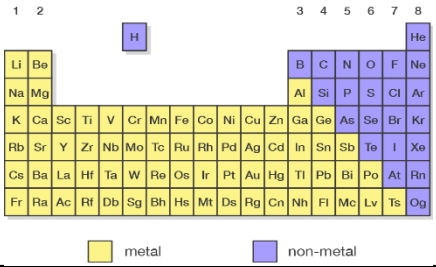
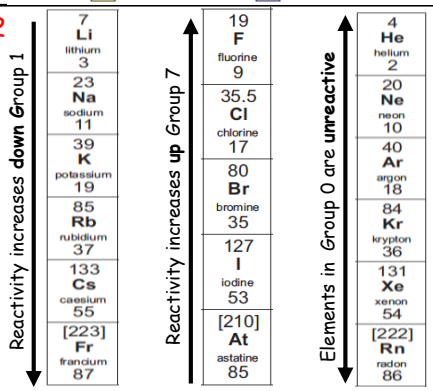
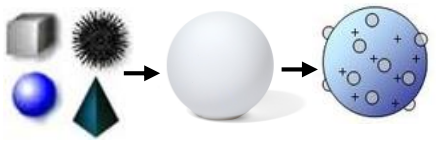
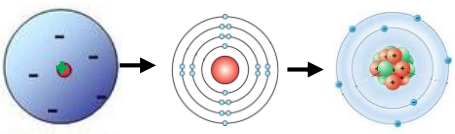
C — Atomic Structure & Periodic Table — Y9

Rationale

The periodic table gives us a structured organisation of all known chemical elements to help us make sense of their physical and chemical properties. The periodic table and the model of atomic structure has been developed over time as new evidence has been found. We can use our knowledge of the structure of the atom to help us explain patterns in the arrangement of the elements in the periodic table. This is a fundamental topic in Chemistry.

Diagrams	Keywords	Definitions
1 	Metals	Shiny element that is a good conductor of heat and electricity.
	Non-metals	An element that is a poor conductor of heat and electricity.
2 	Group 1 (Alkali metals)	The first column in the periodic table. Elements at the **bottom** are the most reactive.
	Group 7 (Halogens)	The seventh column in the periodic table. Elements at the **top** are the most reactive.
	Group 0 (Noble Gases)	The final column in the periodic table. Elements are all **unreactive**.
3 **Word Equation Example:** Hydrogen + Chlorine → Hydrogen Chloride *Reactants* *Products* **Symbol Equation Example:** $H_2 + Cl_2 \rightarrow 2\,HCl$ *Reactants* *Products*	Reactants	The particles that are **reacting** together (on the **left** of the equation).
	Products	The particles that are being **produced** (on the **right** of the equation).
4  	Democritus (~400 BC)	"Everything is made up of atoms."
	Dalton (1803)	"The atom is a solid sphere."
	Thompson (1897) Plum Pudding Model	"The atom is a ball of positive charge with negative electrons embedded within."
	Rutherford (1909)	"There is a tiny positively charged nucleus at the centre where most of the mass is concentrated. A 'cloud' of negative electrons surround the nucleus."
	Bohr (1913)	"Electrons orbit at set distances."
	Chadwick (1932)	"There are uncharged particles called neutrons within the nucleus."

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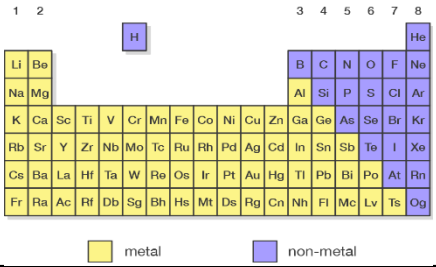
1 	Metals	Shiny element that is a good conductor of heat and electricity.
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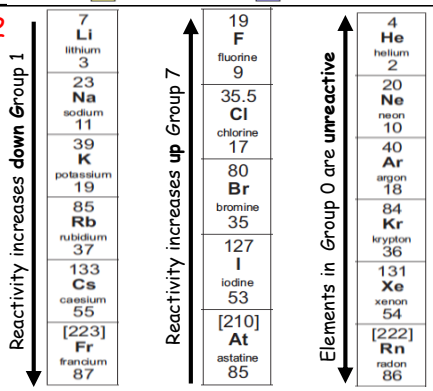
2 	Group 1 (Alkali metals)	The first column in the periodic table. Elements at the **bottom** are the most reactive.
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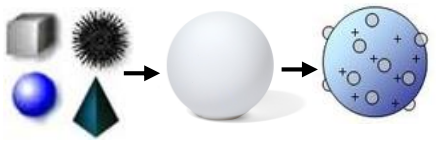
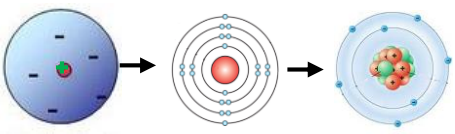
4  	Democritus (~400 BC)	"Everything is made up of atoms."
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