



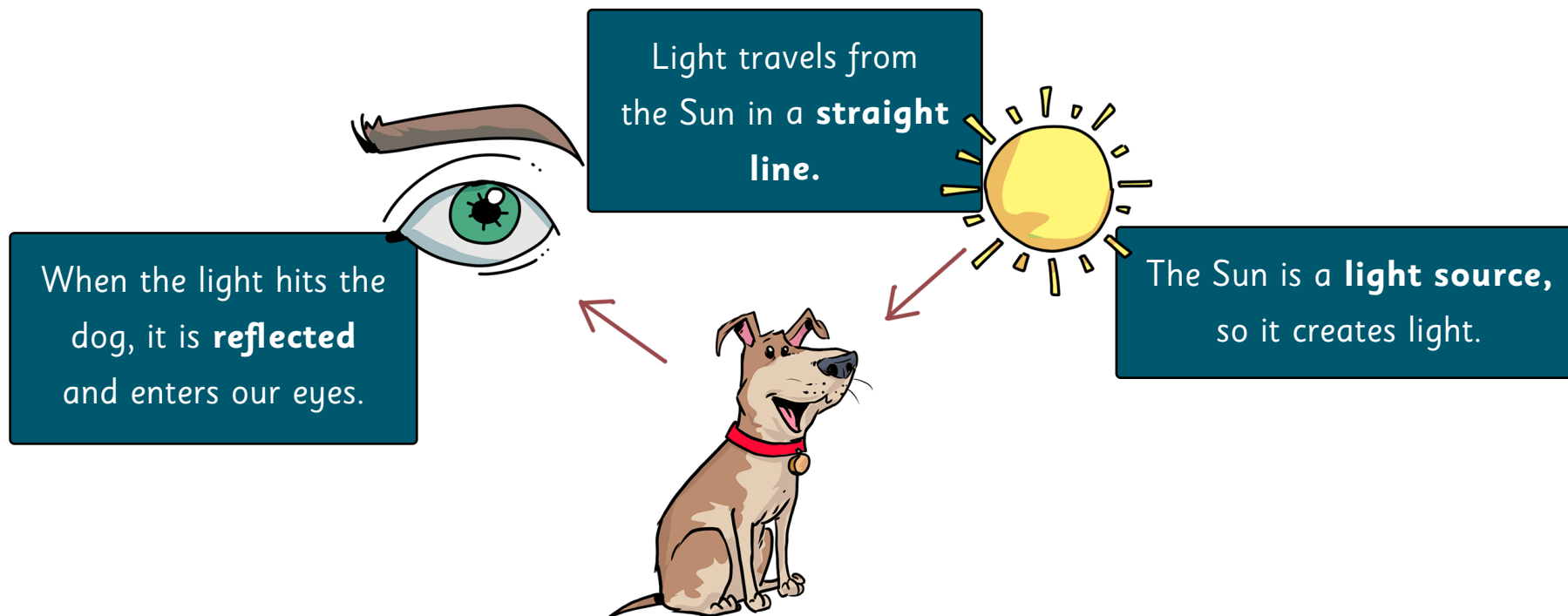
Light

I can use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. I can explain how shadows change through the day.



Light

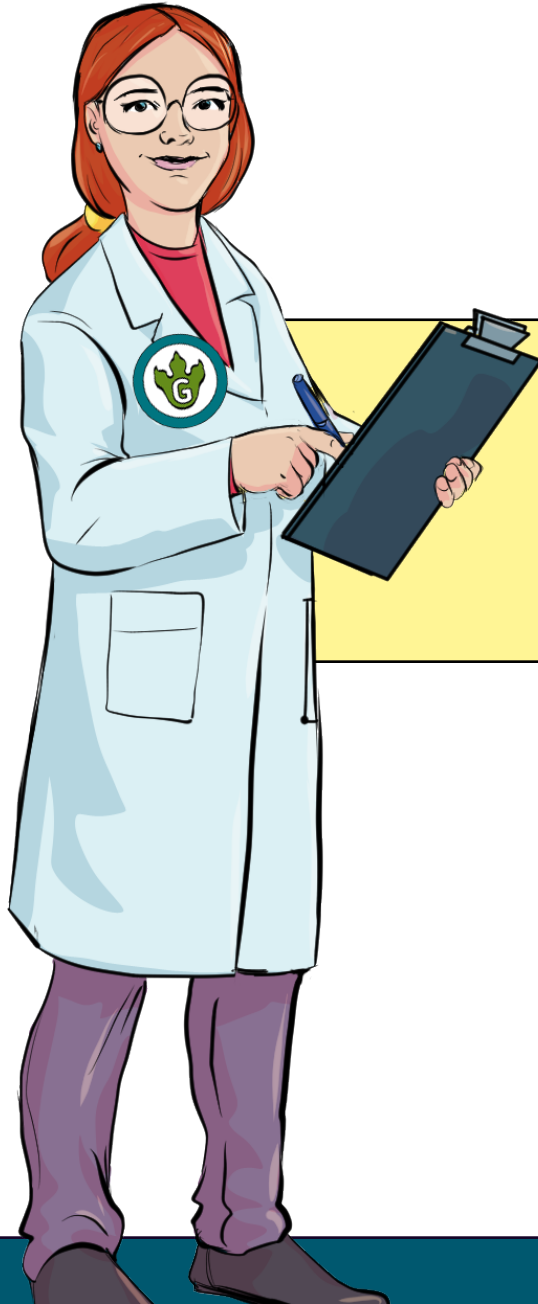
We have learnt that we can see things because light is **reflected**. Some materials reflect light better than others. Light travels in **straight lines**.



