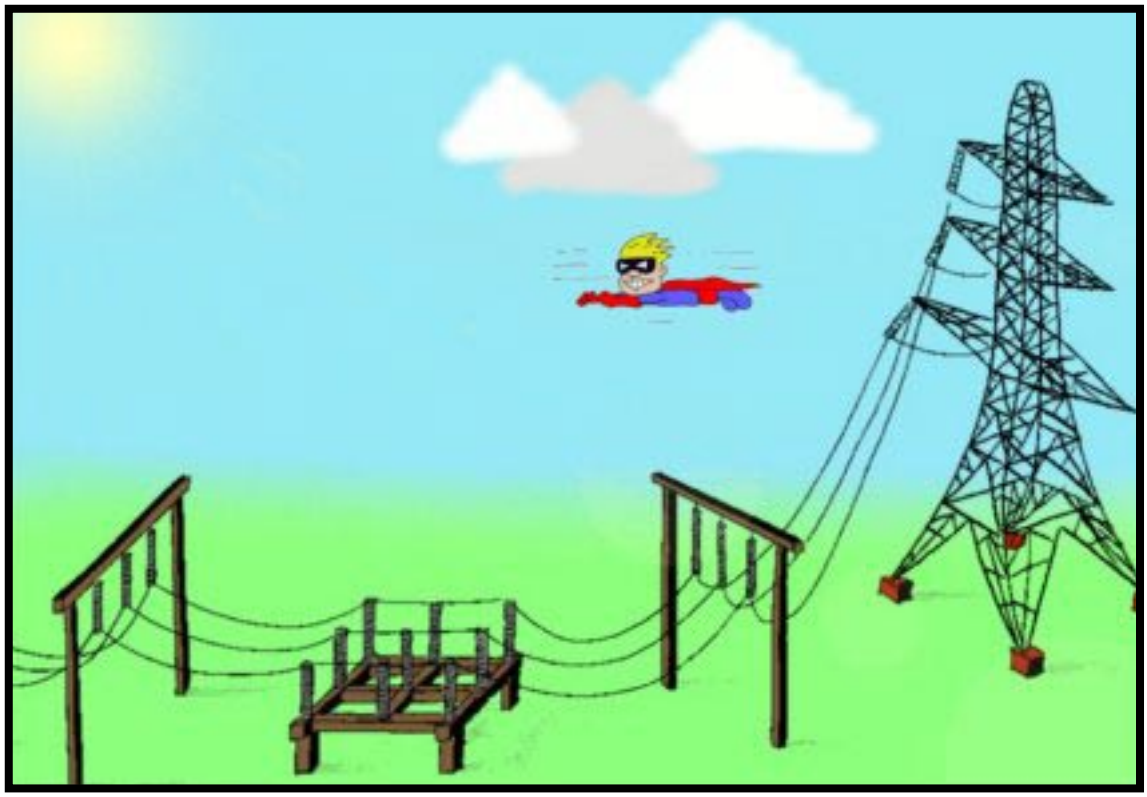
Mission 2:

Electricity



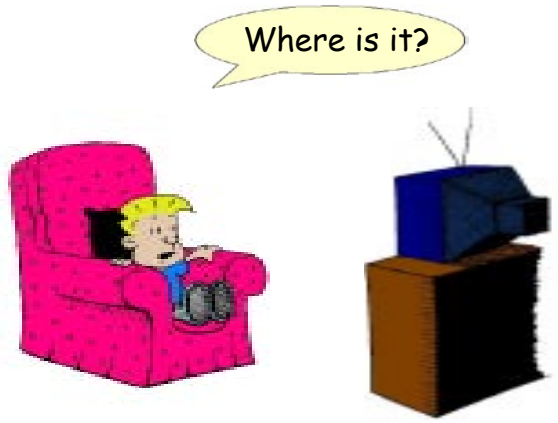
energy saving trust™

Bryson Charitable Group

What is Electricity?

