

Chemistry, a Family Affair: Periodic Table and Element Families



<https://scrupe.files.wordpress.com/2010/03/periodic-table.jpg>

1. Observe the elements in the column furthest to the right of periodic table.

a) What do we use those elements for?

-Lighting (Neon, Krypton, Argon)
-Filling Balloons and airships (Helium)
-Lasers (Neon, Helium, Krypton, Xenon)
-Tanning Beds (Xenon)

b) Why do we use these elements for those purposes, which of their properties make them useful for those purposes?

These elements are the “Noble Gases”, they almost never react with other elements (or each other). We use them for lighting and lasers because even at very high temperatures and energy levels the noble gases won’t cause a chemical reaction.
In similar situations, gases like Hydrogen, Nitrogen and Oxygen could cause fires or explosions.

2. Find the halogens Fluorine and Chlorine. What do we use these elements for?

<u>Fluorine</u> Water additive Toothpaste additive Uranium enrichment	<u>Chlorine</u> Hydrochloric Acid production PVC plastic Bleaching agent Disinfecting water
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3. a) The two columns to the far left of the periodic table share many properties. What are the names of these two groups?

Group I: Alkali Metals

Group II: Alkaline Earth Metals

- b) What are the properties that both group I and II possess?

As metals they are:	Because they are on the left side of the table:
-Lustrous (Shiny)	-Large atomic radius
-Conductive (Heat and electricity)	-1 or 2 valence electrons (few)
-Ductile and Malleable	-Low Electro negativity (gives electrons away)

- c) One of the members of these groups is an **exception** to the rules and patterns of the groups and families. Which element is the exception, is it a metal or a non-metal, what is it used for?

Element	Hydrogen (H)
Metal or Non-Metal	Non-Metal
Use in Technology	Rocket Fuel Ammonia production Vehicle Fuel Hydrogenation of Oils into Fats