

Diffraction goggles

What you need

- copies of the spectacles template from page 91
- scissors
- felt-tip pens
- sticky tape
- diffraction grating sheets (available online in rolls)
- paper and pens

What you do

1 Copy the spectacles template on to thin card and help the children to cut out their spectacles, including the space for the lenses. Encourage them to colour in the frames however they want. As they work, chat about what you have discovered today. Ask if



anyone wears glasses – what is it like? If you wear glasses, show them yours!

2 Cut out pieces of the diffraction grating sheets just large enough to cover the lens holes of the glasses and stick them on to the frame. Put the glasses on and challenge the children to describe to each other what they can see. Warn them not to look directly at bright lights, and particularly not the sun.

3 Encourage the children to write or draw what they can see and how it changes as they move their eyes or head around.

The science bit: the diffraction grating sheets have ridges, called rulings, that split or diffract the light. The light hits the ridges at different angles and so we see different colours of the spectrum in different patterns.

Experiment 4

Experiments about me

What you need

- a 2-litre plastic bottle
- a length of rubber tubing
- a large tub of water
- a marker pen
- a measuring jug
- ink pads
- paper and pens
- magnifying glasses
- cover-up and clean-up equipment

What you do

These experiments tell us something about our bodies and brains!

1 For the first experiment, place the bottle in the water and let it fill up. Lift it upside-down part of the way out of the water, making sure that the mouth of the bottle is still submerged. Place one end of the tubing into the water and up into the mouth of the bottle. Invite a Scientist to take a deep breath and blow into the other end of the tubing.

They should keep going until they have no breath left. Keeping a thumb over the end of the tube, mark the line of the water on the bottle. Refill the bottle, wash the end of the tubing and invite the other Scientists to have a go. The amount of water displaced is equal to the capacity of our lungs. To find out the capacity, take the bottle out of the water, fill it up to one of the lines and then pour the water into a measuring jug.

