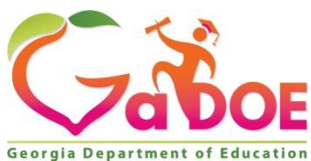


# Keenville Parent Guide

Mathematics



July 2020



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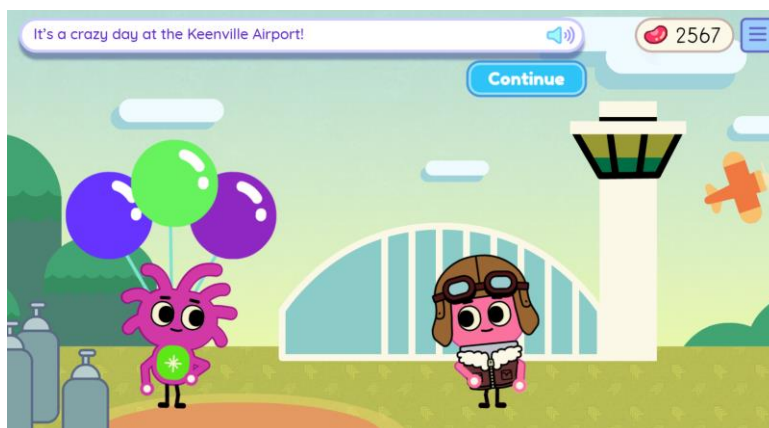
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Keenville includes 15 games aligned to mathematics standards. These games assess students' numeracy skills as described in the table below.

## Mathematics Games

Games	Grades	Skills Assessed
Cloud Hopper	1 and 2	Reading and Writing Numerals
Treat Factory	1 and 2	Interpreting Data with Tables and Graphs
Farmers Market	1 and 2	Money
Keenville Sheriff	1 and 2	Solving Word Problems
High-Rise Builders	1 and 2	Solving Equations
Captain Peachbeard	1 and 2	Addition and Subtraction
River Tubing	1 and 2	Addition and Subtraction
Carnival Time	1 and 2	Telling Time
Bargain Hunters	1 and 2	Measurement
Peachling Gym	1 and 2	Comparing Numbers Using $<$ , $>$ , & $=$
Peachling Café	1 and 2	Place Value
Guitar Maker	1 and 2	Shapes
Ski Lodge	2	Interpreting Data with Line Plots
Lunch Munch	2	Fractional Parts to Whole
Intergalactic Fair	2	Using Repeated Addition

## Cloud Hopper

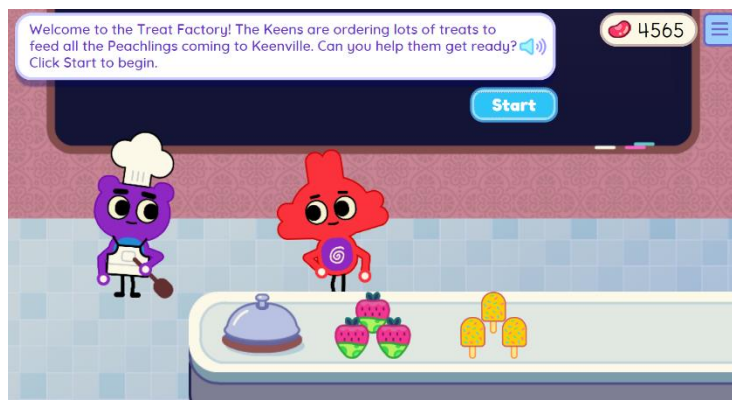


In **Cloud Hopper**, students use their numeracy skills to collect all the numbers floating above Keenville. This game focuses on building numeracy skills by encouraging students to identify numbers represented in multiple ways.

