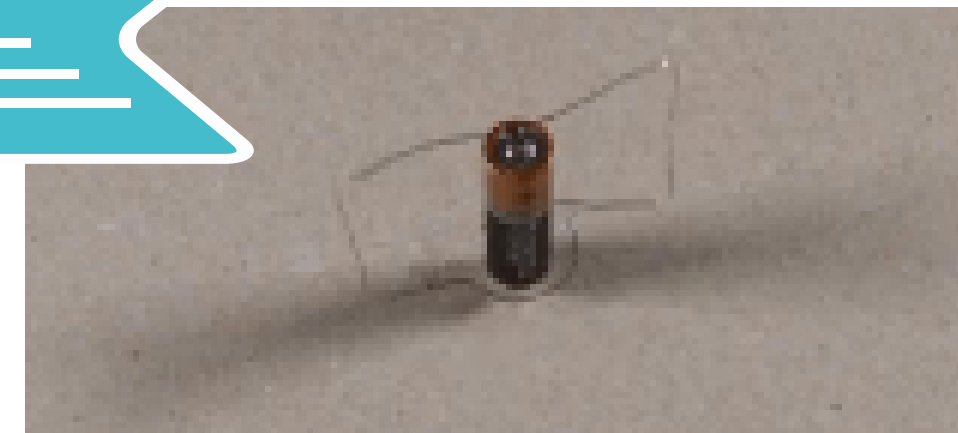




Homopolar motors

A homopolar motor is a type of electromagnetic motor. These motors create a force that is generated when electricity moves through a magnetic field.



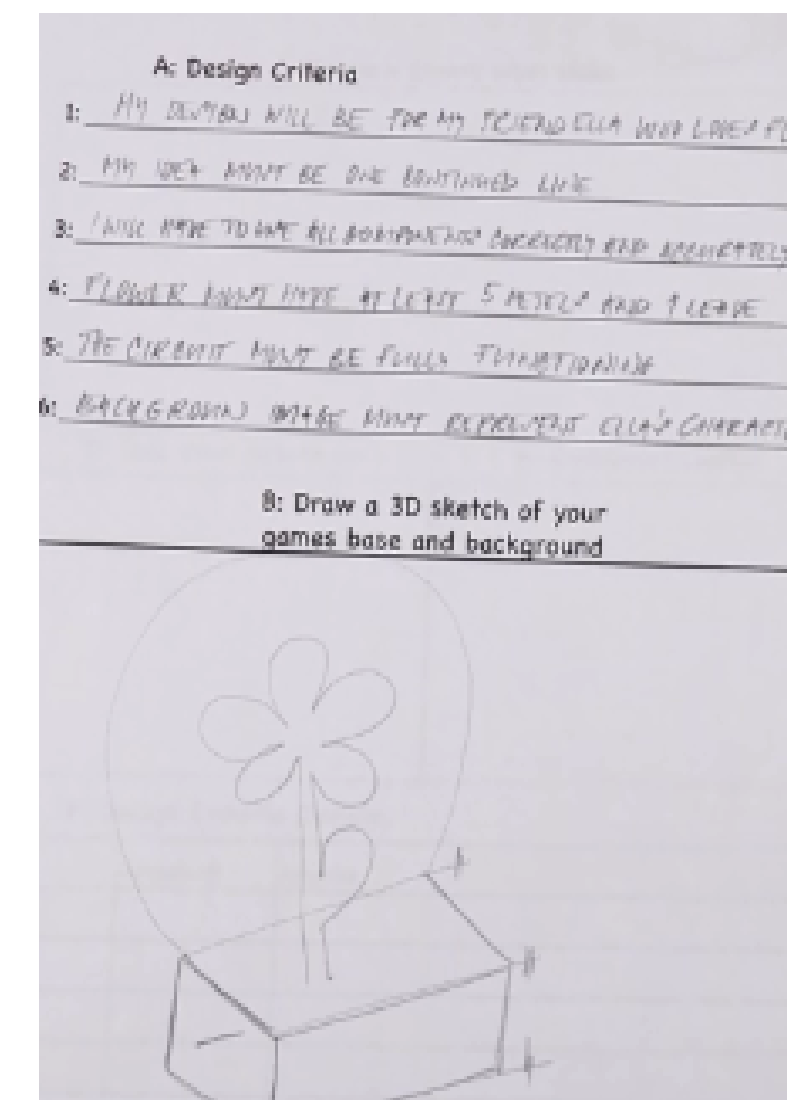
Building a homopolar motor

- Stack the three magnets
 - Place them on the negative side of the battery, putting it upright so that the positive end of the battery faces upwards.
 - Place the wire shape over the top of the battery so that the point sits on the very top of the battery and the bottom curves around the magnets at the bottom.
- When you let it go, the wire should spin!

Safety

Defect batteries can leak acid so they must never be placed in mouths. When the motor is in use, older batteries can become hot. If they become too hot you will need to tell your teacher straight away as they will need to be replaced.

Design



You should consider the shape of the base (which should be a simple 3D shape) as well as the wire shape.

You will need to consider-

- who the game is for? (audience)
- how easy it should be.?

Make



To make the base you will need to carefully cut the 3D shape net that you need.

Score, fold and secure the tabs. When you have secured 3 sides of your base, attach it to your back board.

You will need to build the circuit using the buzzer or bulb, a switch as well as the handle and main wire shape for the game. This is to make sure that all components work before putting everything together.



To complete your games, you will need to hide the electrical components inside your bases and place two large balls of plasticine or blue tac at the bottom for the wire pieces to stick into.

Evaluate



You will need to evaluate your work against your design criteria.

Did you meet the specifications?
Are you happy with your final products?

What difficulties did you face?
How could you improve your work next time?

Vocabulary

homopolar motors
 design criteria
 perspective drawings
 side view
 plan view
 back board
 prototype
 creasing
 specification
 electrical components