expression represent the configuration of blocks in the ground.
Solving One-Step Equations	Solve one- and two-step one-variable linear equations involving addition and multiplication. The two sides of the equation are modeled as stacks that need to have equal height.
Concepts of Decimal Multiplication and Division	Select the numeric quotient of two integers or an integer and a decimal. Introduce quotients less than one.

OPTIONAL OBJECTIVES

Multiplication and Division Facts

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

Addition and Subtraction Facts

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

STANDARDS INDEX

NNS - Number and Number Sense

Standard	Objective(s)
6.2a	The student will represent and determine equivalencies among fractions, mixed numbers, decimals, and percents.
	Related: Percents
6.4	The student will recognize and represent patterns with whole number exponents and perfect squares.
	Recommended: Proportional Reasoning; Percents; Representing Ratios and Rates; Fraction Division; Linear Relationships (G6)

CE - Computation and Estimation

Standard	Objective(s)
6.5a	The student will multiply and divide fractions and mixed numbers.
	Related: Multiplying Fractions
6.5c	The student will solve multistep practical problems involving addition, subtraction, multiplication, and division of decimals.
	Recommended: Fraction Division; Decimal Addition and Subtraction; Decimal Multiplication; Decimal Division
6.6a	The student will add, subtract, multiply, and divide integers.
	Recommended: Division Algorithm
6.6b	The student will solve practical problems involving operations with integers.
	Recommended: Division Algorithm
6.6c	The student will simplify numerical expressions involving integers.
	Recommended: Negative Numbers; Properties of Operations (G6)
	Related: Modeling with Expressions (G6); Exponents

MG - Measurement and Geometry

Standard	Objective(s)
6.8b	The student will identify the coordinates of a point and graph ordered pairs in a coordinate plane.
	Recommended: Coordinates and Distances
6.9	The student will determine congruence of segments, angles, and polygons.
	Related: Solving One-Step Equations (G6); Area of Polygons

PS - Probability and Statistics

Standard	Objective(s)

6.1　The student, given a practical situation, will a) represent data in a circle graph; b) make observations and inferences about data represented in a circle graph; and c) compare circle graphs with the same data represented in bar graphs, pictographs, and line plots.

Recommended: Proportional Reasoning; Representing Ratios and Rates

Related: Linear Relationships (G6)

6.10c　The student will compare circle graphs with the same data represented in bar graphs, pictographs, and line plots.

Recommended: Area of Polygons

Related: Line Plot Intro and Histograms

6.11a　The student will represent the mean of a data set graphically as the balance point.

Related: Line Plots and Summary Statistics (G6)

PFA - Patterns, Functions, and Algebra

Standard	Objective(s)

6.13　The student will solve one-step linear equations in one variable, including practical problems that require the solution of a one-step linear equation in one variable.

Recommended: Solving One-Step Equations (G6)

JOURNEY AND BONUS JOURNEY OBJECTIVES

Addition and Subtraction with Negative Numbers

Game Name	Game Description
Integers on the Number Line	Add and subtract positive and negative integers and locate the results on a number line.
Add Stacks Negative	Identify the positive or negative integer that can be added to one number to obtain another number.
Temperature Changes	Learn to read the temperature on a thermometer. Determine the temperature change by reading and comparing the temperature on two thermometers.

Multiplication and Division with Negative Numbers

Game Name	Game Description
Mult Div Stacks	Create multiplication or division expressions given a product or quotient using visual models of negation.
Jelly Block Integers	Evaluate or solve for unknowns given a multiplication or division statement on a number line.
Jelly Block Decimals	Evaluate or solve for unknowns given a decimal multiplication or division statement on a number line.

Proportional Relationships

Standards Coverage:

Related: 7.3

Game Name	Game Description
Stretch-A-Block	Scale blocks by whole number factors using a visual model.
Kaboomerang!!	Proportional reasoning in this number line model.
Ornaments Proportions	Given a ratio, select equivalent ratios using the model.
Ornaments Pick-a-Proportion	Given data, chose and complete the ratio that describes it.

Percents with Increases and Decreases

Standards Coverage:

Related: 7.3

Game Name	Game Description
Percent Objects	Visually estimate percent of, percent increase, and percent decrease problems.
Percent Objects Symbolic	Symbolically estimate percent of, percent increase, and percent decrease problems.
Percent Coin	Convert visually between percent increase/decrease and percent of.
Percent Strategy	Use a bar model strategy to solve percent problems, including percent increase and decrease.
Percent Solve	Solve visual and symbolic percent problems.
Percent Expression	Build equivalent expressions for percent increase and percent decrease situations .

Unit Rates, Tables, and Graphs (G7)

Standards Coverage:

Related: 7.3, 7.10a, 7.10b

Game Name	Game Description
Ornaments Operations	Given equivalent ratios in the model, determine the scale factor.
Monster Graphs	Given a rate, plot equivalent rates on a graph.
Monster Graphs Build Rates	Given a graph of equivalent rates, determine an additional or reduced rate.
Monster Tables	Given a rate, write equivalent rates in a table.
Monster Tables Build Rates	Given a table of equivalent rates, determine an additional or reduced rate.
Ornaments Tables	Determine which table describes a proportional relationship and complete the table.

Rational Concepts (G7)

Standards Coverage:

Recommended: 7.2

Game Name	Game Description
Fraction, Percent, Decimal Trap	Estimate the location of fractions, decimals, and percents on the number line.
Fraction to Decimal Conversions	Convert between fraction and decimal representations of numbers using the division algorithm.
Repeating Decimals to Fractions	Choose an equivalent fraction given a repeating decimal using the division algorithm.
Fractions to Repeating Decimals	Choose an equivalent repeating decimal given a fraction using the division algorithm.

