

Max's Electronics Challenge: Circuits and Components

Learning objective: To identify and describe the function of key electrical components and understand how to construct a simple series circuit.

Read each question carefully. Use these flashcards to test your knowledge of electronics. Max the monkey is ready to see if you can solve these circuit puzzles!

What is a closed circuit?

A complete path that allows electricity to flow from the power source through the components and back to the source.

What is the function of a cell (battery) in a circuit?

It acts as the power source, providing the electrical energy needed to push the current through the circuit.

What does a switch do?

It acts as a control mechanism to break or complete the circuit, turning the flow of electricity on or off.

What is an electrical conductor?

A material, such as copper or aluminium, that allows electrical current to pass through it easily.

What is an electrical insulator?

A material, such as plastic, rubber, or wood, that does not allow electricity to flow through it, used for safety.

What happens to a bulb in a series circuit if you add more bulbs?

Each bulb becomes dimmer because the energy from the cell is shared among all the components.

What is the purpose of a buzzer in a circuit?

It is an output component that converts electrical energy into sound energy.

What does an electric motor do?

It converts electrical energy into kinetic energy (movement), allowing things to spin or move.

Explain why a circuit must be 'closed' for a device to work.

If a circuit has a gap, the electricity cannot complete its path, meaning the current stops flowing and the device will not function.

Compare and contrast a conductor and an insulator.

Conductors allow electricity to flow freely (e.g., metal), while insulators block the flow of electricity (e.g., rubber). They are opposites in their electrical properties.

Justify why plastic is used to coat electrical wires.

Plastic is an insulator, it prevents the electrical current from leaking out and protects the user from receiving an electric shock.

What might happen if you replaced a bulb with a motor in a simple circuit?

Instead of producing light, the circuit would produce movement. The motor would spin as long as the circuit is closed and there is enough energy from the cell.