

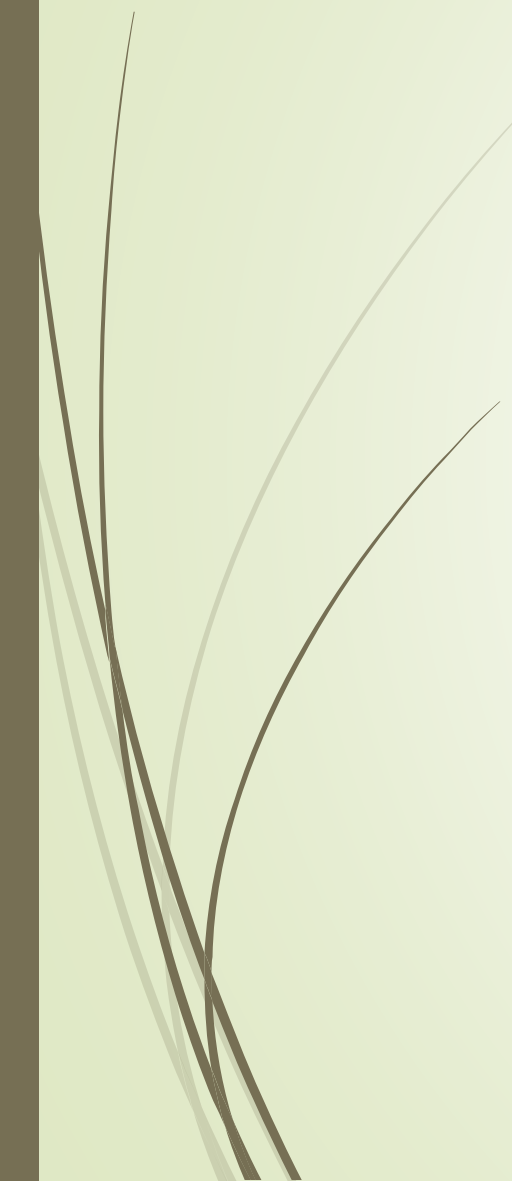


The Balloon Hovercraft

A Science-in-Action Collaboration between 5A and 4A



Apparatus

- **Balloon**
 - **Compact Disc**
 - **Strong glue**
 - **Plastic bottle cut-out (mouth portion)**
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Procedure

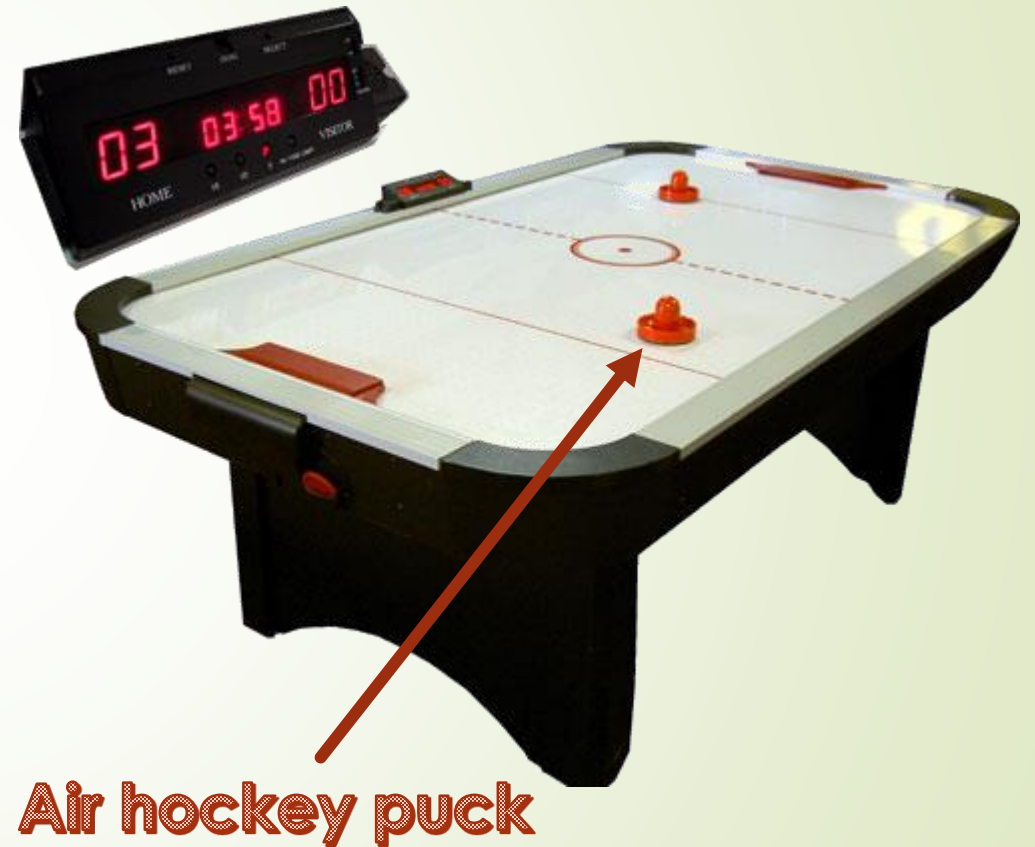
- **Use hot glue gun or superglue to carefully glue the plastic bottle cut-out over the centre hole of the CD and let it set. Make sure the edges are fully sealed.**
- **Blow up the balloon. Then hold it so that no air escapes, but don't tie it off. Stretch the mouth of the balloon over the plastic bottle cut-out (You may need an assistant to help you do this so that you don't lose any air from the balloon). Now adjust the balloon so that it stands up straight and centred.**
- **Set the hovercraft on a table and then nudge the device along and see what happens.**

How does it work?

- A hovercraft works by forcing air out beneath it, creating a cushion of air to float on. The balloon acts as a pressurized gas chamber. When you let go of the balloon, the balloon forces air out through the plastic bottle cut-out, creating a thin cushion of air beneath the CD.
- Try pushing a plain CD across the table, and then your hovercraft. Do the two move differently?
- That's because the thin cushion of **air** from the hovercraft **reduces the friction between the CD and the table**. Due to the reduced friction, hovercrafts can reach higher speeds.

Air Hockey

- **As you nudged your hovercraft around, you may have noticed that it zipped along the surface like an air hockey puck.**
- **That's because air hockey uses the same principle, with the puck floating on a layer of air.**
- **In the case of an air hockey table, the air is forced out from the table below rather than a source above like a hovercraft.**





The Real Hovercraft



- The basic mechanism of a hovercraft is very simple.
- There's an engine (diesel or gasoline) that powers both a large central fan, pointing downward, and one or more other fans pointing backward.
- The central fan creates the lift that holds the craft above the waves.
- The other fans propel the craft backward, forward, or to the side.
- A rubber skirt (with or without fingers) traps a cushion of air under the craft.

Diagram of a Real Hovercraft

www.explainthatstuff.com

Hovercraft moves forward

Air blows backward

