

FLOATING ON AIR

EXPERIMENT: HOVERCRAFT

Imagine a vehicle that has no wheels but can travel over land and water. That's what a hovercraft can do! Hovercrafts float just a little bit above the ground by pushing air down really fast, creating a cushion.

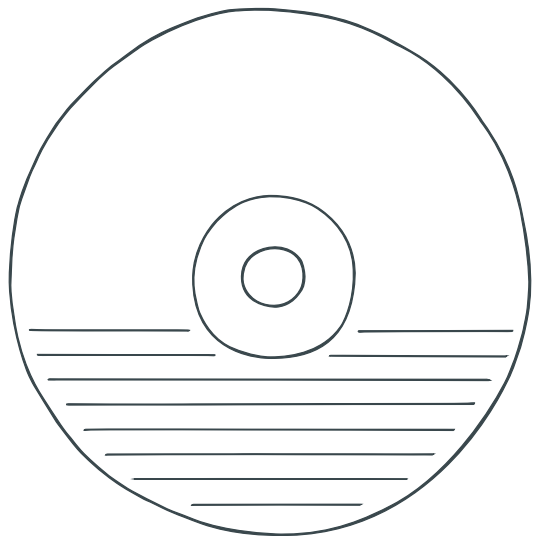
MATERIALS

- Super glue or rubber cement
- Markers
- Plastic cups
- CD or DVD (one that it's OK to ruin)
- Balloons (try different shapes and sizes)
- Nozzle cap, like from a bottle for a sports drink or dish soap

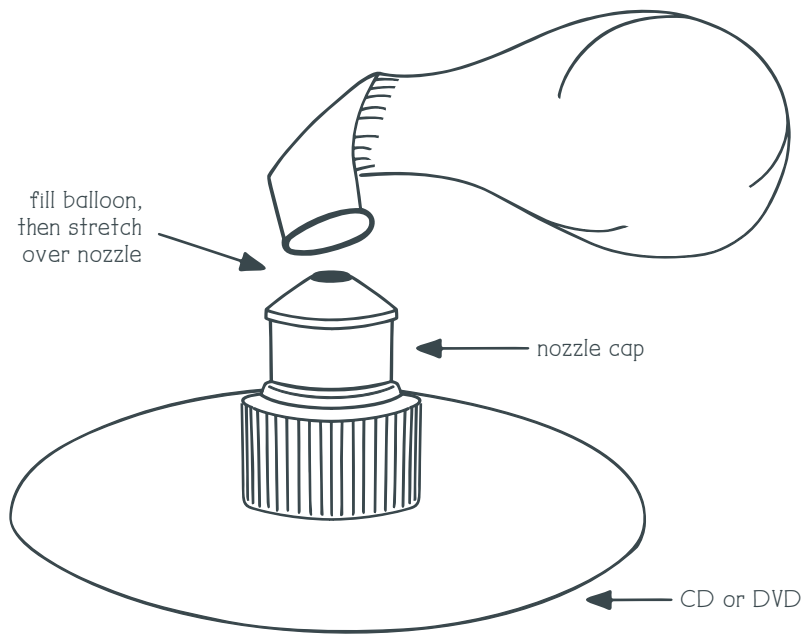


INSTRUCTIONS

Glue the nozzle cap to the CD or DVD so it's centered over the hole in the disc. Make sure the cap is in the closed position. Let the glue dry. This can take time, so be patient! Use markers or stickers to decorate the CD.



Blow up the balloon and twist—but don't tie—the end. Stretch the end of the balloon over the nozzle. Let the balloon untwist. If the nozzle is closed, the air should stay in the balloon.



Place your hovercraft on a smooth, hard, flat surface like a table or counter. Pull up on the nozzle and give your hovercraft a gentle push. It should float smoothly over the surface like an air hockey puck. Make a game of it—create a goal at one end of the table with cups and try to make your hovercraft score. Or stack plastic cups in a pyramid and see if the hovercraft can knock them down.

GAME ON

Try different sizes and shapes of balloons, such as a large punching bag balloon or a long, thin balloon. What type of balloon works best? What can you do to make the air in the balloon escape more slowly? Challenge a friend and see who can make their hovercraft travel farthest on one balloon full of air.

WHAT'S HAPPENING?

The air coming out of the balloon is pushed underneath the disc and needs to escape. As it pushes down and out, a cushion of air is created underneath the disc and pushes the hovercraft up just a little bit. That little bit of air cushion means the disc is no longer in contact with the surface and friction is greatly reduced. Without friction, a little push can make the hovercraft go a long way.

TIPS

Regular school glue or glue sticks won't work to attach the nozzle to the disc. Super glue works best, so use safety precautions when using it. Have a parent help, and be careful to not get the glue on your skin.

LEARN MORE

The Canadian Coast Guard uses a hovercraft called the CCGS Mamilossa in the St. Lawrence River because of the vehicle's versatility. Learn more at bit.ly/1S1neOJ, and find videos on YouTube.

RECOMMENDED READING

Kinetic Contraptions: Build A Hovercraft, Airboat, and More With A Hobby Motor by Curt Gabrielson

Forces and Motion by John Graham

