

AT HOME!

PROJECT NO.2

Microgravity

As family days out are put on hold, we've been thinking how we can make your family days in as much fun as possible.

Eureka! is the UK's only hands-on museum just for children aged 0-11. Full of exhibits to explore, helpful staff to engage with, activities to do and buttons to press. Based in West Yorkshire, we have brought smiles to the faces of over 8 million visitors since 1992. As families can't come to us, we are keen to bring a sample of the Eureka! experience to you.

Our expert staff have come up with a series of experiments that can be done at home, all designed to inspire children to get hands-on, have fun, and learn about themselves and the world around them.

Get experimenting and send us or share your pictures and videos using #EurekaAtHome and we'll share on our social media feeds too.

WE'RE ALL IN THIS TOGETHER!



What is microgravity?

Microgravity is when people and things experience weightlessness. In microgravity, it is easy to move heavy objects – think of astronauts floating on the International Space Station. Although some people think that there is no gravity in space, gravity is everywhere!

Gravity is the force that pulls people towards Earth. When you jump, it is gravity that makes you come back to Earth. In space, it is gravity that keeps the moon in orbit around the Earth. The farther apart two objects are the weaker the pull of gravity, so weightlessness can be caused by a large reduction in the pull of gravity. However, this is NOT what happens on the International Space Station.

The astronauts on the ISS are orbiting at about 250 miles above Earth. This isn't far enough away to substantially reduce the pull of gravity.

So why do things float in space?

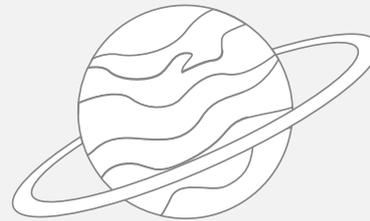
This is because they are in free fall.

Ever been on a rollercoaster as it moves over the top of the hill – that feeling you get is a brief idea of the weightlessness that astronauts feel. But instead of it only lasting a moment, they are constantly falling.

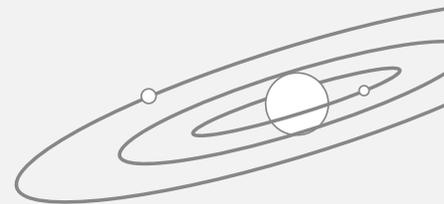
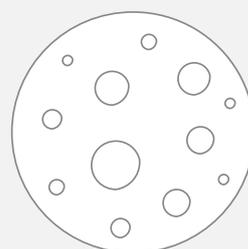
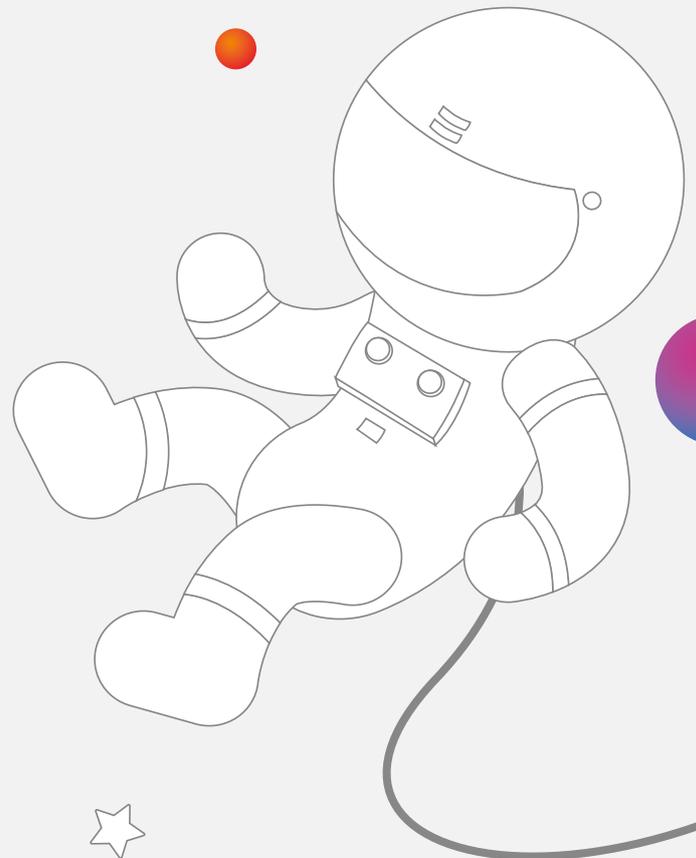
Imagine throwing a ball – it's slowed down by air resistance and gravity will cause it to curve down and hit the ground quite quickly. But what if you were up so high there was almost no air resistance to slow down the ball? If the ball could move fast enough to match the curve of its fall to the curve of the Earth – it would just keep going. By being at the right height above the Earth and going 17,500 miles per hour, the ISS is in just the right position to maintain its free fall.

