

Make your own rainbows!

Rainbows are famous for appearing high in the sky as beautiful, colourful arcs. To see a rainbow, the conditions need to be just right; when the sun is low after a shower of rain. But what if there was a way to make a rainbow here on the ground? In this activity, we will use 3 different methods to make our very own rainbows!

Dancing rainbow

You will need:

- Container
- Small mirror
- Water
- White paper
- Torch



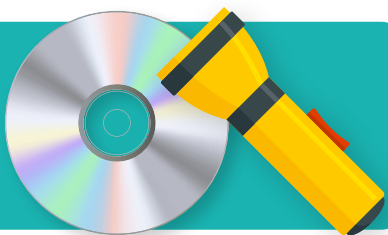
- 1 Place the mirror so that it is leaning against the side of the container.
- 2 Fill the container with water until it reaches half way up the mirror.
- 3 Rotate the container so that light shines on the mirror.
- 4 Hold up the sheet of paper in the reflected light to capture the rainbow! This might take a few tries to get the paper in the right place.
- 5 Can you line up the mirror in such a way that you project the rainbow onto a wall? What happens to the rainbow if you give the container a wiggle?
- 6 Switch off the lights, and shine your torch onto the mirror. Can you see a rainbow on your paper/wall? Is it clearer or fainter than with the lights on? What shape is the rainbow?

White light is made up of light of all colours of the rainbow. In the sky when we see a rainbow, the sun's white light is scattered by raindrops bending and reflecting the light. Red light bends more than blue light, so the colours are spread out into the spectrum. In this activity, the water bends the light, and the mirror reflects the spectrum back at us, so that we are able to capture the rainbow on our paper surface!

Musical rainbow

You will need:

- CD or DVD
- Torch



- 1 Take a look at the silvery underside of your CD. What shape are the rainbows? What happens to the colours when you tilt the CD?
- 2 Now find a window next to a bare wall, and tilt your CD so that the silvery side catches the light from the window, and reflects it onto the wall. Can you find an angle which projects rainbows? What shape are these rainbows?
- 3 Now point your torch to the ceiling, and balance it in place so that the light isn't obstructed. If your torch won't balance on its own, you could rest it inside a tall, empty glass.
- 4 Switch off the lights in the room. Lift your CD so the silvery underside is lit by the torch, and tilt it to reflect the light onto the wall. Can you see a rainbow? Is it any clearer than with the lights on?



The shiny side of CDs and DVDs is covered in tiny bumps. These bumps make light scatter in different directions, and split the white light into the different colours of the spectrum. We see this as a reflected rainbow.

Misty rainbow

You will need:

- Hose-pipe



- 1 Wait for the sun to be fairly low in the sky.
- 2 Turn your back to the sun, and switch on your hose.
- 3 Turn your hose to a light spray setting – it should look almost misty.
- 4 Observe the rainbow! Ask an adult to hold the hose in the right position and see if you can run through the rainbow!



This experiment mimics the conditions in the sky when we can see a rainbow! You might get wet which can make you cold, so make sure it is a warm enough day.

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