

The Energy Journey: Part 2

How does electricity get to your home and how is it used?



Your Climate Cops mission

These are the learning objectives for The Energy Journey – Part 2:

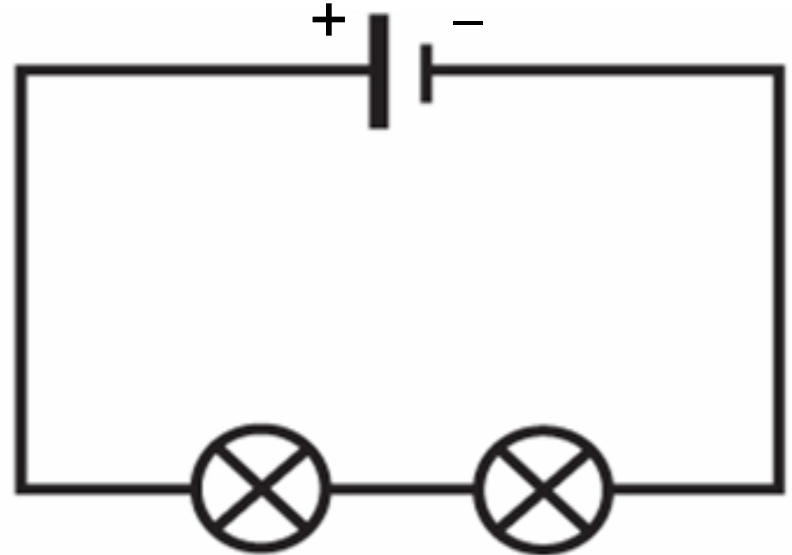
- To understand how electricity gets to your school or home
- To identify what electricity is used for
- To understand that circuits are made up of components which are represented by symbols
- To understand the way in which circuits are constructed



A Question of Circuits

What is a circuit?

- A circuit is a path for electricity
- Our homes and schools have lots of circuits
- Circuits bring electricity from outside, into every room in our homes and school



Making a circuit

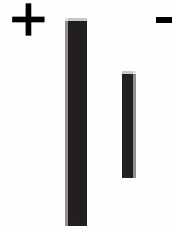
- Circuits are made up of 'components', e.g.
 - Wire, Switch, Bulb, Motor, Buzzer
 - Battery or mains electricity
- Mains electricity is very dangerous, if not treated with care. The circuits we make in school use batteries
- Each component has a special symbol. These symbols are used to draw circuits



Circuit Symbols



Wire



Battery/Cell



Bulb



Motor



Switch

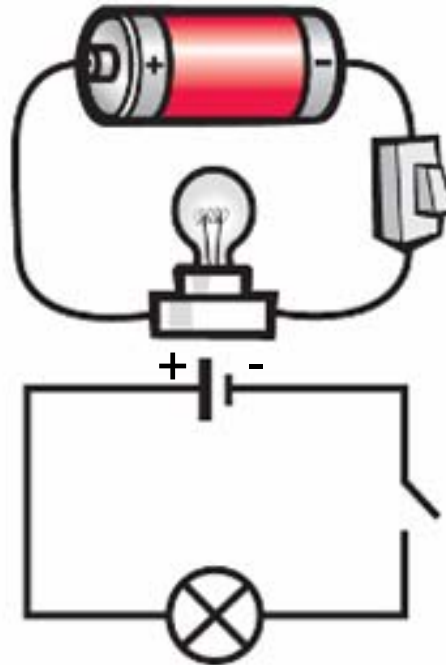
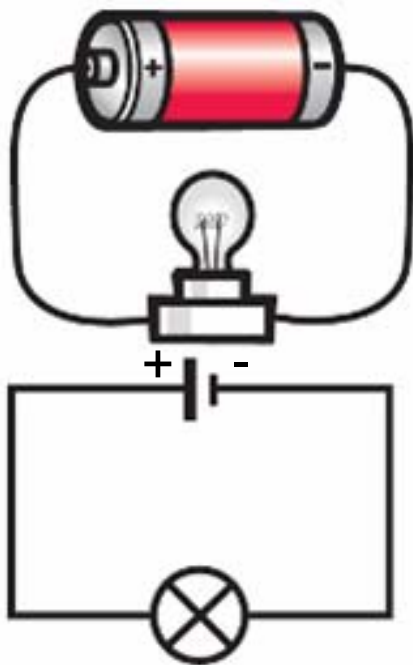


