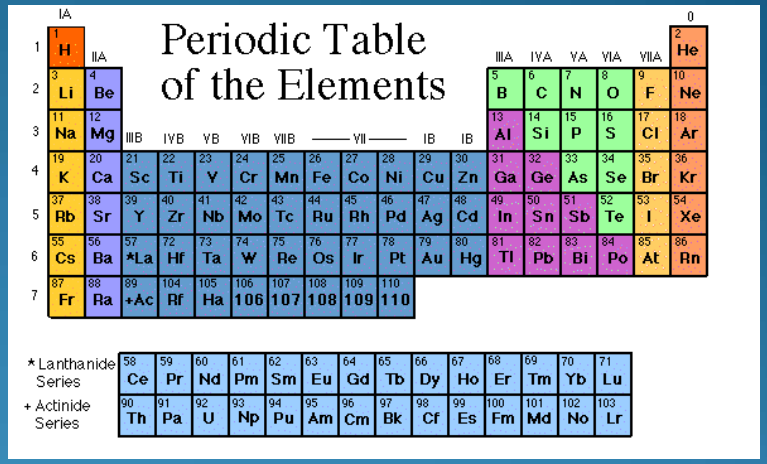
The Families of the Periodic Table

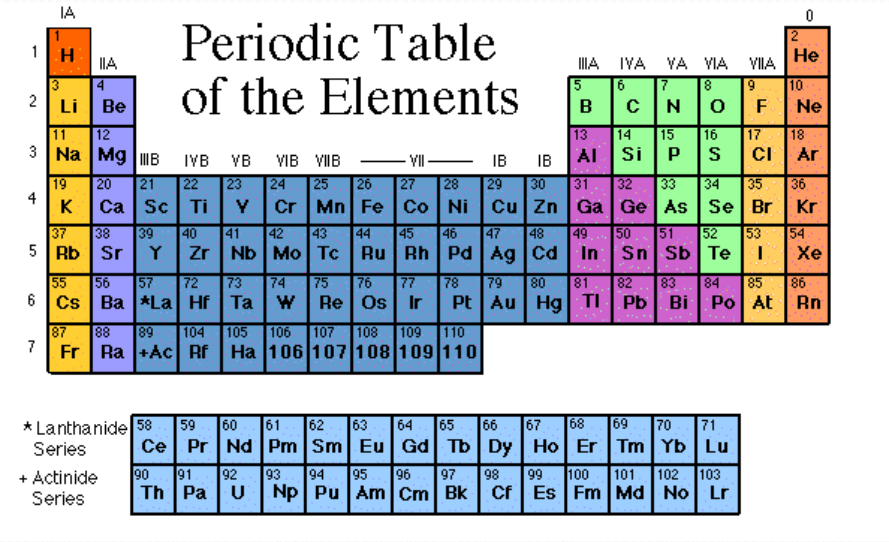


Adapted from:

Some images are from www.chem4kids.com

Families on the Periodic Table

- Elements on the periodic table can be grouped into families bases on their **chemical** properties.
- Each family has a **specific name** to differentiate it from the other families in the periodic table.
- Elements in each family **react** differently with other elements.



ALKALI METALS

Group 1

- Hydrogen is ***not*** a member, it is a **non-metal**
- 1 electron in the outer shell
- Soft and silvery metals
- ***Very*** reactive, esp. with water
- Conduct electricity

