**starters**

**1. Dalton & Rutherford & Thomson & Chadwick & Bohr**

**Main course**

**3. Dalton's atomic theory was the first complete attempt to describe all matter in terms of atoms and their properties.**

* **Dalton based his theory on the law of conservation of mass and the law of constant composition.**
* **The first part of his theory states that all matter is made of atoms, which are indivisible.**
* **The second part of the theory says all atoms of a given element are identical in mass and properties.**
* **The third part says compounds are combinations of two or more different types of atoms.**
* **The fourth part of the theory states that a chemical reaction is a rearrangement of atoms.**
* **Parts of the theory had to be modified based on the discovery of subatomic particles and isotopes.**
* **4. The atom was imagined as a small indivisible ball similar to a very tiny ball.**
* **J. J. Thomson discovered the electron, a negatively-charged particle.**
* **The atom was described as a positively-charged sphere embedded with electrons.**
* **Ernest Rutherford discovered the proton, a positively-charged particle in an atom.**
* **The central region of an atom has a very small positively-charged nucleus which contains almost all the mass of the atom. This nucleus is tiny and the rest of the atom is mostly empty space. Sufficient electrons surround the nucleus.**
* **This atomic model was discovered through the bombardment experiment of alpha particles on gold foil.**
* **The electrons in an atom move in shells around the nucleus which contains protons.**
* **James Chadwick proved the existence of neutrons, the neutral particles in the nucleus.**
* **The nucleus of an atom contains protons and neutrons and the nucleus is surrounded by electrons.**
* **Neutrons contribute approximately to half the mass of an atom.**