### Skills Assessed by Game Level

Grade	Game Level 1	Game Level 2	Game Level 3
<b>Kindergarten</b>	NA	NA	Represent numbers from 0 – 20 with written numerals, sets of objects, base ten blocks, and number lines.
<b>Grade 1</b>	Represent numbers up to 50 with written numerals, sets of objects, base ten blocks (pictures only), and number lines.	Represent numbers up to 100 with written numerals, sets of objects, base ten blocks (pictures only), and number lines.	Represent numbers up to 120 with written numerals, sets of objects, base ten blocks (pictures or written form), and number lines.
<b>Grade 2</b>	Represent numbers up to 300 with written numerals, sets of objects, base ten blocks (pictures or written form), and number lines.	Represent numbers up to 600 with written numerals, base ten blocks (pictures or written form), number lines, number names, and expanded form (with non-zero digits).	Represent numbers up to 1,000 with written numerals, base ten blocks (pictures or written form), number lines, number names, and expanded form.

## Treat Factory



In **Treat Factory**, students help Chef Keen create charts and graphs based on the Keens' treat orders and then interpret the data assembled in the charts and graphs. This game focuses on creating and interpreting tally charts, picture graphs, and bar graphs.

### Skills Assessed by Game Level

Grade	Game Level 1	Game Level 2	Game Level 3
Kindergarten	NA	NA	Organize up to ten data points using no more than three categories. Sort objects in order of greatest to least.
Grade 1	Create tally charts using a scale of 1 and organize up to 16 data points with no more than 2 categories; answer basic questions about the tally chart.	Create tally charts using a scale of 1 and organize information for up to 30 data points with no more than 3 categories; answer basic questions about the chart.	Create tally charts using a scale of 1 and organize data for up to 50 data points with no more than 3 categories; answer basic questions about the chart as well as questions that compare data.
Grade 2	NA	Create picture and bar graphs using a scale of 1 and organize up to 30 data points with no more than 3 categories; answer basic questions about the graph as well as questions that compare data.	Create picture and bar graphs using a scale of 1 and organize up to 60 data points with up to 4 categories; answer questions about the graph as well as questions that compare data.
Grade 3	NA	Create picture and bar graphs using a scale of 2 or 4 and organize up to 36 data points with up to 3 categories; answer basic questions about the graph as well as questions that compare data.	Create picture and bar graphs using a scale of 2, 4, or 5 and organize up to 100 data points with no more than 4 categories, including half sets in the scale; answer questions about the graph as well as questions that compare data.

## Farmers Market

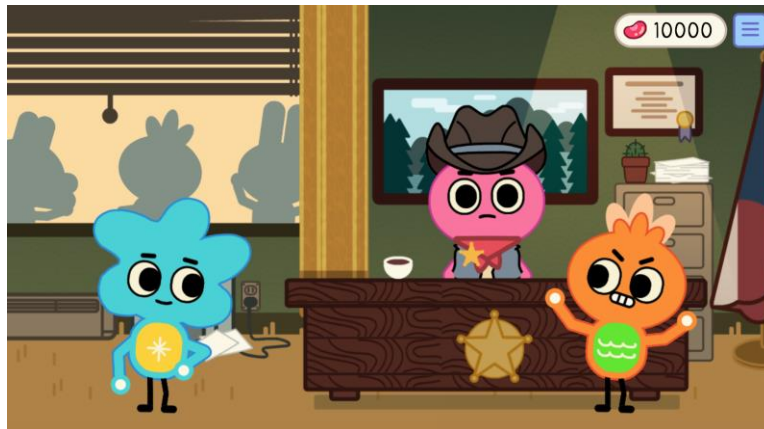


In **Farmers Market**, the Keens need help gathering ingredients from the Farmers Market for a cooking contest that will be held in Keenville. This game focuses on exchanging money and paying with the exact amount of money necessary.

