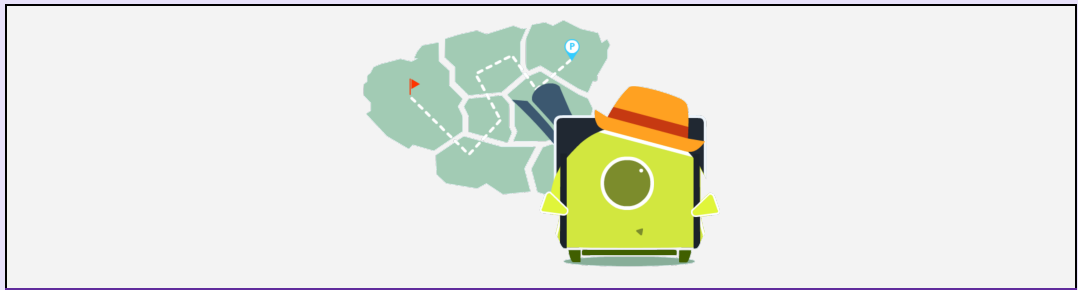


Augie® Trailblazer



Suggested grade level

gr. 3-5

Challenge Description

Making Connections

Objective

Students will work in partners document multiplication facts.

Standards

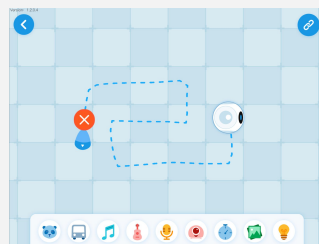
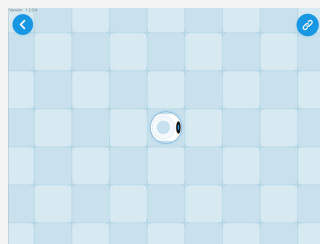
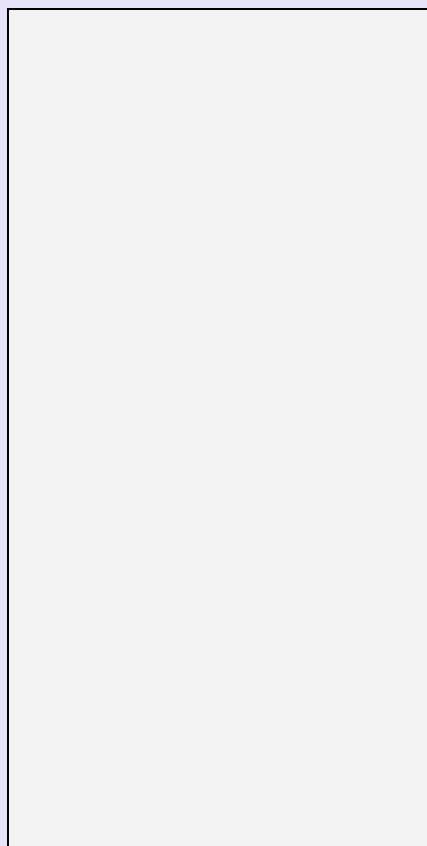
Third Grade
 Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).
 7. Relate area to the operations of multiplication and addition.
 a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.
 b. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real-world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.
 c. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$.
 Use area models to represent the distributive property in mathematical reasoning.
 d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real-world problems

Fourth Grade
 Draw and identify lines and angles, and classify shapes by properties of their lines and angles.
 1. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.
 2. Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles. (Two-dimensional shapes should include special triangles, e.g., equilateral, isosceles, scalene, and special quadrilaterals, e.g., rhombus, square, rectangle, parallelogram, trapezoid.) CA
 3. Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.

Introduction/Background

Young students need continual practice with their math facts. The Augie® Robot provides an opportunity to use a device to draw and place characters in a square unit - allowing students to see how multiplication facts can be rearranged.

Demonstrate how the robot works by showing how to add characters or sound to the path that the robot takes.



Open Trailblazer and your Augie will appear in the center of the grid. Make sure the link at the top is blue - that means Augie is ready to go! It is good to know that the grid is scrollable. You are not limited to what you see on the screen at first glance.

Begin drawing where Augie is placed. Draw your multiplication array in a position away from the robot because the robot gets in the way of showing all your characters or sound objects. Draw a trail that goes into every block you intend to use as part of your array.

After you have completed your trail, you are able to add characters or sound. Drag the characters from below and then you are given the option to choose a variation of the character you picked. Make a recording at the end that describes your array.

Materials

Procedure

Augie: Trailblazer

Students work in pairs or teams to create a mathematical array that allows the students to demonstrate their understanding. Upon completion, students can share their trail with the class. Students should take a screenshot.

Critically Think

As students become adept at using the Trailblazer option, it can be expected that students draw several arrays using the same number of objects.

Collaborate

Students work together to solve a problem and identify the multiple ways their chosen number can be displayed.

Communicate

Conversations regarding the possible arrays and even a productive disagreements are valuable experiences when students work together. These should be expected and conflict resolution should be modeled.

Create

Students use a new application and a tool to model multiple, (different) arrays using the same number.

Modifications

Students should be encouraged to draw multiple array using one trail. Solving this challenge will result in good conversations.

Classroom enrichment:

Ask students to decide how they could use the trailblazer option to share a math concept.

Mary Pat Vargas, October 1, 2017

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