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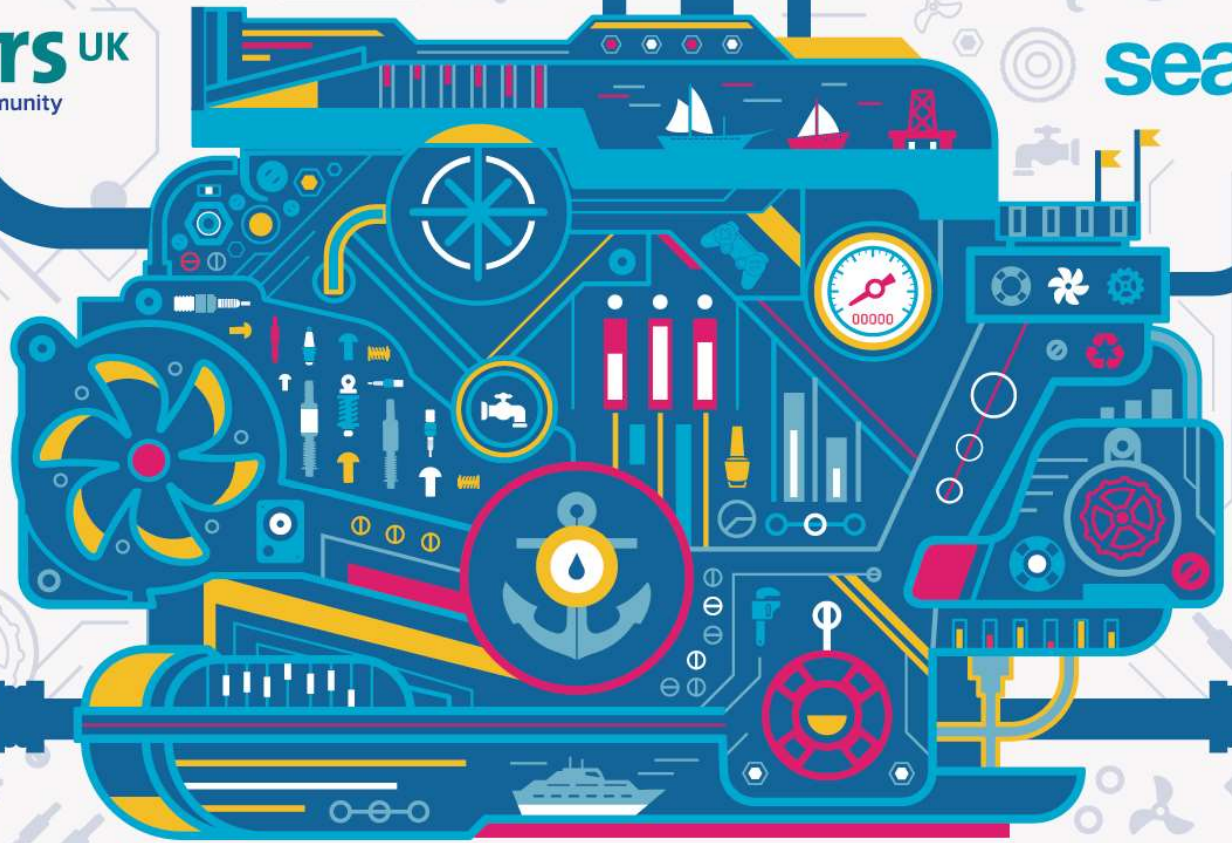


STEM ACTIVITY:
CD HOVERCRAFT RACING

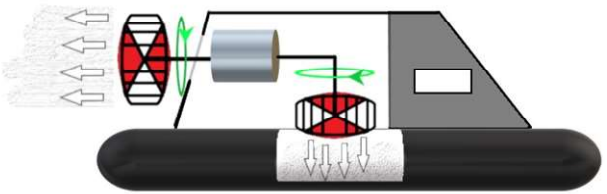
A Balloon CD Hovercraft

Introduction:

- Hovercraft come in all shapes and sizes, from one-person fun machines and small beach rescue craft to giant passenger ferries capable of carrying over 400 passengers and 50 cars.
- The larger hovercrafts have separate engines for lift and thrust, but as smaller hovercraft are weight sensitive, they tend to have one engine that generates air that is split with 25% directed for lift, and 75% of the air directed via rudders for thrust and left to right steering.
- This balloon-powered CD hovercraft is easy to make and is a ton of fun to send zooming around with only a light push!