When light hits an object, it is **reflected** (bounces off) and enters our eyes. This is how we see the object.

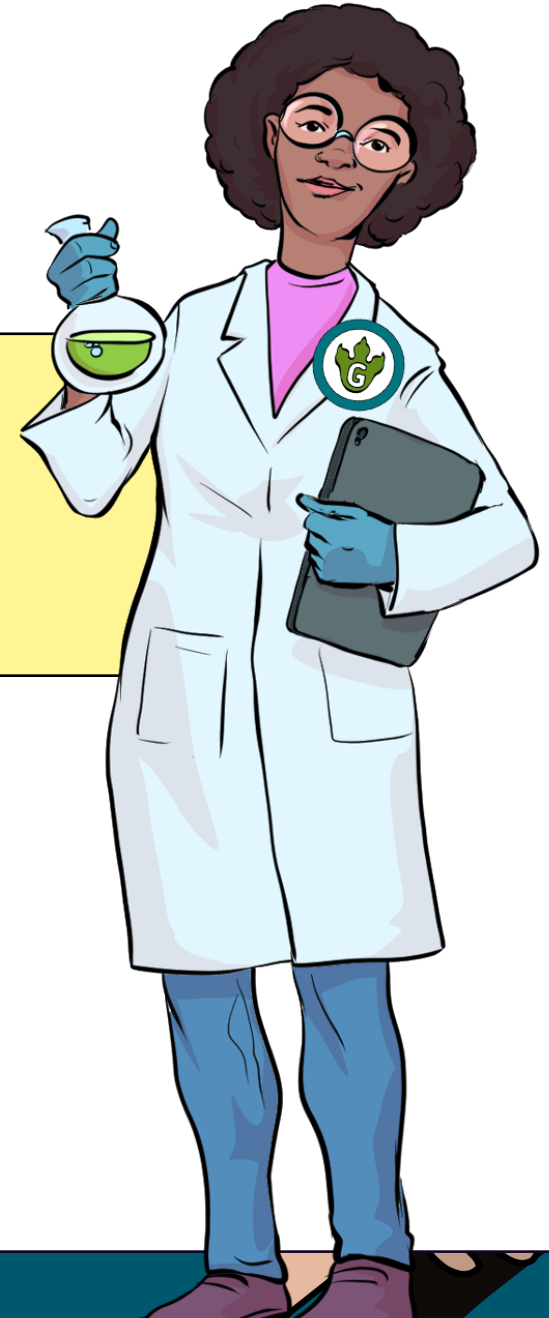


Thinking Time...