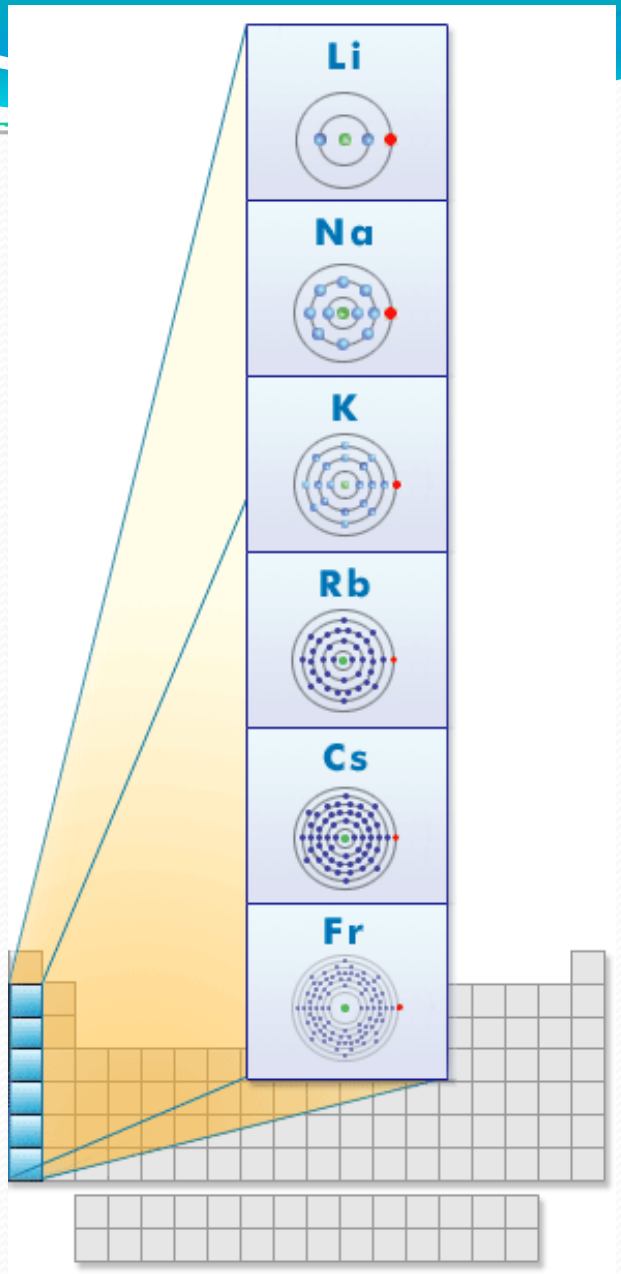
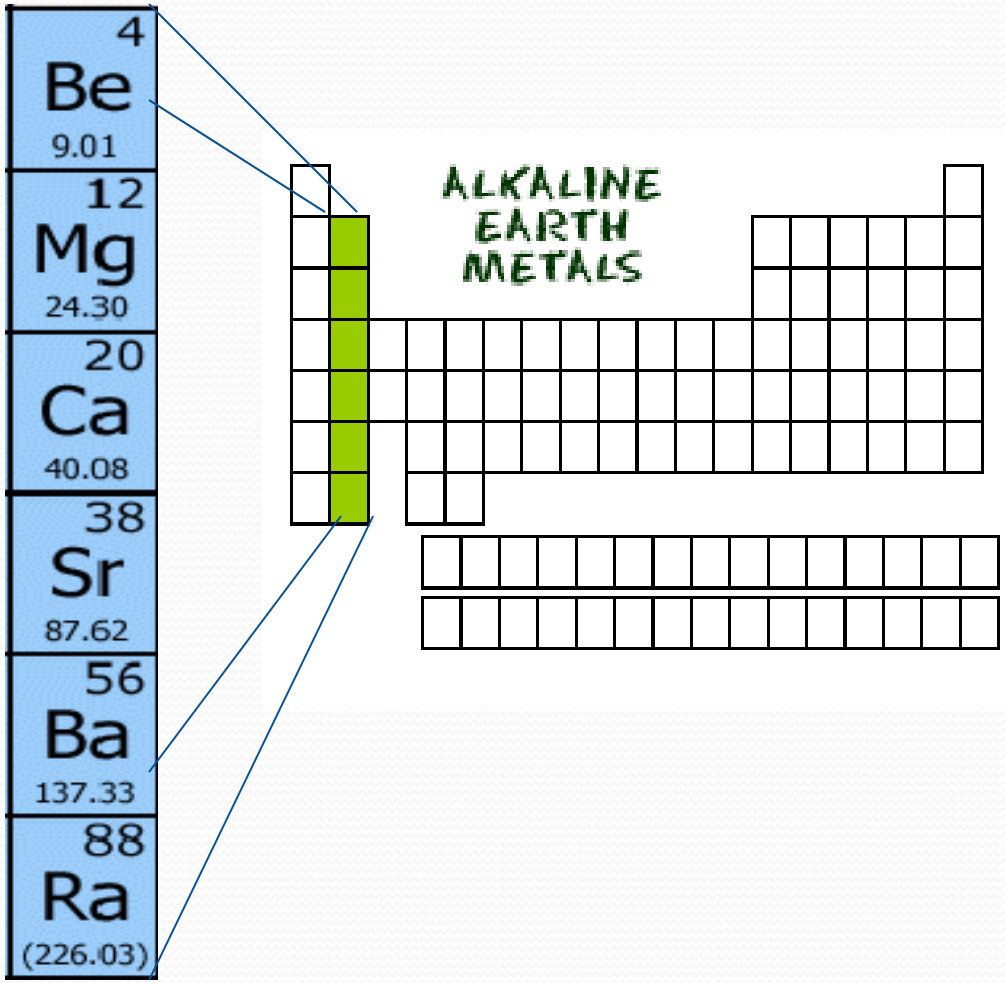