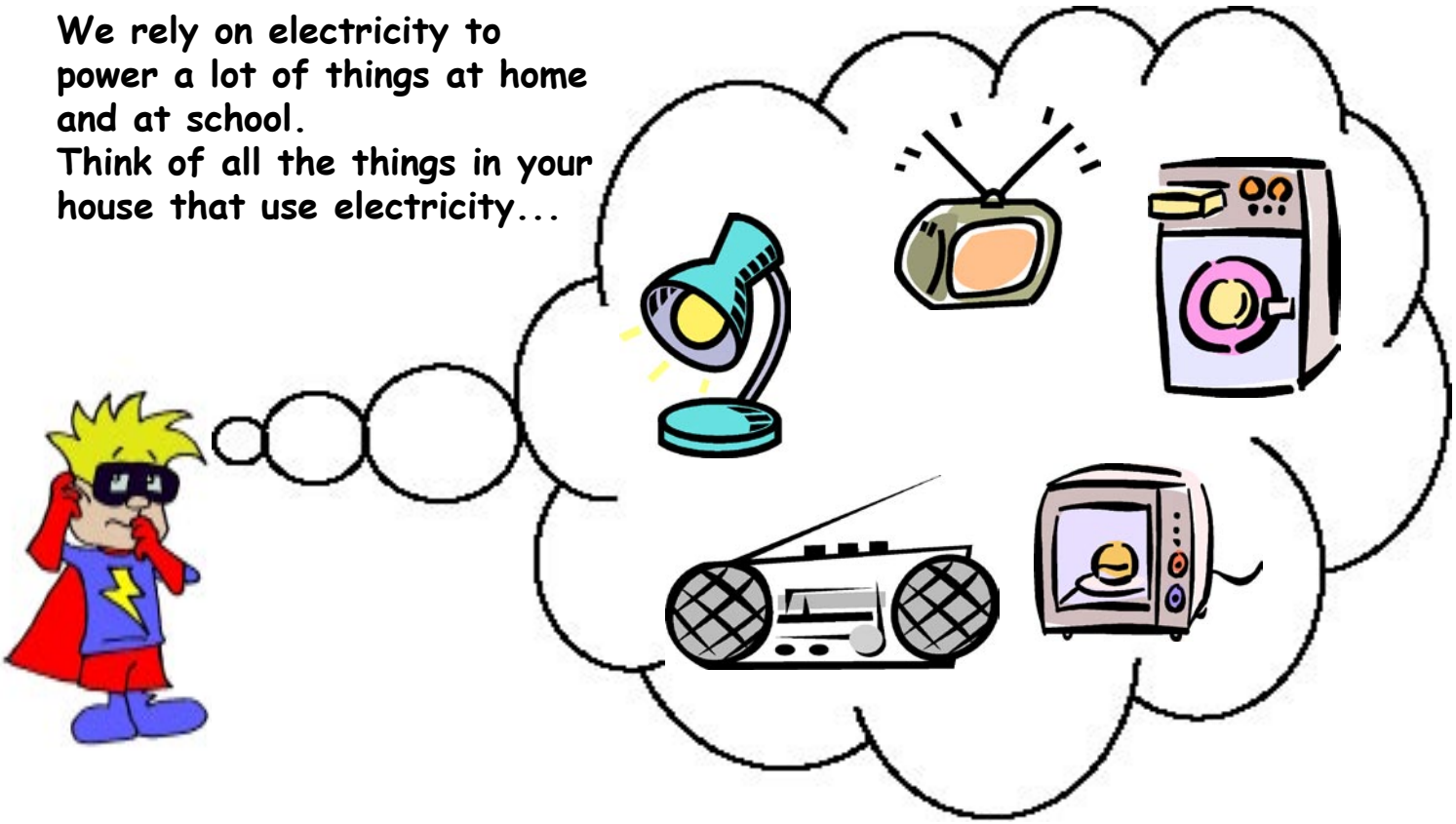
One type of energy we use a lot of is electrical energy - we call it ELECTRICITY.

Electricity is the movement of tiny little things called ELECTRONS.
These are so small that we can't even see them! In fact, we can't see electricity at all.

