



NSF GK-12 Graduate Fellows Program  
Award # DGE-0139171  
*University of North Carolina at Wilmington*

# Hovercraft

## Activity Instructions

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## Hovercraft Instructions

*Objectives being met:*

1.04 Assess human impact on water quality.

4.04 Determine how the force of friction retards motion.

4.06 Describe and measure quantities that characterize moving objects and their interactions within a system:

- Time.
- Distance.
- Mass.
- Force.
- Velocity.
- Center of mass.

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### Option 1: How to make a hovercraft

#### **Materials:**

- Compact Disc or plastic plate with a hole poked in the center  
(the free trial AOL CD's work well and can be found at most electronic stores)
- Thread spool or film canister  
(film canisters are usually given away at film developing companies- you must drill a hole through the canister prior to experimentation)
- Glue
- Balloon
- Smooth tabletop

*Goggles*

#### **Directions:**

- Poke a hole through middle of the top and bottom of the film canister if you are using one.
- Cover the top of the spool or cap with a medium coat of glue
- Line up the hole in the CD/plate with the hole in the spool/canister. Make sure that you have used enough glue so that no air will escape.
- Allow glue to dry completely
- Place hovercraft on the table and give it a flick. Measure and record the distance traveled
- Repeat this twice
- Blow up the balloon and twist the neck of the balloon closed
- Keeping twisted, stretch the neck over the spool/canister



- Let go of the balloon and give the hovercraft a flick
- Measure and record the distance traveled
- Repeat this twice

**Question:**

Did the hovercraft travel further with or without the balloon? Why?

**Display of data:**

Have groups of students complete the experiment. Graph the data as a class

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**Option 2: Designing and constructing a hovercraft**

*\*This option is an inquiry-based activity that allows the students to deduce the design of a hovercraft based on the PowerPoint presentation provided.*

**Materials:**

- The same items as listed above
- Miscellaneous items (ex. Straws, paper bags, tape, paperclips, paper plates, Styrofoam cups, etc.)

Using “junk” from around the house (the same “junk” for each group) allow the students to design and build their own hovercraft.

Have a competition to see whose hovercraft has the most control, who’s hovercraft travels the farthest, and who has the most original design.

**Reminder:**

The balloon can potentially become yet another variable in the distance traveled by the hovercraft. To avoid this, have the students record the circumference of the balloon for each repetition. This could be done simply by having them wrap a string around the balloon and cutting it to length. This could also be a valuable piece of data. Have the groups compare the distance traveled with varying circumferences.

