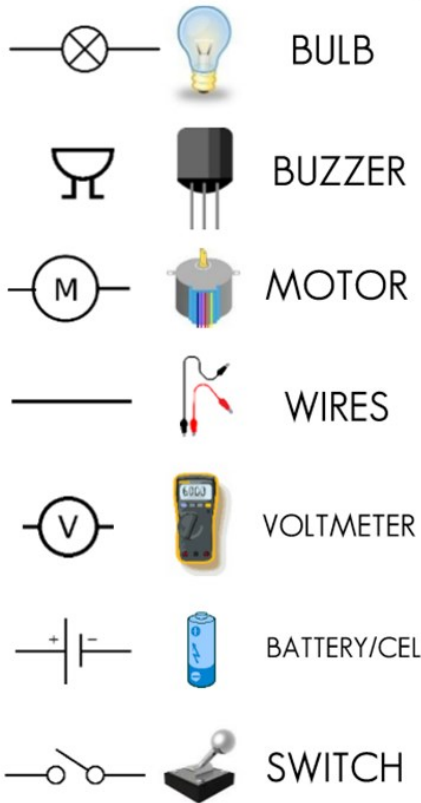


Year 6 Summer Term Science Knowledge Organiser

KEY QUESTION: How can we use electricity?



Electricity is a type of energy that we use to power lots of things around our homes. It is used to power lights, mobile phones, TVs, radios, and even the computer that you are reading this on. To use all this electricity, we have to make it – this is called electricity generation. Electricity is very important in the modern home, and it has completely changed the way that people live their lives – can you imagine living without any electrical things in your home, like most Victorians did? We have to be careful how we use it, though. It takes a lot of work to generate electricity, and some of the ways we do have bad side effects on the environment. So, it's best only to use the electricity that we need to.

Michael Faraday used Volta's discoveries and was able to make an electric current move by using a magnet inside a wired coil. He was able to build an electric motor and generator!



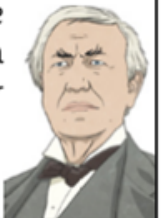
DANGER! HIGH VOLTAGE!

Electricity is everywhere so always be safe. Be careful of mains switches, open sockets and any signs to do with electricity.

The human body is 80% water so it conducts electricity. If someone has had a shock always turn the electricity off first, then call for help!

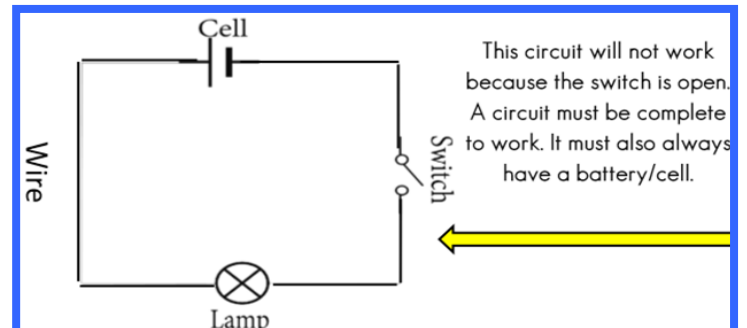


Thomas Edison invented the modern lightbulb. While lightbulbs were not a new idea, he did improve on the previous designs which were not useful as they did not stay lit for very long.



Activities to complete at home

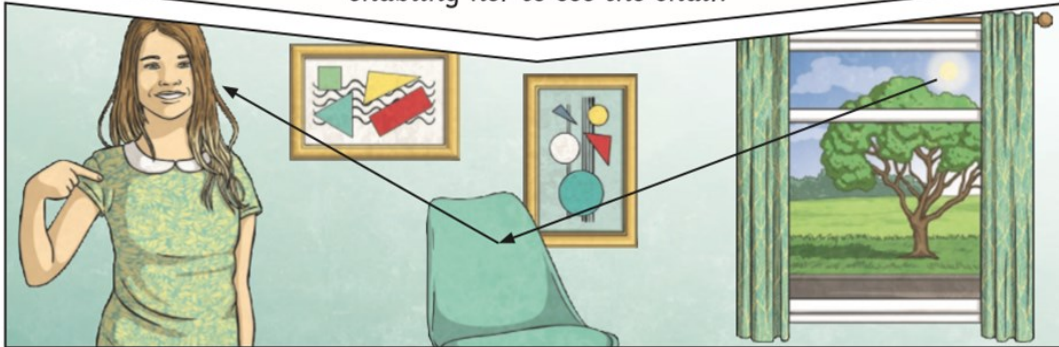
1. List 10 electrical appliances in your home. What would you use if we didn't have electricity?
2. Sort your 10 appliances in a venn diagram labelled: Uses mains electricity; Uses batteries
3. Design a poster about the dangers of electricity
4. Research all the different ways electricity can be generated