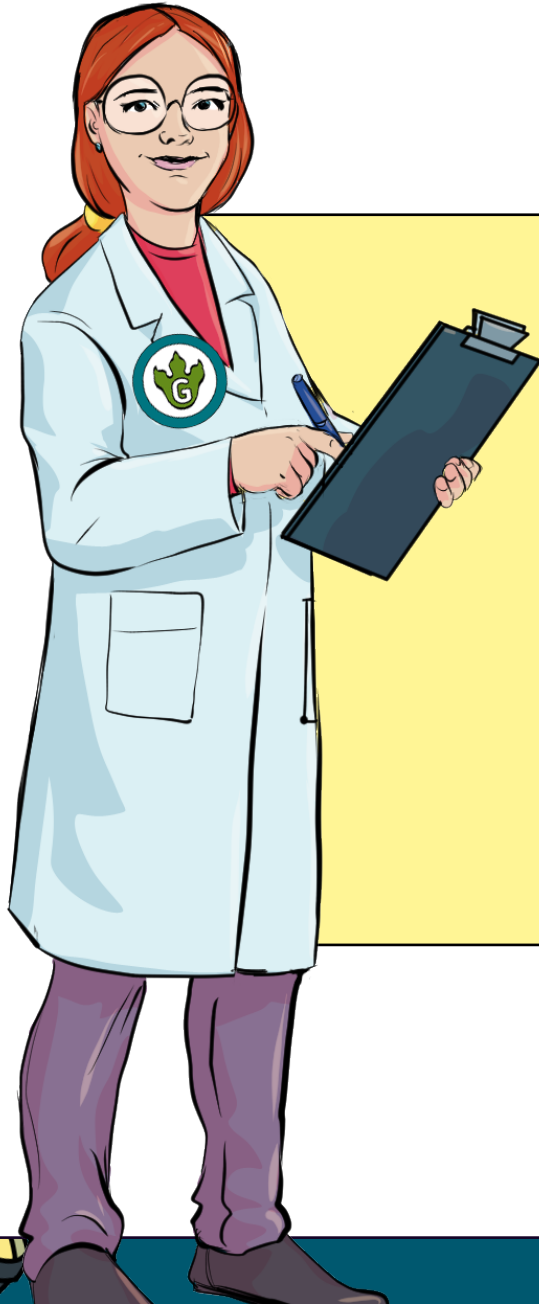


What happens when an object
blocks the light travelling in
straight lines?

Talk to your partner before
we discuss it as a class.



Mini Task

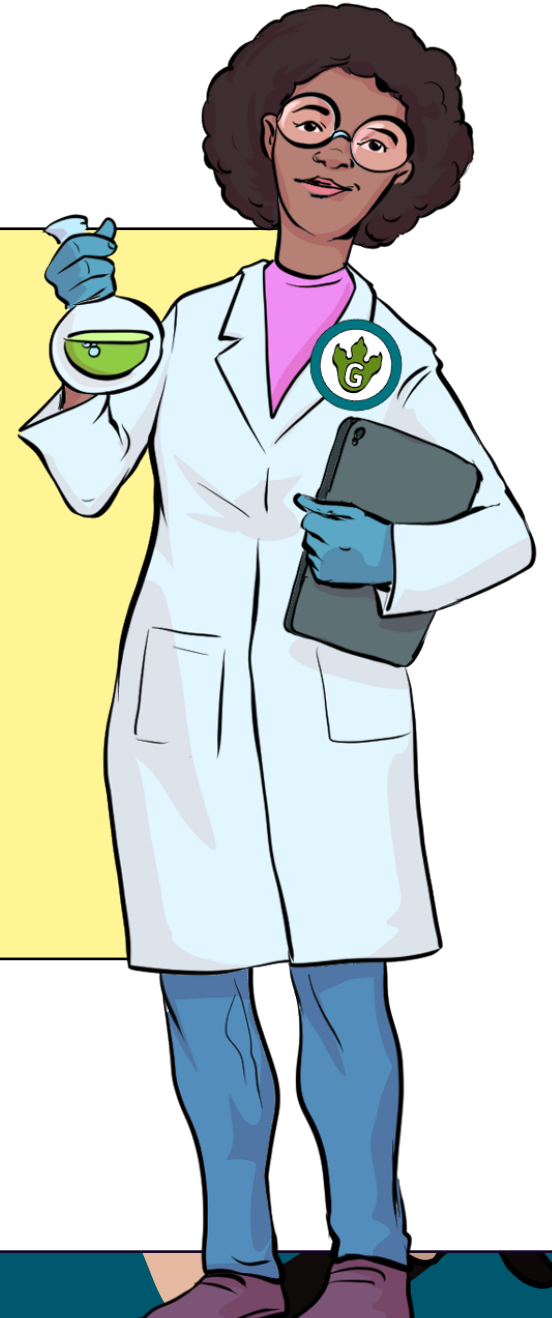


Draw a simple picture of yourself in the school playground on your paper.

