ELECTRICITY

CONDUCTOR OR INSULATOR?

STARTER: MATCH EACH OBJECT TO THE MATERIAL THAT IS IT MADE OUT OF IN YOUR BOOK.

Glass		Electric wires
Cotton		Soles of shoes
Rubber		Grips on cooking pans
Leather		Hair straighteners
Plastic		Window
Copper		Pavement
Ceramic		Clothes
Concrete		Football

Extension: explain why that material is well suited to the purpose of the object.

Top Tip: You can use the sentence below to help you structure your answers.

_____ is/are made out of _____. This is useful because…

E.g. The trainers soles are made out of rubber. This is useful because it gives the trainers good grip.

CONDUCTOR OR INSULATOR?

Watch the videos: http://www.bbc.co.uk/learningzone/clips/an-introduction-to-electricity/10596.html and http://www.bbc.co.uk/learningzone/clips/conductors-and-insulators/1869.html
https://www.bbc.co.uk/bitesize/topics/z2882hv/articles/zxv482p

Conductors

A conductor is a material that allows electricity to flow.

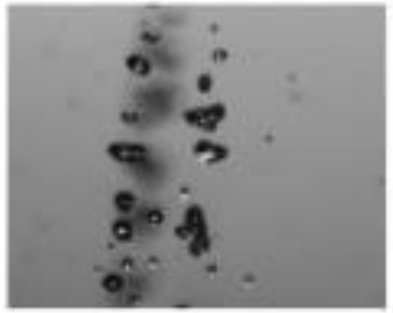
1. Silver
2. Copper
3. Gold

Most conductors are metal. Some exceptions to this are humans and water. This is why you shouldn't put electrical appliances near water.

Insulators

An insulator is a material that stops electricity flowing.

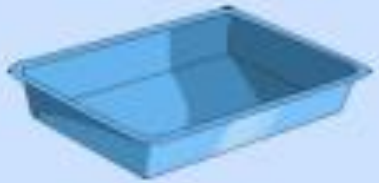
1. Oil
2. Silk
3. Rubber / Plastic



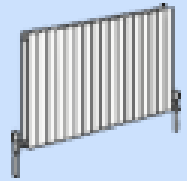
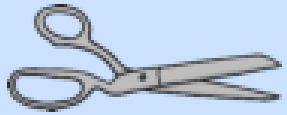
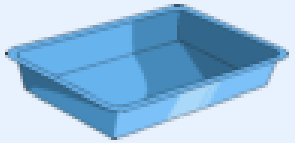
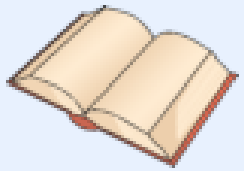
Most electrical objects are made using insulators to keep them safe. Plugs, for example, have plastic cases. Electrical wires are wrapped in plastic, which is flexible as well as insulating.

The copper wires used in simple electrical circuits are coated in plastic. This prevents electricity from flowing out of the circuit.

Here are some more examples.

Electrical Insulators	Electrical Conductors
Plastic tray 	Radiator pipe 
Book 	Fork 
Piece of paper 	scissors 

WHY ARE THERE TWO BLANK BOXES IN THIS CARROL DIAGRAM? WRITE THE ANSWER IN YOUR BOOK.

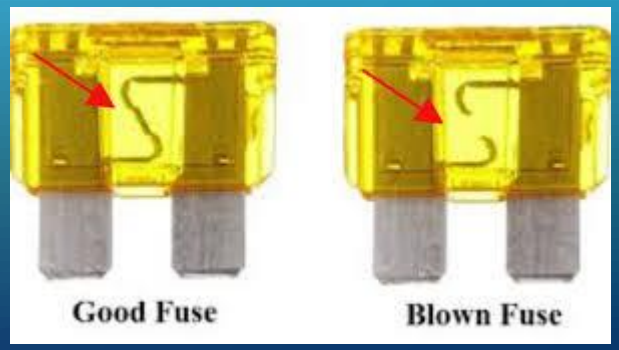
	Electrical Insulators	Electrical Conductors
Metal		 Radiator pipe  Fork  Scissors
Non-metal	 Plastic tray  Piece of paper  Book	