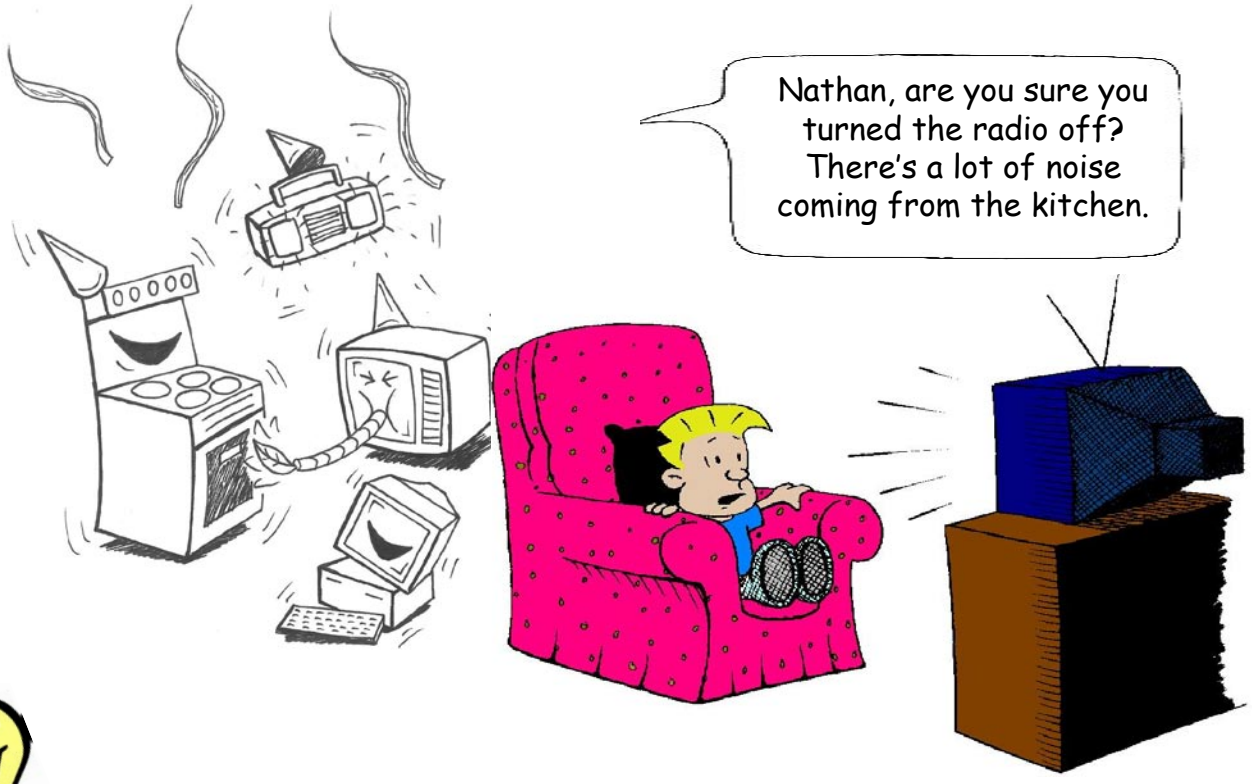


You can only tell if electricity is there if something lights up, makes a noise or starts to work.

We rely on electricity to power a lot of things at home and at school.
Think of all the things in your house that use electricity...



How do we use Electricity?



Try to think of how many times you used electricity yesterday. How many electrical appliances did you use? Appliances are things that are run by electricity, either from a plug in the wall or from a battery.

Fill in the list below.

Electrical appliance	Number of times used	Electrical appliance	Number of times used

Now look at the finished list and think about just how much electrical energy you used in only one day.

How do we use Electricity?

1. **Count the number of electrical items in each room of your house. Write the totals in the boxes.**

Bathroom	Bedrooms
Kitchen	Living Room

a. Which room has the most electrical items? _____

b. Which has the least? Do you know why? _____

_____

2. **Count the number of electric lights, switches and sockets in your home. Write the totals in the table below.**

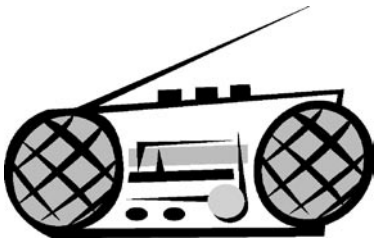
Room	Number of lights	Number of switches	Number of sockets
Kitchen			
Living room			
Bathroom			
Bedroom			

Changing electrical energy

Electricity makes things work. When we switch on electrical items the energy from the electricity is changed into heat,light, sound or movement - sometimes more than one of these at a time.