Image: http://www.learner.org/interactives/periodic/groups2.html

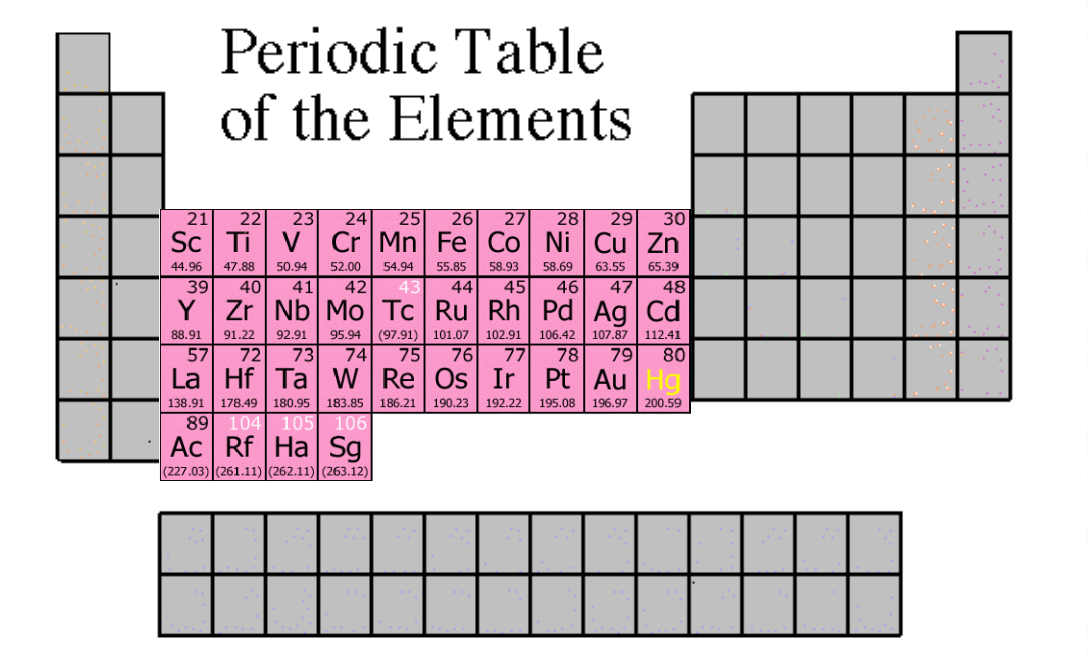
ALKALINE EARTH METALS



Group 2

- 2 electrons in the outer shell
- White and malleable
- Reactive, but less than Alkali metals
- Conduct electricity