### Skills Assessed by Game Level

Grade	Game Level 1	Game Level 2	Game Level 3
Kindergarten	NA	NA	Use <b>pennies</b> to pay for purchased items. Min/Max amount to pay: 1¢ to 20¢.
Grade 1	Use <b>pennies or dimes</b> to pay for purchased items. Min/Max amount to pay: 10¢ to 100¢.	Use <b>pennies and dimes</b> to pay for purchased items <b>with the fewest coins</b> . Min/Max amount to pay: 1¢ to 70¢.	Use <b>pennies and dimes</b> to pay for purchased items <b>with the fewest coins</b> . Min/Max amount to pay: 5¢ to 100¢.
Grade 2	Use <b>pennies, nickels, dimes, and quarters as well as \$1, \$5, and \$10 bills</b> to pay for purchased items <b>with the fewest coins and bills</b> . Min/Max amount to pay: 10¢ to 100¢ or \$8 to \$40.	Use <b>pennies, nickels, dimes, and quarters as well as \$1, \$5, and \$10 bills</b> to pay for purchased items <b>with the fewest coins and bills</b> . Min/Max amount to pay: 10¢ to 100¢ or \$5 to \$60.	Use <b>pennies, nickels, dimes, and quarters as well as \$1, \$5, \$10 and \$20 bills</b> to pay for purchased items <b>with the fewest coins and bills</b> . Min/Max amount to pay: 10¢ to 100¢ or \$5 to \$100.
Grade 3	Use <b>\$1, \$5, and \$10 bills</b> to pay for purchased items <b>with the fewest bills</b> . Students exchange larger bills to pay with exact amount. Min/Max \$10 to \$500.	Use <b>\$1, \$5, \$10, and \$20 bills</b> to pay for purchased items <b>with the fewest bills</b> . Students exchange larger bills to pay with exact amount. Min/Max \$10 to \$100.	Use <b>\$1, \$5, \$10, \$20, \$50 and \$100 bills</b> to pay for purchased items <b>with the fewest bills</b> . Students exchange larger bills to pay with exact amount. Min/Max \$10 to \$1000.

## Keenville Sheriff

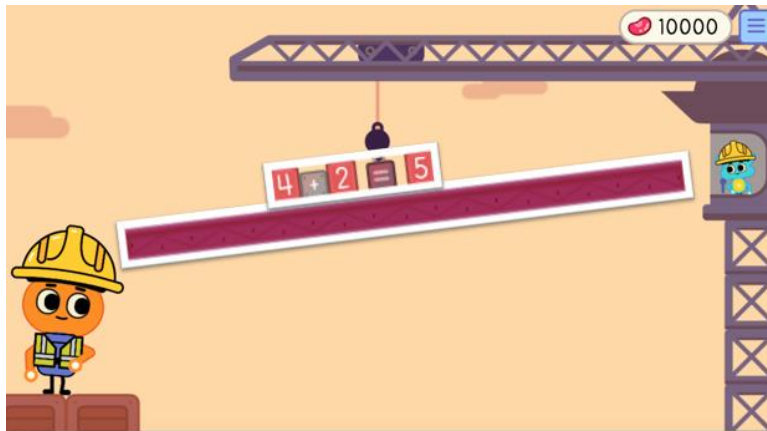


In **Keenville Sheriff**, students use math strategies to help Sheriff Keen solve the Keens' problems. This game focuses on building numeracy skills by encouraging students to use various interactive strategies to solve word problems.

### Skills Assessed by Game Level

Grade	Game Level 1	Game Level 2	Game Level 3
<b>Kindergarten</b>	NA	NA	Solve addition and subtraction word problems within 10 with result, start, and change unknown using various strategies.
<b>Grade 1</b>	Solve addition and subtraction word problems within 20 with the result unknown using various strategies.	Solve addition and subtraction word problems within 20 with the start and change unknown using various strategies.	Solve addition word problems within 20 with three addends using various strategies.
<b>Grade 2</b>	Solve one-step addition and subtraction word problems within 100 with no regrouping using various strategies.	Solve two-step addition and subtraction word problems within 50 with no regrouping using various strategies.	Solve two-step addition and subtraction word problems within 100 with regrouping using various strategies.
<b>Grade 3</b>	Solve one- or two-step addition and subtraction word problems within 1,000 using various strategies.	NA	NA

