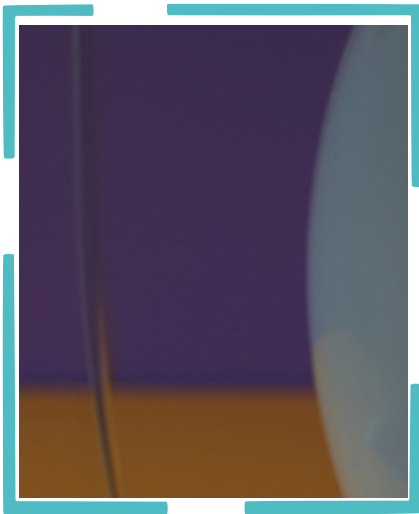


DIY Bendy Water



What Do I Need?

- An inflated balloon or plastic comb
- A running tap

How Do I Do It?

1. Open the cold water tap and leave it running with a very thin stream of water
2. Blow up a balloon and tie a knot in the end so it stays inflated. Any balloon shape will work.
3. Rub the balloon several times on your head. If you have long hair you might see some clinging to the balloon. Don't put the balloon down or let it touch anything, Hold the balloon as close to the thin stream of water as you can without touching the water.
4. See how the stream of water moves towards the balloon.
5. Alternatively rub the balloon several times on your clothes instead of your hair - jumpers work best.
6. Another alternative is to run a plastic comb through your hair for a few seconds. Place the comb close to the stream of water and you should see the same effect.

Skill Level:

Easy

Time

10 minutes

Continued overleaf

DIY Bendy Water (continued)

Safety Advice:

IMPORTANT GENERAL SAFETY NOTE FOR SUPERVISING ADULTS. This Terrific Scientific investigation has been devised so that with adult supervision, reasonable care and by following the instructions provided, no special safety equipment or knowledge is required to enjoy the experience safely. These safety reminders are designed to assist the supervising adult when planning and carrying out the investigation. Please read the instructions fully before starting.

- The amount of static electricity this investigation makes will do no harm. Under no circumstances consider using mains electricity.

What's Happening? The Sciency Bit:

When you rub the balloon or pull the comb through your hair some invisible particles, called electrons, transfer from your hair or clothes to the balloon or comb. If you repeat it several times, more will get transferred. You now have a tiny amount of static electricity on your balloon or comb.

The water has no static electricity; but if something with static is placed close by, it is attracted by the static so you see the water bend towards the balloon or comb.

The electrons in the static electricity give the balloon or comb a negative charge. Water has an equal balance of negative and positive charges. The negative charge on the balloon or comb attracts the positive charge in the water so pulling the water closer. It's a bit like a magnet being attracted to a metal.

Try rubbing the balloon on different materials e.g. a wool jumper and one made from a man-made fibre. If you have an item of clothing that 'crackles' when you take it off this would be good one to test. Try rubbing the balloon the same number of times on different material samples and compare how much the water bends.

Try combs made from different materials or balloons of different shapes.

Once you've rubbed your balloon or comb, try picking up small pieces of tissue paper with it.

The force of gravity is pulling the water down but the static is providing another force.

My Water Doesn't Bend... What Can I Do?

- Rub the balloon more times, pushing hard against the material. This will increase the amount of static electricity.
- The material you are testing may not let any electrons go so no static builds up on the balloon. This is a result. You have discovered a material with no static.
- If you put the balloon or comb down after rubbing, the static electricity will quickly drain away. As soon as you have rubbed/combed put it near the stream of water.
- The amount of static electricity is very small, it will only be able to pull a very thin stream of water. If you have too much water in your stream it will not be pulled so turn the tap so there is a very thin stream of water.