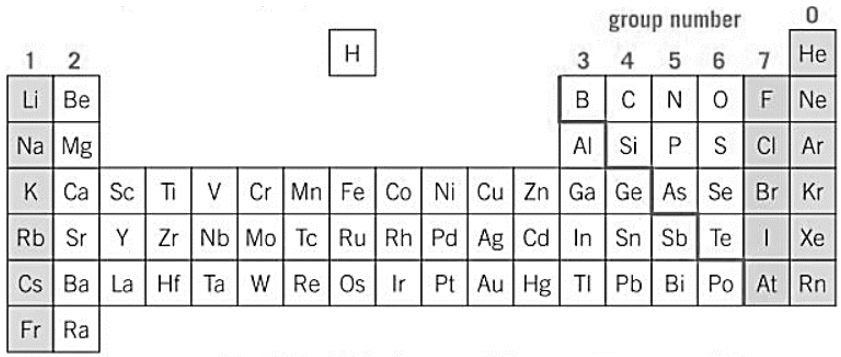
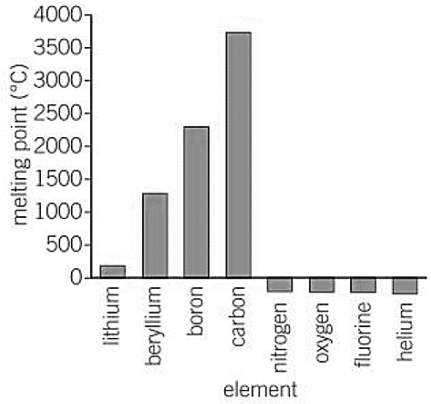
KNOWLEDGE ORGANISER
BIG IDEA: MATTER
TOPIC: PERIODIC TABLE

Key Word	Definition
periodic table	Shows all the elements arranged in rows and columns.
physical properties	Features of a substance that can be observed without changing the substance itself e.g. boiling point
chemical properties	Features of the way a substance reacts with other substances.
groups	Columns of the Periodic table.
periods	Rows of the Periodic table.
trend	A pattern in data.
alkali metals	The elements in group 1.
halogens	The elements in group 7.
noble gases	The elements in group 0.
unreactive	Substances that take part in very few chemical reactions.
displacement	A reaction where a more reactive element takes the place of a less reactive element in a compound.



- The **periodic table** contains all of the known elements.
- The elements in a **group** all react in a similar way and sometimes show a **trend** in reactivity.
- As you go down a **group** and across a **period** the elements show **trends** in **physical properties**.
- Metals are generally found on the left side of the table, non-metals on the right.
- Group 1 contains reactive metals called **alkali metals**.
- Group 7 contains non-metals called **halogens**.
- Group 0 contains **unreactive** gases called **noble gases**.



Trends can be seen when looking at data presented in tables and graphs.

To describe **trends** you often use the following words:

increase- get bigger
decrease- get smaller

Element	Melting point (°C)
iron	1535
ruthenium	2500
osmium	3000

Element	Melting point (°C)
cobalt	1492
rhodium	1970
iridium	2440

Element	Melting point (°C)
nickel	1453
palladium	
platinum	1769

For the groups headed by iron and cobalt, melting point increases from top to bottom. The nickel group is likely to show the same pattern. So I predict that the melting point of palladium is between 1453 °C and 1769 °C.

Li, Na, K, Rb, Cs

Group 1- Alkali Metals

- They are good conductors of electricity and heat.
- They are shiny when freshly cut.
- They have fairly low melting points compared to other metals.
- The melting point decreases from top to bottom of group 1.
- The metals react vigorously with water to produce hydrogen gas.
- The reactions get more vigorous going down the group.

F, Cl, Br, I, At

Group 7- Halogens

- They have low melting points, like most non-metals
- They do not conduct electricity.
- The melting point increases from top to bottom of group 7.
- The colour of the elements gets darker from top to bottom.
- The reactions of the halogens get less vigorous going down the group.
- More reactive halogens can displace less reactive halogens in displacement reactions.

He, Ne, Ar, Kr, Xe

Group 0- The noble gases

- They have low melting and boiling points, like most non-metals
- They are colourless gases at room temperature.
- The boiling points increase going down the group.
- They take part in very few reactions as they are **unreactive**.