



Jiji®

# SCOPE & SEQUENCE

## WITH STANDARD ALIGNMENT

- GRADES 6-8 & AUTO-ASSIGNMENTS -  
COMMON CORE



**ST Math**®  
Created by MIND Research Institute

ST16-220728

# JOURNEY AND BONUS JOURNEY OBJECTIVES

## Negative Numbers

### Standards Coverage:

**Recommended:** 6.NS.C.6a, 6.NS.C.6c

*Related:* 6.NS.C.5, 6.NS.C.7b

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.NS.C.6b, 6.NS.C.8

*Related:* 6.NS.C.6c

Game Name	Game Description
Coordinate Trap	Select the location of a coordinate pair from the first quadrant.
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.RP.A.1**

*Related: 6.RP.A.2, 6.RP.A.3d*

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.RP.A.3c**

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.

## Unit Rates, Tables, and Graphs (G6)

### Standards Coverage:

**Recommended:** 6.RP.A.1, 6.RP.A.2, 6.RP.A.3a, 6.RP.A.3b

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.

## Fraction Division

### Standards Coverage:

**Recommended: 6.NS.A.1**

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.

## Properties of Operations (G6)

### Standards Coverage:

**Recommended:** 6.EE.A.2b

*Related:* 6.EE.A.2a, 6.EE.A.2c, 6.EE.A.4

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.

## Division Algorithm

### Standards Coverage:

**Recommended:** 6.NS.B.2

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.

## Modeling with Expressions (G6)

### Standards Coverage:

**Recommended:** 6.EE.A.2c, 6.EE.A.3

*Related:* 6.EE.A.2a, 6.EE.A.4

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.EE.B.7

*Related:* 6.EE.B.5, 6.EE.B.6

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.RP.A.1, 6.RP.A.3a**

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:

**Recommended: 6.EE.A.1**

*Related: 6.EE.A.2b*

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.NS.B.3, 6.NS.C.6c

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.NS.B.3

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 multiplication 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 multiplying 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 multiplication 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.NS.B.3**

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 algorithm 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.EE.A.2c, 6.G.A.1**

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:

**Recommended:** 6.SP.B.4

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:

**Recommended:** 6.SP.B.4, 6.SP.B.5c

*Related:* 6.SPA.2, 6.SPA.3

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 representation.
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

## RP - Ratios and Proportional Relationships

Standard	Objective(s)
<b>6.RP.A.1</b>	<p>Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. For example, 'The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak.', 'For every vote candidate A received, candidate C received nearly three votes.'</p> <p><b>Recommended: Proportional Reasoning; Unit Rates, Tables, and Graphs (G6); Linear Relationships (G6)</b></p>
<b>6.RP.A.2</b>	<p>Understand the concept of a unit rate <math>a/b</math> associated with a ratio <math>a:b</math> with <math>b</math> not equal to 0, and use rate language in the context of a ratio relationship.</p> <p><b>Recommended: Unit Rates, Tables, and Graphs (G6)</b></p> <p><i>Related: Proportional Reasoning</i></p>
<b>6.RP.A.3a</b>	<p>Make tables of equivalent ratios relating quantities with whole number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.</p> <p><b>Recommended: Unit Rates, Tables, and Graphs (G6); Linear Relationships (G6)</b></p>
<b>6.RP.A.3b</b>	<p>Solve unit rate problems including those involving unit pricing and constant speed. For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?</p> <p><b>Recommended: Unit Rates, Tables, and Graphs (G6)</b></p>
<b>6.RP.A.3c</b>	<p>Find a percent of a quantity as a rate per 100 (e.g., 30 percent of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.</p> <p><b>Recommended: Percents</b></p>

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## RP - Ratios and Proportional Relationships (continued)

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Standard	Objective(s)
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<b>6.RP.A.3d</b>	Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.
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*Related: Proportional Reasoning*

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## NS - The Number System

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Standard	Objective(s)
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<b>6.NS.A.1</b>	Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.
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**Recommended: Fraction Division**

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<b>6.NS.B.2</b>	Fluently divide multi-digit numbers using the standard algorithm.
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**Recommended: Division Algorithm**

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<b>6.NS.B.3</b>	Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
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**Recommended: Decimal Addition and Subtraction; Decimal Multiplication; Decimal Division**

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## NS - The Number System (continued)

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**Standard****Objective(s)**

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- 6.NS.C.5** Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above or below zero, elevation above or below sea level, credits or debits, positive or negative electric charge); use positive and negative numbers to represent quantities in real world contexts, explaining the meaning of 0 in each situation.

