

# Space Bottle

STEM Activity



# Gravity Pulls You Down!

Gravity is a very important force. When you're on earth everything is being pulled downwards towards the earth surface.

If you throw a ball into the air it will come down because of gravity.

If you drop a hairbrush it will fall to the floor because of gravity.

When water goes over a waterfall it travels down because of gravity.

If you jump out of a plane, you travel towards the earth because of gravity – don't forget your parachute to slow you down!



# What if There Was no Gravity?

What would happen then?

In space, there is no gravity so things just float away!

There is no gravity pulling things down so everything can just float away if you don't tie it down!

We are going to create an experiment to show the effects of having zero gravity – even if it will only last a few seconds.

**Let's  
find out  
how...**

# What You Need



- A drinking water bottle (500ml or 350ml) filled with water
- A drawing pin

This experiment is best done outside!

# Here's What to Do Next...

This experiment is simple to carry out but you need a keen eye to spot what's happening.

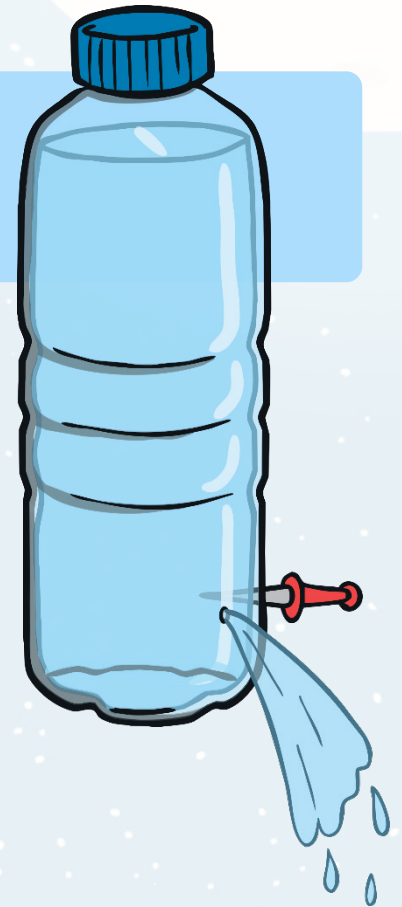
1

With your water bottle in one hand place your drawing pin carefully towards the bottom of the bottle and pierce a hole. Take care!

What happens when you pierce the hole?

That's right the water comes out.

The weight of the water in the bottle pushes it out through the hole you have made and gravity makes the water travel towards the earth.



2

Now, watching very carefully.

Lift the bottle into the air as high as you possibly can.



What did you see?

3

Watch the water coming out of the hole then count down 3... 2... 1... then drop your bottle; all the time watching the water coming out of the hole.



(If you didn't notice anything try again.)

# Here's What's Happening...

When you pierced the bottle and the water came out gravity was pulling the water towards the earth.

However, when you dropped the bottle, during its fall no water came out of the hole.



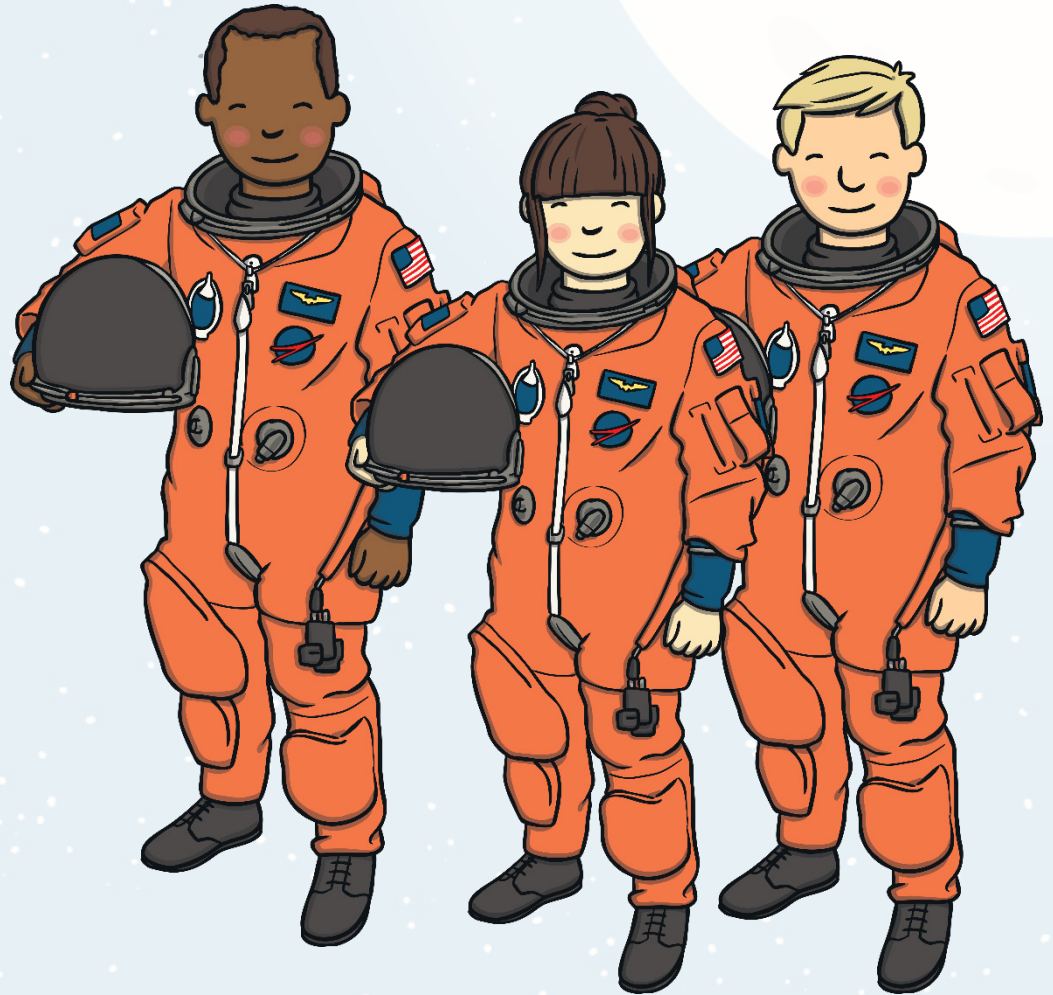
Reason this happens, is they  
Gravity pulls them both towards the earth at the same speed so the water stays inside the bottle.

# Here's What's Happening...

They are in 'Zero Gravity' just like being in space.

It 'floats' in the air for a little while until finally, they hit the earth.

When it lands, the water starts to come back out of the bottle because the bottle is no longer being pulled by gravity.







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