Look at the pictures. What is the electrical energy changed into when you switch it on?
Use the words below and remember it might be more than one type of energy.

Heat	Light	Sound	Movement

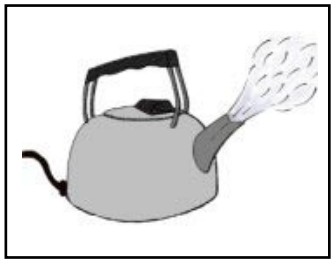


The radio changes electrical energy into _____ energy.

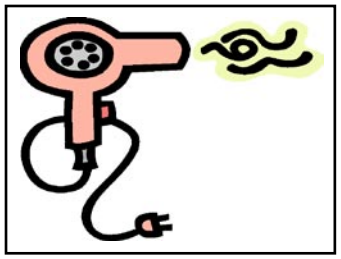
The television changes electrical energy into _____ energy.

The cooker changes electrical energy into _____ energy.

The lamp changes electrical energy into _____ energy.



The kettle changes electrical energy into _____ energy.



The hair drier changes electrical energy into _____ energy.

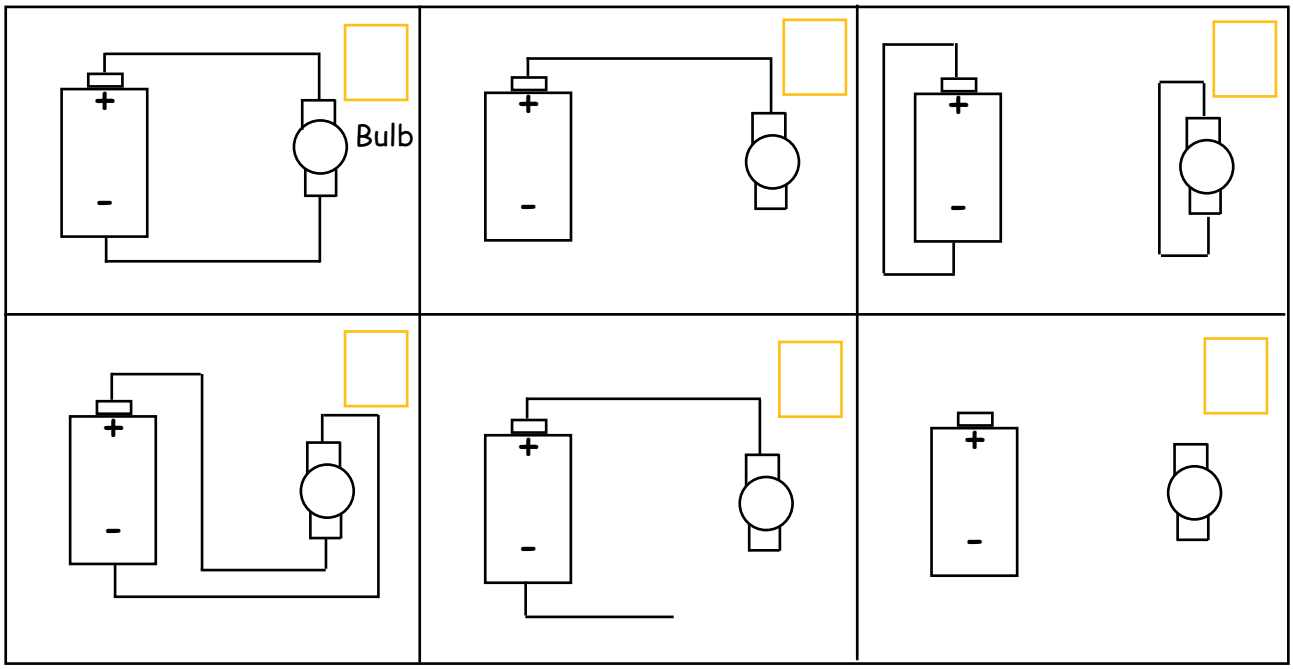
What is a Circuit?