Buzzer

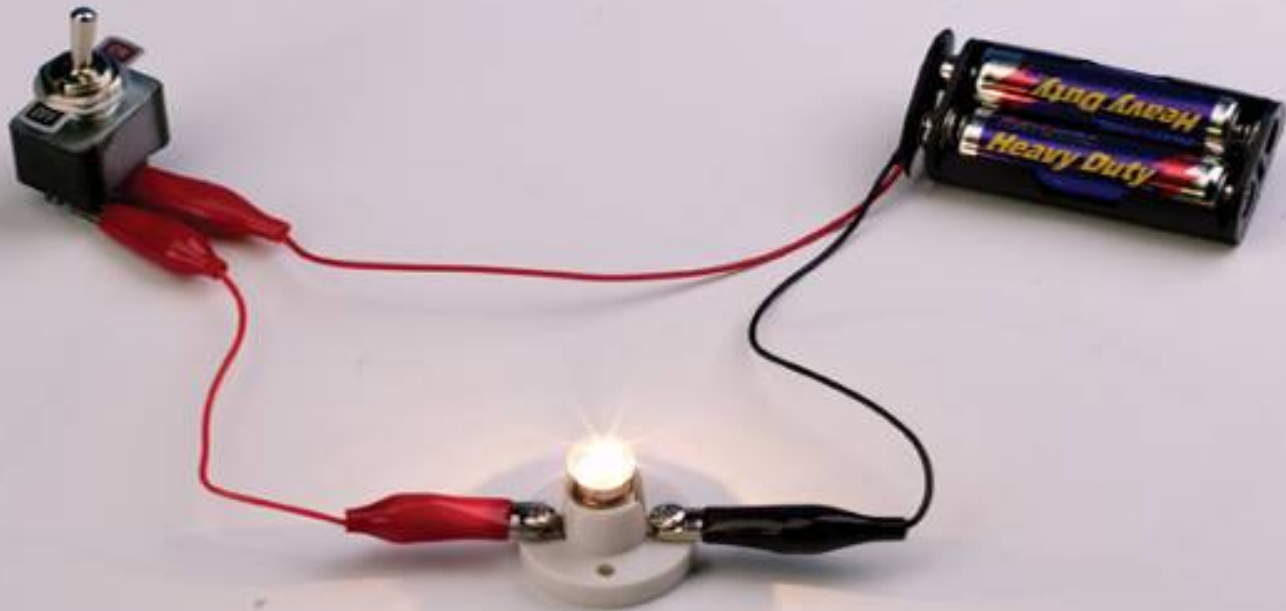


Controlling the flow of electricity in a circuit

- A circuit must be complete or 'closed' for electricity to flow
- If a circuit is broken or 'open' electricity will not be there
- Switches are used to open and close a circuit



A complete circuit



An open circuit



A question of circuits: The ultimate circuit quiz



1) Can you identify the circuit symbol that is hidden behind the Climate Cops?

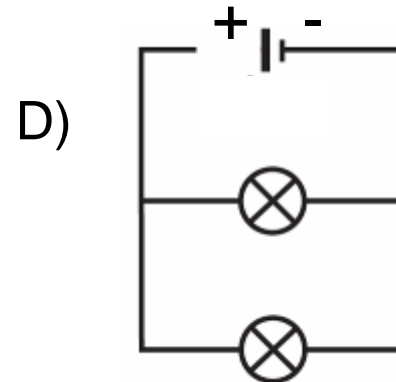
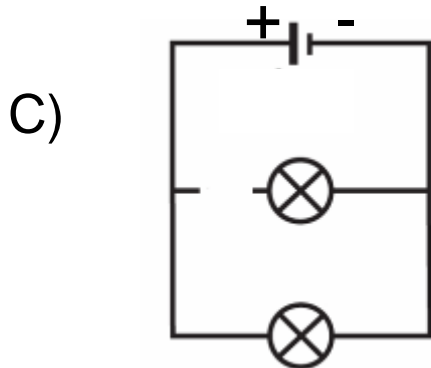
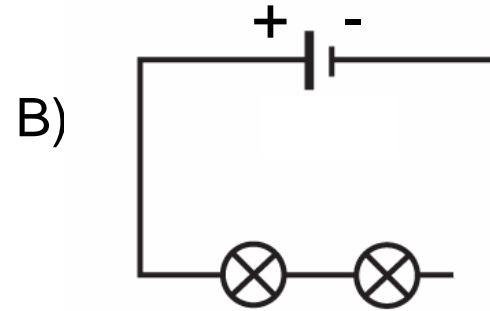
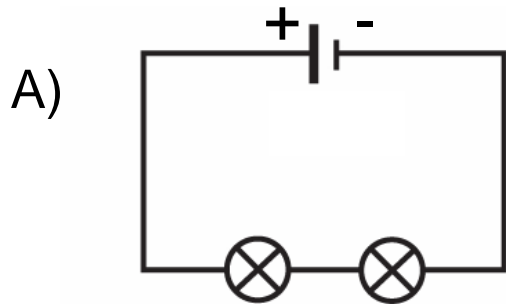


2) Which is correct?