## High-Rise Builders



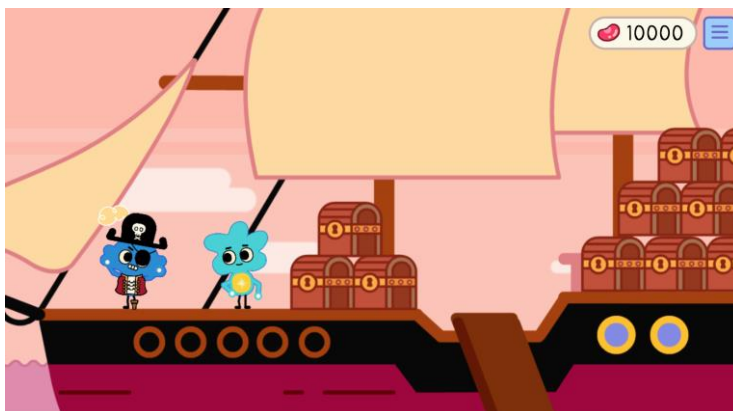
In **High-Rise Builders**, students use formal and informal strategies to add and subtract and help Builder Keen and his crew load the beams to build a skyscraper. This game focuses on building numeracy skills by encouraging students to apply mental math strategies to solve equations.

### Skills Assessed by Game Level

Grade	Game Level 1	Game Level 2	Game Level 3
Kindergarten	NA	NA	Add and subtract within 10 using equations.
Grade 1	Use formal and informal properties and strategies to add and subtract within 20.	Use formal and informal properties and strategies to add and subtract within 50.	Use formal and informal properties and strategies to add and subtract within 100.
Grade 2	Use formal and informal properties and strategies to add two two-digit numbers within 200.	Use formal and informal properties and strategies to add three two-digit numbers or add or subtract two three-digit numbers within 600.	Use formal and informal properties and strategies to add four two-digit numbers or add or subtract two three-digit numbers within 1000.
Grade 3	Fluently add and subtract three-digit numbers within 1000, without regrouping, using formal and informal properties and strategies.	Fluently add and subtract three-digit numbers within 1000, with regrouping, using formal and informal properties and strategies.	NA



## Captain Peachbeard



In **Captain Peachbeard**, students solve addition and subtraction equations to help Captain Peachbeard figure out all the secret numbers to open the treasure chests so all the Keens can enjoy the treasure. This game focuses on building numeracy skills by encouraging students to use various interactive strategies to solve addition and subtraction problems.

### Skills Assessed by Game Level

Grade	Game Level 1	Game Level 2	Game Level 3
<b>Kindergarten</b>	NA	NA	Add or subtract within 5 using various strategies.
<b>Grade 1</b>	Add or subtract a two-digit and a one-digit number within 20 using various strategies.	Add or subtract a two-digit and a one-digit number or a two-digit number and a multiple of 10 within 50 using various strategies.	Add or subtract a two-digit and a one-digit number or a two-digit number and a multiple of 10 within 100 using various strategies.
<b>Grade 2</b>	Add or subtract within 100 using various strategies.	Add or subtract within 500 using various strategies.	Add or subtract within 1,000 using various strategies.
<b>Grade 3</b>	Add or subtract within 1,000 using various strategies.	NA	NA

## River Tubing

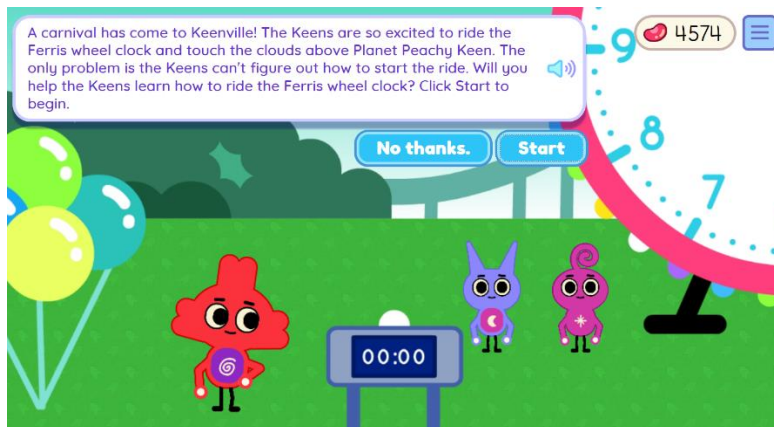


In **River Tubing**, students help Lifeguard Keen put the correct number of Keens into groups based on the missing number in an equation. This game promotes numeracy skills in addition and subtraction within 100.