Adding and Subtracting Rational Numbers

Standards Coverage:

Recommended: 7.2, 7.3

Game Name	Game Description
JiJi Cycle	Relate a collection of fractions represented with circular diagrams to a single point on the number line.
Numline Add Sub Negation	Add and subtract fractions on the number line. The fractions are presented using visual models.
Numline Add Sub 3 Terms	Evaluate three term fraction addition and subtraction expressions using a number line model.

Multiplying and Dividing Rational Numbers

Standards Coverage:

Recommended: 7.2, 7.3

Game Name	Game Description
Multiplication and Division Stacks Countdown	Solve for an unknown rational multiplicand or divisor using a visual model.
Multiplication and Division Stacks Pit Stop	Solve for an unknown rational multiplicand or divisor using a visual model.
Multiplication and Division Stacks Finish Line	Solve for an unknown rational multiplicand or divisor using a visual model.

Properties of Operations

Game Name	Game Description
Multiplying with Parentheses	Learn the meaning of and how to simplify expressions involving variables and parentheses.
Distributive Property	Use the distributive property to show the meaning of expressions with parentheses and variables.

Modeling with Expressions

Game Name	Game Description
Which Parentheses	Identify where the parentheses should be placed to make the expression equal to the given value.
Box Commute	Use the commutative property to transform the given expression into one that represents a different configuration of blocks.
Wall Factory	Choose values for the variables to make the given expression represent the configuration of blocks in the ground.
Wall Factory Modeling	Choose the expression that could represent the given configuration of blocks.

Solving One-Step Equations (G7)

Standards Coverage:

Related: 7.12

Game Name	Game Description
Variable Stacks	Solve one- and two-step one-variable linear equations involving addition and multiplication. The two sides of the equation are modeled as stacks that need to have equal height.
Solve Equation	Solve one-variable addition, subtraction, or multiplication equations.
Rolling Equations	Use a number line model to solve one-variable addition equations and to find particular solutions to two-variable addition equations, including equations with multiple instances of the variable or variables.
Variable Stacks Symbolic	Solve one- and two-step one-variable addition and multiplication equations that are presented symbolically.

Solving Two-Step Equations (G7)

Standards Coverage:

Recommended: 7.12

Game Name	Game Description
Variable Stacks with Like Terms	Students will solve symbolic equations of the form of $px+q=r$, where p,q,r, and x are any integer value.
Inverse Game	Students will select the inverse operation or reciprocal of whole numbers and fractional numbers to bring the visual equation back into balance.
Solve Equation	Students will solve symbolic equations of the form of $px+q=r$, where p,q,r, and x are any integer value.
Solve Equation Like Terms	Students will solve symbolic equations of the form of $px+qx=r$, where p,q,r, and x are any integer value.
Frac Wall	Students will solve visual equations of the form $px=r$, where p and x are positive rational numbers (of the form a/b).
Variable Stacks Fractions	Students will solve visual and symbolic equations in the form $px+q=r$, where x,q, and r are integers and p is a rational number (of the form a/b).
Rolling Equation Multiple Unknowns	Find particular solutions to two-variable linear equations using a number line model.

Linear Relationships

Standards Coverage:

Related: 7.10a

Game Name	Game Description
Make it Linear Table	Given a description of a proportional relationship, fill in missing values in a table of pairs corresponding to the ratio described.
Linear Transform	Given an operation or a sequence of two operations, find the output resulting from a given input, or the input required to produce a given output.
Linear Transform Function	Select the linear function, represented as an operation or sequence of two operations, that is consistent with the given input and output values.
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.

Multi-Step Percents

Standards Coverage:

Related: 7.3

Game Name	Game Description
Percent Solve Multi-Step	Solve advanced multi-step percent problems
Percent Growth	Estimate repeated percent problems using visual models.

Applying Rates and Ratios

Standards Coverage:

Related: 7.3

Game Name	Game Description
Seed Worm	Select the number of increments, the length of the increment, or the total distance, when given the other two.
Seed Worms	Determine the missing values for two seed worm problems which have a dependence between them.
Seed Worms Fractions	Determine the missing values for two seed worm problems, now using fractional increments as well as whole number ones.
Speed Worms	Estimate the point at which the seed worms will meet, based on their directions, speeds, and starting locations. In other levels, adjust the speed of one of the worms so that the two worms will meet at the designated spot.

Scale and Slope Graphs (G7)

Standards Coverage:

Related: 7.10b, 7.10d

Game Name	Game Description
Graph Path	Move the point along a straight line in a coordinate plane.
X Beams Proportional	Adjust the y-coordinate of a point so it is on the line that goes through two other points on the plane.
X Beams Linear	Adjust the offset and the vertical increment so that the beam will go through the two given points.
Racing Graphs	Select the relationship that will take JiJi to the given distance in a shorter amount of time.
X Beams XY Scale	Identify the scaling factor that is used on the y-axis of a given coordinate plane graph.
Racing Graphs Scale	Choose the relationship that will take JiJi to the given distance in a shorter amount of time, taking into account the scaling on the y-axis.
Graph Path XY Flip	Move the vertical and horizontal arrows to keep JiJi on the given straight line path.
Racing Graphs XY Flip	Select the relationship that will take JiJi to the given distance in a shorter amount of time, taking into account that distance is on the x-axis and time is on the y-axis.
Racing Graphs XY Scale Flip	Select the relationship that will take JiJi to the given distance in a shorter amount of time, taking into account the scaling and labels on the axes.

