

# How Do Shadows Change?



# A Sunny Day

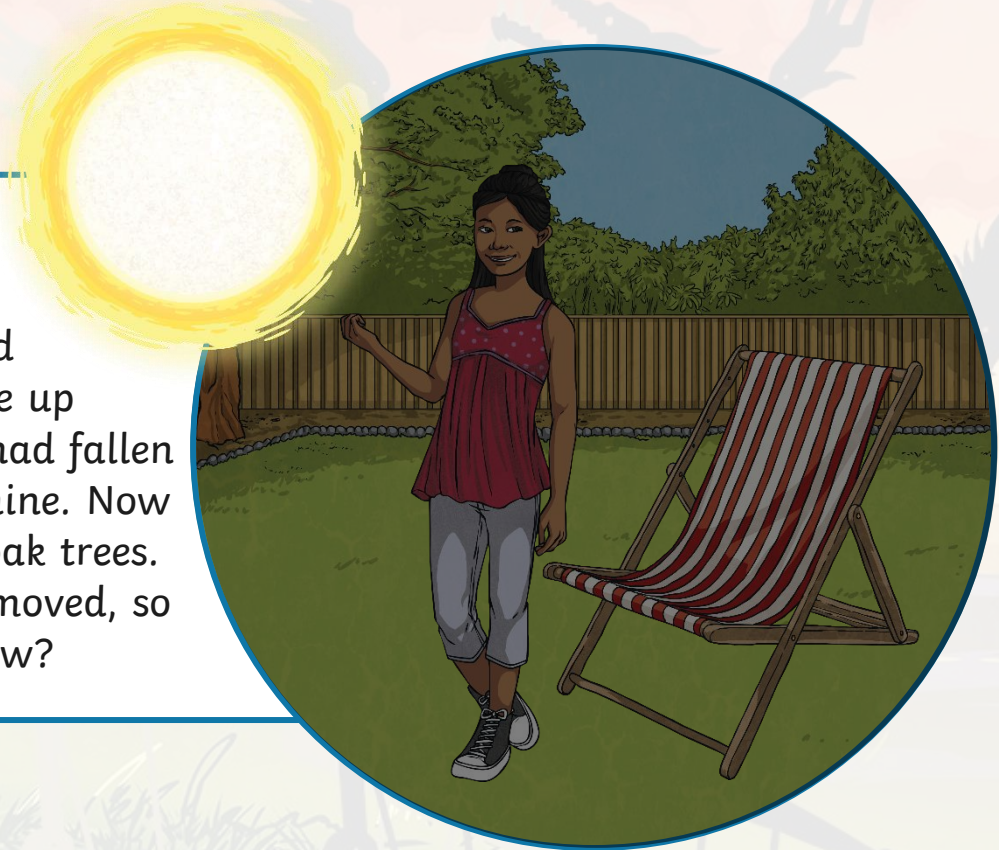
It was a lovely sunny Saturday. Having done all her homework and eaten her lunch, Eva decided to sit out and enjoy the sunshine. Having put on SPF50 sun cream, Eva put her deckchair in the sunniest part of the garden, away from the shadows of the oak trees.





# Shadows

Eva had a relaxing time lying on her deck chair and reading her book. Gradually she nodded off to sleep. Suddenly, she woke up feeling a bit chilly. When Eva had fallen asleep, she was in bright sunshine. Now she was in the shadow of the oak trees. Eva was confused. She hadn't moved, so why now was she in the shadow?



# What Is a Shadow?

Light can only travel in a straight line. A shadow is formed when something blocks light.

Here is a shadow puppet show of Little Red Riding Hood. The shadows are formed when light is shone on the puppets. The puppets block the light and a shadow is formed.

What do you notice about the shape of the puppet and the shape of the shadow?

Talk About it!





# Changing Shadows

Look at the shadow the ball makes.

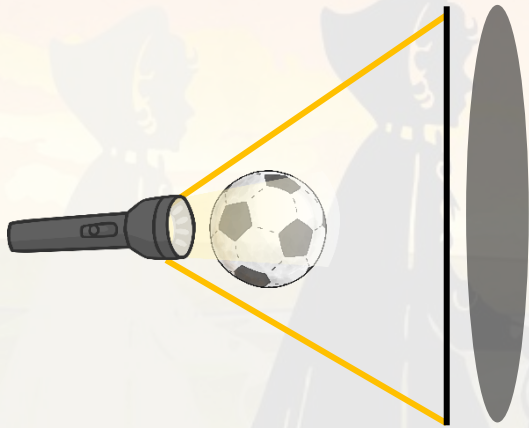


Talk About it!

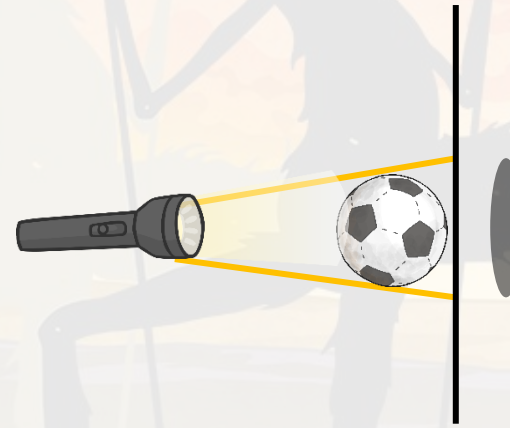
What do you think will happen if the ball is moved closer to the torch? What will happen if the ball is moved further away from the torch?

# Changing Shadows

Look at the shadow the ball makes.



The closer to the light source an object is, the bigger the shadow will be. This is because the object blocks more of the light.



The further away from the light source an object is, the smaller the shadow will be. This is because the object blocks less of the light.

# Changing Shadows



When the light source moves, the shadow will change. When the light source is directly above the object, the shadow will be directly underneath. When the light source is to one side of the object, the shadow will appear on the opposite side. The shadow will also be longer.



# Eva

The oak trees in Eva's garden blocked sunlight and caused a shadow. When Eva sat down in the garden, it was midday so the sun appeared to be directly overhead. This meant the shadow was shorter. As the day went on, the sun appeared to be lower in the sky. This angle meant the oak trees cast a longer shadow.





# Our Investigation

You are going to be creating shadow puppets using prehistoric animals.

You will need:

- Animal Shadow
- Stick (ruler)
- Sticky tape
- Scissors
- White paper

Make a shadow puppet by cutting out one of the animals from the sheet, sticking it to black card, cutting it out then sticking it to a stick. Take it out into the sunshine and see what you notice about the shadows. Move the puppet closer to the ground and then further away.