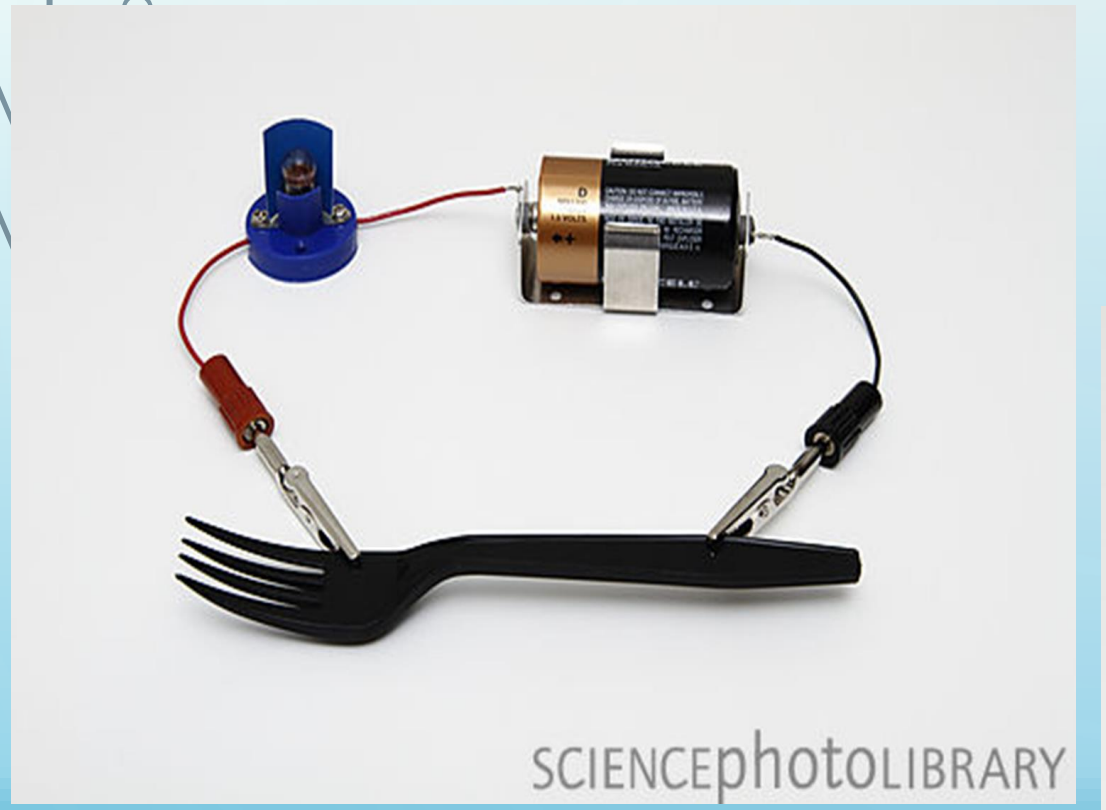
I understand it's June, but have you been decorating your Christmas tree only to find that the lights are not working? **Your task is to find out what material could be used to fix the fairy lights.**

REMEMBER, NEVER TRY TO DO IT YOURSELF!

Let's have a look what we have in our draw…

Do we need an insulator or conductor to fix the Christmas lights? Why? Have a look at the next page to see the circuits.

