



Curiosity Guide #209

Friction

Accompanies Curious Crew, Season 2, Episode 9 (#209)

Friction Merry-Go-Round

Investigation #5

Description

I'm busy getting dizzy...I'm busy getting dizzy...Try this motion experiment to learn more about friction and resistance!

Materials

- Heavy board or book
- Metal lid
- 7-14 Marbles

Procedure

- 1) Lay the board on the table. Hold one corner and spin it.
- 2) Count how many rotations the board had before it stopped.
- 3) Now lay the metal lid under the center of the board so that the flat part of the lid is on the table.
- 4) Spin the board again, with a similar amount of force as the first time.
- 5) Count the number of rotations the board had.
- 6) Fill the lid with 7 marbles.
- 7) Place the board onto the marbles. Spin the board once more.
- 8) Was there a difference in the number of rotations?
- 9) What would happen if you added more marbles?

My Results

Explanation

On the first spin: There was more surface area contacting the table, so there was a higher amount of **resistance** and **friction**.

On the second spin: Placing the board on the lid reduced the area contacting the table and provided a smooth surface. Those combined changes reduced the friction and allowed the board to spin more freely.

On the third spin: When spinning the board on the bed of marbles, not only was there even less surface area, but also the balls were able to move. The marbles acted like **bearings** in machinery and reduced the friction even more.

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