

DIY Hovercraft

Grade Level: 4th-7th **Type:** Physics

Objective:

Make a DIY hovercraft that can stay afloat using air power.

Research Question:

How does a flat surface move differently along another one when there's air flowing under it?

Materials:

- Old CD
- Sports cap (pop-up type) from a disposable water bottle
- Glue
- Small or medium-sized balloon

Experimental Procedure:

1. Use a CD that nobody wants to keep; it will get wrecked!
2. Glue the sports cap to the CD so that the bottom of it is centered over the hole in the CD. Make sure it's well-glued all the way around, and the sports top opens and closes easily.
3. Wait for the glue to dry completely. Depending on the type of glue, you might have to leave it to dry overnight.
4. Close the top of the sports cap and put the CD flat-side-down on a tabletop. Blow up the balloon and pinch the neck shut so no air gets out. Carefully stretch the neck of the balloon around the closed sports top so the part you drink out of is totally covered. There's your CD hovercraft!
5. Now put the hovercraft on a flat surface, like a table, and give it a little push to see how far it goes.
6. Holding the hovercraft down, pull open the sports cap with the balloon still on it. Do this carefully—make sure the cap doesn't come unglued!
7. Now give the hovercraft another little shove and watch it go! What just happened? The air from the balloon is flowing through the spout now; when the CD was on the table with no air flow, the friction between the two flat surfaces kept it from going far. With air flowing between them, there's a lot less contact between the surfaces and therefore a lot less friction—nothing to stop the hovercraft from really going!

Terms/Concepts: Friction, air pressure

References: *Phineas and Ferb Science Lab*, published by Scholastic, Inc., pp. 30-31 (2011).

