

Name

Date

Year 4 • Science • Electricity

Bulbs, Buzzers and Circuits

What happens when we add or take away parts of a circuit?
Let's find out.

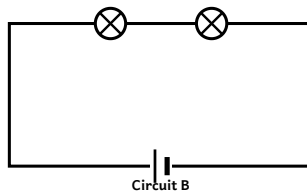
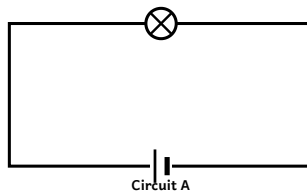


Warm up



- 1** Look at the two circuits. Each cell is the same, and each lamp is the same.

2 marks



Which lamp is brighter, a lamp in A or a lamp in B? Explain.

- 2** Adding another cell to a circuit makes the lamp... *(circle one)*

1 mark

brighter dimmer stay the same go off

- 3** Complete the sentences. More cells give the circuit more _____, so the lamp is brighter. More lamps share the energy, so each one is _____.

2 marks

energy • dimmer

4

Tick the **two** changes that would make a lamp **dimmer**.

2 marks

- ☐ adding a second lamp to the loop ☐ adding a second cell
☐ taking one cell out of a two-cell circuit ☐ closing the switch

Practice



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Sofia builds a circuit with one lamp and changes the number of cells.

3 marks

Number of cells	1	2	3	4
Brightness of the lamp	dim	bright	very bright	

(a) Describe the pattern in the results.

(b) Predict what happens with 4 cells and write it in the table.

(c) What must Sofia keep the same for this to be a fair test?

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A string of fairy lights runs from one battery. When more lamps are added to the same string, all of them get dimmer. Explain why.

2 marks

7

Decide whether each statement is true or false.

3 marks

Statement	true	false
Two cells make a lamp brighter than one cell.	☐	☐
Adding lamps to a loop makes each lamp brighter.	☐	☐
A lamp can be damaged if far too many cells are used.	☐	☐

Challenge



8

Three lamps are joined one after another in a single loop with one cell. One of the lamps breaks.

3 marks

(a) Predict what happens to the other two lamps.

(b) Explain your prediction.

9

Too many cells in a circuit can make a lamp "blow" and never light again. Explain what has happened to the lamp.

2 marks

10

Plan a fair test to find out whether using a **longer wire** changes how bright a lamp is.

3 marks

The one thing you will change:

1.

Two things you must keep the same, and what you will observe:

How did I do?



Easy



Okay



Tricky

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