### Skills Assessed by Game Level

Grade	Game Level 1	Game Level 2	Game Level 3
<b>Kindergarten</b>	NA	NA	Decompose numbers less than or equal to 10.
<b>Grade 1</b>	NA	Add or subtract from 0-9 solving for the unknown number.	Determine the unknown whole number in addition and subtraction problems within 20.
<b>Grade 2</b>	NA	Add or subtract up to 100 without regrouping.	Add or subtract up to 100 with regrouping.
<b>Grade 3</b>	NA	Complete repeated addition equations such as: $5 + 5 + 5 + 5 + 5$ .	Determine the product in multiplication problems up to $5 \times 5$ .

## Carnival Time



In **Carnival Time**, students will use their knowledge of telling time to start the Ferris wheel for the Keens. This game promotes numeracy skills in measurement and data by asking students to tell and display time using analog and digital clocks.

### Skills Assessed by Game Level

Grade	Game Level 1	Game Level 2	Game Level 3
Kindergarten	NA	NA	NA
Grade 1	Tell time to the hour using analog and digital clocks.	Tell time to the half-hour using analog and digital clocks.	Tell time to the hour and half-hour using analog and digital clocks.
Grade 2	Tell time to the half-hour using analog and digital clocks with specific scenarios presented in text.	Tell time to the nearest five minutes using analog and digital clocks.	Tell time to the nearest five minutes using analog and digital clocks and determine time of day using AM and PM.
Grade 3	Tell time to the nearest minute using analog and digital clocks and determine time of day using AM and PM.	Tell time to the nearest five minutes using analog and digital clocks and determine time of day using AM and PM with specific scenarios presented in text.	Tell time to the nearest minute using analog and digital clocks and determine time of day using AM and PM with specific scenarios presented in text.

## Bargain Hunters



In **Bargain Hunters**, students help the Keens choose appropriate measuring tools and measure the items they need for their homes. This game focuses on building measuring skills by encouraging students to use interactive measuring tools to determine length or height of a given object.

### Skills Assessed by Game Level

Grade	Game Level 1	Game Level 2	Game Level 3
<b>Kindergarten</b>	NA	NA	Compare two objects with a measurable attribute.
<b>Grade 1</b>	Compare three objects and place them in order by length.	Compare the lengths of two objects indirectly by using a third object.	Measure the length and width of objects using non-standard units.
<b>Grade 2</b>	NA	Choose the appropriate tool to use for measuring a given object.	Measure to determine how much longer one object is than another object.
<b>Grade 3</b>	Find the area of an object when given the length measurements; find the length of a side when given the area and one side length.	NA	NA

## Peachling Gym



In **Peachling Gym**, students help Coach Keen figure out the rules of the Peachlings' new game! This game focuses on building numeracy skills by encouraging students to compare numerals using symbols.

### Skills Assessed by Game Level

Grade	Game Level 1	Game Level 2	Game Level 3
Kindergarten	NA	NA	Compare numbers between 1 and 10 presented as written numerals, using phrases (i.e., less than, greater than, equal to). In this level, the phrases may be read aloud.
Grade 1	Compare one-digit and two-digit numbers between 1 and 50, using symbols (i.e., $<$ , $>$ , and $=$ ) to represent the comparisons.	Compare two-digit numbers between 10 and 99, using symbols (i.e., $<$ , $>$ , and $=$ ) to represent the comparisons.	Compare two-digit numbers between 10 and 99, using symbols (i.e., $<$ , $>$ , and $=$ ) to represent the comparisons.
	In these levels, the symbols may be read aloud for students.		
Grade 2	Compare two-digit and three-digit numbers, between 10 and 500, using symbols (i.e., $<$ , $>$ , and $=$ ) to represent the comparisons.	Compare three-digit numbers, between 100 and 999, using symbols (i.e., $<$ , $>$ , and $=$ ) to represent the comparisons.	Compare three-digit numbers, ranging between 100 and 999, using symbols (i.e., $<$ , $>$ , and $=$ ) to represent the comparisons.
	In these levels, the symbols may be read aloud for students.		
Grade 3	NA	Compare fractions with denominators of 2, 3, 4, 6, and 8, using symbols (i.e., $<$ , $>$ , and $=$ ) to represent the comparisons. In this level, the symbols may be read aloud.	Compare fractions with denominators of 2, 3, 4, 6, and 8, using symbols (i.e., $<$ , $>$ , and $=$ ) to represent the comparisons.