Polygon Angle Sums

Game Name	Game Description
Angle Sums With Triangles	Find the sum of a polygon's interior angles by decomposing the polygon into a set of triangles.
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	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.
Missing Angle Symbolic	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.

Probability

Game Name	Game Description
Least Most Probability	Answer probability questions by describing events as likely, unlikely, probable, or improbable.
High, Low, Certain and Impossible Probability	Identify the outcome that matches the given description - certain, impossible, likely or unlikely.
Estimate Probability with Marbles	Estimate the probability of selecting or not selecting a particular type of marble from the given jar.
Estimate Probability with Spinner	Estimate the probability of the spinner landing inside or outside of a given region.
Estimate Probability Dice	Estimate the probability of a particular outcome of a roll of a die.

Line Plots and Summary Statistics (G7)

Game Name	Game Description
Dot Plot Sweep Intro	Explore concepts related to the shape of a shape of a distribution, including skew and spread.
Mode Magnet Negatives	Identify the minimum, maximum, or mode value of a distribution numbers shown in a dot plot. Includes distributions with positive or negative values or both.
Median Diamond Catcher Negatives	Order a group of whole numbers, fractions, or decimals in order to find the median value. Includes positive and negative values.
Mean Dot Plots	Find the mean of the values displayed in a dot plot.
Dot Plot Sweep Mean and Median	Adjust the spread, skew, or position of a given distribution so that it will have the indicated median and mean.
What's the Range	Find the range of a list of numbers.
Box Plot Diamond Catcher	Identify the minimum, maximum, median, and first and third quartiles of a distribution.
Dot Plot Sweep Boxplot	Adjust the spread, skew, or position of a given distribution so that it will have the indicated quartiles.
Mean Absolute Deviation	Find the mean absolute deviation of a given distribution.
Dot Plot Sweep MAD and Review	Adjust the spread, skew, or position of a given distribution so that it will have the indicated mean and MAD, or the indicated quartiles.

Challenge 7

Game Name	Game Description
Upright JiJi	Find a sequence of rotations to move JiJi into an upright position.
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.
Kick Box	Use lasers and mirrors to move the spheres out of the way so JiJi can pass.

Cognitive Training

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

Summer Bridge Grade 7

Game Name	Game Description
Frac Wall	Students will solve visual equations of the form px=r, where p and x are positive rational numbers (of the form a/b).
Solving Two-Step Equations	Students will solve visual and symbolic equations in the form px+q=r, where x,q, and r are integers and p is a rational number (of the form a/b).
Linear Balloons Match Equation	Given a linear equation, shift and rotate the line to describe the equation.
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.
Percent Solve Multi-Step	Solve advanced multi-step percent problems

OPTIONAL OBJECTIVES

Multiplication and Division Facts

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

Addition and Subtraction Facts

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

STANDARDS INDEX

CE - Computation and Estimation

Standard	Objective(s)
7.2	The student will solve practical problems involving operations with rational numbers. **Recommended: Rational Concepts (G7); Adding and Subtracting Rational Numbers; Multiplying and Dividing Rational Numbers**
7.3	The student will solve single-step and multistep practical problems, using proportional reasoning. **Recommended: Adding and Subtracting Rational Numbers; Multiplying and Dividing Rational Numbers** *Related: Proportional Relationships; Percents with Increases and Decreases; Unit Rates, Tables, and Graphs (G7); Multi-Step Percents; Applying Rates and Ratios*

PFA - Patterns, Functions, and Algebra

Standard	Objective(s)
7.10a	The student will determine the slope, m, as rate of change in a proportional relationship between two quantities and write an equation in the form y = mx to represent the relationship. *Related: Unit Rates, Tables, and Graphs (G7); Linear Relationships*
7.10b	The student will graph a line representing a proportional relationship between two quantities given the slope and an ordered pair, or given the equation in y = mx form where m represents the slope as rate of change. *Related: Unit Rates, Tables, and Graphs (G7); Scale and Slope Graphs (G7)*
7.10d	The student will graph a line representing an additive relationship between two quantities given the y-intercept and an ordered pair, or given the equation in the form y = x + b, where b represents the y-intercept. *Related: Scale and Slope Graphs (G7)*
7.12	The student will solve two-step linear equations in one variable, including practical problems that require the solution of a two-step linear equation in one variable. **Recommended: Solving Two-Step Equations (G7)** *Related: Solving One-Step Equations (G7)*

JOURNEY AND BONUS JOURNEY OBJECTIVES

Rational Concepts

Standards Coverage:

Related: 8.1

Game Name	Game Description
Fraction, Percent, Decimal Trap	Estimate the location of fractions, decimals, and percents on the number line.
Fraction to Decimal Conversions	Convert between fraction and decimal representations of numbers using the division algorithm.
Repeating Decimals to Fractions	Choose an equivalent fraction given a repeating decimal using the division algorithm.
Fractions to Repeating Decimals	Choose an equivalent repeating decimal given a fraction using the division algorithm.

Unit Rates, Tables, and Graphs

Standards Coverage:

Related: 8.16b

Game Name	Game Description
Hungry Monsters	Given a ratio, find the missing monsters or missing fruit.
Ornaments Operations	Given equivalent ratios in the model, determine the scale factor.
Blob Price	Solve unit rate problems involving unit pricing.
Monster Graphs	Given a rate, plot equivalent rates on a graph.
Monster Graphs Build Rates	Given a graph of equivalent rates, determine an additional or reduced rate.
Monster Tables	Given a rate, write equivalent rates in a table.
Monster Tables Build Rates	Given a table of equivalent rates, determine an additional or reduced rate.
Ornaments Tables	Determine which table describes a proportional relationship and complete the table.

