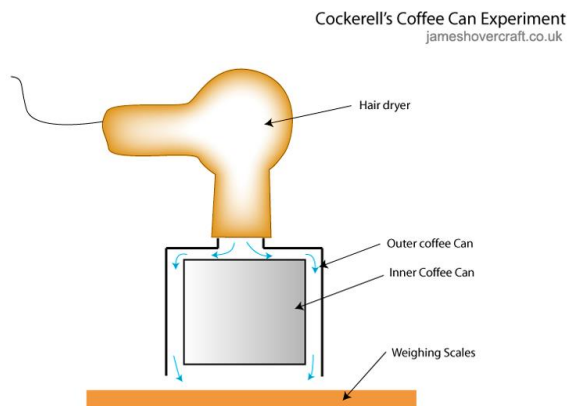


HOVERING TOWARDS DESIGN

HOVERCRAFT

In 1956 Christopher Cockerell (1910–1999) invented a new type of vehicle, the hovercraft, that was supported on a cushion of air supplied by a powered fan mounted on the craft. When Cockerell approached various aircraft and ship building firms there was confusion regarding what type of vehicle it was. It was deemed “Top Secret” by the Military.



His initial design concept was tested with everyday household objects. He used an empty food tin inside a coffee tin, an industrial air blower and a pair of kitchen scales.

The Hovercraft was a revolution in sea travel in Britain but passenger hovercraft were hit by the rise in fuel prices in the 1970s and services were cut.

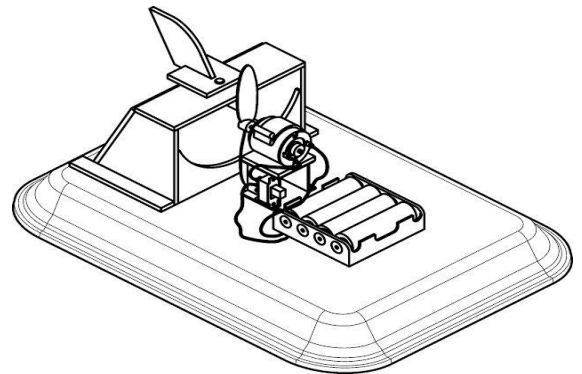
Ref: <http://gcaptain.com>
<http://inventors.about.com/library/inventors/blhovercraft.htm>

Hovercraft kit

The *Scorpio Technology* Hovercraft kit demonstrates how a hovercraft moves.

One motor, driving a small propeller is enough to make the hovercraft glide quickly along a smooth surface on a bed of air that is captured under the foam tray body.

It can be manually steered with the rudder system. The kit is supplied with both narrow and wide foam trays to provide a choice of base size.



The kit includes all components except AAA batteries, material for cowling & fins and glue. The teaching unit provides a comprehensive set of guidelines including testing and development.

| | |
|---------------------|-------------------------|
| Level: | Introductory kit |
| Type: | Mechanical & Electrical |
| Hours to Construct: | 2 – 4 |
| Cost: | 1-19 \$7.46; 20+ \$7.19 |



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Project sheet : **BALLOON CD HOVERCRAFT**

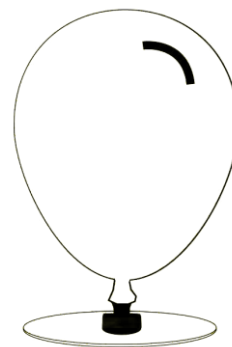
Here is a simple hovercraft to make.

What you need:

- old CD
- craft glue or hot glue gun
- pop-top lid from drink bottle
- balloon

Construction:

1. Close the pop-top lid. Glue the top onto the centre of the CD directly over the hole. Wait until glue has set. Make sure the edges are fully sealed.
2. Blow up the balloon. Pinch the neck so that air doesn't escape.
3. Stretch the neck of the balloon over the pop-top lid.
4. Place the CD hovercraft on a flat surface. Open the lid and let it go.

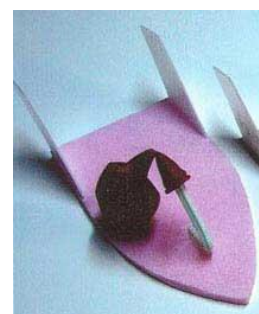


Theory:

A hovercraft works by forcing air out beneath it, creating a cushion of air to float on. Hovercrafts usually have a "skirt" that surrounds the base to contain the air. The CD is light enough so no skirt is necessary. The balloon acts as a pressurized gas chamber. When air is released from the balloon it flows under the CD. The layer of air between the CD and surface reduces the friction between the two surfaces so the hovercraft can glide easily.

Further investigation:

1. Use your hovercraft on a number of different surfaces to investigate where it works best.
2. Does the size of the balloon affect the CD's ability to hover.
3. Does a helium balloon work better than an air filled balloon?
4. Try altering the design of the hovercraft by changing some of the materials. For example, Change the base – vinyl record, corflute, cardboard, plastic plates base.
5. Test different sized balloons.
6. Test the CD hovercraft when the top is not fully open.



References:

http://www.sciencebob.com/experiments/cd_hovercraft.php

<http://www.hometrainingtools.com/a/balloon-hovercraft-science-project>

<http://weirdsciencekids.com/Ballooncdhovercraft.html>

<http://www.hoverkid.com/photos/03-balloon-hovercraft/03-balloon-hovercraft.html>