



Year 5 Science Week 2



Lesson Aims

- I can understand what is meant by Transparent, Translucent and Opaque
- I can explain how a shadow is formed.
- I can explain why shadows are the same shape as the object that casts them.



Transparent, translucent or opaque

TASK - Match the word to the characteristic

blocks the light and stops it travelling through. For example, cardboard

lets some of the light travel through. For example, tissue

lets all of the light travel through. For example, a window, cling film.

Translucent Opaque Transparent





Transparent, translucent or opaque



Opaque - blocks the light and stops it travelling through.

TASK - Write the definition of each in your book and draw some examples



Transparent - lets some of the light travel through.



Translucent - lets some of the light travel through.



Transparent, translucent or opaque

TASK - Sorting Activity - put the pictures of the objects in the right columns.

Transparent, Translucent or Opaque

Transparent

Translucent

Opaque

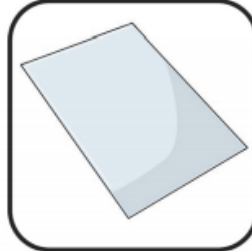


Transparent, translucent or opaque

Transparent



Translucent

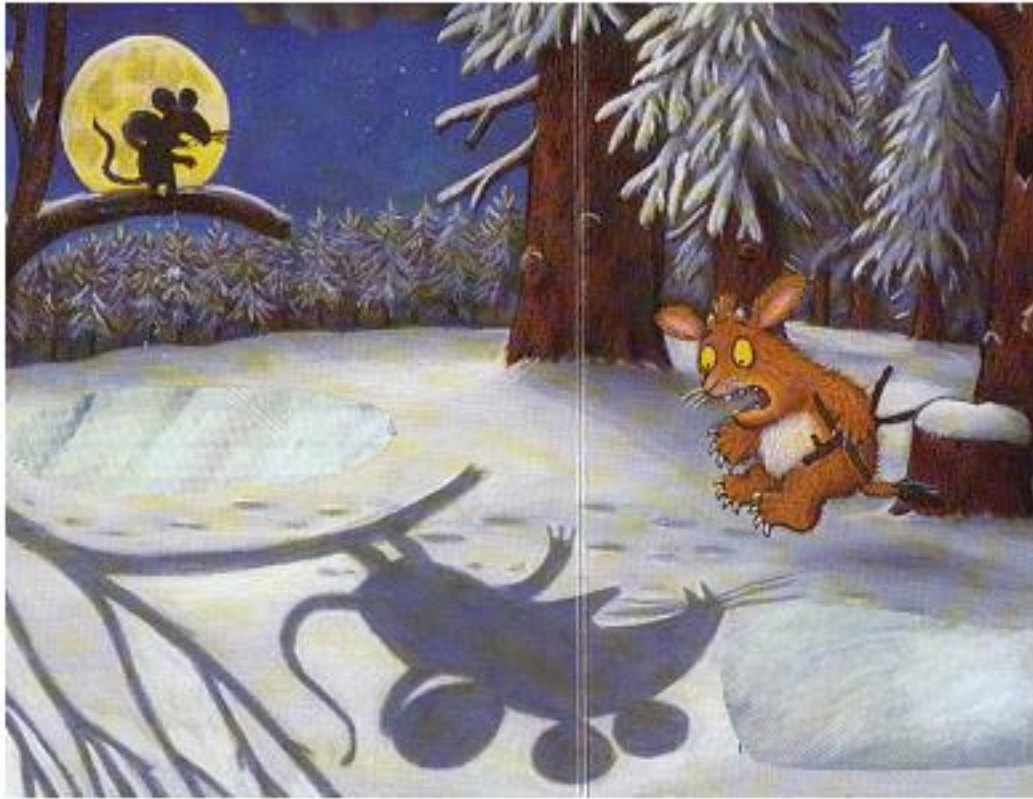


Opaque





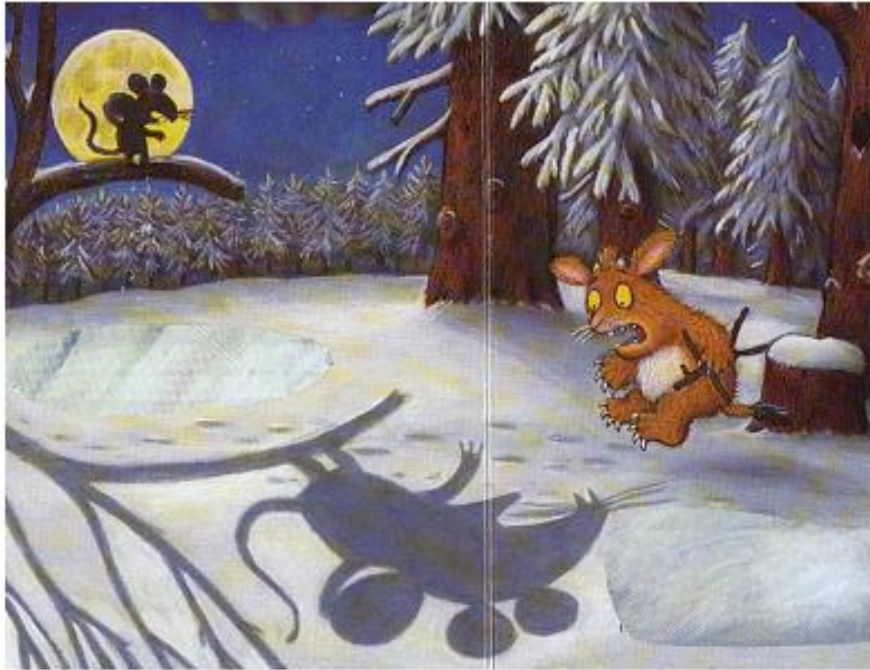
How are shadows formed?