Solving One-Step Equations

Standards Coverage:

Recommended: 8.8

Game Name	Game Description
Missing Addend	Fill in the missing addend to make the equation true.
Variable Stacks	Solve one- and two-step one-variable linear equations involving addition and multiplication. The two sides of the equation are modeled as stacks that need to have equal height.
Solve Equation	Solve one-variable addition, subtraction, or multiplication equations.
Rolling Equations	Use a number line model to solve one-variable addition equations and to find particular solutions to two-variable addition equations, including equations with multiple instances of the variable or variables.
Variable Stacks Symbolic	Solve one- and two-step one-variable addition and multiplication equations that are presented symbolically.

Solving Two-Step Equations

Standards Coverage:

Recommended: 8.8

Game Name	Game Description
Rolling Equation	Students will select a pair of numbers (all positive) that fit the relationship (additive, multiplicative, or both) displayed by visual representation of jumps on the number line.
Variable Stacks	Students will solve visual equations of the form of $px+q=r$, where p,q,r, and x are any integer value.
Variable Stacks with Like Terms	Students will solve symbolic equations of the form of $px+q=r$, where p,q,r, and x are any integer value.
Inverse Game	Students will select the inverse operation or reciprocal of whole numbers and fractional numbers to bring the visual equation back into balance.
Solve Equation	Students will solve symbolic equations of the form of $px+q=r$, where p,q,r, and x are any integer value.
Solve Equation Like Terms	Students will solve symbolic equations of the form of $px+qx=r$, where p,q,r, and x are any integer value.
Frac Wall	Students will solve visual equations of the form $px=r$, where p and x are positive rational numbers (of the form a/b).
Variable Stacks Fractions	Students will solve visual and symbolic equations in the form $px+q=r$, where x,q, and r are integers and p is a rational number (of the form a/b).
Rolling Equation Multiple Unknowns	Find particular solutions to two-variable linear equations using a number line model.

Solving Linear Equations

Standards Coverage:

Recommended: 8.8

Game Name	Game Description
Rolling Equation	Students will select a pair of numbers (all positive) that fit the relationship (additive, multiplicative, or both) displayed by visual representation of jumps on the number line, including variables on both sides.
Variable Stacks	Students will solve visual equations of the form of px+q =rx where p,q,r,s,t,u and x are any integer value.
Inverse Game	Students will select the inverse operation or reciprocal of whole numbers and fractional numbers to bring the visual equation back into balance.
Solve Equation	Students will solve symbolic equations of the form of px+q=rx where p,q,r, and x are any integer value.
Frac Wall	Students will solve visual equations of the form px=r, where p and x are positive rational numbers (of the form a/b).
Variable Stacks Fractions	Students will solve visual and symbolic equations in the form px+q=r, where x,q, and r are integers and p is a rational number (of the form a/b).
Solve Equation, Many Solutions	Students will see examples of linear equations with one solution and infinitely many solutions.
Variable Stacks Multiple Variables	Students will solve visual and symbolic equations with multiple variables and rational numbers of the form y=mx+b, ay=bx, ay+bx=c.

Exponents and Squares

Game Name	Game Description
Build Shape	Build the given shape using visual exponentiation.
Circle Exponents	Build the given shape using repeated multiplication.
Exponential Notation	Build the given shape using exponential notation.
Perfect Squares	Determine which number or product is a perfect square.
Repeated Expressions	Given a exponential or multiplicative expression, select repeated addition or repeated multiplication.
Write Exponential Expressions	Given a repeated multiplication or addition expression, write the expression in exponential or multiplicative notation.
Number Line Exponents	Plot an exponential expression on the number line.
Number Line Exponents Bubble Select	Evaluate an exponential expression.
Operation Race with Exponents	Decompose an expression without parentheses by using the order of operations.
Number Line Exponents Two Operations	Given an expression with two operations, evaluate it using the number line.
Number Line Exponents Two Ops Bubble Select	Numerically evaluate an expression that has two operations.
Operation Race with Parentheses	Decompose an expression using the full order of operations (parentheses included).
Cube Exponents	Select the exponential expression that matches the given model.
Cube Exponents Bubble Select	Select the missing digit that will match the exponential expression with the given model.
Place Value Powers of 10	Determine the power of ten (positive and negative) that corresponds to the appropriate place value.
Operations Race, Powers of 10	Evaluate numeric expressions involving both decimals and positive or negative powers of ten.

Scale and Slope Graphs

Standards Coverage:

Recommended: 8.5

Game Name	Game Description
Graph Path	Move the point along a straight line in a coordinate plane.
X Beams Proportional	Adjust the y-coordinate of a point so it is on the line that goes through two other points on the plane.
X Beams Linear	Adjust the offset and the vertical increment so that the beam will go through the two given points.
Racing Graphs	Select the relationship that will take JiJi to the given distance in a shorter amount of time.
X Beams XY Scale	Identify the scaling factor that is used on the y-axis of a given coordinate plane graph.
Racing Graphs Scale	Choose the relationship that will take JiJi to the given distance in a shorter amount of time, taking into account the scaling on the y-axis.
Graph Path XY Flip	Move the vertical and horizontal arrows to keep JiJi on the given straight line path.
Racing Graphs XY Flip	Select the relationship that will take JiJi to the given distance in a shorter amount of time, taking into account that distance is on the x-axis and time is on the y-axis.
Racing Graphs XY Scale Flip	Select the relationship that will take JiJi to the given distance in a shorter amount of time, taking into account the scaling and labels on the axes.

