



# STEM Detective Lab

We investigate STEM projects for you.

## Haunted Hovercraft Instruction Sheet

### Overview

The **hovercraft** is an amphibious vehicle that can travel over land and water. Its engine-powered fan traps a cushion of air under the hull to float on top of and its floating height is determined by the power of the engine(s) and the size/weight of the vehicle.

This activity is a fun way to introduce your kids to **Newton's third law of motion**: for every action, there is an equal and opposite reaction. As air escapes from the balloon, it's forced downward through the open bottle top and the hole in the CD. This downward force of air creates an opposite force of air upwards to lift the hovercraft off the surface below.

Check out our blog post, "[The Haunted Hovercraft Mystery](#)", for an in-depth look at how we chose the materials listed below, common issues we uncovered during our investigation, and tips on how to fix those issues.

### Supplies

- CD
- 9" balloon
- Push/Pull style bottle top

### Optional Supplies

- Glow-in-the-dark bracelet
- Instant Tacky sticky dots

### Tools

- Glue Gun
- Permanent Markers



## Step 1: Tools & Supplies



**1.1** You can make a balloon hovercraft with as little as three supplies - a **CD**, a **9" balloon**, and a **push/pull style bottle top** from a water bottle or sports drink.

**1.2** An optional **glow-in-the-dark bracelet** attached with **Instant Tacky Sticky Dots** and a spooky face drawn on the balloon with a **permanent marker** is one way to transform your hovercraft into a delightfully haunted vehicle.

## Step 2: Build



**2.1** Place the CD blank side up to hide any printing on the labels.



**2.2** Glue the bottle top over the hole, located at the center of the CD, and make sure the bottle top is in the closed position.



**2.3** Blow up your balloon, then twist the end of the balloon a couple of times to prevent air from leaking out as you stretch it over the bottle top.

**2.4** Set your hovercraft on the floor. Carefully pull up on the bottle top and watch your hovercraft glide across the floor.

**That's it!**

**Tip 1:** Vary the height of the bottle top to control the airflow from the balloon.

**Tip 2:** Gently tap the balloon to help guide it in the right direction.

### Step 3: Decorate

The following instructions are just one example of how you can decorate your hovercraft to give it a haunted vibe.



**3.1** Attach two Instant Tacky Sticky Dots to the CD to hold the glow-in-the-dark bracelet in place.



**3.2** Press the glow-in-the-dark bracelet on the sticky dot adhesive.



**3.3** Blow up the balloon again, twist the end a couple of times, and reattach it to the bottle top as you did before.

**3.4** Draw a scary face on your balloon to transform your basic hovercraft into a haunted hovercraft.

**Note:** As the balloon stretches, your kids may want to wrap a paper collar (made of card stock) around the neck of their balloon for support (see the example image below).