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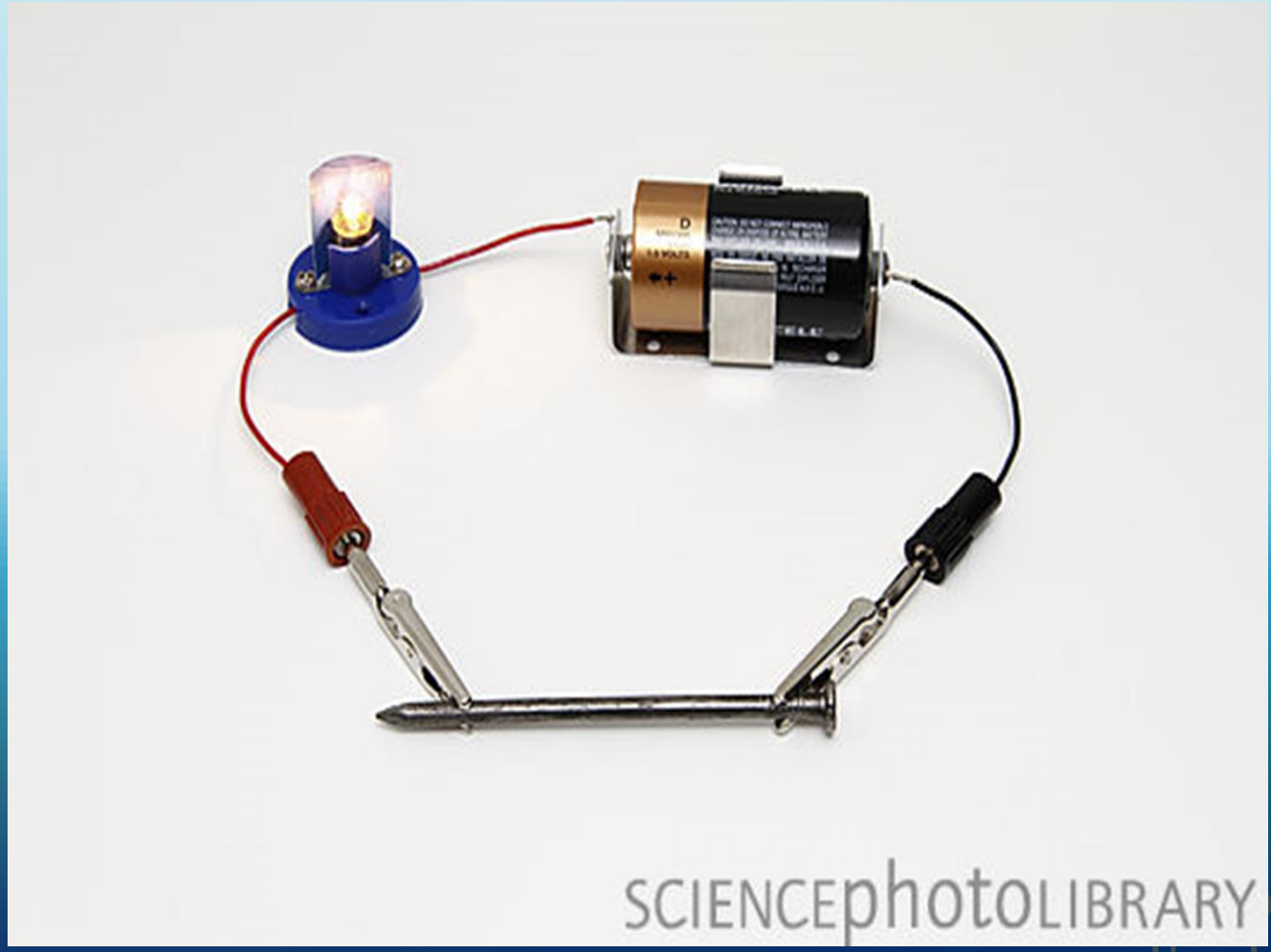
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READ & TAKE QUIZZES ABOUT ELECTRIC CIRCUITS, CONDUCTORS AND INSULATORS

- http://www.andythelwell.com/blobz/guide.html

MAIN ACTIVITY

Copy and complete the table in your book.

Material	Conductor or insulator?
Wooden stick	
Rubber band	
Paper clip	
Plastic straw	
Aluminium foil	
Copper spring	

Complete to sentences below in your home learning book.

Electrical Insulators are made from...

Electrical Conductors are made from...

We are also conductors of electricity, but it is dangerous to us !

CHALLENGE 1

Dear Scientist,

Sometimes my bread gets stuck in the toaster and I can't get it out. My mum says that I should never use a knife to try and lift the bread out. Why is using a knife to pull the bread out of the toaster dangerous? What could I use instead?

Ben

Write letter back to Ben. Try to make your responses as detailed as possible. Use and explain the key words '*conductor*' and '*insulator*' in your answers.

Challenge 2

I spy with my little eye …Conductors and Insulators in your home!

Draw a table like this:

Object	Material	Conductor or Insulator
Copper coin		
Rubber		
Pencil (wood bit)		
Paper clip		

Safety rules:

1. Ask an adult to help you with this task
2. DO NOT TOUCH any electrical sockets!
3. DO NOT PUT ANY ELECTRICAL OBJECTS NEAR WATER!
4. Don’t unplug any appliances at home!

CHALLENGE 3

Dear Scientist,

My friend told me that if someone is being electrocuted by a live wire that I should use a wooden stick to move the live electric wire away from them. Why is a wooden stick good for moving the electric wire? Why can I not just use my hand to move the electric wire away from them?

Conor

Write letter back to Conor. Try to make your responses as detailed as possible. Use and explain the key words '*conductor*' and '*insulator*' in your answers.