- A source of light can shine on an object .
- If the object does not let the light pass through it (opaque), the light will be blocked and a shadow is formed.



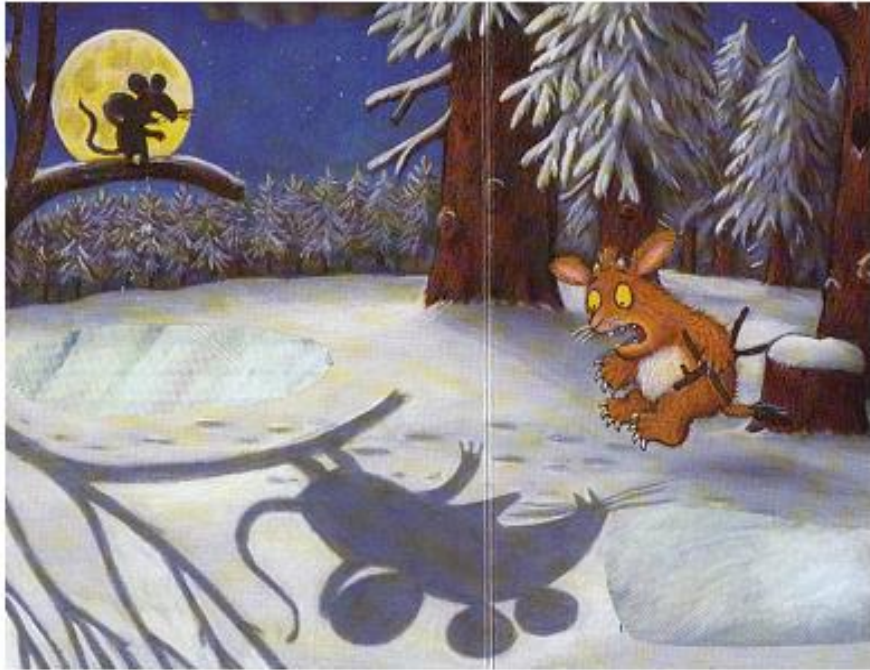
How are shadows formed?



- What is the light source?
- Where is the light shining to?
- What is blocking the light?
- What surface is the light reflecting off?



How are shadows formed?



- What is the light source?
- The sun (reflecting on the moon)

- Where is the light shining to?
- The ground/ Earth

- What is blocking the light?
- The mouse

- What surface is the light reflecting off?
- The snow



How are shadows formed?

- You are going to carry out an investigation to find out how a shadow is formed and what things affect it.
- Using the BATMAN Template, or your own design, make a shape out of black paper. Cut it out.
- Attach your shape to a lollipop stick, straw or pencil to create your puppet.
- You will need a piece of plain white paper or card or a blank wall, a ruler and a light source (torch)



How are shadows formed?

Shadow Puppet Investigation

YOU WILL NEED:

Shadow puppet

A plain wall

A torch

A ruler

Blu-Tac





How are shadows formed?

TASK - Shadow investigation

Ensure that you carry out a fair test by keeping everything the same, apart from the variable you are measuring, in this case the distance between the puppet and the light source.





How are shadows formed?

TASK - Shadow investigation

PREDICTION- What do you think will happen to the size of the shadow when the light source is moved further away?

Position your puppet 15cm from the wall.

Secure with Blu-tac.

Position your torch 10cm away from the puppet and measure the width and height of the shadow.

Record your measurements. (See grid example on next slide)

Move the torch 10cm away and measure the width and height of the shadow.

Record your measurements.

Repeat twice more. What do you notice?



How are shadows formed?

Example of grid

Distance of light source from puppet	Height (cm)	Width (cm)
10cm		
20cm		
30cm		
40cm		



Conclusion

When the l_____ s_____ moved further away from the p_____, the shadow got s_____er.

puppet smaller light source



Conclusion

When the **light source** moved further away from the **puppet**, the shadow got **smaller**.



Plenary

Light travels in s_____ lines.

The object is o_____ and b_____ the light from travelling through it, forming a sh_____.

The n_____er the opaque object is to the l_____
s_____, the more light is being _____ and a
l_____er shadow is formed.

As the light source is moved f_____er away, less light is blocked and a s_____er shadow is formed

**blocks
closer**

**shadow
smaller**

**further
larger**

**straight
opaque**

**light source
blocked**



Plenary

Light travels in **straight** lines.

The object is **opaque** and **blocks** the light from travelling through it, forming a **shadow**.

The **nearer** the opaque object is to the **light source**, the more light is being **blocked** and a **larger** shadow is formed.

As the light source is moved **further** away, less light is blocked and a **smaller** shadow is formed.



Lesson Aims

- I can ...

Remember the SC. Do you think you met the aim of the Lesson?