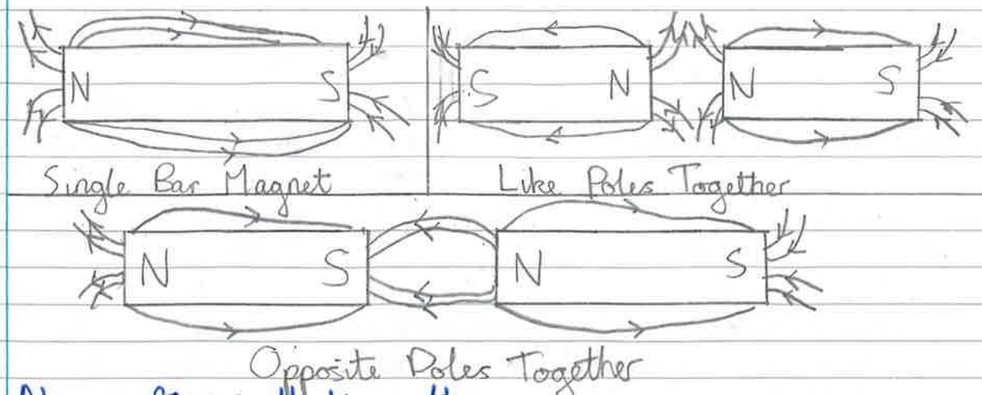
Electricity

cell	bulb / lamp	terminals	junction of conductors
buzzer	motor	push-button switch	SPST switch (single post single throw)
SPDT switch (single post double throw)	battery	fuse	resistor
variable resistor	light dependent resistor	semi-conductor diode	light emitting diode
relay coil	ammeter	voltmeter	relay coil reed switch

- Current in series and parallel circuits: Current is the flow of electricity. Current is measured using an ammeter, and is measured in amperes (amps). The ammeter is put in series with the thing we're measuring
- Voltage in series and parallel circuits: Voltage is the 'push' from a battery to make the current flow. Also called potential difference. Voltage is measured using a voltmeter and is measured in volts. The voltmeter is put in parallel with the thing we're measuring
- Series circuit: The current is the same all the way round. The voltage is split between the components that use volts
- Parallel circuit: The current is split up. The voltage is the same across all of them
- The advantage of a parallel circuit over a series circuit is that if a component breaks, some parts would still work while in a series circuit it would all stop working
- Series circuit = fairy lights
- Parallel circuit = building lights
- 'AND' circuits: both switch A and B have to be on for it to work
- 'OR' circuits: one of switch A and B have to be on

Magnetism

- Iron, nickel and cobalt are magnetic. Lodestone is a magnetic rock
- Each end of a magnet is a magnetic pole
- The north-seeking pole will turn to the north, and likewise for south
- North-seeking pole = south pole (of magnet)
- South-seeking pole = north pole (of magnet)
- Opposite poles attract, like poles repel



Single Bar Magnet | Like Poles Together | Opposite Poles Together

Electro-Magnetism

- Always from north to south
- Any wire carrying an electric current will have a magnetic field around it as the current generates it
- A coil of wire creates a similar magnetic field to a bar magnet
- An iron nail inside a coil is magnetic but only when a current runs through it. It is an electromagnet. Electromagnets can be turned on and off
- 6 factors that affect the strength:
  1. Size of middle object
  2. Voltage
  3. Whether the object is metal / non-metal
  4. Amount of coils
  5. Current
  6. Whether the object has an iron core
- Bell system: When the current flows the object becomes an electromagnet and attracts the armature. This makes the hammer hit the bell. The circuit is then broken and there is no longer an electromagnet so the armature goes back to its original place. This reconnects the circuit and the process is repeated
- Reed switch: It's operated with a magnet. Inside a glass bulb are 2 strips of magnetic material. When a magnet is held close, these strips attract each other as they are magnetised. But, when the magnet is moved away, the strips are demagnetised and move apart. In electronics the reed switch is often placed in wire and when a current flows the coil acts as the magnet for the switch
- Large electromagnets are used in scrap yards in cranes. They are useful for sorting out scrap and can lift cars
- In hospitals, electromagnets can be used to remove iron from a patients' eye
- Maglevs run at Birmingham airport where electromagnets hold up the train for a smoother journey
- When the window is closed the current creates an electromagnet which holds up a component. Once the window is opened, the component is dropped on a spring as the electromagnet stops working as the circuit is broken, and the component closes a circuit underneath which makes the bell ring as an alarm