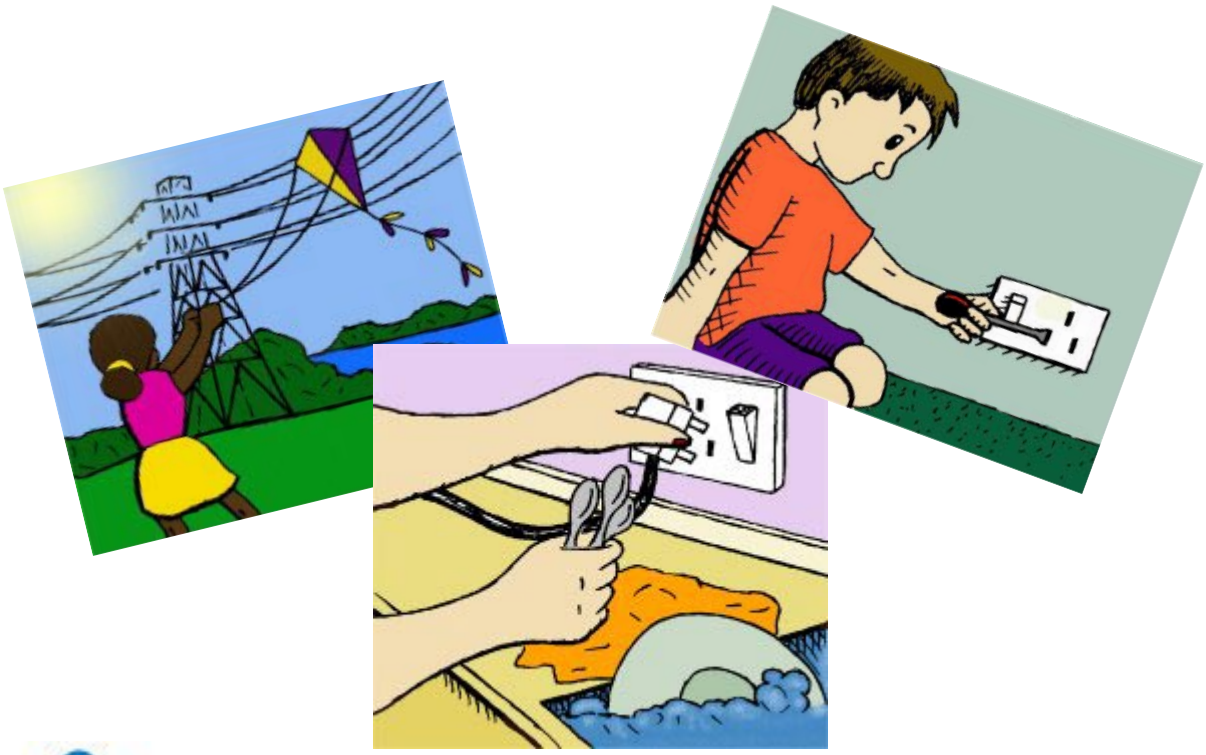
Mission 3:

Electrical Safety



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Bryson Charitable Group

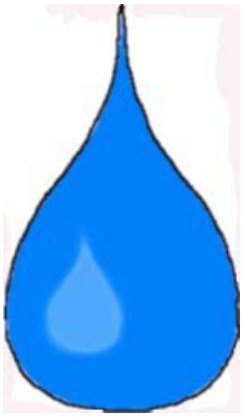
Electrical Safety

Now we know about electricity we need to find out how to use it safely.

Electricity can be very dangerous. It can give you a nasty shock or even kill you if the electricity is strong enough.

Electricity is always trying to get to the ground, and it will take a short cut if it can. Electricity will travel through a CONDUCTOR to take a short cut to the ground. A conductor is something that allows electricity to flow through it freely.

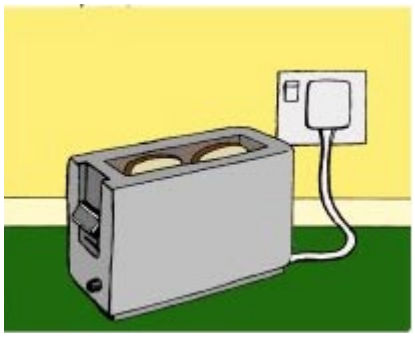
Metal is a good conductor. That is why the wires in your toaster, CD player and TV are made out of metal.



Water is also an excellent electrical conductor. Because your body is made up of mostly water that makes YOU a brilliant conductor!

