BALLOON DRIVE

YOUR CHALLENGE

Your challenge is to make a helium balloon hover in one spot. Then move it through an obstacle course using air currents.

MATERIALS

- 1 helium-filled Mylar® balloon
- paper
- paperclips of various sizes
- clear tape
- scissors
- corrugated cardboard

BRAINSTORM

- How can you stop a balloon from floating upward?
- How will you know when your balloon is neutrally buoyant?
- Once your balloon hovers, how will you move it?

Neutral Buoyancy

Neutral buoyancy is when the force pulling down (gravity) is equal to the force floating up (lift), so the balloon doesn't move up or down.

Balance lift and gravity

Add or subtract weights one at a time.

DESIGN & BUILD

PART 1: MAKE IT HOVER

Is it neutrally buoyant?

When it floats in the same place for about 5 seconds, you've done it!
PART 2: EXPLORE AIR PRESSURE

“Drive” your balloon

Test it
Which moves the balloon best—
one swift stroke right next to
the balloon? Big Swoops?
Fanning? Quick swipes?

PART 3: MAKE IT MOVE!

Drive the balloon up
and over or in
between
objects—chairs, a
table, or a friend!

Balloons drift wherever
the wind takes them. But if
you add a way to control
where the balloon goes, say
by adding an engine, you’ve
engineered a blimp—a
balloon that you can fly
wherever you want!

When you sweep the cardboard beside
the balloon, you temporarily remove some
air. Other air nearby rushes in to fill the
space, carrying the balloon with it.

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