

Elementary Engineering Activity Bag 1

Marble Maze - Student Activity Guide

What's the fastest way you get to school? Everybody wants to get where they are going as fast as possible. The fastest way to go from one place to another is something that engineers have worked on for a long time. Today you will get a marble to travel from one place to another. Your goal is to create a maze for the marble on a piece of chipboard.

Materials From the Bag

- | | |
|---|---|
| <input type="checkbox"/> White Chipboard
(Extra-Thick Paper) | <input type="checkbox"/> String |
| <input type="checkbox"/> Tape | <input type="checkbox"/> 1 Piece of Aluminum Foil |
| <input type="checkbox"/> Marble | <input type="checkbox"/> 8 Craft Sticks |
| | <input type="checkbox"/> 1 Napkin |

Part 1: Maze

Your first challenge is to create a maze, given the following rules:

- The marble must remain on the chipboard the entire time.
- The marble can only move by you holding the chipboard in your hands.
- The marble must:
 - Turn left
 - Turn right
 - Go over something
 - Go under something
 - Return to where the marble started

1. Draw what your maze will look like.
2. Build and test your maze.
3. It is ok if it doesn't work at first. Keep changing your design, use different materials, and try again. Continue until the marble completes **ALL** five obstacles.
4. Draw your final design. *What is different from your first design? What was most difficult about this?*

Part 2: How Fast Can You Go?

1. Using your maze from part 1, time how long it takes to complete the maze.
2. It is ok if you cannot complete the maze quickly at first. Change your design, use different materials, and try again. Continue until you make a maze that you can complete more quickly than your original design.
3. Draw your final design. *What did you do to complete the maze more quickly?*

Place tape, string, and marble into the bag for future activities.