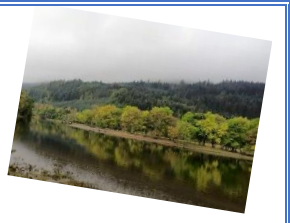
Shadows and Reflections



Both are caused by the effects of light when they hit objects, but what is the difference between shadows and reflections?

Shadows are formed when an object or person blocks the stream of light. So when you stand outside on a sunny day, you can see your shadow on the ground to the opposite side of where the sun is. How high or low the sun is in the sky will determine if your shadow appears long (if the sun is low) or short (if the sun is high). Any object blocking the suns rays will produce a shadow.

Lets have a go at making some shadows. You can go outside to do this or find a sunny window.

Stand in front of the sun, turn sideways and hold your teddy up to the light. Can you see its shadow on the ground? Let's see if we can create some things to make shadows.

- On black paper draw your favourite animal, cut it out and tape it to a stick or straw to make a stick puppet. You could use white paper and colour your shape in black. Make as many stick puppets as you like.

- Take your puppets to a sunny place, outside or at a window and hold them up in a position where you can see their shadows.
- Can you make your shadow puppets dance? Maybe you could make up a shadow puppet story?
- Can you make up a bedtime story using your shadow puppets? At night-time, stand in front of your bedroom wall and ask your adult to shine a bright torch or lamp at your puppets. Can you see their shadows on your wall? What story can you tell?

Reflections are created when light bounces off an object. If the surface is shiny and smooth like a mirror or water, the light will reflect the object back at the same angle onto the shiny surface.

Let's try it out for ourselves. Probably the most used reflective surface in a home is a mirror, so we're going to try this using two.

- Draw a circle on paper, or you can use a paper plate or cake case. Fold your circle in half and then in half again to make a quadrant.
- Colour the entire quadrant with a pattern using as many colours as you can.

- Hold a flat edge of your colourful quadrant up against a mirror. Do you still see a quadrant, or can you now see a bigger, different shape? What shape do you think it is?

- Try holding your quadrant against two mirrors, one on each of the flat sides of your shape. What shape do you see now? What do you notice about the pattern which is reflected in your mirrors?

Now that you've experimented with reflections in a mirror, have a look around to see what other shiny object you can use to see your own reflection in. If you look at yourself in a spoon, how does it make your face look? Next time you're outside near a river or pond, have a look to see if you can see anything reflecting in the water.