- a) When a circuit is open, electricity continues to flow
- b) When a circuit is closed, electricity continues to flow



3) In which circuit do both bulbs light up?



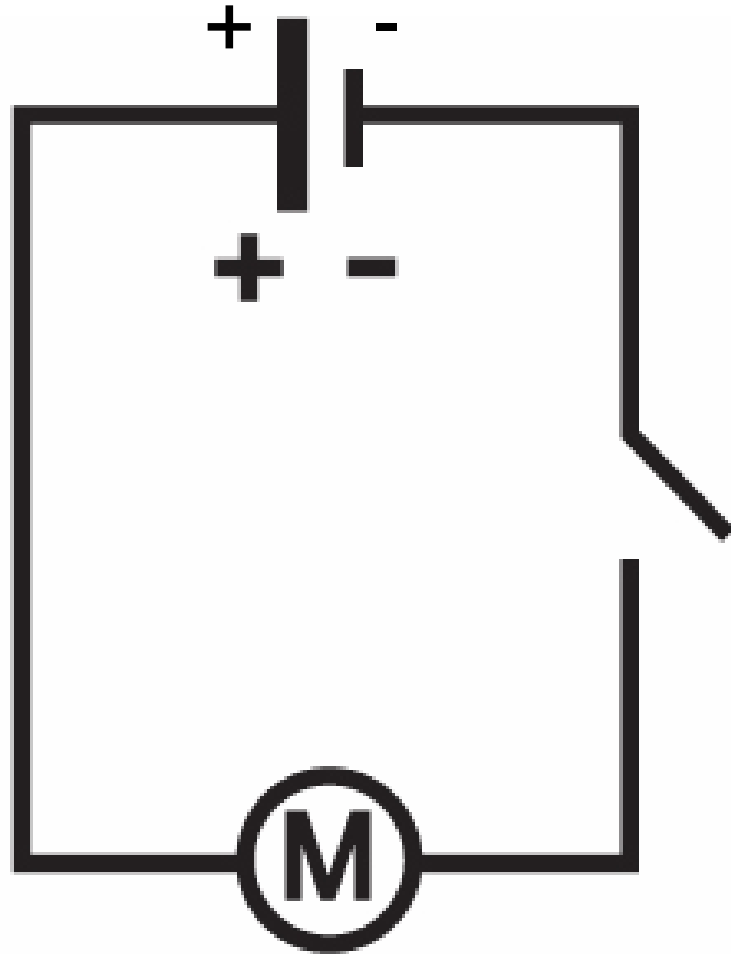
Bonus point: Which part of the bulb produces light? Is anything else produced when electricity lights the bulb?