Electrical Safety

Because water is such a good conductor it is very important to keep electrical appliances away from it.



Electrical appliances have a protective layer around the wires so that you don't get a shock from them. This layer is made from an INSULATOR. An insulator is a material that electricity can NOT flow through.

Never touch a switch or electrical appliance with wet hands. The electricity will flow through the water and then through you! This is called an electrical shock.

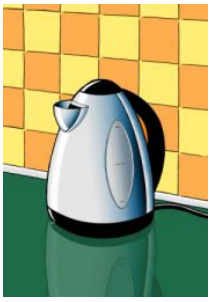
What happens if you get an electrical shock?

An Electrical Shock can cause:

- Muscle spasms
- Shallow breathing
- Severe burns
- Weakness
- Rapid pulse
- Unconsciousness
- Death

How to Stay Safe at Home

At home there are lots of electrical appliances which could all be very dangerous if we do not use them correctly.



How many different electrical appliances can you name?

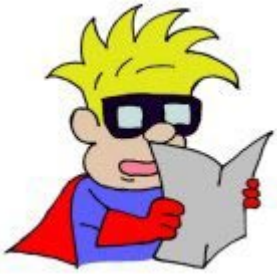
We have learned that electricity is always trying to get to the ground through the easiest path.

You must be very careful that you do not touch anything with electricity flowing through it.
If you do, the electricity could flow through you and give you a nasty shock or worse!

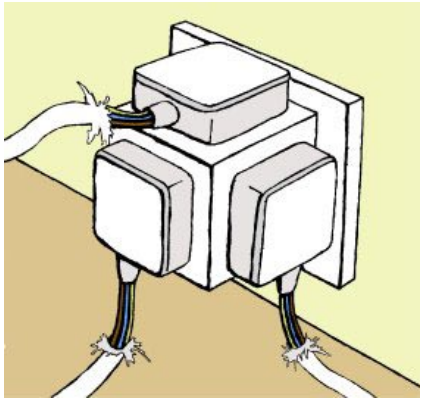
Now we are going to look at how we can stay safe at home.

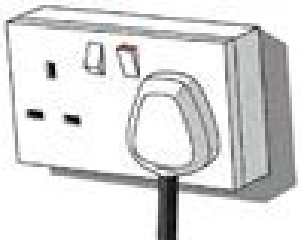
In The Kitchen

Never ever stick anything metal in your toaster when it is turned on. The electricity will travel through the metal and into you, which means you will get an electrical shock. If your toast gets stuck, turn the toaster off and unplug it, then turn it upside down.

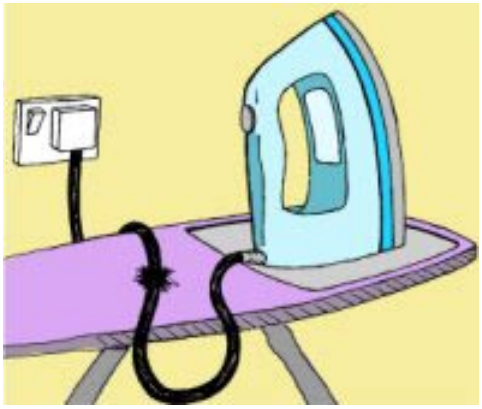


Each electrical socket is designed to power one electrical appliance, so don't overload them.... you could start a fire!





Never touch a socket or a light switch with wet hands.

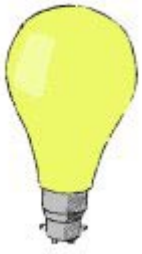


Don't place objects on top of electrical cables, as this could damage them. If the cables become damaged they could start a fire.

In The Bathroom

You shouldn't have any electrical appliances in your bathroom, as there is LOTS of water about!

If you do see an electrical appliance near or in water **DO NOT** touch it or the water. Go tell an adult who will safely take care of the problem.



What type of light switch do you have in your bathroom?

_____

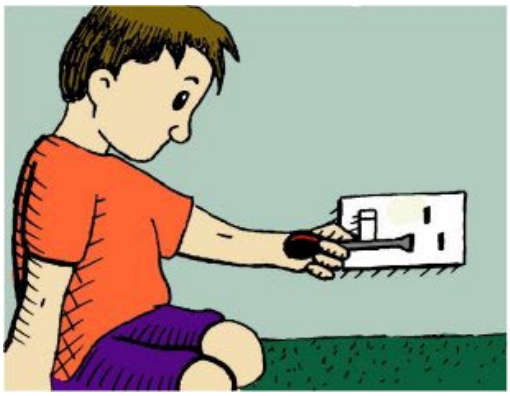
Why do you think you have this type of light switch ?