## Peachling Café

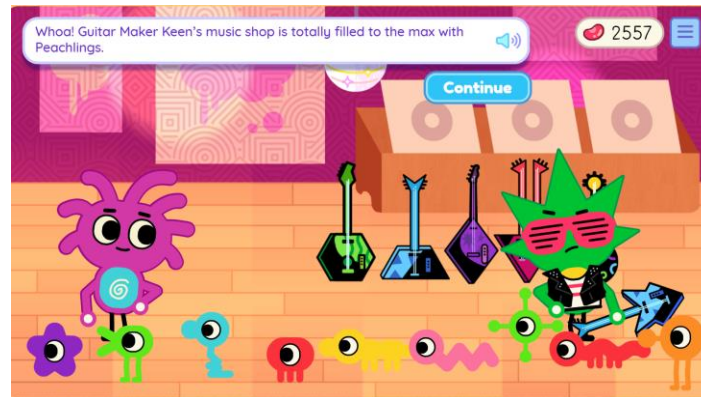


In **Peachling Café**, students help Chef Keen determine how many Peachlings need to be fed and then serve up that amount of food for the Peachlings. This game promotes numeracy skills using place value techniques.

### Skills Assessed by Game Level

Grade	Game Level 1	Game Level 2	Game Level 3
Kindergarten	NA	NA	Compose and decompose numbers from 11-19 into tens and ones.
Grade 1	NA	Understand that a ten is a bundle of ten ones.	Understand that the two digits of a two-digit number represent amounts of tens and ones.
Grade 2	NA	Understand that a hundred is a bundle of ten tens.	Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones.

## Guitar Maker

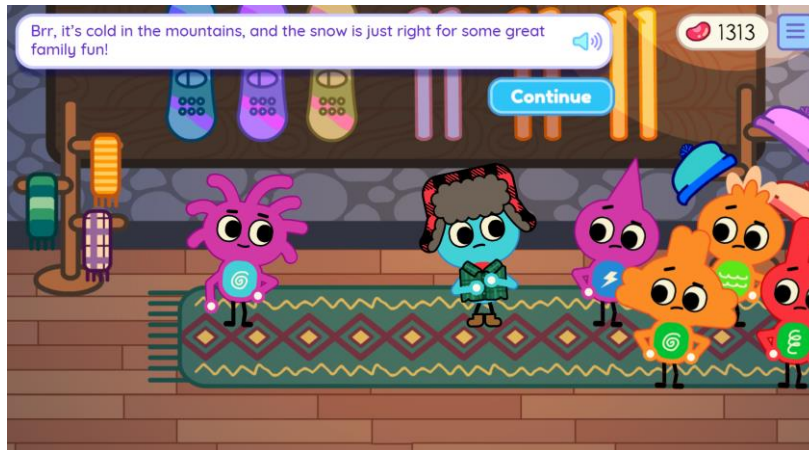


In **Guitar Maker**, students sort shapes to help Guitar Maker Keen find the shapes each Peachling needs to build its guitar. This game focuses on building geometry skills by encouraging students to identify two-dimensional and three-dimensional shapes.