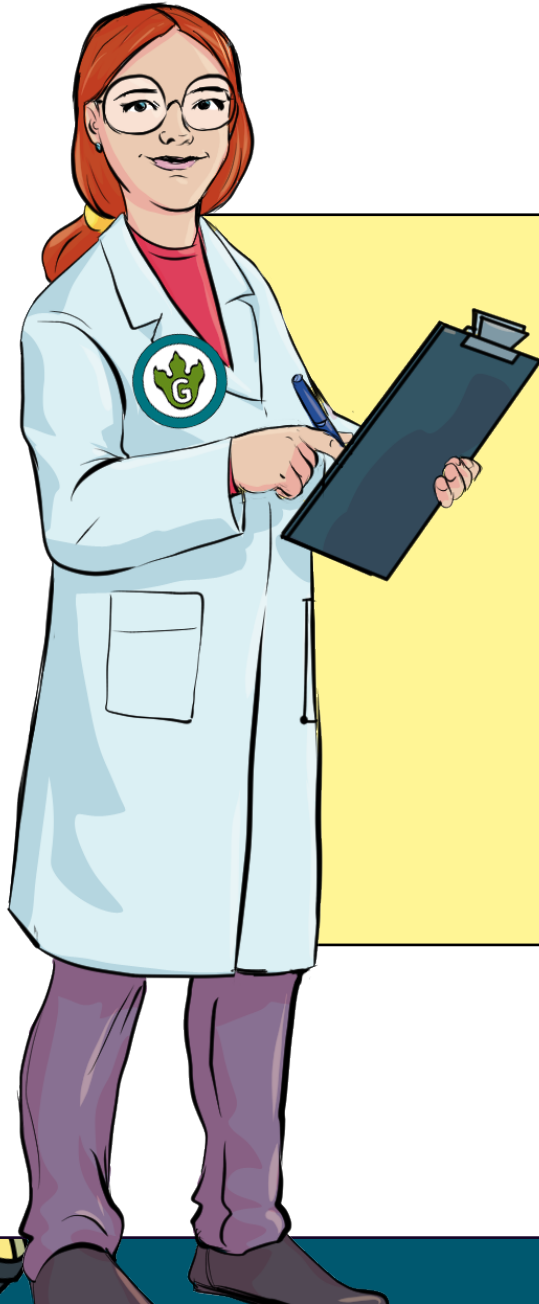
Then add a sun in the sky.

Can you draw your shadow?

What do you think it will look like?



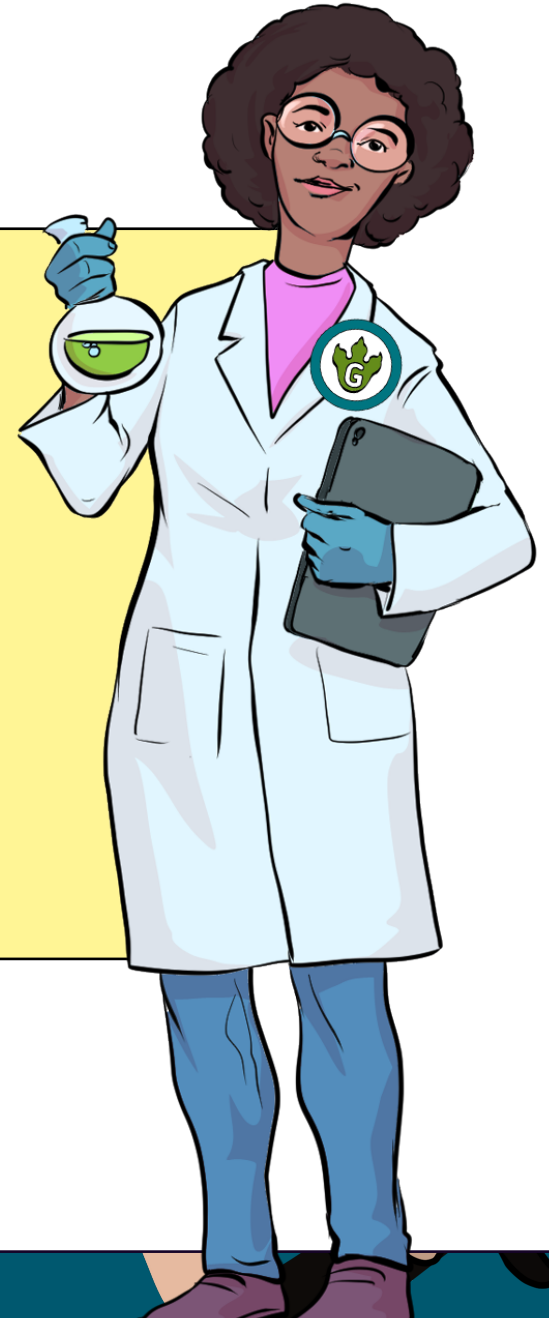
Mini Task



Swap your pictures with your partner.

