

Week One Science- Awe and Wonder

A little bit of magic? Try this at home...

Watch very carefully what happens:

Runaway Pepper

What we need:

- Bowl
- Dash of pepper
- Washing up liquid

What we do:

1. **Fill** the bowl with water.
 2. **Sprinkle** a dash of pepper in the bowl of water.
 3. Add a **drop** of washing up liquid.
- The pepper runs away from the washing up liquid. This is because the washing up liquid breaks the surface tension of the water and the tension on the rest of the water pulls the floating pepper away from the washing up liquid.



- Find out what you can about what is meant by 'the surface tension' of the water.
- Closely observe other liquids in your kitchen. Think about what the liquid is, how thick it is, the shape it forms when you spill a drop if

it onto the counter....what shape does the drop form...

- Observe carefully the shape the beads of water dropped onto a coin. Does the water run straight off? Keep adding drops until the coin can hold no more...

- Find out about insects that 'walk on water'.



Surface Tension

Surface tension is the tendency of liquid surfaces to shrink into the minimum surface area possible. Surface tension allows insects (e.g. water striders), usually denser than water, to float and slide on a water surface.

The **high surface tension** of **water** allows it to support objects that are more dense than itself. This is why **water** drops are actually "beads" (**water** molecules on the **surface** are only attracted to **water** molecules within the drop; this creates a force across the **surface** that **causes** a drop of **water** to form a bead).

The **forces that attract water molecules** to one another cause surface tension. Water molecules can form hydrogen bonds with each other, and each molecule is attracted to those around it. Molecules at the surface are more attracted to water than the surrounding air, creating surface tension.



Ask a grown up if it is Ok to watch: [What is Surface Tension? | Richard Hammond's Invisible Worlds | Earth Lab on YouTube.](#)

Now try this. Try to explain what has happened.

Swimming Fish

What we need:

- Water
- Bowl
- Washing up liquid
- Cut out cardboard fish



What we do:

1. Fill the bowl with water.
2. Place the cardboard fish on the **surface** of the water.
3. Put a **drop** of washing-up liquid soap **just behind the fish's tail** and watch the fish swim away 😊

Over the next few weeks our science topic will be called States of Matter. We will try to include lots of home science experiments like the ones above.

Preview learning: Ask an adult to watch the following YouTube clip **with you**. [States of Matter : Solid Liquid Gas](#)

Manocha Academy

There are many other clips about solids, liquids and gasses too.