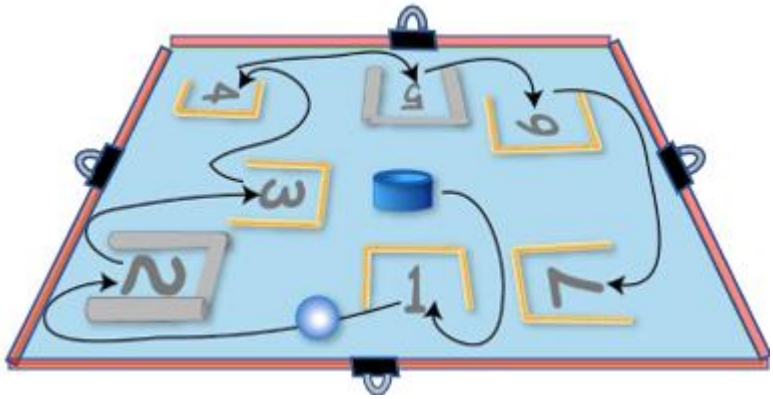
ROLLING MAZE

Maneuver marbles through a labyrinth of your own design!



Curriculum topics

- Design
- Forces & Motion
- Motor Skills

Subjects

- Physical Science
- Engineering/Design

Grade range: K – 2

Who we are: Resource Area for Teaching (RAFT) helps transform the learning experience by inspiring joy through hands-on learning.

Use cardboard, straws, pipe cleaners and tape to make a simple maze. Add targets, stickers, numbers, or letters. Gently guide a marble through the maze.

This project is ideal for practicing gross/fine motor skills, teamwork, and social emotional skills. It introduces science concepts such as forces (pushes and pulls) and basic engineering concepts such as iteration and problem solving. Get ready to have a ball with Rolling Maze!

Example of Rolling Maze where the user must run, hop, or spin when the marble rolls over those action words!

Share Your feedback!
http://bit.ly/RAFTkitsurvey

Materials

Materials in the kit may vary but generally, this kit contains the following:

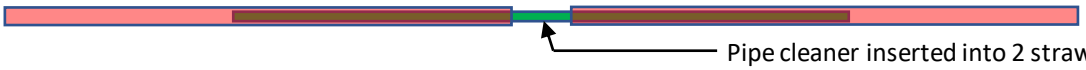
- Cardboard, 10” – 12” square (1)
- Plastic caps (2)
- Plastic straws, regular size (12)
- Pipe cleaners (4)
- Marbles (2)
- Binder clips, small, ¾” (6)

Not Included: Tape, crayons, pencils, markers, stickers

WARNING: CHOKING HAZARD
Activity uses small parts. Not for children under 3 yrs.

To Do and Notice

1 Maze Walls: Insert a pipe cleaner into 2 straws to form a flexible hinge (see below). Repeat to create walls around the edges on one side of the cardboard. Secure them in place using small binder clips.



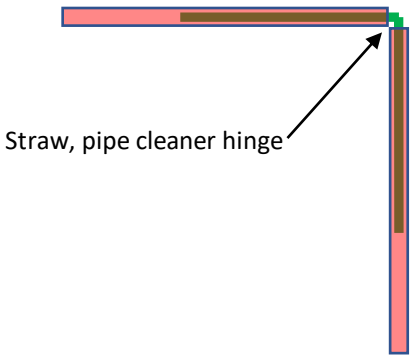
2 Maze Targets: Cut several small sections from other straws or pipe cleaners. Form U-shaped compartments, place them on the board, and secure them in place with tape/glue (see below).

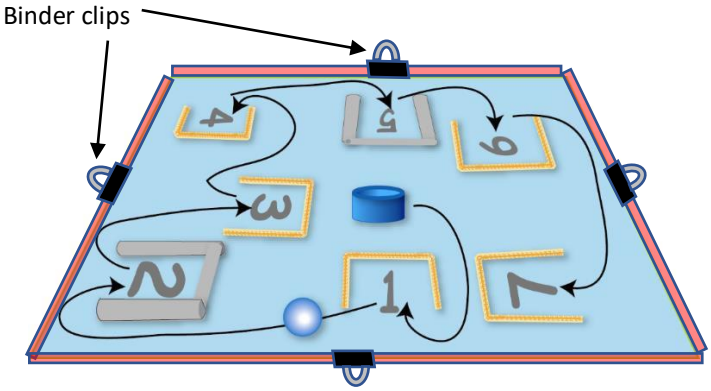
3 Marble Storage: Attach a plastic cap, open-side up, to the board near the center with tape/glue. Store the marble here when not in use.

4 Use markers, crayons, or colored pencils to label the maze targets and other locations or actions on the board (see images below).

5 Hold the maze with both hands. Move the marble onto the maze. Gently tilt the maze to start the marble rolling towards the various targets. If it falls off, try again!

6 **Share** your learning with RAFT! Submit photos/video via email at education@raft.net or on social media (Facebook, Twitter, Instagram).





Core Content Skills:

Science & Engineering (NGSS)

Developing and Using Models, Forces and Motion, Types of Interactions, Cause and Effect, Optimizing the Design Solution

Social Emotional Learning

- Self-awareness
- Self-management
- Responsible decision-making

The Content Behind the Activity

Engineers build models/prototypes to solve many of society's problems. They design solutions according to criteria and constraints. As engineers test their designs, they make changes that lead to better versions of the design. These better, or optimized, versions are called **iterations**. This project involves designing a model of a maze and testing it by using a marble, which can be quite the physical challenge for the user.

Forces are pushes and pulls applied on an object. For example, a marble can fall off the maze because gravity pulls down on the marble. The marble hits the floor and bounces, so the floor also pushes up on the marble. Similarly, the maze board pushes up on the marble, which is why the marble doesn't sink through the cardboard! Tilting the maze board makes the marble experience different amounts (magnitude/strength) of gravity. The more you tilt the board in one direction, the stronger gravity pulls the marble in that direction. As you use the RAFT Rolling Maze, you practice problem-solving, hand-eye coordination, and observe forces in action while having fun!

Reuse

This kit uses 100% reusable materials designed for other uses. To continue making a positive impact in reducing waste, reuse these materials in other projects. Additionally, any unused materials can be collected and delivered back to RAFT.

Feedback

Please comment on this kit by taking this short survey: http://bit.ly/RAFTkitsurvey. Let us know of any material concerns (missing, broken, or poorly fitting parts) as well as any suggestions for improvement.

Visit https://raft.net to view related activities!

Amazing Magnetic Worms
Marble Masters
Bulls Eye
Marble Roller Coasters

Resources

- Printable practice mazes for K-2 - https://tinyurl.com/42jbbu7n
- Paddington and the Marmalade Maze (Read-Aloud, 6:04) - https://tinyurl.com/5e7zdezu