

Y4 Conductors Insulators

KS2 Y4 Science · Follows the national curriculum

Name _____ Class _____ Date _____

1. Worked example

How can you test whether a material is a conductor?

Step 1 · Build a circuit with a battery, bulb and three wires, leaving a gap

This is a circuit tester

Step 2 · Touch both loose wire ends onto the object

The object fills the gap

Step 3 · Watch the bulb

Lights → conductor. Stays off → insulator

Answer: Put the material in the gap of a working circuit. If the bulb lights, it's a conductor.

Check: First touch the two wire ends together to check the tester works.

2. Now try one with the steps

Why are electrical wires made of copper covered in plastic?

Step 1 · What is copper?

Step 2 · What is plastic?

Answer:

3. Practice

Have a go at each one. There is space underneath to work it out.

1. What is an electrical conductor?

2. What is an electrical insulator?

3. Is a steel paper clip a conductor or an insulator?

4. Is a wooden lolly stick a conductor or an insulator?

5. Name TWO metals that are good conductors.

6. Name TWO insulators.

7. A material is placed in the gap of a circuit tester and the bulb lights. What does this tell you?

8. Are all metals conductors?

9. Why is the outside of a plug made of plastic?

10. Which non-metal found in pencils conducts electricity?

11. 12 objects were tested. 5 were conductors. How many were insulators?

12. Before testing materials, why should you touch the two wire ends of the tester together?

13. Why should you never touch electrical things with wet hands?

14. Rhys says, 'All shiny things conduct.' Is he right? How could he test it?

4. Before you hand it in

Only some metals conduct electricity.

All metals are conductors. Don't mix this up with magnets — only some metals are magnetic.

All conductors are metals.

Most conductors are metals, but not all.

Shiny things conduct; dull things don't.

Test the material — don't judge by how it looks.

Water is an insulator, so it's safe near electricity.

Keep water away from switches, sockets and appliances.