Marble Maze Time Trials

WHAT ARE WE INVESTIGATING?

How fast can a marble get through your maze?

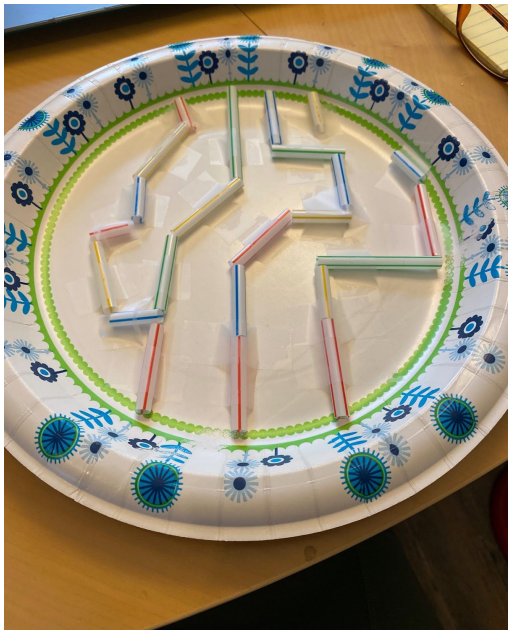
MATERIALS:

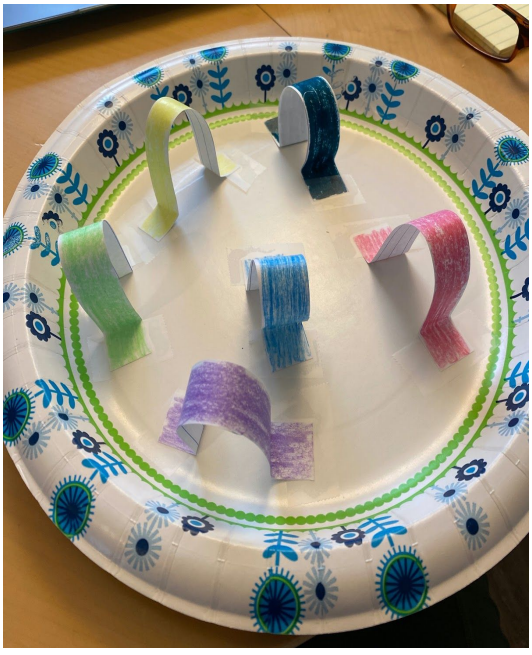
- Paper Plates
- Straws
- Glue/Tape
- Construction Paper
- Index Cards
- Markers/Colored Pencils
- Marble/Ball
- Timer
- Strive Academy's Engineering Design Process Handout (found at www.striveacademy.org)
- Pencil or Pen

EXTENSION:

* Try the experiment again with different materials (construction paper if you used straws or vice versa).

* Try your maze again with a bigger or small marble/ball. See how your results differ.





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DIRECTIONS:

1. Choose the materials that you want to use to build your structure. Our materials are just suggestions - feel free to add other things too!

2. On your handout (found at www.striveacademy.org), fill in the title of your experiment (Marble Maze Time Trials).

3. On your handout, fill in your hypothesis. You want to answer the question: How fast do you think a marble can get through your maze?

4. On your handout, draw a picture to design your marble maze. Sketch out what you want your marble maze to look like. Feel free to use crayons/markers to add some color to your picture!

5. Use a paper plate as your base.

6. Build your marble maze on top of your paper plate. You can cut and tape together straws to make a maze, or make a maze out of construction paper. Or be creative - use legos or another building material! Use the pictures on the first page to help you get some ideas! Feel free to decorate your maze and make it your own!

7. Once your maze is complete, on your handout under "Data Collection/Observations", draw a picture of what your finished maze looks like.

8. Put the marble/ball at the starting point on your plate and practice trying to get the ball to move through the maze by only touching the plate.

9. Once you have practiced a few times, use your timer to measure how long it takes to get your marble through your maze. Under "Results", record your time.

10. Repeat Step 9 3 more times.

11. Answer the "analysis" questions on your handout:
    - Find the average time it took to get your marble through your maze. Add up all 4 of your time trials. Then divide that number by 4. Record this under "results".
    - Was your hypothesis correct? Was your average time faster or slower than your hypothesis?
    - What do you think would happen if you used a bigger marble or ball? Would you still get the same results?

** Try the extension activities on the first page for more fun! **