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Activity 8B What Happens to the Lamp?

Skills: Check results to see if they support a prediction, learn what the variables are when doing a fair test

Complete the following activity to test how changing different components in a circuit affects the brightness of the lamp(s).

Materials:

Eight 1.5V cells	Eight lamp holders
Eight cell holders	Five switches
Eight 1.5V lamps	21 insulated wires

Complete the following activity to test how changing different components in a circuit affects the brightness of the lamp(s).

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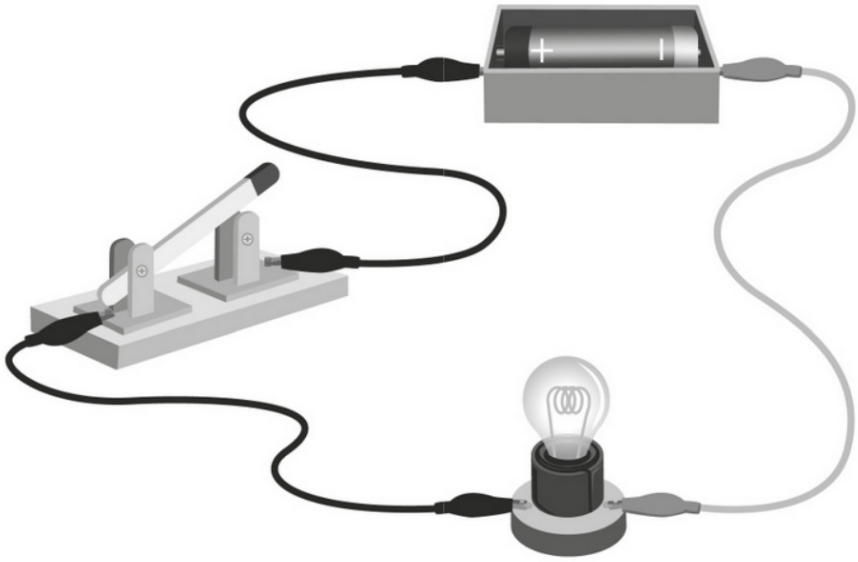
Materials:

Eight 1.5V cells	Eight lamp holders
Eight cell holders	Five switches
Eight 1.5V lamps	21 insulated wires

Method

1 Set up the control circuit with one cell and one lamp. Be careful when making the circuits. Do not touch the exposed wires with your bare hands.



control set-up

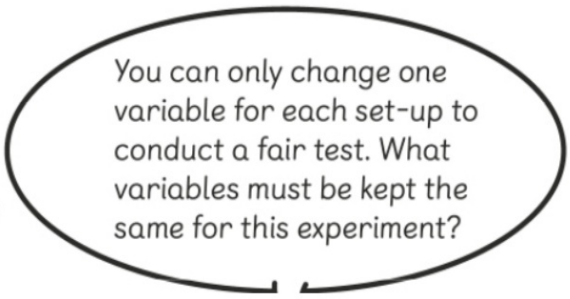
2 Record your observations about the brightness of the lamp for the control circuit. Circle the correct answer to complete the sentence.

The lamp in the control circuit is **bright** / **dim**.

3 Look at the set-ups in the following tables.

4 Fill in the tables with your prediction for the brightness of the lamp(s) in each circuit.

5 Set up each of the circuits and observe the brightness of the lamp(s) in each circuit.



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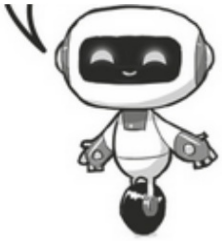

6 Identify and record the variable that is changed for each circuit compared to the control circuit.

7 Record the results in the tables.

Circuit	Variable changed	Lamp brightness (bright / dim)	
		Prediction	Actual result
 A	adding another lamp	dimmer	dimmer

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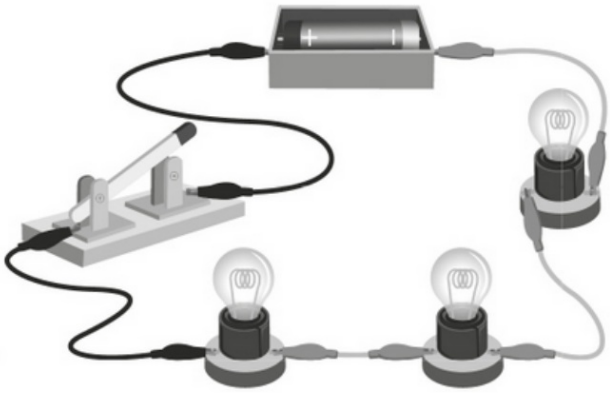
Circuit	Variable changed	Lamp brightness (bright / dim)	
		Prediction	Actual result
 B	adding 2 more lamps	dimmer	dimmer

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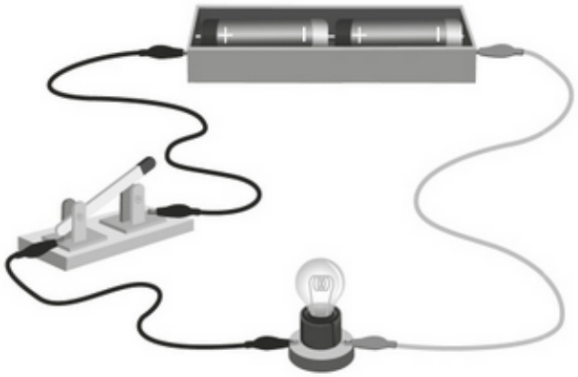
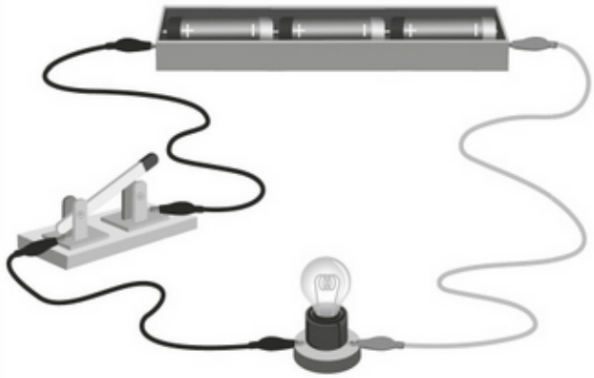
 C	adding another cell	brighter	brighter
 D	adding 2 more cells	brighter	brighter

8 Samad uses one big lamp and one small lamp to build circuit A. He says that it is a fair test because the number of lamps used is still two. Explain if he is correct.

He is incorrect. It is because changing the size of the lamp will affect the electric current. And in a fair test we only change one thing (one variable).

9 Is it easy to compare the brightness of the lamps? Find out what tools can be used to give standard measurements of light so that your experiment can be more accurate.

A light meter /Lux meter can be used to measure light intensity.