

Prompt: Hex Bug Maze Challenge

Objective(s):

- Design a maze for a Hex Bug to travel through using only recycled materials and tape
- What recycled materials will work for this challenge?
- The Hex Bug needs to turn at least 3 times

Activity that Involves problem-solving and strategic thinking:

- Students will explore Hex Bugs and how they move
- Students will work individually or together to decide what recycled materials to use for the maze
- Students will plan a design and build the maze
- Students will troubleshoot design problems in the maze
- Students will report out and share the process they used to create the maze

Standards addressed:

- CCSS.ELA-LITERACY.L.K.5.A: Sort common objects into categories.
- CCSS.MATH.CONTENT.K.G.A.2: Correctly name shapes regardless of their orientations or overall size.
- CCSS.Math.Content.1.G.A.1: Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.
- CCSS.ELA-Literacy.SL.1.4: Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.
- NGSS: NGSS.K-2-ETS1-2 - Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed.

Background knowledge needed:

- What are recycled materials?
- What is a maze?
- What will make a Hex Bug turn or change direction?
- How to make a plan - sketch a design

Materials:

- Various recycled materials such as cardboard, egg cartons, toilet paper rolls, and packing materials
- Tape
- Hex Bugs

Questions or statements to elicit engagement:

- What do you need to do to make the Hex Bug turn?
- Are there other recycled materials that may work?
- Let's walk through the process you used to come up with this design.
- What happens when you add obstacles that the Hex Bug needs to go around?

Vocabulary:

- Recycled, direction, maze, obstacle, turn, design, angle

Reflection:

- What worked well?
- What did you need to change?
- How did you decide on your design and what materials to use?
- What worked best to help the Hex Bug move through the maze?

Extension/Adding more complexity:

- Can two Hex Bugs go through the maze at the same time?
- Add a design element that the Hex Bug needs to go under or through.