

Y6 Components Function

KS2 Y6 Science · Follows the national curriculum

Name _____ Class _____ Date _____

1. Worked example

Circuit A: 2 cells, 1 lamp. Circuit B: 2 cells, 2 lamps in series. Compare the brightness and give a reason.

Step 1 · What is the same?

Both have the same cells: the same push

Step 2 · What is different?

In B, the push is shared between two lamps

Step 3 · Result

Each lamp in B gets less, so each is dimmer than the lamp in A

Answer: The lamps in B are dimmer, because the same cells' push is shared between two lamps.

Check: Electricity isn't 'used up' by the first lamp: both lamps in B are equally dim.

2. Now try one with the steps

Why does one switch turn every component on and off in a series circuit?

Step 1 · A series circuit is one single loop

Step 2 · Open the switch anywhere

Step 3 · So...

Answer:

3. Practice

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

1. What happens to the brightness of each lamp when you add another lamp in series (same cells)?

2. What happens to all the lamps in a series circuit if one lamp breaks?

3. What does a switch do?

4. Does it matter where you put the switch in a series circuit?

5. What material must the touching parts of a switch be made from?

6. Give TWO reasons why a lamp might not light in a circuit.

7. What happens to a buzzer's volume if you add a lamp in series with it?

8. A circuit has 2 cells and 1 lamp. Another has 2 cells and 3 lamps. In which is each lamp brighter?

9. Two lamps in series are dim. Give one way to make them brighter.

10. Why do the two lamps in a series circuit have the same brightness, not 'first one brighter'?

11. Explain how a pressure switch under a doormat works.

12. A crocodile clip is attached to the plastic coating of a wire. Will the circuit work? Why?

13. How could you make a motor spin more slowly without changing the cells?

14. Why do some old-fashioned strings of fairy lights all go out when one bulb breaks?

4. Before you hand it in

Thinking the lamp nearest the cell is brightest because it 'gets the electricity first'.

Identical lamps in series are equally bright.

Thinking the switch must be next to the lamp it controls.

Position doesn't matter in a single loop.

Thinking adding lamps makes the circuit 'stronger'.

More lamps (same cells) means each lamp is dimmer.

Forgetting that switches must be made of conductors.

The contacts of a switch are metal (or another conductor).