4) Match the circuit

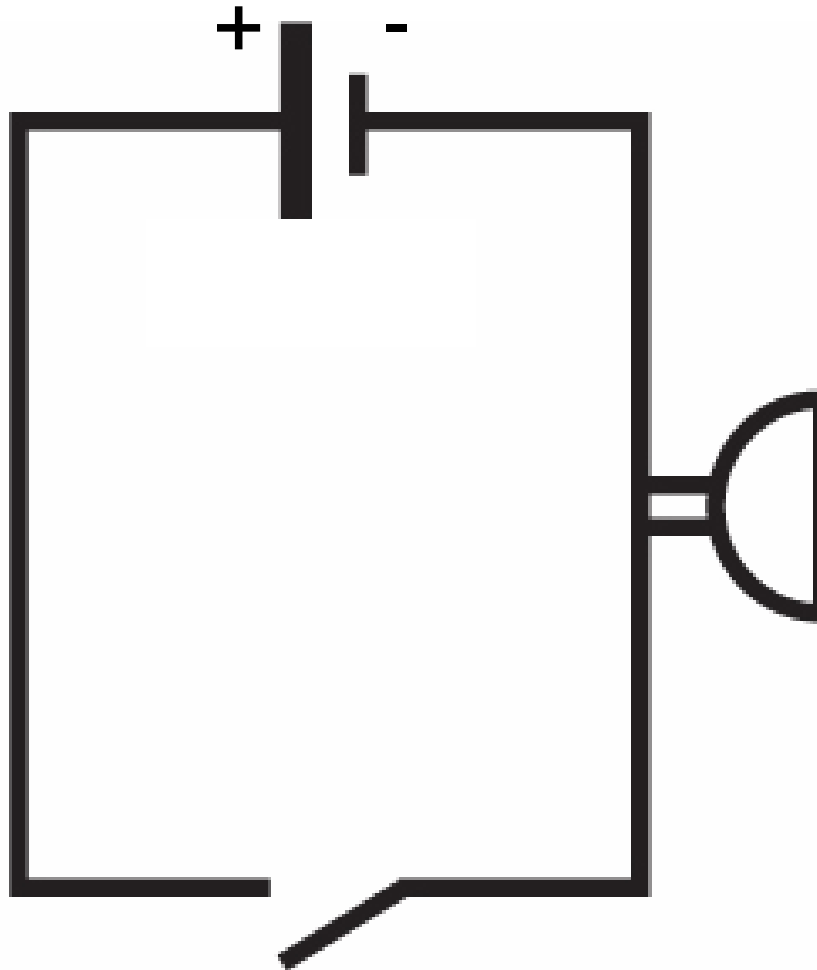
This is a circuit diagram for which household item?

- A) Lamp
- B) Doorbell
- C) Fan
- D) Torch



6) What happens in this circuit?