**Have they drawn their shadow
in the correct place?**

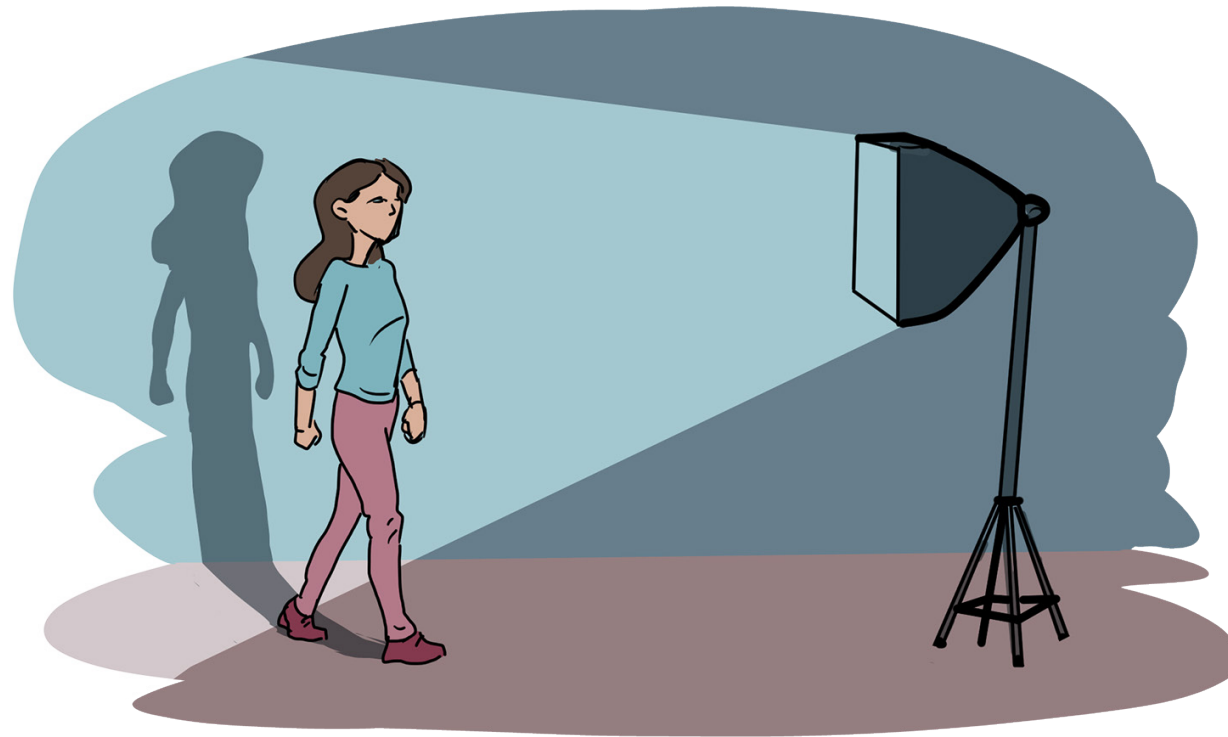
**Have they drawn their shadow
in the right shape?**



Shadows!

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We learnt that a **shadow** is made when an **object blocks the light** in the last lesson. A shadow is a **dark area or shape** caused by a **solid object blocking** the rays of light from a light source. **Opaque objects** make the **darkest shadows**.



Shadows!

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The object must be **opaque** or **translucent** to make a shadow. A **transparent** object will not make any shadow, as the light will pass straight through it.

Opaque

Opaque materials do not let any light pass through them. They **block** the **light**. **Wood** is an example of an opaque material.

Translucent

Translucent materials let **some light through**, but they scatter the light in all directions so that you cannot see clearly through them. **Tissue paper** is an example of a translucent material.

Transparent

Transparent materials let the light pass through them in **straight lines** so that you can see clearly through them. **Glass** is an example of a transparent material.

Can you think of any other examples of opaque, translucent or transparent materials or objects?