Equipment

- 1 Balloon
- 1 CD
- Superglue or hot glue (adult supervision)
- 1 Push/pull bottle top



A Balloon CD Hovercraft

Instructions:

1. Take the lid off the drinks bottle and pull open. Discard the plastic cover cap.

2. Glue the bottom rim of the bottle cap onto the middle of the CD, making sure there are no gaps for air to escape and have the center hole free.

A Balloon CD Hovercraft

Instructions:

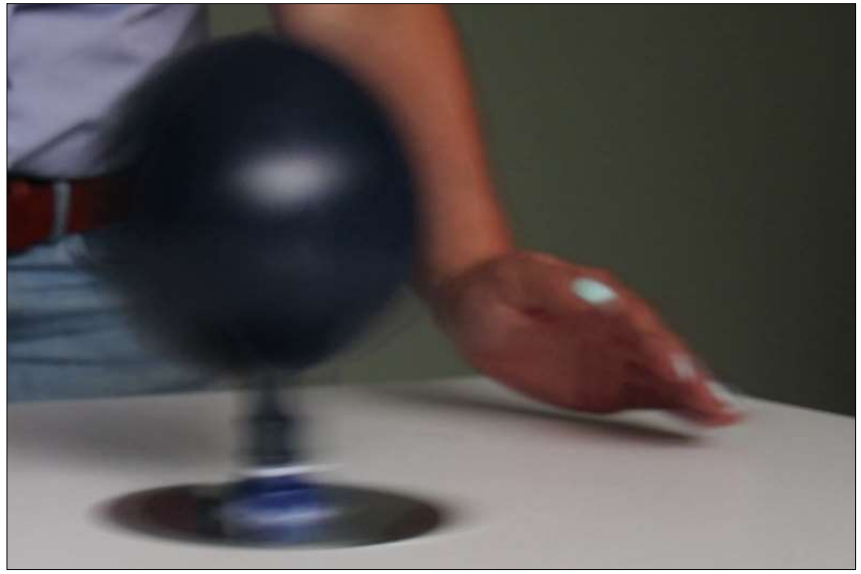
3. Pull the balloon over the cap tip.

4. Turn the CD over and inflate the balloon by blowing hard into the hole, then carefully close the cap through the balloon to seal (trap) the air in the balloon.

A Balloon CD Hovercraft

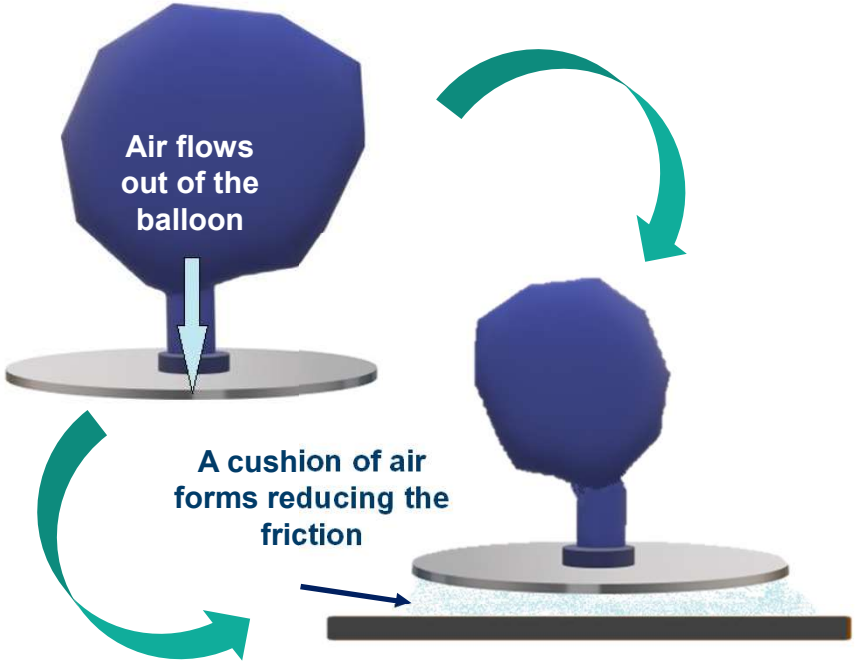
Instructions:

5. Set your hovercraft on a flat, smooth surface like a table. Pull the nozzle inside the balloon open - without removing the balloon. *Give it a little push…*



The Science and Engineering:

How does our Balloon Hovercraft work?



How our simple CD hovercrafts differ from the real thing…

- There's an engine which powers a big fan pointing downwards – and fans pointing backwards. The one pointing down creates the lift to hold it above the waves, the others help it to steer.
- The air is held in place by a rubber skirt forming the air cushion known as a plenum.
- As the hovercraft isn't in the water is isn't subjected to drag, the resistance that boats face as the push through the water causing them to need a lot of power to get through the water.