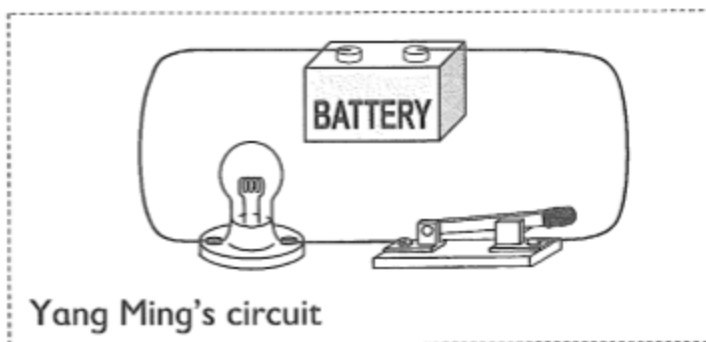


Electric Circuits

Look at the diagram below and answer the questions that follow.

Yang Ming connected a circuit as shown in the diagram.



1. What provides the electricity to light up the bulb?

2. How does the bulb receive the electricity?

3. What will happen if he had connected only one of the wires to the bulb holder?

4. If the switch is left open, what will happen to the bulb? Why?

5. What is a circuit?

6. How does electricity flow in a circuit?

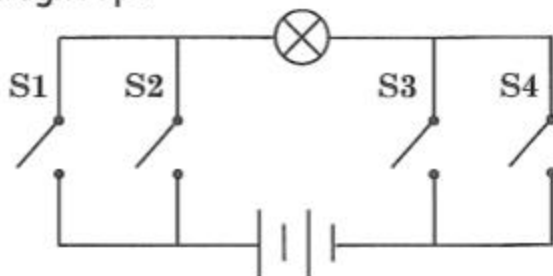


Science Facts

A single dry cell is often called a battery but this is not really accurate. Scientists use the term 'battery' to refer to two or more dry cells which are connected together.

Switch On, Switch Off

1. Study the circuit diagram shown below. In which of the following situations will the bulb light up?

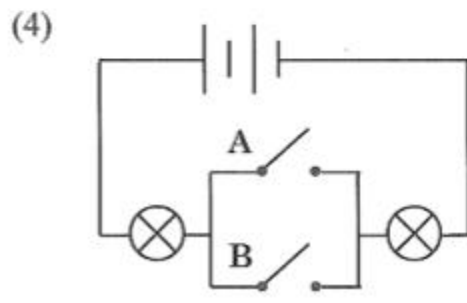
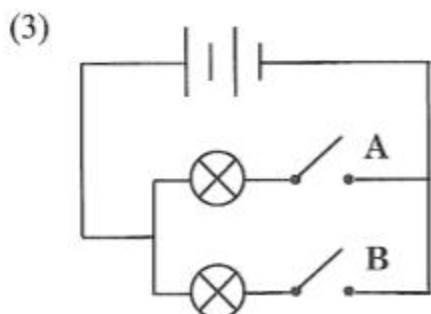
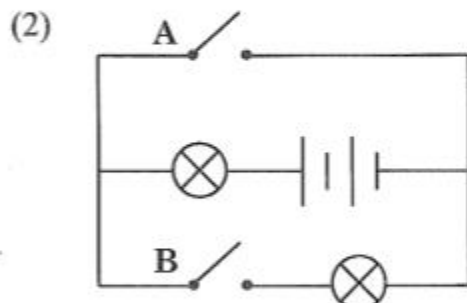
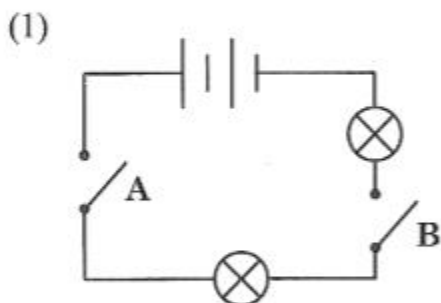


- A: when switches S1 and S2 are closed
 B: when switches S2 and S3 are closed
 C: when switches S3 and S4 are closed
 D: when switches S1 and S4 are closed

- (1) A and B (2) B and C
 (3) A and C (4) B and D ()

2. Richard tested the switches of one out of the four circuits shown below. His results were recorded in the table. Which one of the four circuits did Richard test?

Switch A	Switch B	Number of Bulbs Lighted
OFF	OFF	0
ON	OFF	1
OFF	ON	1
ON	ON	2



()

Stronger Current, Brighter Light

Mohan set up a circuit as shown below. He noticed that the bulbs were dim and were hardly glowing when the circuit was closed. Use the words in the box to help you explain why this is so.