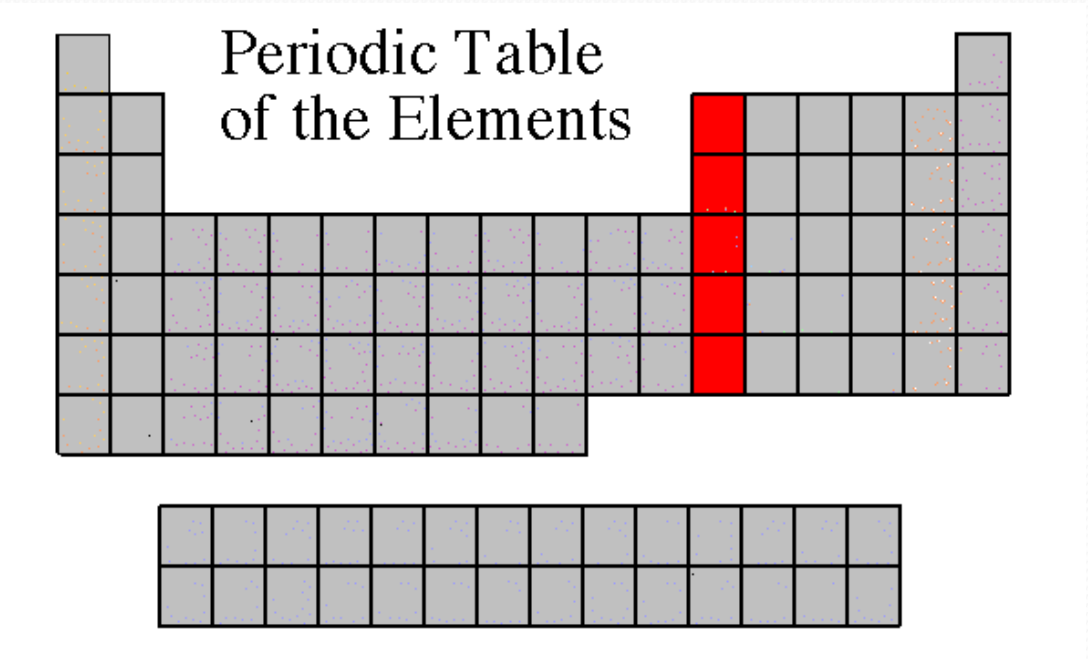
TRANSITION METALS



Groups in the middle

- Good conductors of heat and electricity.
- Some are used for jewelry.
- The transition metals are able to put up to 32 electrons in their second to last shell.
- Can bond with many elements in a variety of shapes.