Function Concepts

Standards Coverage:

Recommended: 8.5

Game Name	Game Description
Kaboomerang Single-Step	Differentiate between scaling and offsetting with double number lines.
Ornaments Single-Step	Find unknown values given either a scaling or offsetting relationship.
Ornaments Numeric	Apply numeric strategies for offsetting or scaling with double number lines.
Make it Linear	Given some points on a table, complete the missing values given that it is a linear relationship.
Linear Transform	Identify inputs, outputs, slope and offset for a linear relationship.
Kaboomerang Two-Step	Combine offsetting and scaling to model linear function with a double number line.
Ornaments Two-Step Table	Find unknown values given a linear relationship.
Make it Linear Non Unit Rate	Given some non-sequential points on a table, complete the missing values given that it is a linear relationship.
Linear Transform Fractional Slope	Given a table, identify the fractional slope and integer offset that describes the linear relationship.
Kaboomerang Litmus Test	Apply previous numeric and mathematical understandings to model and then solve linear problems in a non-numeric environment.

Graphing Linear Functions

Standards Coverage:

Recommended: 8.5, 8.16b, 8.16d, 8.16e

Game Name	Game Description
Linear Balloons	Place the missing balloon(s) in place so that the result forms a line.
Space Slope	Given a slope and a point, rotate the line to describe the information.
Linear Balloons Match Equation	Given a linear equation, shift and rotate the line to describe the equation.
Graph Sweep	Adjust the given equation so that the sweeping line matches the desired line.
Linear Balloons Tables	Given an equation, fill in a table of values that satisfy the equation.
Graph Sweep Bubble Select	Given a line, write the equation that describes it using the graph sweep model.
Linear Balloons Graphing	Given a line, write the equation that describes it using the balloon model.

Line Plots and Summary Statistics

Game Name	Game Description
Dot Plot Sweep Intro	Explore concepts related to the shape of a shape of a distribution, including skew and spread.
Mode Magnet Negatives	Identify the minimum, maximum, or mode value of a distribution numbers shown in a dot plot. Includes distributions with positive or negative values or both.
Median Diamond Catcher Negatives	Order a group of whole numbers, fractions, or decimals in order to find the median value. Includes positive and negative values.
Mean Dot Plots	Find the mean of the values displayed in a dot plot.
Dot Plot Sweep Mean and Median	Adjust the spread, skew, or position of a given distribution so that it will have the indicated median and mean.
What's the Range	Find the range of a list of numbers.
Box Plot Diamond Catcher	Identify the minimum, maximum, median, and first and third quartiles of a distribution.
Dot Plot Sweep Boxplot	Adjust the spread, skew, or position of a given distribution so that it will have the indicated quartiles.
Mean Absolute Deviation	Find the mean absolute deviation of a given distribution.
Dot Plot Sweep MAD and Review	Adjust the spread, skew, or position of a given distribution so that it will have the indicated mean and MAD, or the indicated quartiles.

Challenge 8

Game Name	Game Description
Upright JiJi	Find a sequence of rotations to move JiJi into an upright position.
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.
Kick Box	Use lasers and mirrors to move the spheres out of the way so JiJi can pass.

Cognitive Training

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

Summer Bridge Grade 8

Game Name	Game Description
Variable Stacks	Students will solve visual equations of the form of px+q =rx where p,q,r,s,t,u and x are any integer value.
Linear Transform Table	Identify inputs, outputs, slope and offset for a linear relationship.
Linear Balloons	Given a linear equation, shift and rotate the line to describe the equation.
Variable Stacks Multiple Variables	Students will solve visual and symbolic equations with multiple variables and rational numbers of the form y=mx+b, ay=bx, ay+bx=c.
Polynomial Fill	Factor a quadratic expression.

OPTIONAL OBJECTIVES

Multiplication and Division Facts

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

Addition and Subtraction Facts

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

Factoring Quadratics

Game Name	Game Description
Grid Expressions	Build a rectangle given the dimensions. Select rectangle dimensions given a rectangle.
Product Sum Drop	Given a product and a sum, select two numbers that both add up to the sum and multiply to the product.
Polynomial Fill Positive	Factor a quadratic expression.

Parabolas and Quadratic Functions

Game Name	Game Description
Parabola Balloons	Place the missing balloon(s) in place so that the result forms a paraboloa.
Parabola Balloons Match Equation Tags	Given a quadratic equation where b = 0, use the given tools to describe the equation. Here, a and c will have number tags on.
Graph Sweep	Adjust the given equation so that the sweeping parabola matches the desired parabola. Here, b is zero.
Parabola Balloons Table	Given an equation with b = 0, fill in a table of values that satisfy the equation.
Parabola Balloons Symbolic	Given a parabola, write the equation that describes it using the balloon model. Here, b is given as zero.
Parabola Balloons Match Equation	Given a parabola where b = 0, use the given tools to describe the equation. Here, a and c will not have number tags.
Parabola Balloons Standard Form	Given visual tools for a, b, and c, describe the parabola that pops the balloons.
Match Equation Tags with Y Intercept	Given a quadratic equation (one coefficient is always zero), use the given tools to describe the equation. Here, a, b and c will have number tags on.
Graph Sweep Single	Adjust the given equation so that the sweeping parabola matches the desired parabola.
Parabola Balloons Standard Form Table	Given an equation, fill in a table of values that satisfy the equation.
Parabola Balloons Enter Equation	Given a parabola, use the given tools to describe the equation or enter the coefficients directly.
Graph Sweep Multiple Puzzles	Repeatedly adjust the given equation so that the sweeping parabola matches the desired parabola.

