

Materials

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

- Cardboard, 10"-12" square (1)
- Bottle caps (2)
- Straws, regular size (10)
- Pipe cleaners (6)
- Marbles (2)
- Binder clips, small, $\frac{3}{4}$ " (8)

Facilitation

Think of a theme/concept/topic to serve as the focus of the rolling maze designs student will make. Drawing inspiration from books/stories is highly encouraged. Students may want to incorporate their own memories, favorite experiences, or other ideas to personalize their rolling mazes.

A few suggestions for getting started:

- Have students explore and name the various materials they will use.
- Show students pictures or examples of premade mazes. Call on a few students to trace with their fingers the path through the maze. Assist as necessary.

Once students have had a chance to explore the materials and example mazes, review the theme/focus for the rolling maze activity. Discuss the theme with students and review the steps for building the rolling mazes (see **To Do and Notice** below). Below are some grade level-specific suggestions:

- TK/K: Counting, Letters – Label the maze targets with numbers to practice counting in order. Label with letters to spell out words with the rolling marble.
- 1st Grade: Addition/Subtraction, Phonemes - Label maze targets with numbers to add/subtract values reached by the marble. Label with long and short vowels to practice phonological awareness.
- 2nd Grade: Place Value, Word Analysis – Label targets with numbers representing skip counts to a certain number. Label targets with common prefixes/suffixes (decoding).

To Do and Notice

1

Maze Walls: Insert a pipe cleaner into 2 straws to form a flexible hinge. 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 page 1).

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 on the board (see above for suggestions).

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, in the correct order if applicable. If it falls off, try again!

6

Share student creations with RAFT! Submit photos/video via email: education@raft.net

Core Content Skills:

Math

Numbers and Operations in Base Ten, Operations & Algebraic Thinking, Problem Solving

ELA/Literacy

Reading: Foundational Skills, Speaking & Listening

Science & Engineering (NGSS)

Developing and Using Models for Possible Solutions, Structure & Function

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 activity involves designing a model of a maze around a theme, and it is tested by using a marble, which can be quite the physical challenge for the user. As you use the maze, you practice problem-solving, hand-eye coordination, and more 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 such as missing, broken, or poorly fitting parts as well as improvements or other suggestions.

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

Amazing Magnetic Worms
Carnival Math
Marble Masters
Bulls Eye!
Marble Roller Coasters
Roller Coaster Math

Resources

- Printable Mazes - <https://www.printablemazes.net/>
- Marble Game and more - <https://bit.ly/36UYQ1N>