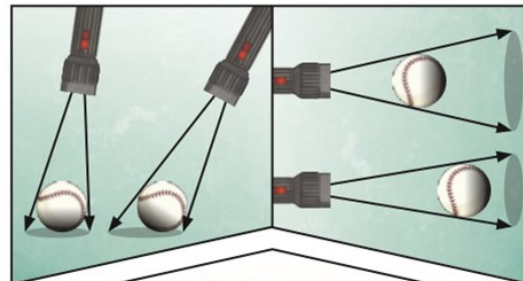
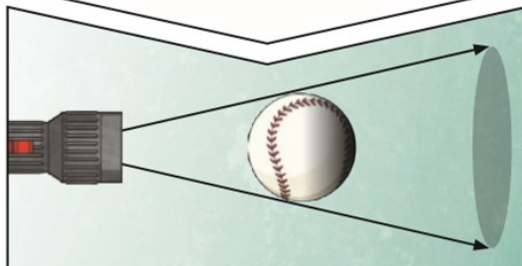
KEY QUESTION: How does light help us see?

Light is a type of energy that makes it possible for us to see the world around us. We need light to see. Light comes from different sources called light sources; our main natural light source is the sun. Other sources include fire, stars and man-made light sources such as light-bulbs and torches. Light also powers the technology around us: laser beams make CD and DVD players and printers possible, microscopes and telescopes use lenses to bend light (refraction), cameras record light as it reflects off objects and fibre-optic cables and lasers allow us to communicate at incredible speed.

Light from the sun travels in a straight line and hits the chair. The light ray is then reflected off the chair and travels in a straight line to the girl's eye, enabling her to see the chair.



A shadow is always the same shape as the object that casts it. This is because when an opaque 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.



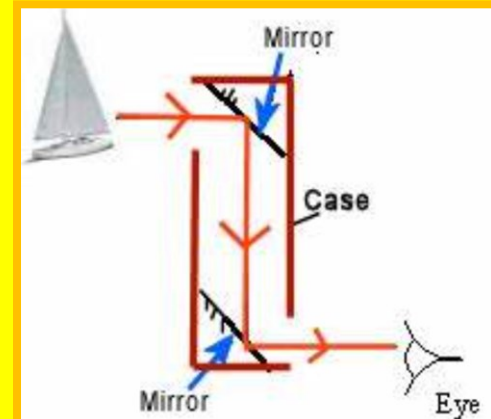
Shadows can also be elongated or shortened depending on the angle of the light source. A shadow is also larger when the object is closer to the light source. This is because it blocks more of the light.

Light Vocabulary

Light	Source	Reflect	reflection
Ray	Straight lines	Object	Opaque
Translucent	Transparent	Shadow	Beam

A periscope lets you see over the top of things, such as fences or walls that you aren't tall enough to look over. You can also use it to see around corners. People first started using periscopes in submarines in about 1860, to allow the sailors to see above the water. Later, soldiers in the First World War used them to look out of the trenches without having to put their heads out of the trench. Periscopes are still used today in tanks and some submarines.

A simple periscope is just a long tube with a mirror at each end. The mirrors are fitted into each end of the tube at an angle of exactly 45 degrees (45°) so that they face each other. In the periscope, light hits the top mirror at 45° and reflects away at the same angle. The light then bounces down to the bottom mirror. When that reflected light hits the second mirror it is reflected again at 45°, right into your eye.



Activities to complete at home

1. Make a list of all the light sources in your house.
2. Make a shadow using a torch or a house light, can you change any of the shadows you make? Draw them.
3. Make a shadow puppet play. Can you make your shadows bigger and smaller?