Percent Growth

Game Name	Game Description
Percent Growth Visual	Visually estimate linear and repeated percent problems.
Percent Growth Expression	Create expressions to model linear and repeated percent situation.
Percent Decay	Visually estimate and create expressions to model percent decay.

STANDARDS INDEX

MG - Measurement and Geometry

Standard	Objective(s)

8.5   The student will use the relationships among pairs of angles that are vertical angles, adjacent angles, supplementary angles, and complementary angles to determine the measure of unknown angles.

Recommended: Scale and Slope Graphs; Function Concepts; Graphing Linear Functions

8.8   The student will construct a three-dimensional model, given the top or bottom, side, and front views.

Recommended: Solving One-Step Equations; Solving Two-Step Equations; Solving Linear Equations

8.1   The student will solve area and perimeter problems, including practical problems, involving composite plane figures.

Related: Rational Concepts

PFA - Patterns, Functions, and Algebra

Standard	Objective(s)
8.16b	The student will identify the slope and y-intercept of a linear function, given a table of values, a graph, or an equation in y = mx + b form.
	Recommended: Graphing Linear Functions
	Related: Unit Rates, Tables, and Graphs
8.16d	The student will graph a linear function given the equation in y = mx + b form.
	Recommended: Graphing Linear Functions
8.16e	The student will make connections between and among representations of a linear function using verbal descriptions, tables, equations, and graphs.
	Recommended: Graphing Linear Functions

GRADES 6-8 - AUTO ASSIGNMENTS OBJECTIVES

Visual Fraction Concepts

Game Name	Game Description
Match Fraction	Represent a given fraction using a visual model by first dividing a whole into equal parts and then shading the correct number of parts.
Crank Pies	Build a model to represent a given fraction, including fractions greater than or equal to 1.
Alien Bridge	Write the fraction that is represented by a given visual model.
Match Fraction Mixed Numbers	Build a model to represent a given fraction or mixed number, by using blocks and dividing them into equal parts.
Crank Pies Mixed Numbers	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 Mixed Numbers	Write the mixed number that is represented by a given visual model.

Fractions on the Number Line

Game Name	Game Description
JiJi Cycle Basket	Estimate on a number line the location of a fraction represented by a diagram.
Scale Fraction	Given a fraction or mixed number represented visually as equal parts of rectangular blocks, select the denominator to make tick marks on the number line, then plot the point by selecting the number of number line segments needed.
JiJi Cycle	Select the fraction corresponding to the marked point on the number line. The fractions are represented visually as equal parts of a disc.
Estimate Fractions on Number Line	Estimate the location of fractions on a number line.
JiJi Cycle Select Wheel LI	Given a location on a number line, select the number of unit fractions with a given denominator needed to reach it.
Fraction Trap	Estimate on a number line the location of a given fraction, including whole numbers represented as fractions.

Comparing and Equivalent Fractions

Game Name	Game Description
Fraction Trap	Estimate on a number line the location of a given fraction, including whole numbers represented as fractions, and fractions with numerator 0.
Fricks	Bulid an understanding of fraction equivalence by selecting blocks partitioned into differing number of parts and shading the same total amount of area on each of them.
Common Denominator with Wholes	Given two blocks that are partitioned into different numbers of equal parts, select another block that is partitioned into a number of parts that is a multiple of both these numbers.
Fraction More or Less	Compare unit fractions and other pairs of fractions that have either the same numerator of the same denominator.
Common Denominator with Fractions	Find a common denominator for two fractions using the model of partitioning blocks into equal parts.
Simplify Fraction	Learn how to simplify fractions by canceling common factors from the numerator and denominator.
Equivalent Fractions	Identify equivalent fractions using rectangular diagrams displaying equal parts of a whole.
Fractions on Number Line	Estimate on a number line the location of fourths, halves, 6ths, 8ths, 9ths and 12ths.

Fraction Addition and Subtraction

Game Name	Game Description
Fraction Robot	Add proper and improper fractions with like denominators using rectangular diagrams displaying equal parts of a whole.
Fraction Robot Addition and Subtraction LI	Subtract proper and improper fractions with like and unlike denominators.
Crank Pies Addition and Subtraction LI	Add fractions and mixed numbers with like and unlike denominators.
JiJi Cycle Select Basket	Relate a collection of fractions represented with circular diagrams to a single point on the number line.
Alien Bridge Common Denominators LI	Add mixed numbers with the same denominator. In some levels, students fill in the missing addend when given one addend and the sum.
Crank Pies Addition and Subtraction	Add fractions and mixed numbers with like and unlike denominators using circular diagrams displaying equal parts of whole.
Alien Bridge Addition	Learn the meaning of fraction addition using visual models.
Scale Fraction Addition and Subtraction LI	Add and subtract fractions and mixed numbers with like and unlike denominators on the number line.
Alien Bridge Mixed Numbers	Add mixed numbers with the same denominator. In some levels, students fill in the missing addend when given one addend and the sum.
Scale Fraction Addition and Subtraction	Add and subtract fractions and mixed numbers on the number line. The fractions and mixed numbers are presented using visual models.