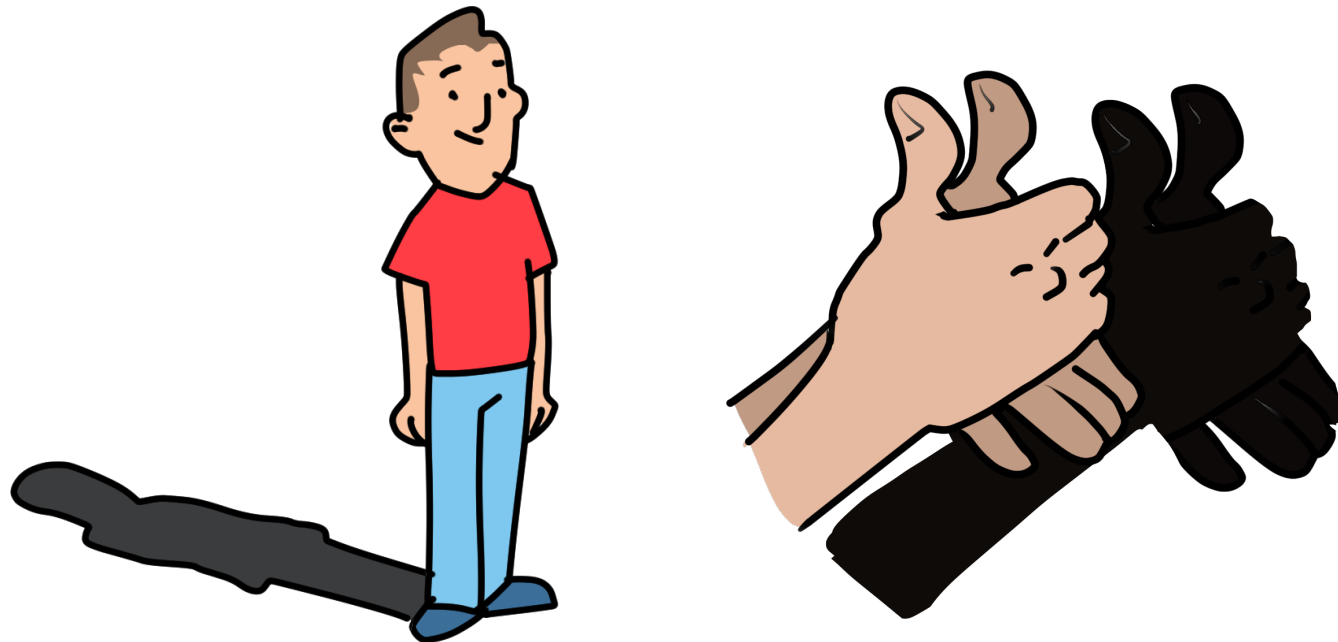


Shadows!

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A shadow is made when an **object blocks light**. The shadow appears on the side of the object furthest from the **light source**. The object must be **opaque** or **translucent** to make a shadow. A **transparent** object **will not make any shadow**, as the light will pass straight through it.

Opaque objects make dark shadows. **Translucent** objects make faint shadows.

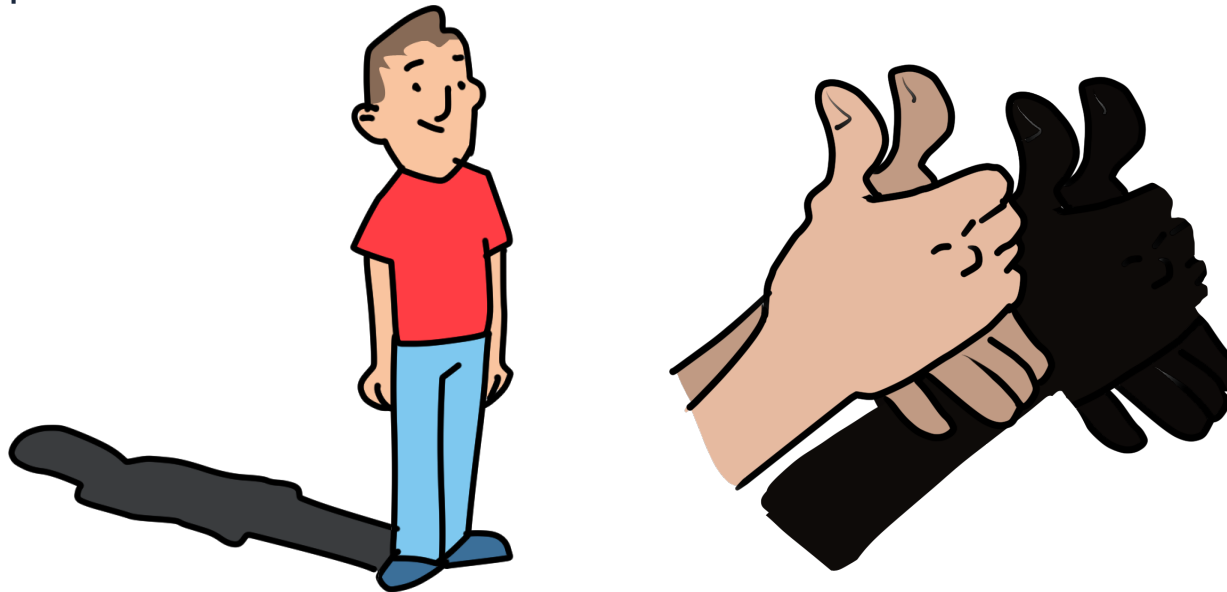


Shadows!

