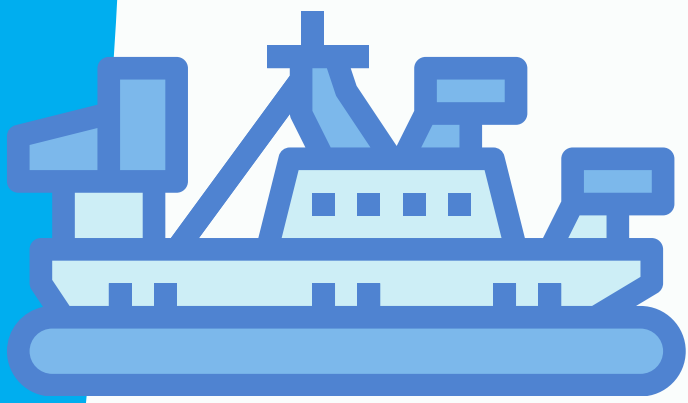
MAKE YOUR OWN HOVER CRAFT



YOUR CHALLENGE!

Hovercrafts move by riding on cushions of air created by fans. Using a balloon instead of a fan build your own hovercraft that glides across a surface.

You will need:

- The top from a sports capped drinking bottle
- A balloon
- A blank CD or one you don't mind getting scratched
- A hot gluegun or blu-tac
- Decorations like stickers and felt tip pens

SAFETY FIRST!

f you are using a hot glue gun remember they can burn, be careful not to get any on your skin!

What to do:

STEP 1:

Use the hot glue gun to carefully stick the bottle cap to the centre of the CD making sure the edges are fully sealed
If you are using blu-tac roll it into a sausage and press it down in a circle shape on the centre of the CD. Attach the bottle cap making sure there are no gaps for air to escape

STEP 2:

Close the bottle cap and blow up the balloon, don't tie it off but hold it tight so no air escapes
Attach the balloon to the bottle cap, and adjust so it stands up, again making sure no air escapes.

STEP 3:

Decorate your CD using stickers and felt tips if you have any, can you create a design personal to you?

STEP 4:

Place your completed hovercraft down on any hard surface, open the bottle cap and watch what happens!
Tip: if air is escaping too fast, cover the hole under the CD with tape and poke small holes so the air releases more slowly

NOW FOR THE SCIENCE!

Did you notice your hovercraft effortlessly gliding? It does this because of friction, or a lack of it!

As the air escapes the balloon it spreads out under the CD and creates a cushion of air so the CD isn't touching the ground, allowing it to glide gracefully.

Real-life hovercrafts also move on cushions of air created by fans: a “skirt” underneath the hovercraft traps the air, causing the it to rise. Fans (and an engine) push the vehicle forward. With our balloon-propelled hovercraft the CD is light enough to float on a small cushion of air so we don't need a skirt.

Does changing the surface texture effect how your hovercraft moves?

Try adding more weight or changing the size of your balloon
What about opening the bottle cap only half way?

Can you find a way to extend the base of your hovercraft? How does this change things?

IN THE REAL WORLD:

As you nudged your balloon hovercraft you might have noticed it zipping across 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.

EXPLORE FURTHER

For more resources and videos search for the following:

BBC Bitesize What is Friction?
How Hovercrafts Work