

Summer 2 Week 9 Science Lesson 1

Can I explain what electricity is and how to be safe around it?

Fast Five - Answers are on the next slide.

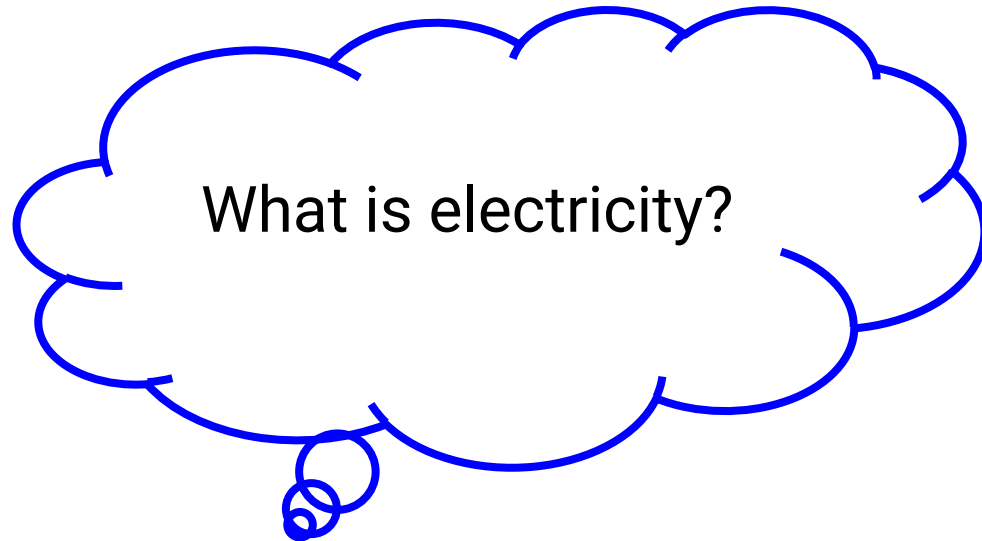
- 1) What is a force?
- 2) What is friction?
- 3) Where might air resistance be beneficial?
- 4) What force makes all unsupported things fall to the centre of the Earth?
- 5) When might friction be a disadvantage?

Fast Five - Answers

- 1) What is a force? **A force is a pair of pushes and pulls in a particular direction.**
- 2) What is friction? **Friction is the force between two surfaces that are sliding against each other.**
- 3) Where might air resistance be beneficial? **Air resistance can be beneficial when using parachutes.**
- 4) What force makes all unsupported things fall to the centre of the Earth? **Gravity.**
- 5) When might friction be a disadvantage? **Friction might be a disadvantage when ice skating.**

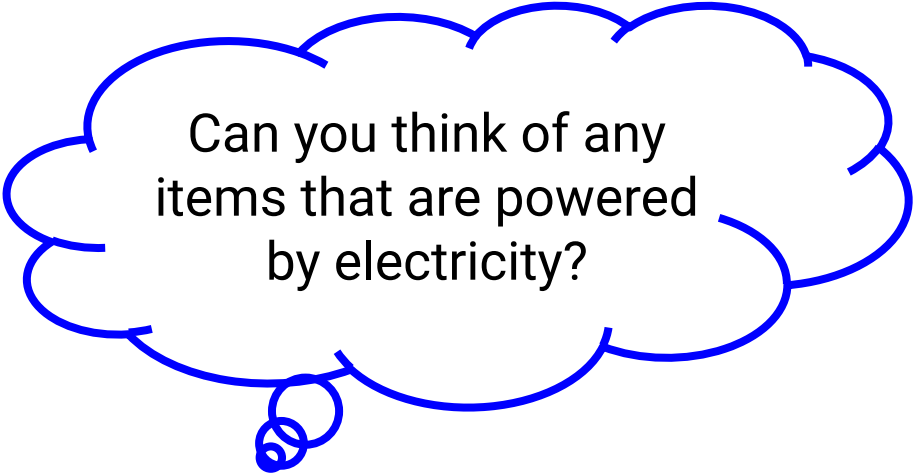
Today we are starting our new unit - electricity!

Take a moment to have a think about what you know about electricity. Think back to our DT lessons before Christmas when we made our light-based decoration!



What is electricity?

