Year 4: Electrical Engineers

1. Terms	Definitions
Electricity	The flow of tiny particles (electrons and protons) which creates energy
Electrical circuit	A circuit is a complete path around which **electricity** can flow. It must include a source of **electricity**, such as a **battery**. They can be series (consists of only one pathway for the electricity to follow) or parallel (consists of multiple pathways for the electricity to follow)
Battery/ cell	It converts chemical energy into electrical energy.
Electrical components	It is an object used in an electrical **circuit**. For example: **batteries/cells**, **bulbs** (which light up), **buzzers** (which make noises), **motors** (which spin around), **wires** (through which electricity can travel), **switches** (which are used to switch the circuit on or off by breaking/completing the circuit)
Static electricity	The build-up of an electrical charge on the surface of an object.
Generate	To produce
Conductors	Objects that allow electricity to flow through them easily. **Metals** are usually good conductors of electricity.
Insulators	Objects that do not allow electricity to easily flow through them.
Electro music	A type of music that uses electronic instruments or digital instruments.

2. Electricity

- Electricity is the flow of an electric current through a material, e.g. from a power source (usually **mains** or **battery/cell**) through wires to an appliance.
- Electricity can occur naturally (lightning and static electricity) or we can produce it.
- Coal, oil, fossil fuels and renewable energy sources can be used to generate electricity.

- Many households have devices and appliances (e.g. toasters, microwaves, televisions), which are powered by electricity.

- **Mains electricity**: power stations send an electric charge through wires to transformers and pylons. Then, underground wires carry the electricity into our homes via wires in the walls and out through plug sockets.
- **Battery electricity: batteries store chemicals, which produce an** electric current. Eventually, even rechargeable batteries will stop producing an electric current

- An **electrical circuit** is when a cell or battery is connected to a component using wires.

4. DT

Target audience: Who is your electrical game aimed towards? Who would buy it?
Specification: A detailed description of the purpose of an object and what it is made out of.
Fit for purpose: Does it meet the specification? Does it meet the needs of the target audience?
Electrical components: Which electrical components are you going to use to make your game?

5. Music

- Daphne Oram was a musical pioneer.
- She was born in 1925 and died in 2003.
- She was one of the first British composers to produce electronic sound
- A lot of electro music was influenced by her.

3. Electrical circuits

- Electricity flows around a **circuit**, if there are no breaks.
- If there is a break in the circuit or a loose connection, electricity cannot travel round the circuit and the component will not work.
- **Wires** must be connected to the positive end and the negative end of th battery for the electricity supply to flow.
- A **switch** can be added to the circuit to turn the component on (the electricity flows around the circuit) or off.

- **Metals** are good **conductors** of electricity, so they are used in wires.
- **Wires** are then surrounded in plastic, so we do not get electric shocks.
- Water, if not completely pure, also conducts electricity, which is why we do not put water near electrical devices.
- Wood, plastic and glass are good **insulators**.