

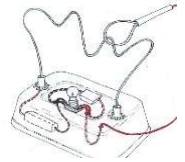


Design and Technology Knowledge Organiser

Year 6: Summer Term – Electrical Systems

Switches and Circuits

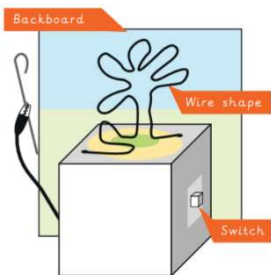
Design, make and evaluate a wire shape game with a functioning circuit for a friend to play.



Key Knowledge

Learn this information

Steady Hand Game:



A steady hand game involves trying to get a metal wand from one side of a wavy wire to the other, without the two touching.

The game works because it is made from an incomplete electrical circuit. When the metal wand touched the metal wire course, the circuit is completed and this triggers an alarm.

Switches and Sensors:



Circuit Symbols:

Circuit symbols are used in circuit diagrams to show how a circuit is connected together.

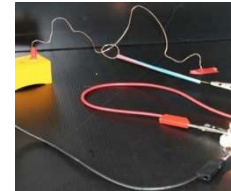
wire	
switch open	
switch closed	
battery	
buzzer	
bulb	

Key Skills

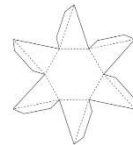
Practise and perform these skills

Electrical Circuit:

Connect and create a functioning electrical circuit using wires, a buzzer or bulb, a switch, a handle and a wire shape.

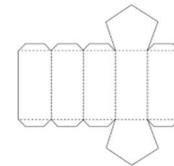


Create a Net for the Base:



Accurately draw a net on card (as it needs to be sufficiently strong as a base) using a ruler or set square with tabs so it can be constructed securely.

Mark with a pencil where to make holes for the wires in the face that will be the top of the base and the holes in each of the sides (one for the switch and one for the wire going to the handle).



Accurately cut and score the lines before folding. Assemble accurately gluing tabs down leaving one side unglued so the electronics can be inserted.

Cutting and Bending Wire:



Draw the shape to scale on paper first. Then use pliers to carefully cut and bend the wire into the desired shape. Remind children that wire can be sharp and to take care when manipulating it with the pliers.

Key Vocabulary

Understand these key words

Vocabulary	Definition
Backboard	A background for the game.
Battery	A cell or connected group of cells which store electrical energy.
Bulb	A component which gives light when electricity passes through it.
Buzzer	A component which makes a loud noise as electricity passes through it.
Circuit	A collection of components which make an electrical system.
Electrical Conductor	A material that allows electricity to flow through it e.g. metal.
Copper	A metal material that is one of the best conductors of electricity. It is often used to make wires.
Function	How an object or product operates or works.
Electrical Insulator	A material that does not allow electricity to flow through it e.g. plastic.
L.E.D	A 'light emitting diode' which lights up as electricity passes through it.
Net	A 2D flat shape that can become a 3D shape once assembled.
Pliers	A metal tool used for holding, twisting or cutting wire.
Series Circuit	A closed circuit where the current only follows one path.
Switch	A component which opens and closes to turn the circuit on or off.
Test	To find out whether something works as it should.