*Related: Negative Numbers*

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- 6.NS.C.6a** Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g.,  $-(-3) = 3$ , and that 0 is its own opposite.

**Recommended: Negative Numbers**

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- 6.NS.C.6b** Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.

**Recommended: Coordinates and Distances**

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- 6.NS.C.6c** Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.

**Recommended: Negative Numbers; Decimal Addition and Subtraction**

*Related: Coordinates and Distances*

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## NS - The Number System (continued)

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Standard	Objective(s)
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<b>6.NS.C.7b</b>	Write, interpret, and explain statements of order for rational numbers in real-world contexts.
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*Related: Negative Numbers*

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<b>6.NS.C.8</b>	Solve real world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.
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**Recommended: Coordinates and Distances**

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## EE - Expressions and Equations

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Standard	Objective(s)
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<b>6.EE.A.1</b>	Write and evaluate numerical expressions involving whole number exponents.
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**Recommended: Exponents**

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<b>6.EE.A.2a</b>	Write expressions that record operations with numbers and with letters standing for numbers.
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*Related: Properties of Operations (G6); Modeling with Expressions (G6)*

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## EE - Expressions and Equations (continued)

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**Standard****Objective(s)**

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- 6.EE.A.2b** Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity.

**Recommended: Properties of Operations (G6)**

*Related: Exponents*

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- 6.EE.A.2c** Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole number exponents, in the conventional order when there are no parentheses to specify a particular order.

**Recommended: Modeling with Expressions (G6); Area of Polygons**

*Related: Properties of Operations (G6)*

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- 6.EE.A.3** Apply the properties of operations to generate equivalent expressions.

**Recommended: Modeling with Expressions (G6)**

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- 6.EE.A.4** Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them).

*Related: Properties of Operations (G6); Modeling with Expressions (G6)*

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- 6.EE.B.5** Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.

*Related: Solving One-Step Equations (G6)*

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## EE - Expressions and Equations (continued)

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Standard	Objective(s)
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<b>6.EE.B.6</b>	Use variables to represent numbers and write expressions when solving a real world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.
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*Related: Solving One-Step Equations (G6)*

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<b>6.EE.B.7</b>	Solve real world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which $p$ , $q$ and $x$ are all nonnegative rational numbers.
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**Recommended: Solving One-Step Equations (G6)**

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## G - Geometry

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Standard	Objective(s)
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<b>6.G.A.1</b>	Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real world and mathematical problems.
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**Recommended: Area of Polygons**

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## SP - Statistics and Probability

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**Standard****Objective(s)**

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- 6.SP.A.2** Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.

*Related: Line Plots And Summary Statistics (G6)*

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- 6.SP.A.3** Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.

*Related: Line Plots And Summary Statistics (G6)*

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- 6.SP.B.4** Display numerical data in plots on a number line, including dot plots, histograms, and box plots.

**Recommended: Line Plot Intro and Histograms; Line Plots And Summary Statistics (G6)**

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- 6.SP.B.5c** Give quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.

**Recommended: Line Plots And Summary Statistics (G6)**

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# JOURNEY AND BONUS JOURNEY OBJECTIVES

## Addition and Subtraction with Negative Numbers

### Standards Coverage:

**Recommended: 7.NS.A.1c**

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

### Standards Coverage:

**Recommended: 7.NS.A.2a, 7.NS.A.2c**

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.RP.A.2b*

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:

**Recommended: 7.RP.A.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:

**Recommended: 7.RP.A.2b**

*Related: 7.RP.A.2d*

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.NS.A.2d**

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.NS.A.1c, 7.NS.A.1d, 7.NS.A.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.NS.A.2a, 7.NS.A.2b

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

### Standards Coverage:

*Related: 7.EE.A.1*

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

### Standards Coverage:

*Related: 7.EE.B.4a*

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:

**Recommended: 7.EE.B.4a**

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.EE.B.4a**

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:

**Recommended: 7.RP.A.2b**

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:

**Recommended: 7.RP.A.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:

**Recommended: 7.RP.A.2b**

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.RP.A.2a, 7.RP.A.2b, 7.RP.A.2c*

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

### Standards Coverage:

**Recommended: 7.G.B.5**

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

### Standards Coverage:

**Recommended: 7.SP.C.5**

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)

### Standards Coverage:

*Related: 7.SP.B.3*

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 representation.
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

