Ideal Electricals Investigation

Ideal Electricals has asked you to carry out an investigation to find out the following:

- [x] What happens to the brightness of the bulbs in a circuit as you increase the number of bulbs?
- [x] What happens to the current as you increase the number of bulbs in a circuit?

What are the variables in this investigation?

independent variable (what we change)	
dependent variable (what we measure)	
control variable (what we keep the same)	

1. Construct a table to record your results.

Number of _____	Try 1 - Current (___)	Try 2 - Current (___)	Try 3 - Current (___)	Average - Current (___)

2. Build the circuits below.

- [x] A series circuit with 1 battery, 1 bulb, 1 ammeter.
- [x] A series circuit with 1 battery, 2 bulbs, 1 ammeter.
- [x] A series circuit with 1 battery, 3 bulbs, 1 ammeter.

Q1. In which circuit were the bulbs the brightest?

_____

Q2. Why do you think this is?

The bulb was the brightest in circuit _____ because _____

_____

Q3. Explain what happens to the current as you increase the number of bulbs in a circuit.

Q4. Did you find any anomalous (odd) results?

Q5. How do you know the result(s) were anomalous (odd)?

Q6. How could we improve the investigation for next time?

To improve the investigation for next time we could _____

Ideal Electricals Investigation Answers

Ideal Electricals has asked you to carry out an investigation to find out the following:

☑ What happens to the brightness of the bulbs in a circuit as you increase the number of bulbs?

☑ What happens to the current as you increase the number of bulbs in a circuit?

What are the variables in this investigation?

independent variable (what we change)	**number of bulbs**
dependent variable (what we measure)	**current**
control variable (what we keep the same)	**number of batteries**

Construct a table to record your results.

Number of **Bulbs**	Try 1 - Current **(A)**	Try 2 - Current **(A)**	Try 3 - Current **(A)**	Average - Current **(A)**
1				
2				
3				

Build the circuits below.

☑ A series circuit with 1 battery, 1 bulb, 1 ammeter.

☑ A series circuit with 1 battery, 2 bulbs, 1 ammeter.

☑ A series circuit with 1 battery, 3 bulbs, 1 ammeter.

Q1. In which circuit were the bulbs the brightest?

circuit 1

Q2. Why do you think this is?

The bulb was the brightest in circuit **1** because **if more lamps are added to the circuit, the lamps will become dimmer than before. This is because less current is flowing through them.**

Q3. Explain what happens to the current as you increase the number of bulbs in a circuit.

The battery pushes the current through the bulb. The more bulbs there are, the harder it is for the current to flow. There is more resistance in the circuit.

Q4. Did you find any anomalous results?

Pupils will have their own results.

Q5. How do you know the result(s) were anomalous?

The current readings were not the same.

Q6. How could we improve the investigation for next time?

To improve the investigation for next time we could:

Compare our results with another group in our class to see if they got similar results to us.