- A) Sound
- B) Light
- C) Movement



7) Spelling test

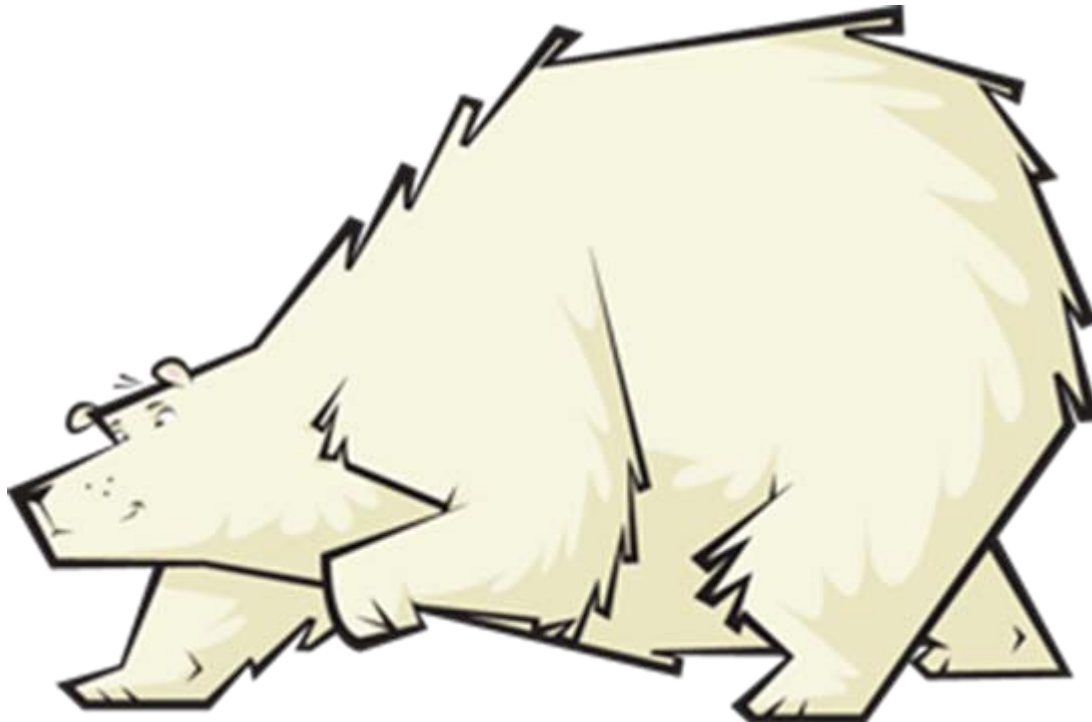


- Circuit
- Parallel
- Electricity
- Series
- Component



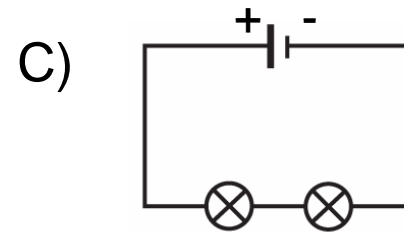
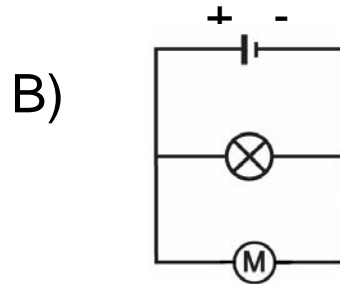
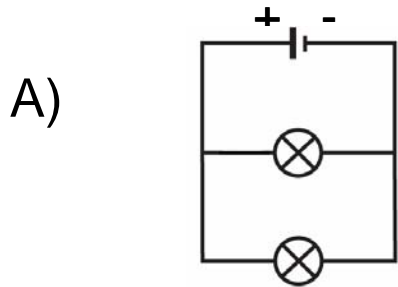
8) Which definition is correct?

- A) A circuit is the path electricity follows to get to your home
- B) A circuit is a path for an electric current to flow
- C) A circuit is the distance around the edge of an electrical appliance

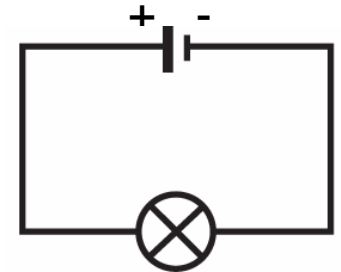


9) Specialist subject: Series circuits

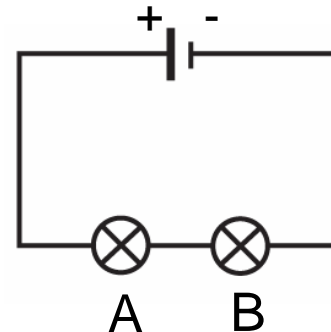
i) Which of these is a series circuit?



ii) What happens when another bulb is added to this circuit?

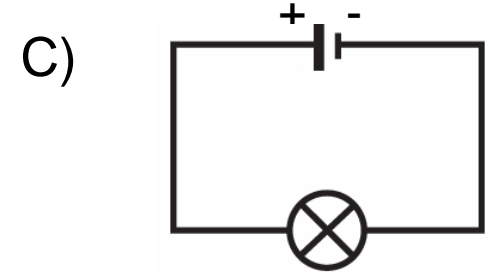
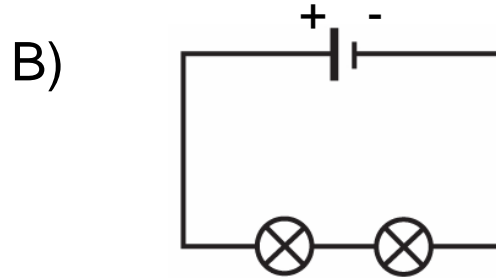
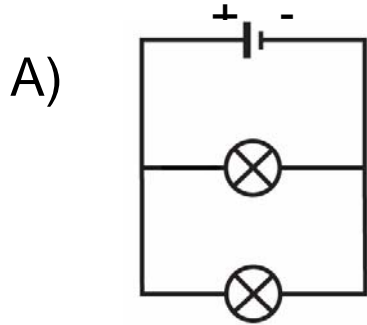


iii) What happens to bulb A if bulb B blows?

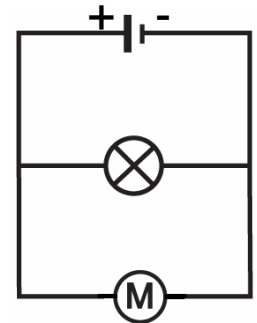


10) Specialist subject: Parallel circuits

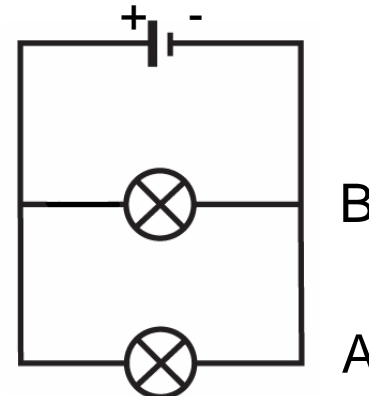
i) Which of these is a parallel circuit?



ii) What happens when another bulb is added to this circuit?



iii) What happens to bulb A if bulb B blows?



11) Which component controls the flow of electricity?