### Skills Assessed by Game Level

Grade	Game Level 1	Game Level 2	Game Level 3
<b>Kindergarten</b>	NA	NA	Identify and compare two-dimensional and three-dimensional shapes and compose simple shapes to form larger shapes.
<b>Grade 1</b>	Identify shapes having non-defining attributes including triangles, squares, rectangles, and trapezoids.	Identify shapes having defining attributes including triangles, squares, rectangles, and trapezoids.	Distinguish between defining and non-defining attributes in all shapes, identify composite shapes built from known shapes, and identify composite shapes built using three-dimensional shapes.
<b>Grade 2</b>	Identify shapes including triangles, quadrilaterals, pentagons, hexagons, and cubes.	Identify shapes having a specified attribute.	Identify shapes having a specified attribute or set of attributes and compare attributes of a given shape within the category of quadrilaterals.
<b>Grade 3</b>	Identify quadrilaterals and shapes that are not quadrilaterals and identify quadrilaterals with specified attributes.	Identify defining attributes of quadrilaterals and compare quadrilaterals by defining attributes.	NA

## Ski Lodge



In **Ski Lodge**, students organize the winter gear orders using a line plot, so the Keens' orders can be quickly delivered. This game focuses on building numeracy skills by encouraging students to interpret data displayed on a line plot.

### Skills Assessed by Game Level

Grade	Game Level 1	Game Level 2	Game Level 3
<b>Grade 1</b>	NA	NA	Create and interpret line plots with 6-10 total data points.
<b>Grade 2</b>	Create and interpret line plots with four categories and 6-12 total data points.	Create and interpret line plots with 5-6 categories and 8-16 total data points.	Create and interpret line plots with 5-8 categories and 10-20 total data points.
	In Grade 2 levels, the line plot horizontal scales are marked off in whole-number units.		
<b>Grade 3</b>	Create and interpret line plots with 4-5 categories and 6-12 total data points representing objects to the nearest half or quarter on a line plot with the horizontal scale marked off in halves or quarters.	Create and interpret line plots with 5-6 categories and 8-16 total data point.	Create and interpret line plots with 5-8 categories and 10-20 total data points.
	In Grade 3 levels, the line plot horizontal scales are marked in halves and quarters.		



## Lunch Munch



In **Lunch Munch**, students help Beanie Keen get the Peachlings' food orders partitioned correctly so they won't get tired of waiting and leave. This game focuses on building numeracy skills by encouraging students to sort partitioned shapes.

### Skills Assessed by Game Level

Grade	Game Level 1	Game Level 2	Game Level 3
<b>Grade 1</b>	Partition circles and rectangles into halves and identify the shares with words.	Partition circles and rectangles into fourths and identify the shares with words.	Partition circles and rectangles into halves and fourths and identify the shares with words.
<b>Grade 2</b>	Partition circles and rectangles into thirds and identify the shares with words.	Partition circles and rectangles into halves and thirds and identify the shares with words.	Partition circles and rectangles into halves, thirds, and fourths and identify the shapes in words.
<b>Grade 3</b>	Partition various shapes into halves, thirds, and fourths.	Partition various shapes into sixths and eighths.	Partition various shapes into halves, thirds, fourths, sixths, and eighths and express the fractional unit associated with each part.

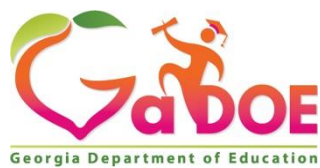
## Intergalactic Fair



In **Intergalactic Fair**, students use repeated addition to create arrays that will be used to build specific activities for the Intergalactic Fair. This game focuses on building numeracy skills by encouraging students to use repeated addition to build multiplication skills.

### Skills Assessed by Game Level

Grade	Game Level 1	Game Level 2	Game Level 3
<b>Grade 2</b>	Partition rectangles up to a 5 x 5 array and determine the total square units are in the rectangular array using an array grid.	Partition rectangles up to a 5 x 5 array and determine the number of squares in each row or column.	Find the total number of objects within an array up to 5 x 5 when given an expression or write an expression to represent repeated addition using an array grid.
<b>Grade 3</b>	Find the total number of objects within an array up to 10 x 10 when given an expression or write an expression to represent repeated addition using an array grid.	Find the area of a rectangle up to a 10 x 10 array using multiplication of the side lengths or relating multiplication when given a repeated addition expression.	Solve real-world area problems by multiplying side lengths to find the area of rectangular arrays up to 10 x 10 with whole number side lengths.



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