## RP - Ratios and Proportional Relationships

Standard	Objective(s)
<b>7.RP.A.2a</b>	Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.  <i>Related: Scale and Slope Graphs (G7)</i>
<b>7.RP.A.2b</b>	Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.  <b>Recommended: Unit Rates, Tables, and Graphs (G7); Linear Relationships; Applying Rates and Ratios</b>  <i>Related: Proportional Relationships; Scale and Slope Graphs (G7)</i>
<b>7.RP.A.2c</b>	Represent proportional relationships by equations.  <i>Related: Scale and Slope Graphs (G7)</i>
<b>7.RP.A.2d</b>	Explain what a point $(x, y)$ on the graph of a proportional relationship means in terms of the situation, with special attention to the points $(0, 0)$ and $(1, r)$ where $r$ is the unit rate.  <i>Related: Unit Rates, Tables, and Graphs (G7)</i>
<b>7.RP.A.3</b>	Use proportional relationships to solve multistep ratio and percent problems.  <b>Recommended: Percents with Increases and Decreases; Multi-Step Percents</b>

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## NS - The Number System

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**Standard****Objective(s)**

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- 7.NS.A.1c** Understand subtraction of rational numbers as adding the additive inverse,  $p - q = p + (-q)$ . Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.

**Recommended: Addition and Subtraction with Negative Numbers; Adding and Subtracting Rational Numbers**

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- 7.NS.A.1d** Apply properties of operations as strategies to add and subtract rational numbers.

**Recommended: Adding and Subtracting Rational Numbers**

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- 7.NS.A.2a** Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as  $(-1)(-1) = 1$  and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.

**Recommended: Multiplication and Division with Negative Numbers; Multiplying and Dividing Rational Numbers**

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- 7.NS.A.2b** Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If  $p$  and  $q$  are integers, then  $-(p/q) = (-p)/q = p/(-q)$ . Interpret quotients of rational numbers by describing real world contexts.

**Recommended: Multiplying and Dividing Rational Numbers**

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- 7.NS.A.2c** Apply properties of operations as strategies to multiply and divide rational numbers.

**Recommended: Multiplication and Division with Negative Numbers**

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*continued on next page*

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## NS - The Number System (continued)

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Standard	Objective(s)
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<b>7.NS.A.2d</b>	Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.
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**Recommended: Rational Concepts (G7)**

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<b>7.NS.A.3</b>	Solve real-world and mathematical problems involving the four operations with rational numbers
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**Recommended: Adding and Subtracting Rational Numbers**

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## EE - Expressions and Equations

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Standard	Objective(s)
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<b>7.EE.A.1</b>	Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
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*Related: Properties of Operations*

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<b>7.EE.B.4a</b>	Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$ , where $p$ , $q$ , and $r$ are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.
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**Recommended: Solving One-Step Equations (G7); Solving Two-Step Equations (G7)**

*Related: Modeling with Expressions*

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## G - Geometry

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Standard	Objective(s)
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<b>7.G.B.5</b>	Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.
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**Recommended: Polygon Angle Sums**

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## SP - Statistics and Probability

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Standard	Objective(s)
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<b>7.SP.B.3</b>	Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability.
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*Related: Line Plots and Summary Statistics (G7)*

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<b>7.SP.C.5</b>	Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around $\frac{1}{2}$ indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.
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**Recommended: Probability**

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# JOURNEY AND BONUS JOURNEY OBJECTIVES

## Rational Concepts

### Standards Coverage:

*Related: 8.NS.A.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.EE.B.5*

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.EE.C.7b**

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.EE.C.7b**

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.EE.C.7b**

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

### Standards Coverage:

*Related: 8.EE.A.2*

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:

*Related: 8.EE.B.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:

*Related: 8.F.A.1*

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.EE.B.5, 8.F.A.3, 8.F.B.4**

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 representation.
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 parabola.
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

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## NS - The Number System

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Standard	Objective(s)
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|-----------------|---|
| <b>8.NS.A.1</b> | Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number. |
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*Related: Rational Concepts*

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## EE - Expressions and Equations

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Standard	Objective(s)
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| <b>8.EE.A.2</b> | Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$ , where $p$ is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that the square root of 2 is irrational. |
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*Related: Exponents and Squares*

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| <b>8.EE.B.5</b> | Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.. |
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**Recommended: Graphing Linear Functions**

*Related: Unit Rates, Tables, and Graphs; Scale and Slope Graphs*

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| <b>8.EE.C.7b</b> | Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms. |
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**Recommended: Solving One-Step Equations; Solving Two-Step Equations; Solving Linear Equations**

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## F - Functions

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Standard	Objective(s)
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| <b>8.F.A.1</b> | Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. |
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*Related: Function Concepts*

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| <b>8.F.A.3</b> | Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. |
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**Recommended: Graphing Linear Functions**

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| <b>8.F.B.4</b> | Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two $(x, y)$ values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values. |
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**Recommended: Graphing Linear Functions**