A) Battery

B) Switch

C) Wire

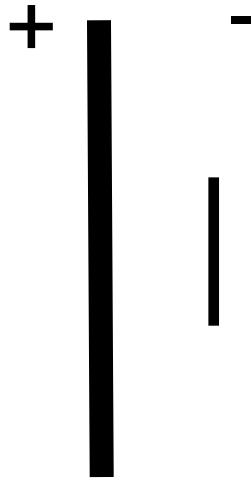
D) Motor

Bonus: Can you name 2 different types?



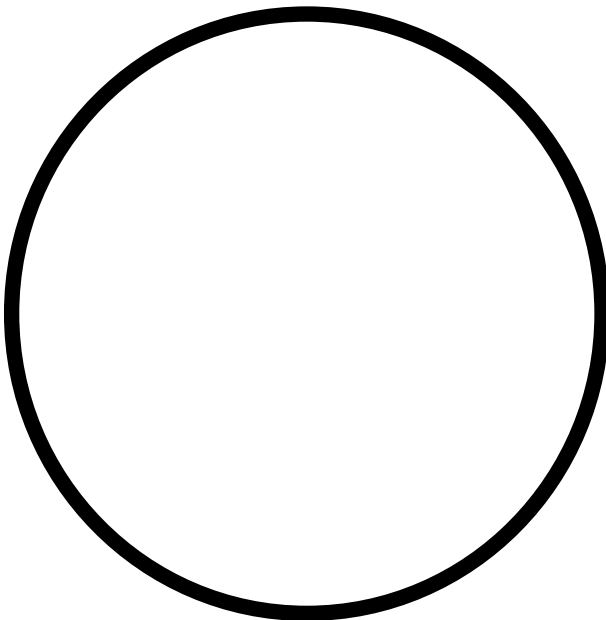
12) True or false?

A) Is this the correct symbol for a battery?



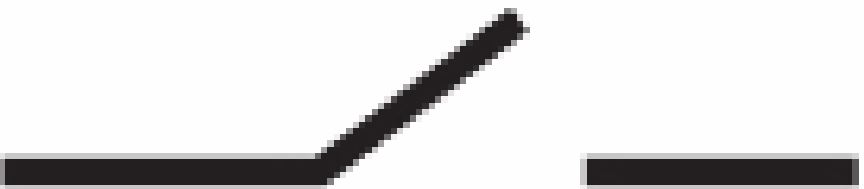
12) True or false?

B) Is this the correct symbol for a bulb?



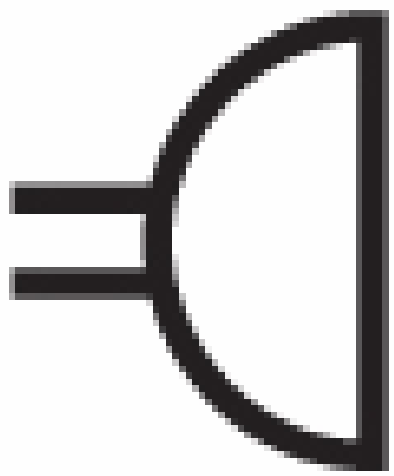
12) True or false?

C) Is this the correct symbol for a switch?



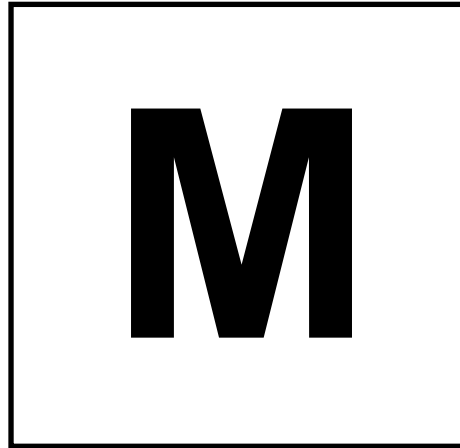
12) True or false?

D) Is this the correct symbol for a buzzer?



12) True or false?

E) Is this the correct symbol for a motor?



A question of circuits: The answers

1) Switch

2) B

3) A

Bonus: The filament produces the light; heat is also produced

4) C

5) A

6) Sound



A question of circuits: The answers

7) Circuit, parallel, electricity, series, component

8) B

9) i) C

ii) The original bulb dims

iii) Bulb B will not light up

10) i) A

ii) There is no affect on the first bulb

iii) Bulb A continues to glow

11) Switch

Bonus: on/off, push button, dimmer, others?

12) A = true; B= false; C= true; D= true; E= false