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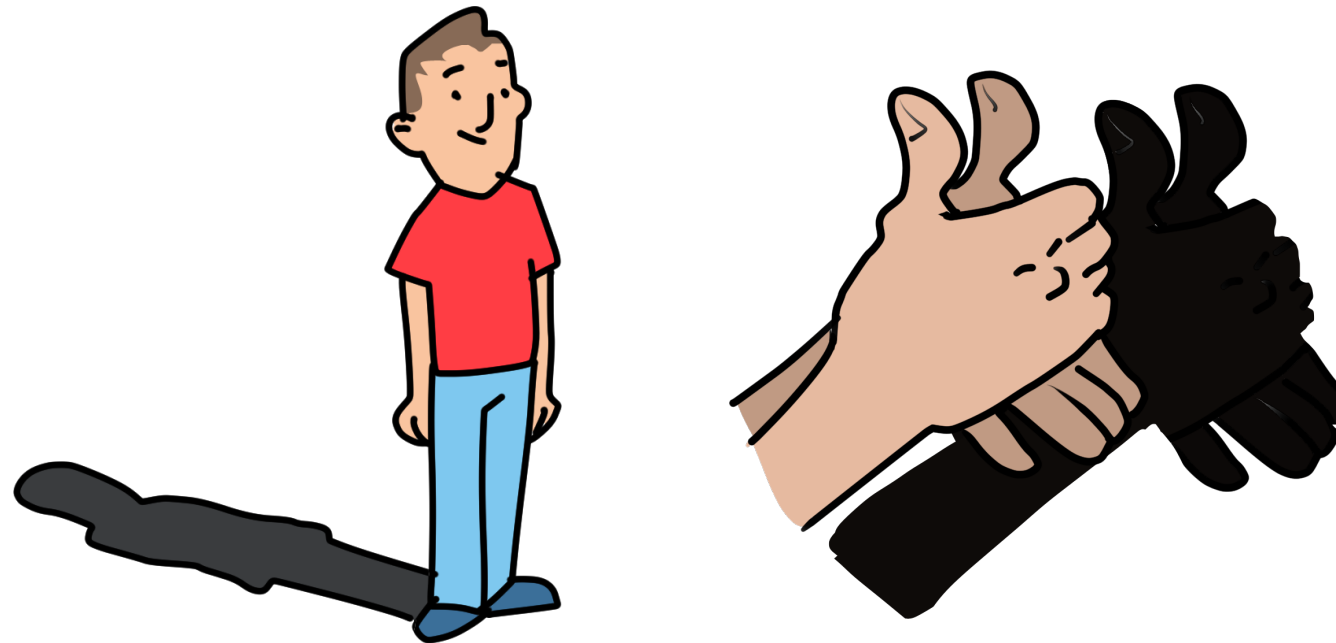
Shadows don't have details on them as objects do. It is just a space that light cannot get to.
Our shadows don't have our face details on them!

However, a shadow is always the **same shape** as the **object that casts it**. This is because when an object is in the path of light travelling from a light source, it will **block** the light rays that hit it while the rest of the light can continue travelling. Therefore, the shadow it casts is exactly the same shape.



Why do our shadows chase us?

If the source of the light is **moving**, the direction of the light rays that fall on the object also **changes**. This movement of light from the source makes the **shadow move**. When the object is moving, the shadow moves as it is formed where the **moving object blocks light**.



Investigation

In groups, you will plan and carry out an investigation to explore the question...

How do shadows change during the day?

Questions to think about...

Where will the experiment take place?

