

SCIENCE MUSEUM GROUP



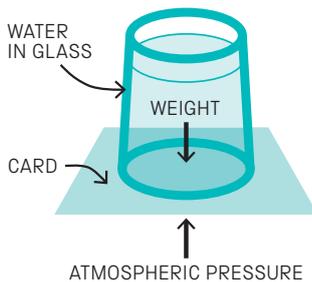
GRAVITY-DEFYING WATER

MAKING 	Age 7-11 11-14	Topic FORCES	 20 MIN
	Skills used MAKING OBSERVATIONS • CURIOSITY		

Overview for adults

Gravity is the force that pulls things down, so if you were to tip a glass of water upside down, you would expect the water to fall right out of the glass. This activity will show how, with a simple piece of card, you can stop that from happening.

What's the science?



The weight of the water inside the glass presses down on the card, but there is another force pressing upwards on the card from outside: atmospheric pressure. The atmosphere is more than 100 kilometres thick, and the weight of all that air above means that, at ground level, the air pushes on everything, in all directions.

The atmospheric pressure on the underside of the card is strong enough to counteract the pressure of the water pushing downwards – until the card becomes sodden and soft, and the water begins to leak out around the rim of the glass.

Science in your world

Atmospheric pressure varies, and that variation affects the weather. High pressure normally brings settled weather, but things become unsettled and stormy when the pressure drops. A barometer is a device that measures atmospheric pressure and can therefore help in predicting how the weather will change.

Did you know...?

Air pressure is greatest at sea level and gets lower the higher up into the atmosphere you go. This change in pressure is why your ears can sometimes pop when you go up in an aeroplane.

You will need...



Plastic tray



Water



A glass



Thick card

Think and talk about...

- What is stopping the water from coming out?
- Will the seal hold for ever?

Investigate...

- What happens if you tip the glass? Does the seal still hold?
- Does it work better with more or less water?
- What happens if you use a plastic cup with a hole in the bottom? (Cover the hole with a finger while you fill the cup.)

Follow these steps...



1 Fill the glass with water.



2 Place the card on top.



3 Turn the glass over, while holding onto the card and making sure the card always stays flat. Do this over the plastic tray.



4 When the glass is upside down let go of the card... and it should stay where it is!

Science in your world

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