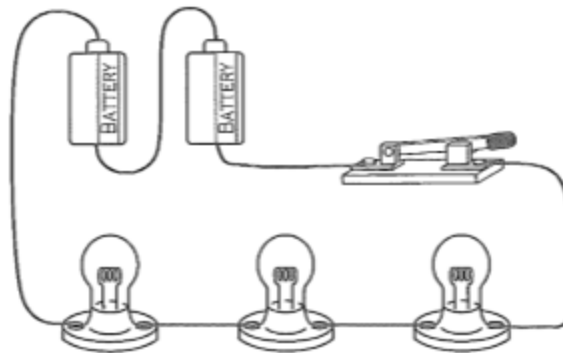
glow

bulbs

light

current

filament



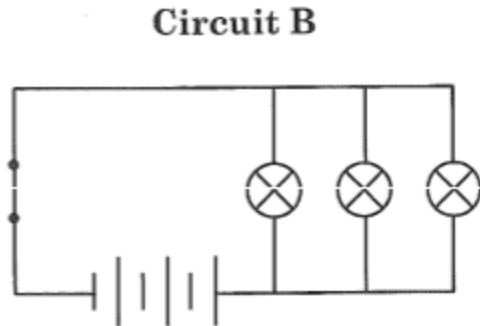
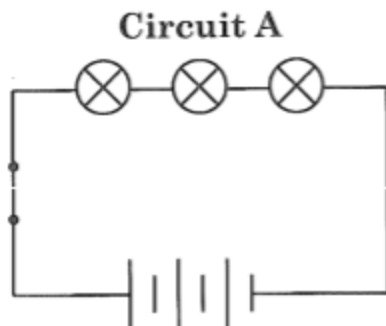
When an electric current flows through the _____ in a bulb, some of the electric energy is changed into _____ energy. The flow of the _____ is weaker when there is a bulb in a circuit. Adding more _____ will further weaken the current flow. As a result, the filament in each bulb will not _____ as brightly.

Mohan decided to make some changes to the circuit to produce a brighter light. Put a tick (✓) beside each statement that describes what he would probably do.

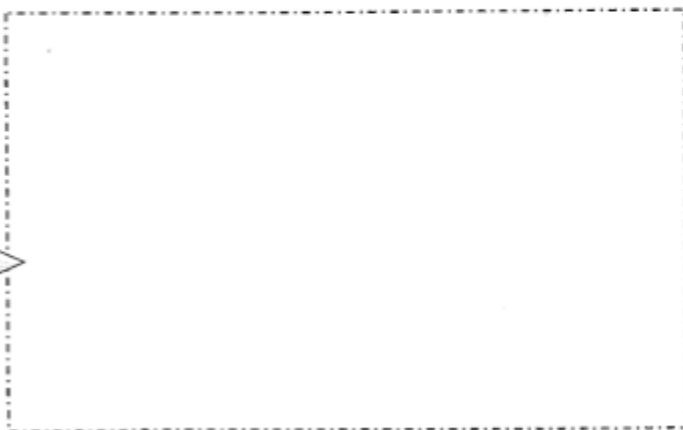
1.	He will remove one or two of the bulbs from the circuit.	
2.	He will lengthen the wire in the circuit.	
3.	He will reconnect the bulbs in the circuit in a parallel arrangement.	
4.	He will reconnect the batteries in the circuit in a parallel arrangement.	
5.	He will add more batteries to the circuit.	

Series or Parallel

Look at the two circuit diagrams below and answer the questions.



- 1a. How are the bulbs in Circuit A arranged?
-
- 1b. What will happen to the rest of the bulbs in Circuit A if one of them blows?
-
- 2a. How are the bulbs in Circuit B arranged?
-
- 2b. What will happen to the other bulbs in Circuit B if one of them blows?
-
3. What will happen if more bulbs are added to Circuit A?
-
4. Draw a circuit diagram to show a series circuit with two batteries, two bulbs, and an open switch.



Conductors of Electricity

A group of Science Club members set up an electric circuit to test whether the objects listed in the table below could conduct electricity. Study their test results and answer the questions that follow.

Objects Tested	Brightness of Bulb
Silver coin	Very bright
Copper nail	Bright
Plastic chip	Not lit
Pencil lead	Dim
Tissue paper	Not lit
Lime juice	Dim
Steel ruler	Bright



1a. Which of the materials they tested are non-conductors of electricity?

1b. What are non-conductors of electricity also known as?

2a. Which material listed is the best conductor of electricity? _____

2b. Is this material commonly used for making wires? Why?

3. Which of the above conductors are non-metals?

4. Write down two conclusions which the Science Club members are likely to draw from this experiment.

5. Explain why we should never change a light bulb with wet hands.