Fraction Multiplication

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

Unlike Denominator Concepts and Strategies

Game Name	Game Description
Number Line Equivalence	Identify equivalent fractions using a number line model.
Fraction Grid	Write one- and two-place decimals as fractions with denominators of 2, 4, 10, or 100.
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

Game Name	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 Symbolic	Match the partitioning of two rectangular blocks in order to create fractions with a common denominator.
Alien Bridge Symbolic	Learn the meaning of fraction addition using visual models.
Fraction Grid	Select a number of partitions on a given grid to represent the the sum or difference of two 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.

Fraction Division

Game Name	Game Description
Select Peanuts	Given the rate of peanuts per elephant and the whole or fractional number of elephants to feed, select the total number of peanuts.
Select Elephants	Select the whole or fractional number of elephants needed to eat the given quantity of peanuts.
Select Peanuts per Elephant	Given the number of peanuts and the whole or fractional number of elephants, select the rate of peanuts per elephant.
Select Peanut or Elephant Multiplier	Multiply and divide whole numbers by whole numbers and by fractions using the elephants and peanuts model.
Model Peanuts Equation	Given a numeric division prompt of a whole number divided by a whole number or by a unit fraction, use the model to generate the corresponding scenario.
Build Peanuts Equation	Fill in the blanks to write a division expression that represents the situation.
Peanuts - Whole Numbers and Unit Fractions	Divide whole numbers by whole numbers and by unit fractions.
Area Divide	Divide whole numbers by whole numbers and 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.
Visual Fraction Division	Divide fractions by unit fractions using the elephants and peanuts model, now with fractional peanuts as well as whole peanuts.
Model Division	Given an expression showing a whole number divided by a fraction or a fraction divided by a unit fraction, select elephants and peanuts to model the expression.
Convert to Multiplication	Rewrite a fraction division expression as a multiplication expression.
Fraction Division Symbolic	Divide whole numbers and fractions by fractions.

Base Ten Concepts

Game Name	Game Description
Petals Multiple Choice	Represent ones, tens, hundreds and thousands using words, numerals and visual models.
Pulling Petals	Gain an understanding of place value by transforming the pile of petals into thousands (boxes with 1,000 petals each), hundreds (bouquets with 100 petals each), tens (flowers with 10 petals each), and ones (single petals).
Bee Petals	Represent numbers using a place value based flower petal model. In some levels, students determine the order of magnitude, given a number and a pile of petals (e.g. given the number 4, identify the size of the pile as 4 ones, 4 tens, or 4 hundreds, or 4 thousands).
Petals Bubble Select	Find the total number of petals by counting the boxes (thousands), bouquets (hundreds), flowers (tens) and single petals (ones) and then filling in the hundreds, tens and ones places with the correct numerals.
How Many Petals	Write a numeral to represent the quantity of petals.
Petals Place Value	Given a four-digit whole number, identify the number of thousands, hundreds, tens, and ones.
Petals Regrouping	Given a model of boxes of flowers (thousands), 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 Regrouping Random	Find the total number of petals by counting the boxes (thousands), bouquets (hundreds), flowers (tens), and ones (individual petals) and regrouping using mental arithmetic.

Whole Number Addition

Game Name	Game Description
Visual Addition	Using the petals model, add two three-digit whole numbers with regrouping in the ones or tens place.
Petals Addition with Numbers	Increase symbolism in the petals model to add two three-digit whole numbers with regrouping in the ones or tens place.
Petals Addition Method	Symbolically add two three-digit whole numbers with regrouping in the ones or tens place. Use the petals model as support.
Symbolic Addition	Symbolically add two three-digit whole numbers with regrouping in the ones or tens place.
Three-Digit Addition Algorithm	Add two- and three-digit whole numbers using the standard algorithm.
Addition Algorithm	Add four-digit whole numbers using the standard algorithm.

Whole Number Subtraction

Game Name	Game Description
Whole Number Subtraction	Using the petals model, subtract two three-digit whole numbers with regrouping in the ones or tens place.
Petals Subtraction with Numbers	Increase symbolism in the petals model to subtract two three-digit whole numbers with regrouping in the ones or tens place.
Petals Subtraction Method	Symbolically subtract two three-digit whole numbers with regrouping in the ones or tens place. Use the petals model as support.
Symbolic Subtraction	Symbolically subtract two three-digit whole numbers with regrouping in the ones or tens place.
Subtraction Algorithm	Subtract four-digit whole numbers using the standard algorithm.
Addition and Subtraction Algorithm	Add and subtract whole numbers (up to five digits) using the standard algorithm.

Multiplication Algorithm

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

Division Algorithm

Game Name	Game Description
Visual Division	This game introduces division as the separation of a set of objects into equally sized subsets.
Long Division Snake	Divide small two-digit numbers by one-digit numbers, with the numbers represented as quantities.
Exploratory Division	Explore division without remainder on the number line using a place value model.
Number Line Sliders	Explore division with remainder on the number line using a place value model.
Number Line Division	Introduction to the full algorithm with single digit divisor and two digit dividends.
Range Trap	Estimate how many times a divisor goes into a dividend, using a number line model.
Vertical Range Trap	Estimate division of two-digit numbers by one- and two-digit divisors.
Double Digit Divisors	Explore the division algorithm with double-digit divisors.
Number Line Division Algorithm	Carry out the division algorithm using two-digit divisors and large dividends.
Division Snake Sliders	Introduce the idea of partitioning the dividend using strategies of place value and number sense.
Exploratory Number Sense	Select the digits of the quotient in a long division problem.

