

Chemistry lesson:
The Periodic table

Talking:

The Group-I metals:

- are called 'alkali metals'
- because they form 'alkali' when react with water.
- hydrogen gas is also formed.

Trends in their physical properties:

Lithium

Sodium

Potassium

Rubidium

Caesium

softness
increases



density
increases



melting/
boiling
points
decreases



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Chemistry lesson:

Group-1 metals ---> The alkali metals

- the most reactive metals

- What do they form when they react with water?

Example:

Word equation:

Lithium + water ----> lithium hydroxide + hydrogen

Chemical/ symbol equation:



HW !!!

- Write the equation of the following Group I elements with water.
- Sodium
- Potassium

Chemical properties of Group-I elements:

As we go down the group, reactivity increases.

When they react with water, they form alkali and hydrogen.

What you see, when a small piece of metal is put into water:

Li ---> fizzes slowly ----> a few bubbles

Na ---> fizzes quickly ----> many bubbles

K ---> fizzes violently ---> even more bubbles

Rb ---> sparks everywhere

Cs ---> a violent explosion

STUDY
TIP!!!

When you describe observations, concentrate on what you see, hear, smell or feel by touch.

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Physical Properties:

Li
Na
K

↓

reactivity increases down the group

electronic configuration

2, 1
2, 8, 1
2, 8, 8, 1

Density increases down the group

0.53
0.97
↓

Melting and boiling points decrease down the group

M.P °C

181

98

63

B.P

1342

883

760

hardness

fairly soft

soft

very soft

	reaction with O ₂	reaction with water	reaction with Cl ₂
Li	<ul style="list-style-type: none"> - burns with a strongly red-tinged flame - produces a white solid 	<ul style="list-style-type: none"> - fizzes steadily - gradually disappears 	<ul style="list-style-type: none"> - white powder is produced - stick/ settle to the sides of the container
Na	<ul style="list-style-type: none"> - strong orange flame - produces white solid 	<ul style="list-style-type: none"> - Fizzes rapidly - melts into a ball - disappears quickly 	<ul style="list-style-type: none"> - burns with a bright yellow flame - clouds of white powder are produced - settle on the sides of the container
K	<ul style="list-style-type: none"> - large pieces produce lilac flame - smaller ones make solid immediately 	<ul style="list-style-type: none"> - Ignites with sparks - a lilac flame - disappears very quickly 	<ul style="list-style-type: none"> - reaction is even more vigorous than with sodium

Chemistry lesson:

Chemical reactions/ properties of Group-I metals (The alkali metals)

Group I metals react with water to form an alkali and hydrogen gas.

Word equation:

lithium + water \rightarrow lithium hydroxide + hydrogen

Chemical/ formula equation:



sodium + water \rightarrow sodium hydroxide + hydrogen



potassium + water \rightarrow potassium hydroxide + hydrogen