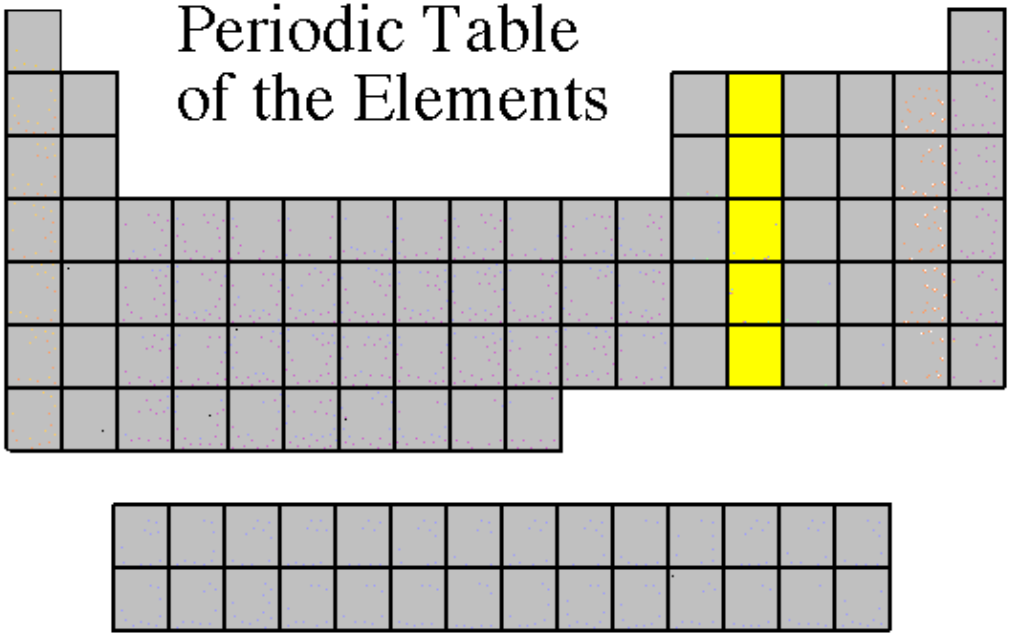
BORON FAMILY



Group 3

- 3 electrons in the outer shell
- Most are metals
- Boron is a **metalloid**

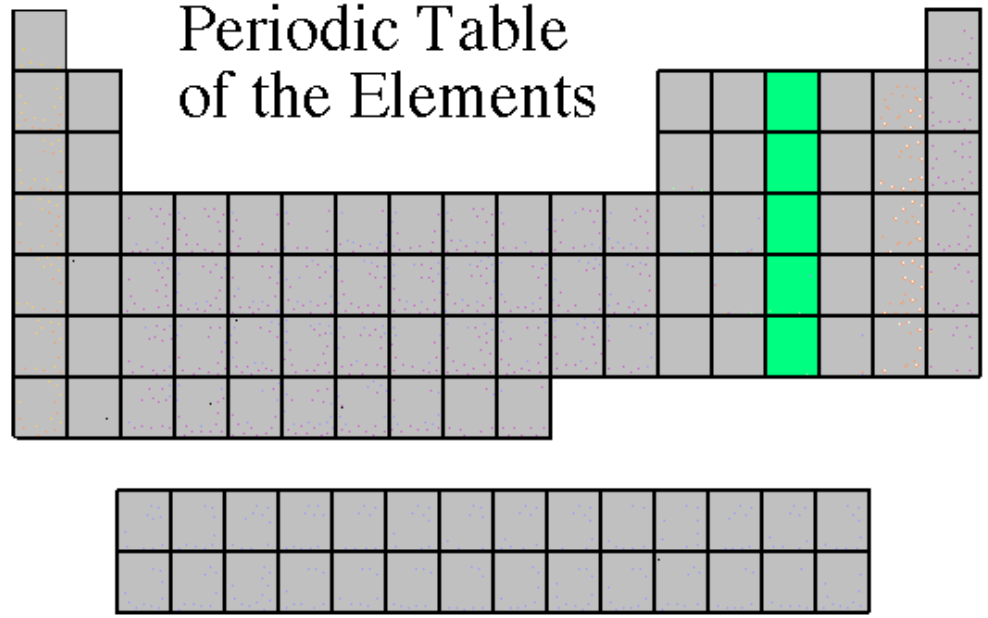
CARBON FAMILY



Group 4

- 4 electrons in the outer shell
- Contains metals, metalloids, and a **non-metal** Carbon (C)

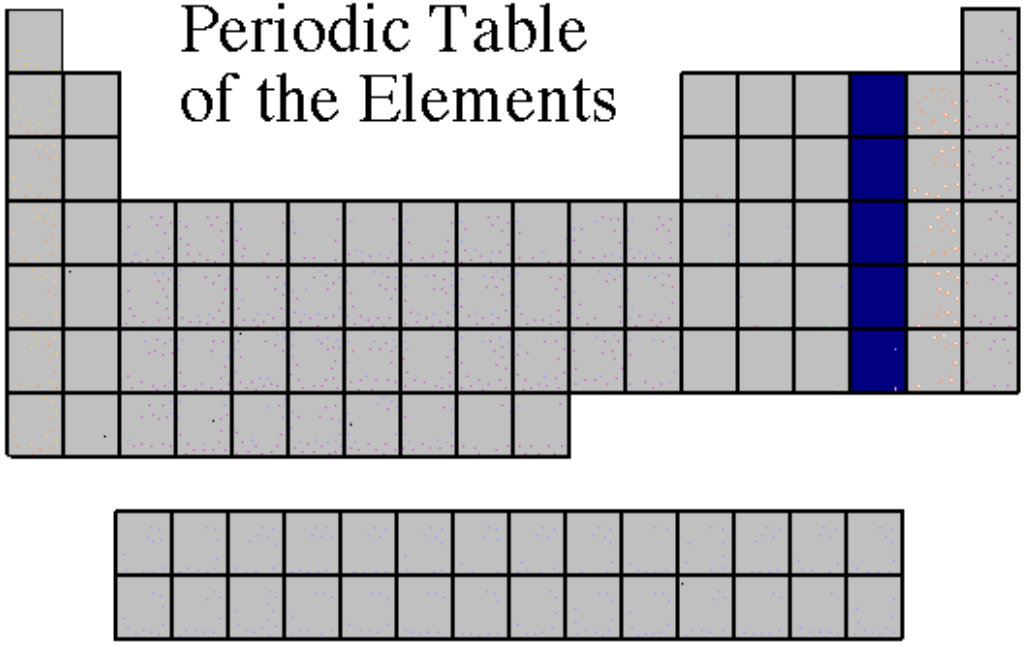
NITROGEN FAMILY



Group 5

- 5 electrons in the outer shell
- Can share electrons to form compounds
- Contains metals, metalloids, and **non-metals**