A battery is a device that stores electricity.
When a battery is connected to a bulb a **circuit** is formed. A circuit is needed to let the energy from the battery flow to the bulb.

You will need : a battery, a bulb, 2 pieces of wire and 2 clips.
Now make the bulb light by making a complete circuit.

1. Draw a diagram of your circuit.

2. Are these complete circuits? Put a tick or an x in the box.

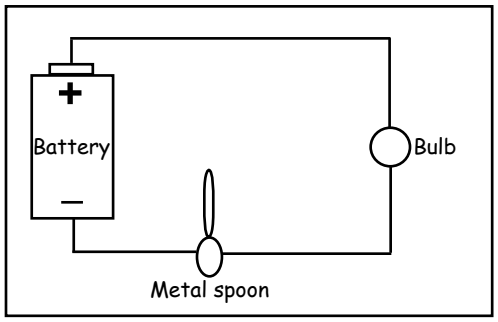


Insulators and Conductors

An **Insulator** will **not** let electricity flow through it.
A **Conductor** will let electricity flow through it.

You will need : battery, bulb, 3 pieces of wire, tape, metal spoon, plastic cup, pencil, wooden ruler, paper clip, rubber.

1. Connect the battery to the bulb .
2. Connect the battery to the object .
3. Connect the object to the bulb.



You should now have a complete circuit.

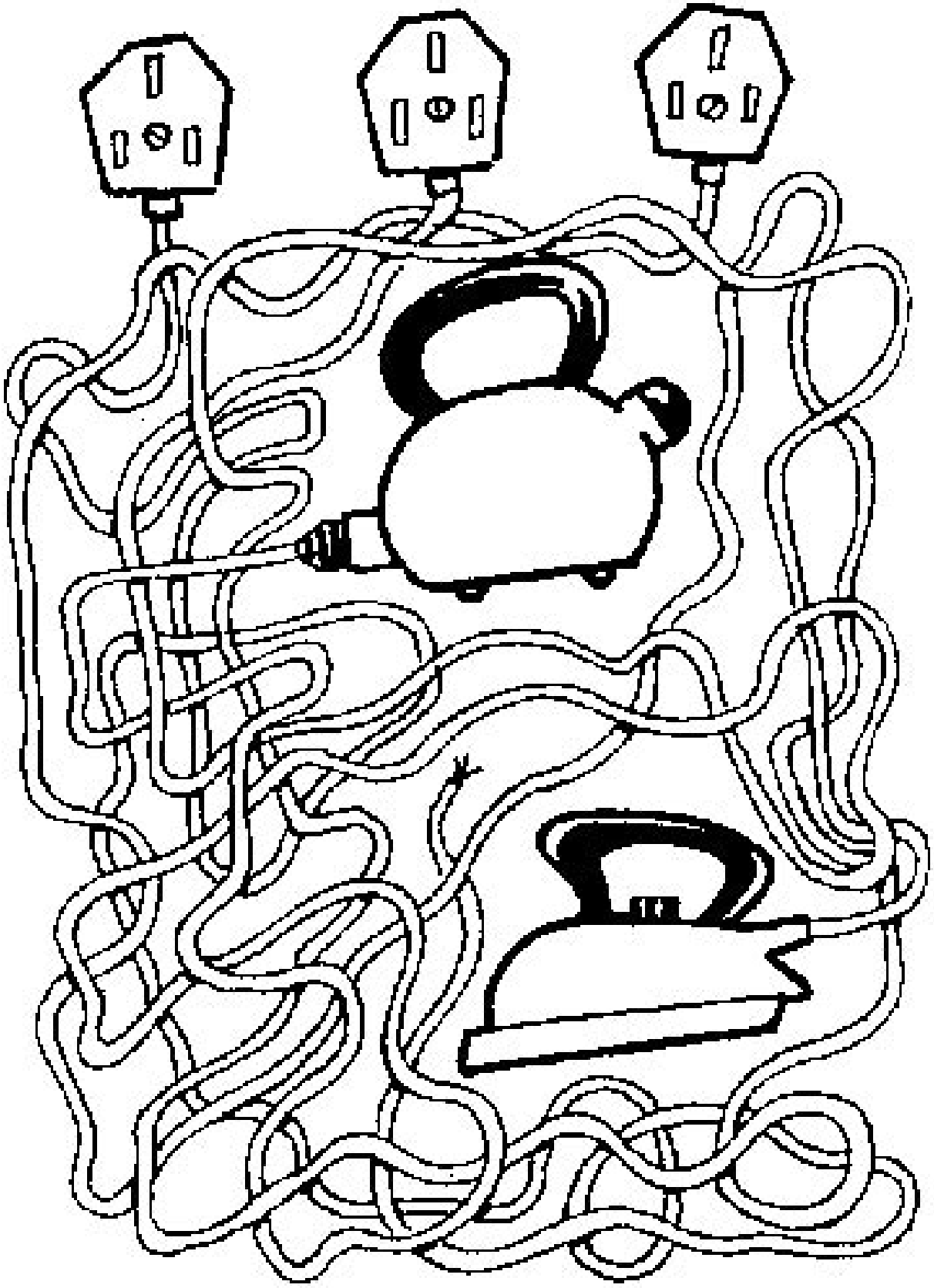
If the object is a conductor the bulb will light.
If the object is an insulator the bulb will not light.