To train for going to space, astronauts can replicate this feeling for more than the moment you get on a rollercoaster. Follow the link to see people in the 'Vomit Comet' and you can see people experiencing weightlessness for a couple of minutes at a time.

<https://www.youtube.com/watch?v=b3Lpdm5Pp68>



Colour
me in!

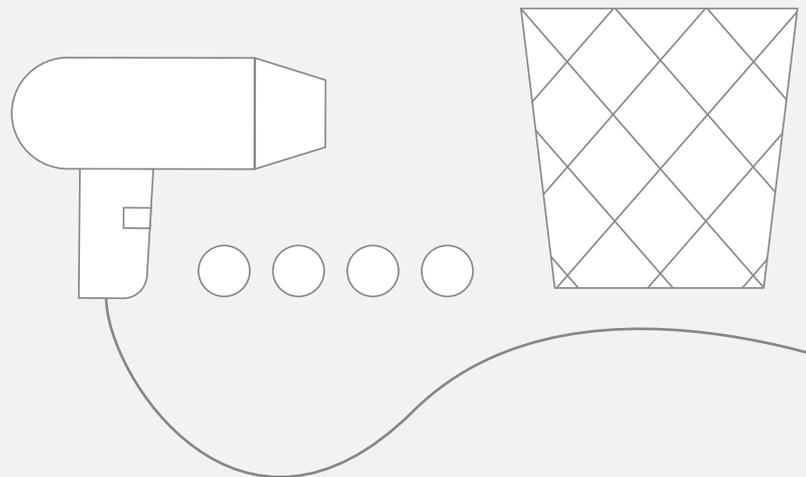


Simulating microgravity.

Have a go replicating the effects of microgravity – the weightlessness – right here on Earth.

YOU WILL NEED:

- A hairdryer
- Ping pong balls / or anything VERY light
- Basket, bowl or small bin



STEP 1:

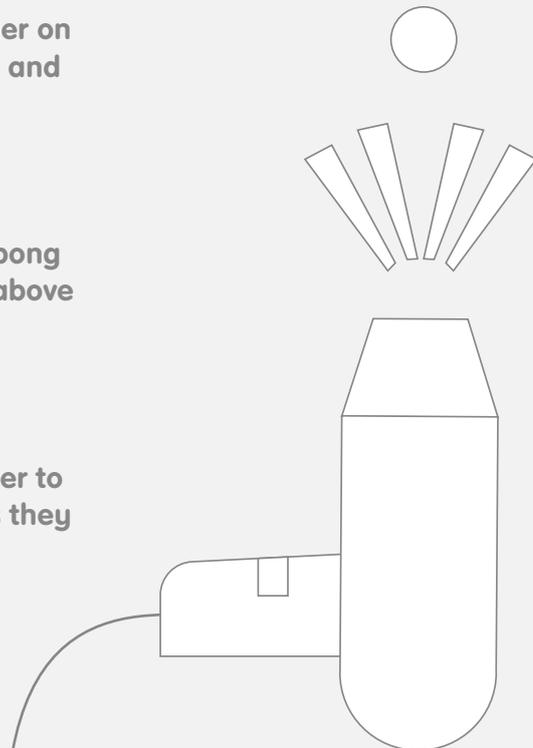
Set the hair dryer on the cool setting and point upwards

STEP 2:

Place the ping pong balls in the air above the hair dryer

STEP 3:

Use the hairdryer to control them as they float in the air



Make a game of it!

Can you direct the ping pongs and try to get them into the basket?

Set a timer for 30 seconds and have a competition to see who can get the most inside the bin!