_____

_____

_____

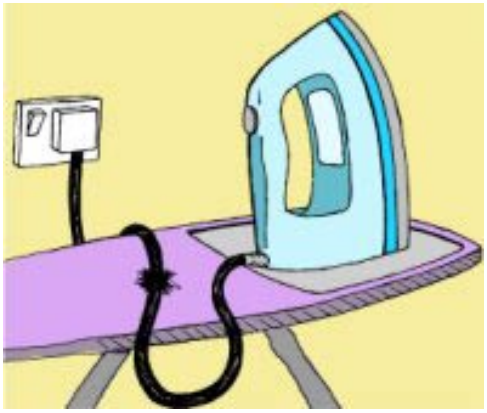
In The Living Room



Never stick anything into an electrical socket. If you were to stick a knife or a screwdriver into a socket you would get a very serious electrical shock.

It's dangerous to mess around with electrical appliances. If your TV stops working, don't try to fix it yourself - get a professional to do it.

If a wire on your lamp, DVD player or iron starts to fray, you should have the wire replaced straight away.

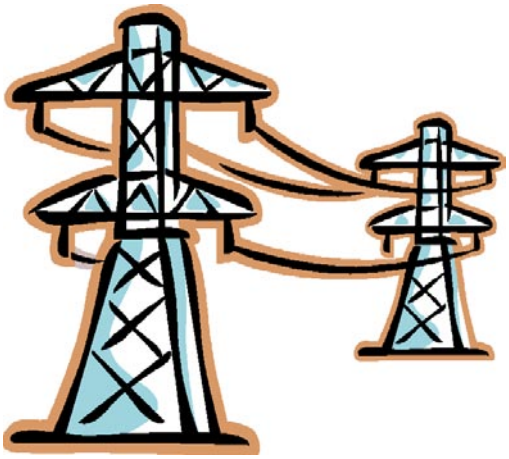


If the wire is left frayed this will cause sparks to come from the appliance, which could start a fire!

Do not allow young children to play with electrical appliances or sockets.

Put safety caps on sockets to stop small children sticking things into the sockets.

How To Stay Safe Outside



Pylons carry up to 400,000 volts of electricity - more than **1600** times the voltage we use at home.

Electricity can jump from the cables to nearby objects to travel towards the ground.

When you are outside you have to make sure that you do not come into contact with the cables held up by the pylons.

When you're flying your kite make sure you are nowhere near electrical cables.

If it gets too close, the electricity could travel down the string and through you to get to the ground.

You should never climb trees near electricity cables. If you get too close, the electricity could jump through the air and give you a very serious electrical shock.

When you are camping or out on a boat, always look out for overhead cables, as tent poles or boat masts could touch those cables, allowing the current to flow through them.

Substations

Substations control electricity so it can be used in factories, schools and our homes.

There are always high fences around substations as they are very dangerous places.

Electricity in substations is very powerful. If you were to get a shock, it would seriously injure or kill you.

You should **NEVER** climb over the high fence and go into a substation.

If your ball ends up in a substation **DO NOT** try to get it yourself. Tell an adult and they will arrange for its return.

How To Stay Safe In A Storm

Lightning is electricity making its way to the ground from the clouds above.

Lightning is very powerful. If it hit you, it could seriously injure or even kill you.

Some tips which will help you stay safe in a thunderstorm.....

- Do not go near water.
- Shelter in a vehicle e.g. a car or van, with the windows shut.
- Avoid open spaces. If you are in an open space where you are the tallest object around, the lightning will use you to get to the ground.
- Keep away from fallen powerlines as they may still have electricity flowing through them. Get an adult to report the problem.
- Do not shelter underneath a tree, as it may be struck by lightning. If this happens, a branch or the whole tree may fall and hurt you.

Electrical Safety

List two possible electrical dangers for each of the rooms in the house.

Bathroom

Bedroom

Living Room

Kitchen

Home Safety Check

Use this checklist to find out if your home is safe or not.