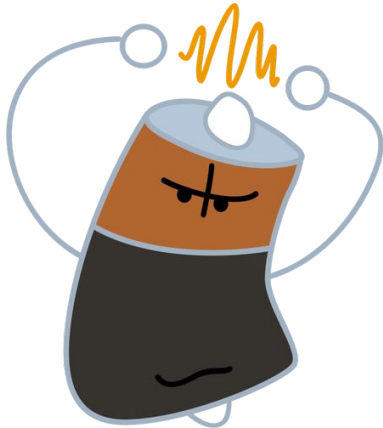
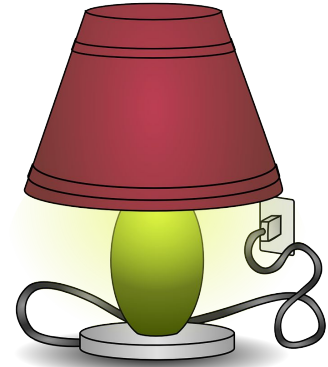
Electricity is the flow of an electric charge from place to place; this is called a current. This flow of energy powers things all around us. Electricity is measured in watts and kilowatts.



Can you think of any items that are powered by electricity?

What is powered by electricity?

We use electricity every day in our homes. We can power lights, TVs, computers, fridges and ovens, all thanks to electricity.



Even small appliances, like TV remotes, that use batteries are powered by electricity!

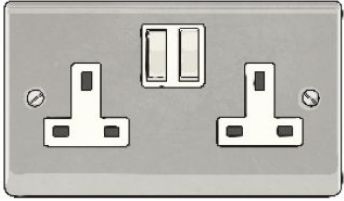
Why is electricity dangerous?

- Being careless with electricity could cause an electric shock. If an electrical current enters your body, your heartbeat is interrupted. Your lungs contract so it is difficult to breathe and skin can be burnt. In the worst cases, a person can die from an electric shock.
- It's very important that electrical appliances are kept away from water sources. If you touch water that touches electricity, the electricity would travel through the water and through you, giving you an electric shock.
- Fires can be caused if electrical equipment is damaged or incorrectly used.

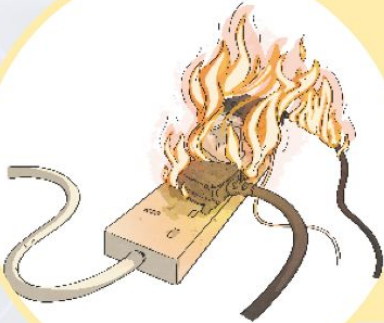
How can we stay safe around electricity?

There are many ways that we can stay safe around electricity at home, at school and whilst outdoors. Be sure to learn these rules so that you can stay safe!

The next slides will go through the ways that you can protect yourself and others from the dangers of electricity.



- Never put your fingers in a plug socket. Even if the switch is in the off position, there will still be an electrical current in the socket.
- If you need to unplug equipment, turn off the switch on the socket and then carefully take the plug out. Don't try to yank it out!



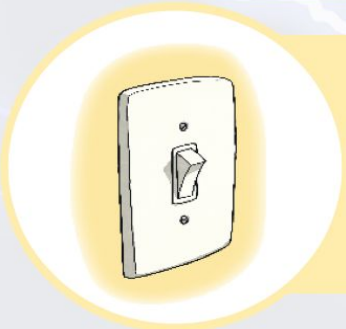
- Don't overload sockets. Using lots of extension cords could damage the electrical system and cause a fire.
- If you notice an electrical wire is damaged, you must tell a grown-up straight away.



- Make sure electrical wires are tucked out of the way because they can be a trip hazard. If a pet chewed on wires, it could get an electric shock. If wires dangle from kitchen surfaces, young children could pull them causing appliances to fall and cause an injury.



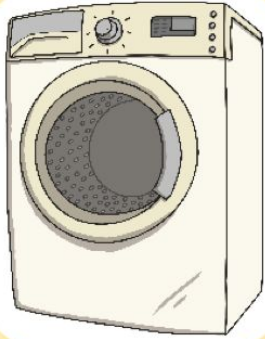
- If a piece of bread gets stuck in the toaster, do not use a knife to try and get the bread out - a knife is metal so it will conduct electricity.



- Don't touch a light switch or plug socket with wet hands. Water conducts electricity so could cause an electric shock. This is why most bathroom lights have pull cords instead of switches.



- Hair straighteners, hairdryers and other electrical devices shouldn't be used in the bathroom. Some bathrooms have special plugs so that electric shavers can be used but these are not for normal appliances.



- When you leave the house, electrical equipment, such as tumble dryers shouldn't be left on. Sometimes these appliances can overheat and cause a fire.
- If you are not sure about anything, it is important to always ask an adult for help.

