

Knowledge Organiser - Science: Light and Shadows

Light Sources

Light is a form of energy that makes it possible to see. We need light in order to see things. Darkness is when there is no light.

What is a light source?

- A light source is something that makes its own light.

Common sources of light

- The sun
- The stars
- Flames
- Electric lights
- Some animals (fireflies and glow worms make their own light)

Things you may think are light sources but aren't.

- The moon
 - A mirror
 - Shiny objects
- These basically reflect light from a light source but aren't light sources themselves.

Reflection

- Light bounces off some materials better than others.
- Shiny objects reflect light well.

The Sun

Warning

IT IS NOT SAFE TO EVER LOOK DIRECTLY AT THE SUN, EVEN WHEN WEARING SUN GLASSES.

More about light

Things you need to know about light

- The moon does **not** emit its own light – it reflects the sun.
- Ultraviolet (UV) light is a type of radiation which you can't see but can be dangerous. UV rays can come from the sun.
- Light travels in straight lines
- Light travels very, very fast - 186,282 miles per second. (that's like travelling around the world over 7 times in a second)
- Light travels faster than sound.
- A light year is a unit of measurement for distance. It is the distance light can travel in a year.
- If something gets in the way of light, a shadow is formed.
- The size and shape of a shadow changes based on the distance and angle compared to the light source.

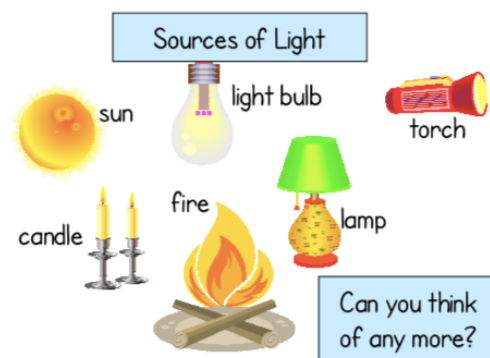
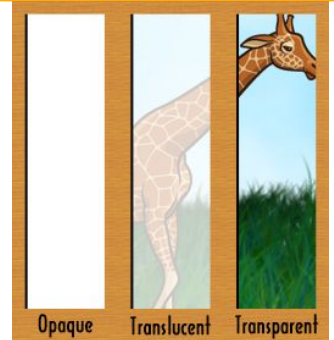
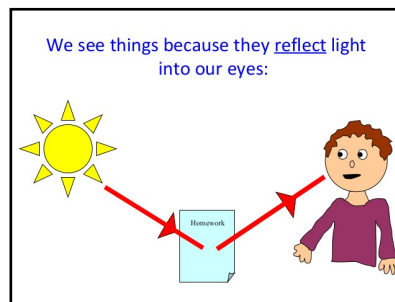
Shadows

How is a shadow formed?

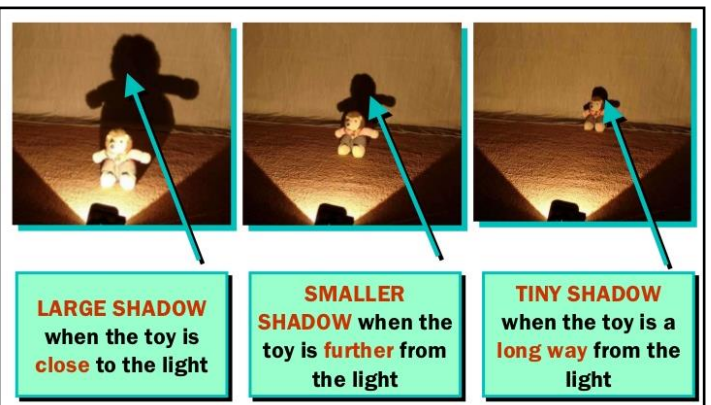
- When light from a source is blocked by an opaque object, you get a shadow.

Key Vocabulary

light source	an object that produces its own light (e.g. sun, fire)
reflection	when a light hits a surface and 'bounces' off
refraction	when light passes through a different object and its direction changes
opaque	an object which does not allow light to pass through it (e.g. wood).
translucent	an object which allows some light to pass through it, it may be possible to see some unclear images through the object (e.g. tissue paper)
transparent	an object which allows light to pass through it so that objects behind it can be easily seen (e.g. glass).
shadow	a dark area or shape caused by the blockage of light.



Can you think of any more?



LARGE SHADOW
when the toy is **close** to the light

SMALLER SHADOW
when the toy is **further** from the light

TINY SHADOW
when the toy is a **long way** from the light