



Curiosity Guide #305

Buoyancy

Accompanies Curious Crew, Season 3, Episode 5 (#305)

Hovering Balloons

STEM Challenge

Description

Design a maneuverable balloon that can hover at a designated height.

Materials per team

- 2 Mylar helium-filled balloons
- 10-inch square, corrugated cardboard squares
- Binder clips in assorted sizes
- String
- Washers
- Paperclips
- Paper
- Tape
- Measuring tapes

Procedure

- 1) Secure the string of the balloon to the table with tape.
- 2) Use the available materials to get the balloon to hover at a certain height.
- 3) Use the second balloon to hover at a height that is two feet different than the first balloon.
- 4) Use the corrugated cardboard to experiment and move the balloons around obstacles.

My Results

Explanation

Helium-filled balloons still have weight. However, because the gas is less dense than the surrounding air, the upward buoyancy force is stronger than the gravitational force pulling down, so the balloons rise. Adding weight causes the balloons to hover at specified heights. Sweeping the air near the balloons causes the balloons to slowly drift.

Something else to try: Hot air balloons and blimps use the power of buoyant forces to float in the air. The Crew made hovering balloons and had a lot of fun, but you might want to turn yours into a blimp. Try making your blimp with two helium balloons connected by a paper towel tube. Then add a straw connected to a regular balloon. Once you blow up the balloon, you can take your neutrally buoyant blimp on your own exciting journey!

Parents and Educators: use **#CuriousCrew**
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Crew learned!



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