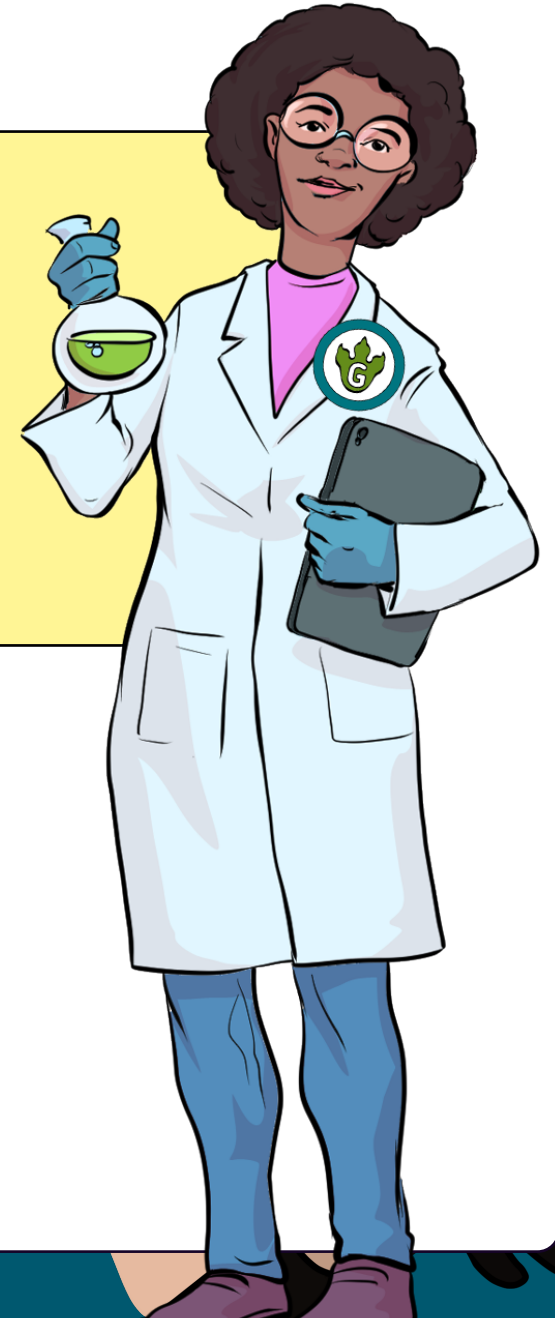
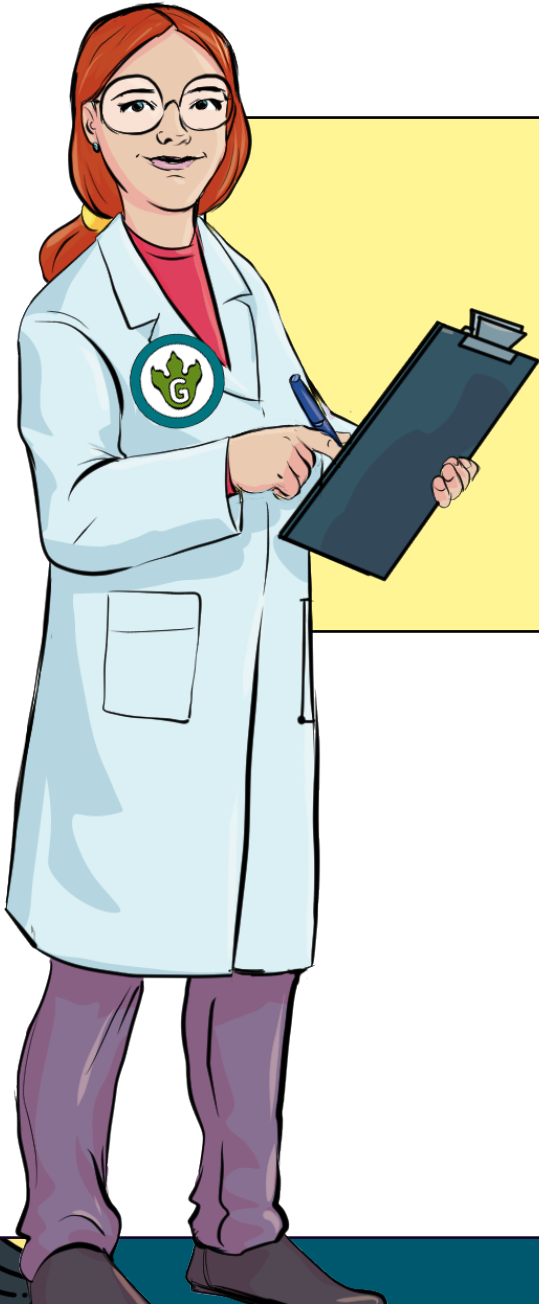
What will you use to create the shadow?

How often will you observe and measure the shadow?

How will you record the results?

What do you think will happen to their shadow?

Will it stay in the same place?



What did we find out?



Think about these questions and discuss them with your partner before feeding your ideas back to the class.

- 1. What did you most enjoy about this lesson?**
- 2. Tell me one thing you have learnt.**
- 3. Did you find anything difficult?**