Try to predict which objects are conductors and which are insulators before you begin. Test the different objects and mark your results with a tick below. Choose another object to test and write it at the bottom of the table.

Object	Insulator	Conductor
Metal spoon		
Plastic cup		
Pencil		
Wooden ruler		
Paper clip		
Rubber		

Electrical Puzzles

Choose a plug- colour it in and see where it leads.



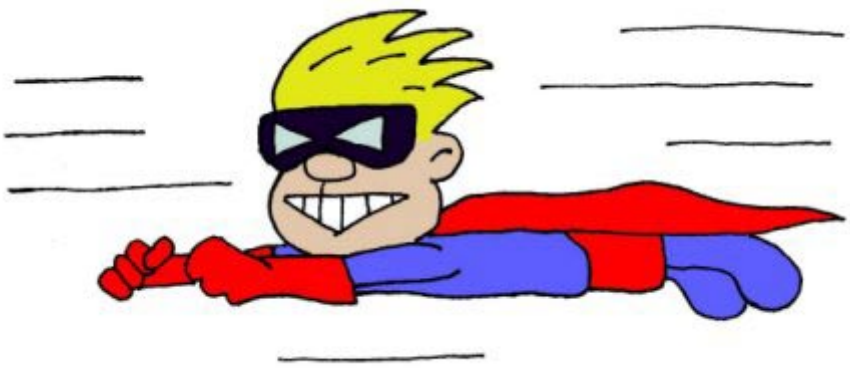
Electrical puzzles

Find the hidden electrical words:

socket appliance bulb light wire

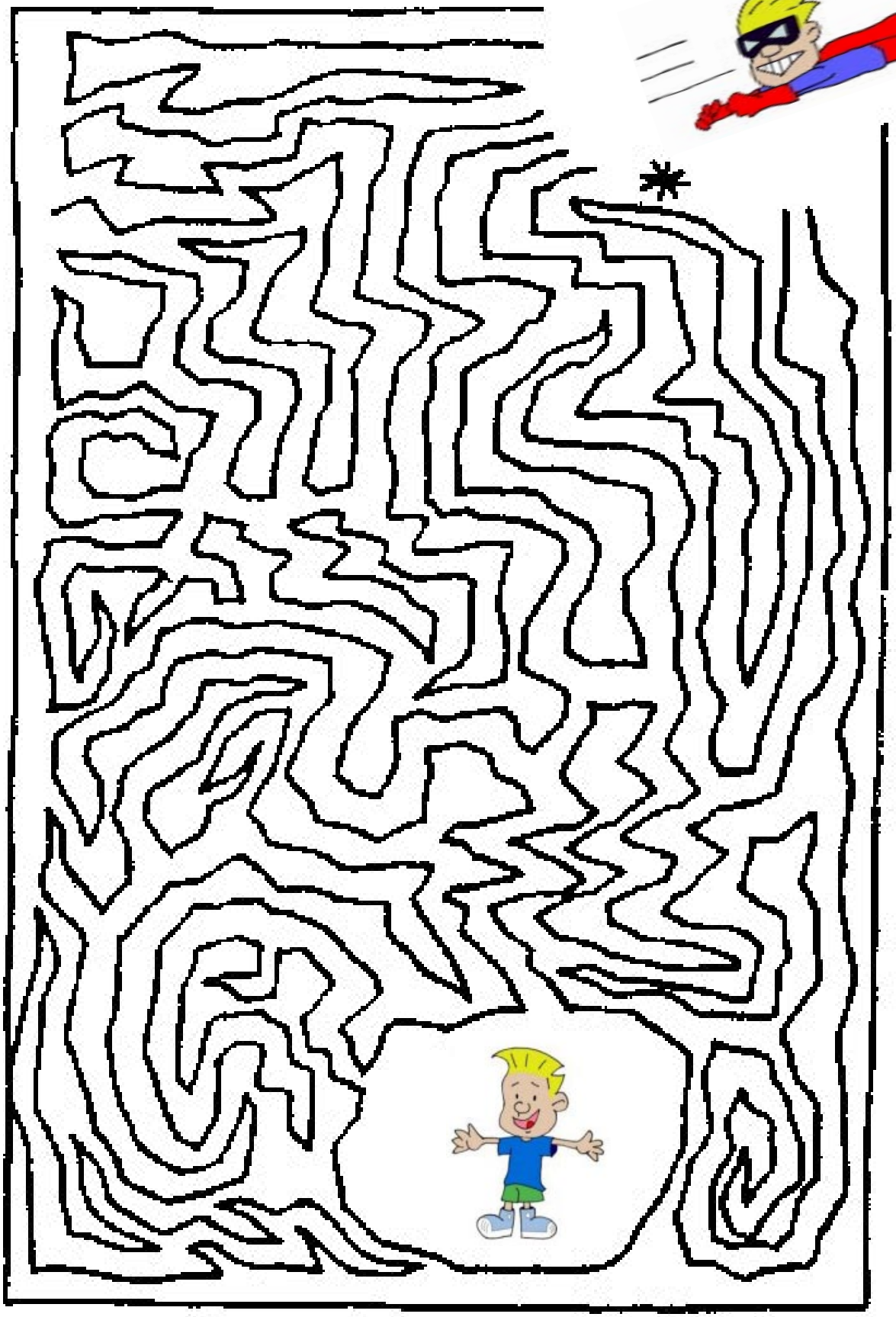
plug insulator conductor electricity

a	p	p	l	i	a	n	c	e	t	r	e
p	l	i	a	n	e	c	s	l	y	r	a
l	e	l	o	p	l	o	g	e	r	o	c
a	b	u	l	b	t	n	d	c	t	n	o
n	a	g	w	u	i	d	w	t	i	r	n
c	a	w	p	l	u	g	c	r	p	o	d
e	l	e	c	t	c	o	h	i	e	i	u
o	y	r	w	i	r	e	k	c	j	g	c
b	u	b	b	k	i	r	l	i	g	h	t
c	y	k	s	o	c	k	e	t	h	y	o
g	n	n	h	d	s	v	t	y	l	j	r
i	n	s	u	l	a	t	o	r	p	l	g



Electrical puzzles

Help Sparky through the Energy Maze to find Nathan.



Keywords and Definitions

Appliance	A device that runs on electricity.
Circuit	The unbroken path of an electrical conductor that allows electricity to flow from its power source and back again.
Conductor	Material that allows electrical current to pass through it.
Electrical Energy	The ability of the electrical current to do work. Measured in Kilowatt-hours.
Insulator	A material that does not allow electricity to pass through it.