Fraction Decimal Equivalence

Game Name	Game Description
Fraction Decimal Grid	Write one- and two-place decimals as fractions with denominators of 2, 4, 10, or 100.
Complementary Fraction	Select the number of unit fractions with the given denominator that will add up to the given decimal.
Estimate Decimals and Fractions on Number Line	Estimate on a number line the location of fourths and halves in fraction and decimal form.
Fraction Decimal Grid 2	Add one- and two-place decimals and decimal fractions.
Fraction Decimal Trap	Plot on a number line one- and two-place decimals and fractions with denominators of 2, 4, 10, and 100.

Decimal Place Value

Game Name	Game Description
Number Line Journey	Plot one-, two-, and three-place decimals on a number line.
Decimal Greenies	Write the decimal that represents a given place-value based visual model.
Decimal Place Value	Identify and interpret the digit values of a given decimal.
Decimal Place Value Clouds	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	Write whole numbers and decimals in standard notation when given expanded form representations.
Decimal Comparison	Compare two decimals and record the result with an ordering symbol.
Decimal Order Fill	Fill the hole in the ground by correctly ordering the given decimals.

Decimal Addition and Subtraction

Game Name	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 one- and two-place decimals 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.

Decimal Multiplication

Game Name	Game Description
Jelly Blocks Fixed Platform	Visually select the multiplicand that solves the problem in this model.
Jelly Blocks	Select the product of two numbers using this model.
Jelly Blocks Number Sense	Numerically select the multiplicand that solves the problem in this model.
Jelly Blocks LI	Given a numeric multipication prompt of an integer with a decimal, determine the product.
Money Multiplication	Multiply money amounts by whole numbers.
Decimal Multiplication	Multiply decimals by whole numbers.
Decimal Moves	Given decimal and the corresponding integer, by multilpying by 10 or a tenth to move the decimal that turns the integer into the given decimal.
Decimal Multiplication Algorithm	Set up and carry out the mutliplication algorithm numerically. Finish the question by moving the decimal place appropriately.
High Wire Final Stage	Given two decimals and the product of their integer counterparts, determine where the decimal place should be placed to solve the product of the decimals.

Decimal Division

Game Name	Game Description
Jelly Blocks Fixed Platform	Visually select the divisor that solves the problem in this model.
Jelly Blocks	Select the visual quotient of two numbers using this model.
Jelly Blocks Decimals	Select the numeric quotient of two integers or an integer and a decimal. Introduce quotients less than one.
Exploratory Division	Explore division with decimals. In particular, develop the strategy of appending zeros after the decimal point.
Decimal Snake	Using the model, carry out division by a single digit integer where the dividend may be a decimal and may need to append zeros.
Whole Number Divisors	Carry out the division alogrithm with whole number divisors and dividends that may be decimals and may need to append zeros.
Range Trap Decimals	Given a decimal divisor and dividend, estimate the number of times the divisor goes into the dividend.
Introduction to Decimal Divisors	Given decimal divisors, first set up an equivalent division question where the divisor becomes an integer.
Decimal Division	Carry out decimal division using the standard algorithm, appending zeros as needed, and setting up an equivalent problem where the divisor becomes an integer.

Area and Perimeter

Game Name	Game Description
Select Area Perimeter	Find the area and perimeter of a rectangle using visual models.
Area Perimeter Select Shape	Construct a rectangle that has the given area and perimeter.
Area Perimeter with Units	Construct a rectangle that has the given area and perimeter. Later levels require students to make rectangles that have the same area and different perimeters or the same perimeter and different areas. Areas and perimeters are expressed using metric and U.S. customary units.
Perimeter Select	Calculate the perimeters of rectangles, triangles and other polygons and express them using metric and U.S. customary units.
Area Select	Calculate the areas of rectangles, triangles and parallelograms and express them using metric and U.S. customary units.
Area or Perimeter	Calculate the areas of rectangles, triangles and parallelograms and express them using metric and U.S. customary units.

Shapes and Attributes

Game Name	Game Description
Dot Shapes	Connect dots to form shapes which will fill holes in the ground.
Parallel or Perpendicular	Identify parallel, perpendicular, and intersecting lines within a given set of lines.
Parallel or Perpendicular with Labels	Identify parallel, perpendicular, and intersecting lines within a given set of lines. This game also teaches the use of variables to label distinct lines.
Shape Types	Identify different types of triangles (equilateral, acute, etc.) and different types of polygons (rectangle, rhombus, etc.)
Shape Names	Identify the given polygon.
Which Angle	Identify an angle as acute, obtuse, straight, or right when given its numerical or pictorial representation.
Circle Parts	Identify the radius, circumference and diameter of a circle
Pick Geometric Shapes 3D By Attributes	Identify the number of faces, edges, or vertices on a three-dimensional shape.
Pick Geometric Shapes 3D By Shapes	Select the three-dimensional shape that has the given number of faces, edges, or vertices.

Area of Polygons

Game Name	Game Description
Area of rectangle	Find the area and perimeter of a rectangle using visual models.
Complete Box	Write an expression to describe the area. Includes adding or deducting from the area.
Equal Areas	Determine which figure is divided up equally based on area.
Bricks	Arrange the shapes to create the composite shape shown.
Mean Height	Find the mean height of a collection of stacks of blocks, or the mean of a collection of numbers.
Area Select	Calculate the areas of rectangles, triangles and parallelograms and express them using metric and U.S. customary units.

Volume

Game Name	Game Description
Volume Fill	Calculate the volume of a right rectangular prism and express it using metric or U.S. customary cubic units.
Volume Select	Calculate the volumes of rectangular and triangular prisms and express them using metric or U.S. customary cubic units.