Chargers for phones and tablets are something that must be used with care. Here are some ways to keep safe when charging devices:

- Make sure you use a genuine brand of charger from a shop. Some cheap chargers may not have undergone the appropriate safety checks. There have been cases where fake chargers have overheated and caused house fires.
- Never charge your device under your pillow while you sleep. If the charger overheats, it may catch fire.



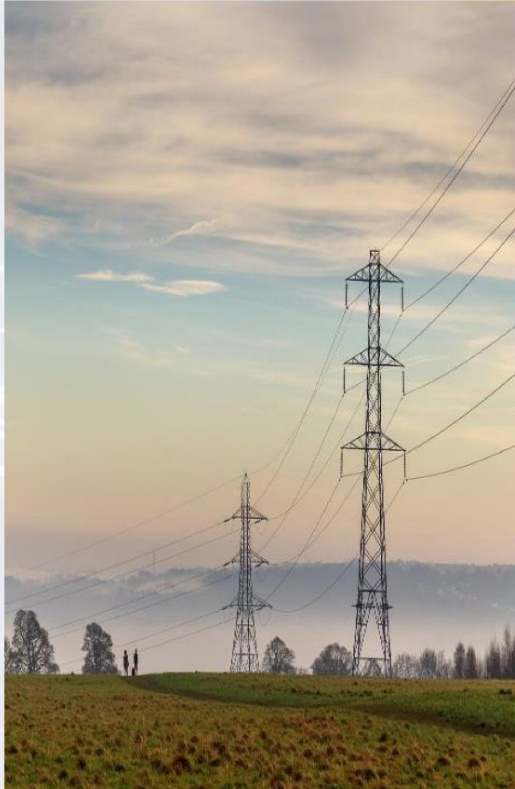
The same safety rules for home can be applied at school.

Schools do lots of things to make sure children are safe around electricity:

- All electrical equipment at school is safety tested by an electrician every year. This even includes chargers for laptops and tablets.
- At schools, electrical equipment is installed by a qualified electrician. If items need to be repaired, this is also done by an electrician.



Electricity safety when outdoors



These pylons support thick cables which carry electrical current around an area.

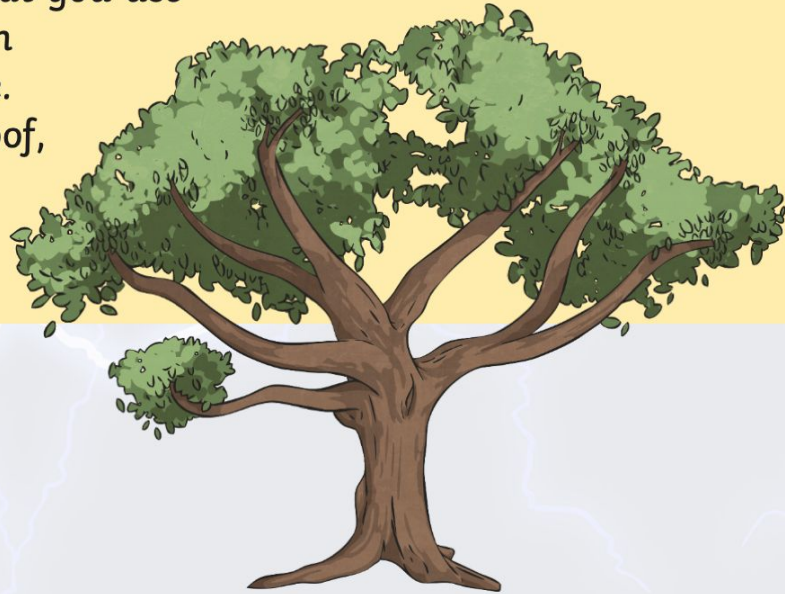
You should take great care when walking near pylons, making sure you don't get too close. You should never climb a pylon.

Kites shouldn't be flown near pylons or electricity cables. If a kite got caught in the wires, it could act as a conductor and you would get an electric shock.

Electricity safety when outdoors

Before you climb a tree, you should look above to check that there are not any electrical cables running through it.

If you are using electrical equipment outdoors, it is important that you use a suitable outdoor extension lead, not one for indoor use. Outdoor leads are waterproof, which is important as electricity and water don't mix!



Activity: Create a poster explaining what electricity is and how we can stay safe around electricity!

Red - Use the sentences to help you create your poster.

Yellow - Use the word bank to help you create your poster.

Green - Create your poster. Refer back to today's slides to remind you of information that you could include.