	Yes	No
Are your sockets overloaded with lots of plugs?	☐	☐
Are any of the cables on your appliances damaged?	☐	☐
Are there any electrical appliances in your bathroom?	☐	☐
Do you have a pull string light switch in your bathroom?	☐	☐
Are there any electrical appliances near the sink in the kitchen?	☐	☐
Are safety caps put on sockets when young children are around?	☐	☐
Are electrical appliances unplugged when there is lightning?	☐	☐
Does an adult in your home try to fix broken electrical appliances themsleves?	☐	☐
Are objects placed on top of electrical cables?	☐	☐

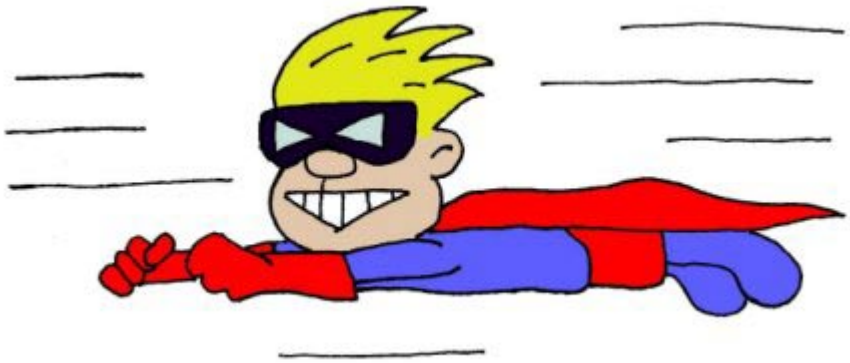
Use your answers from the the above questions to write a list, for an adult, of things which need to be fixed or changed in your home.

Puzzle Page

Can you find all of the
words in the word search ?

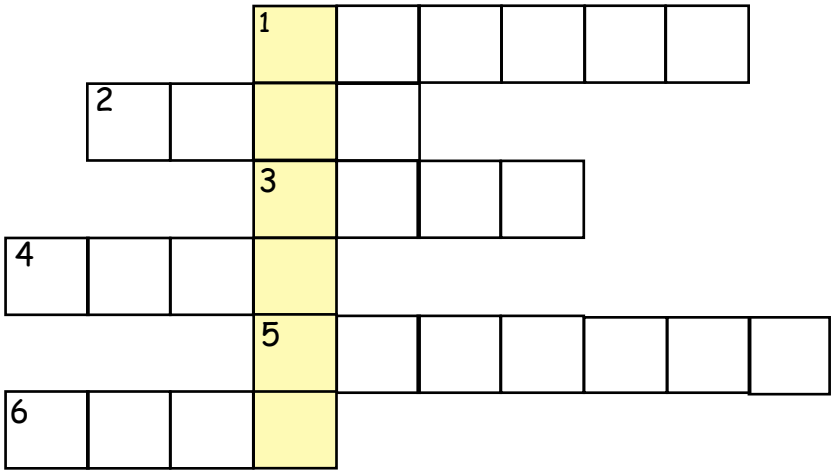
R	H	Q	S	R	E	T	A	W	R	E
O	Q	Y	E	R	S	S	M	R	I	L
T	M	L	C	O	N	A	X	E	J	E
A	D	K	N	T	R	F	O	G	S	C
L	W	C	A	C	U	E	D	N	W	T
U	S	W	I	U	B	T	S	A	I	R
S	R	U	L	D	J	Y	N	D	T	I
N	E	R	P	N	E	Y	F	H	C	C
I	S	E	P	O	E	X	O	S	H	I
O	E	S	A	C	K	C	O	H	S	T
M	R	T	B	Q	U	Y	L	S	N	Y

electricity
safety
conductor
insulator
wires
switch
water
appliances
shock
burns
danger



Puzzle Page

Fill in the missing words in the puzzle below to find out what the mystery word is!



Questions

1. You should never stick anything into an electrical _____ .
2. When you are on a _____ you must make sure that there are no overhead cables for the mast to touch.
3. Frayed wires can cause a _____ .
4. When flying your _____ make sure you are nowhere near overhead lines.
5. When your bread gets stuck in the _____ turn it off before trying to get it out.
6. You must keep electrical appliances _____ from water.

Keywords and Definitions

Conductor	A material which allows electricity to flow through it.
Insulator	A material which does not allow electricity to flow through it.
Electrical Appliance	Something that uses electricity to make it work, eg. an iron, a computer or a hairdryer.
Pylon	Large metal structure that holds up electrical cables, so electricity can safely travel across the countryside.
Substation	A place where the voltage of electricity is lowered so it is safe to use in our homes.
Transformer	Small grey box with danger sign. It strengthens the electrical current flowing through the cables, to make sure the electricity reaches our homes.
Lightning	Electricity travelling from the clouds to the ground.