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# GRADES 6-8 - AUTO ASSIGNMENTS OBJECTIVES

## Visual Fraction Concepts

### Standards Coverage:

**Direct:** 2.G.A.3, 3.NF.A.1, 3.G.A.2, 4.NF.A.1

*Supporting:* 5.NF.A.1, 5.NF.A.2

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

### Standards Coverage:

**Direct:** 3.NF.A.1, 3.NF.A.2a, 3.NF.A.2b, 3.NF.A.3c

*Supporting:* 4.NF.A.1

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

### Standards Coverage:

**Direct:** 2.G.A.3, 3.NF.A.1, 3.NF.A.2a, 3.NF.A.2b, 3.NF.A.3a, 3.NF.A.3b, 3.NF.A.3d, 3.G.A.2, 4.NF.A.1

*Supporting:* 5.NF.A.1, 5.NF.A.2

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	Build 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 or 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

### Standards Coverage:

**Direct:** 3.NF.A.1, 4.NF.B.3c

*Supporting:* 4.NF.A.1

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

### Standards Coverage:

**Direct:** 3.NF.A.3c, 3.G.A.2, 4.NF.B.4a, 4.NF.B.4b, 5.NF.B.4a, 5.NF.B.4b, 5.NF.B.6

*Supporting:* 5.OA.B.3

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

### Standards Coverage:

**Direct:** 5.NF.A.1

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

### Standards Coverage:

**Direct: 5.NF.A.1**

*Supporting: 5.NF.A.2*

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

### Standards Coverage:

**Direct:** 5.NF.B.7b, 5.NF.B.7c, 6.NS.A.1

*Supporting:* 4.NBT.B.5, 5.NBT.B.5

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

### Standards Coverage:

**Direct:** 2.NBT.A.1a, 2.NBT.A.1b, 2.NBT.A.3, 4.NBT.A.1, 4.NBT.A.2, 5.NBT.A.1

*Supporting:* 3.NBT.A.1

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

### Standards Coverage:

**Direct:** 2.NBT.B.5, 2.NBT.B.7, 3.NBT.A.2, 4.NBT.B.4, 4.NBT.B.6

*Supporting:* 2.NBT.B.6, 2.NBT.B.8, 2.NBT.B.9

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

### Standards Coverage:

**Direct:** 2.NBT.B.5, 2.NBT.B.7, 3.NBT.A.2, 4.NBT.B.4, 4.NBT.B.6

*Supporting:* 2.NBT.B.6, 3.NBT.A.1

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

### Standards Coverage:

**Direct:** 3.OA.C.7, 3.MD.C.7b, 4.NBT.B.5, 5.NBT.B.5

*Supporting:* 3.NBT.A.1, 5.OA.A.2

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



## Division Algorithm

### Standards Coverage:

**Direct:** 3.OA.C.7, 4.NBT.B.6, 5.NBT.B.6, 6.NS.B.2

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

### Standards Coverage:

**Direct:** 4.NF.C.6

*Supporting:* 4.NF.A.1, 5.NF.A.2

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

### Standards Coverage:

**Direct:** 4.NF.C.6, 4.NF.C.7, 5.NBT.A.3a, 5.NBT.A.3b

*Supporting:* 3.NBT.A.1

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

### Standards Coverage:

**Direct:** 5.NBT.A.3a, 6.NS.B.3, 6.NS.C.6c

*Supporting:* 2.NBT.B.6, 4.MD.A.2

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

### Standards Coverage:

**Direct:** 6.NS.B.3

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 multiplication 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 multiplying 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 multiplication 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:

**Direct:** 6.NS.B.3

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 algorithm 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

### Standards Coverage:

**Direct:** 2.G.A.2, 3.MD.C.5b, 3.MD.C.6, 3.MD.C.7a, 3.MD.C.7b, 3.MD.D.8, 4.MD.A.3

*Supporting:* 5.MD.C.5a

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

### Standards Coverage:

**Direct:** 2.G.A.1, 3.G.A.1, 4.G.A.1, 4.G.A.2, 5.G.B.3

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

### Standards Coverage:

**Direct:** 3.MD.C.6, 3.MD.C.7a, 3.MD.C.7b, 3.MD.D.8, 4.MD.A.3, 6.EE.A.2c, 6.G.A.1

*Supporting:* 5.MD.C.5a

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

### Standards Coverage:

**Direct:** 3.MD.A.2, 5.MD.C.3a, 5.MD.C.3b, 5.MD.C.4, 5.MD.C.5a, 5.MD.C.5b, 5.MD.C.5c

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.