

# SCIENCE SHOW OFFS

## MESH SEAL

### RESOURCES NEEDED

- **Glass jar with a metal lid that comes in two parts**  
You only need the screw-top part of the lid for this Show Off, and not the inner metal disk that sits inside it.
- **Mesh**  
You can use the mesh bags that fruit comes in from the supermarket or produce shop
- **Cardboard that is big enough to cover the top of the jar**  
You can laminate the card so that you can reuse it, or cut a piece out of an old ice cream container.
- **Water**

### EXPERIMENT

#### SET-UP

- Prepare a tray that can catch spilt water or work over a sink, as the water will spill through the mesh at the end of the demonstration.

#### STEP 1

- Fill up the jar with water, and place the mesh on top. Fit the open metal lid on top of the mesh and screw it onto the jar.

## STEP 2

- Place the card over the jar, and turn the jar upside down.

## STEP 3

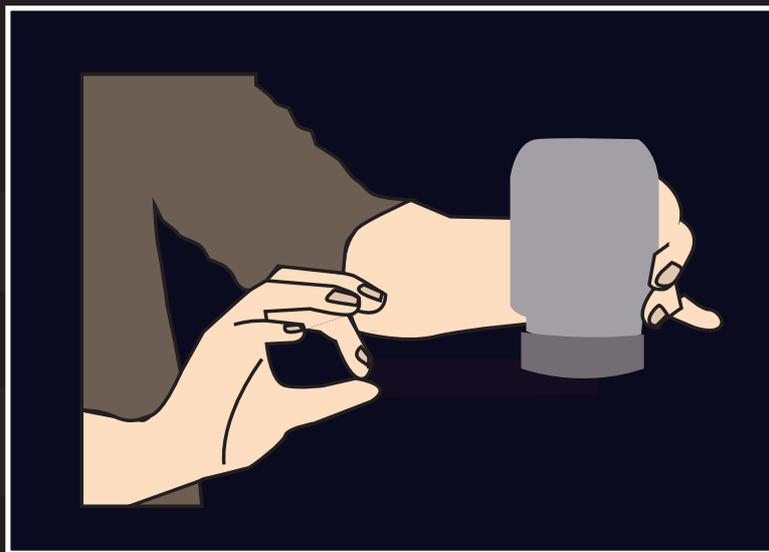
- Slowly remove the card by sliding it away from the jar.

## STEP 4

- The water will not flow out through the mesh!

## STEP 5

- Tilt the jar to show the water can actually go through.



## DISPOSAL AND CLEAN UP

- If you laminate the card used for this Show Off, nothing needs to be disposed of! Enjoy reusing all the materials as often as you want!

## RISK MANAGEMENT

### RISK

Water spilling.

### MANAGING THE RISK

Do this Show Off over a tray or sink that will collect any water that spills.

## SCIENCE EXPLAINED

The first scientific principle in this Science Show Off is atmospheric pressure, which is the force of the air above us, pressing in all directions. The water stays in place because the air pressure is pushing up, and this force is greater than the weight of the water pushing down.

The other scientific principle that allows the water to stay up when the card is removed is surface tension, which is caused by the attraction of the water molecules to each other. The water molecules attracting each other has the effect of giving the water surface a thin skin. As the water molecules stick together, they can't make it through the mesh, so even if we remove the card the water stays in the jar.

The mesh seal can be broken when you tip the jar and allow the air to go into it, or if you touch the mesh, breaking the surface tension that keeps the water up.

## REAL WORLD EXAMPLES

This is why, when it rains, water particles stay in window screen mesh, or in the screen opening at the top of some camping tents, and, if you touch, the mesh the surface tension is broken and the water runs out.

## PARENTAL GUIDANCE

Science Show Offs should take place with appropriate adult supervision.

## COMPETITION

To enter the Science Show Offs Competition, go to;  
[otagomuseum.nz/scienceshowoffs](https://otagomuseum.nz/scienceshowoffs)