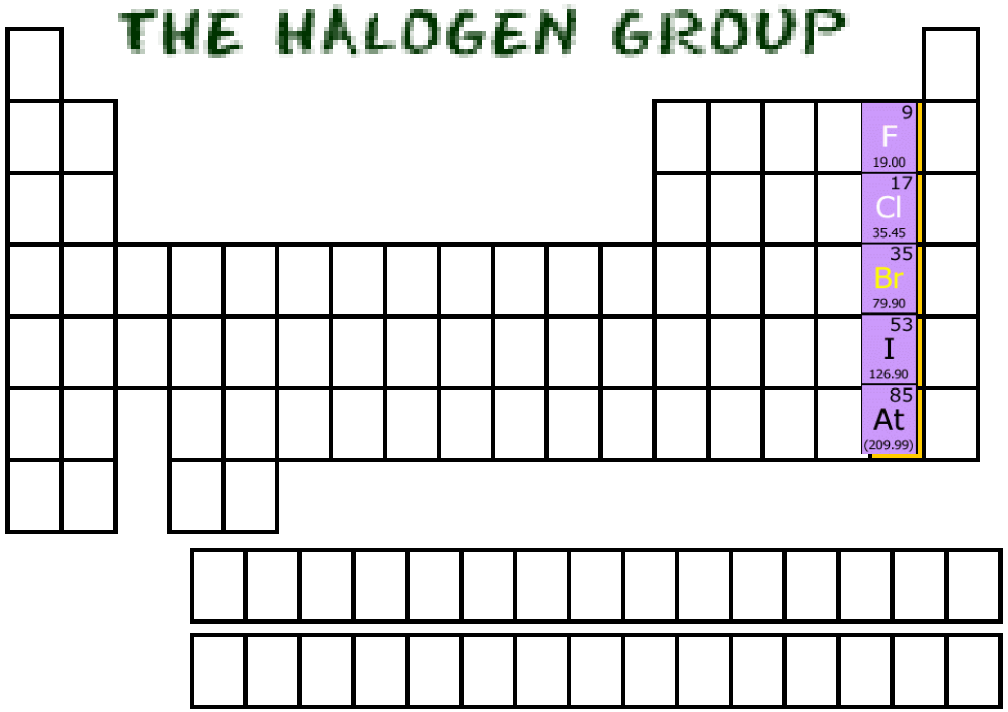
OXYGEN FAMILY



Group 6

- 6 electrons in the outer shell
- Contains metals, metalloids, and **non-metals**
- Reactive

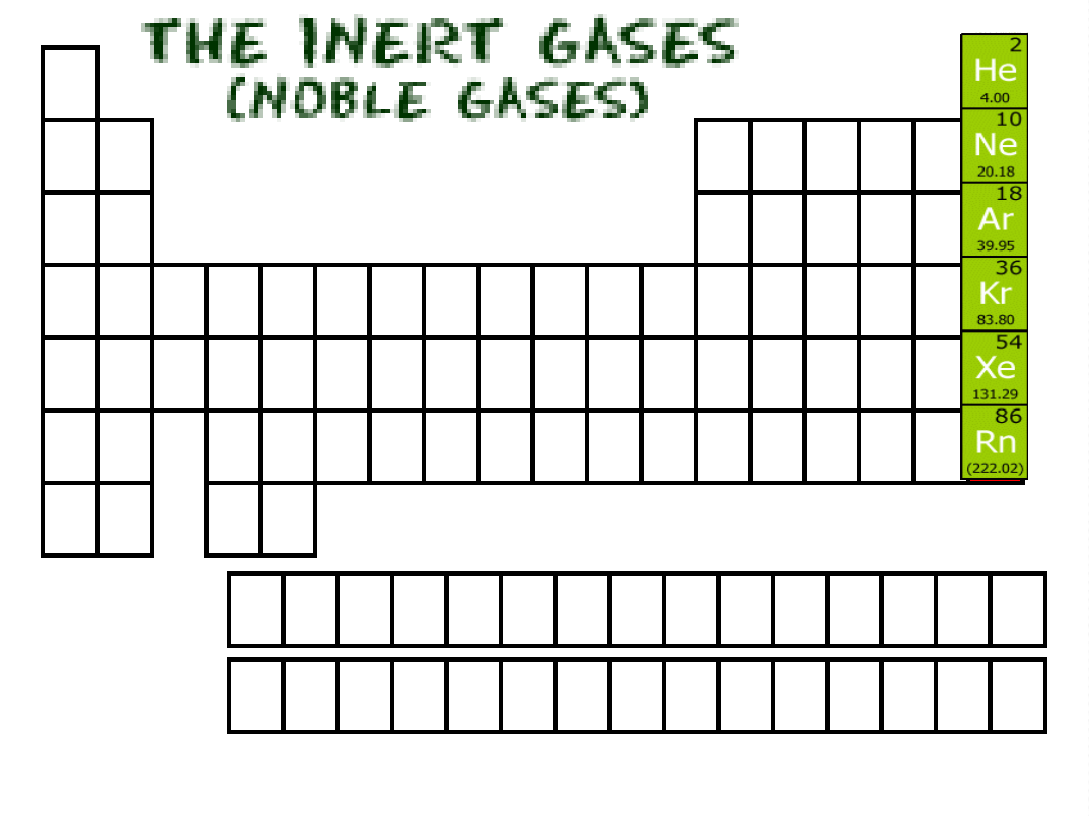
Halogens



Group 7

- 7 electrons in the outer shell
- All are **non-metals**
- **Very reactive** are often bonded with elements from Group 1

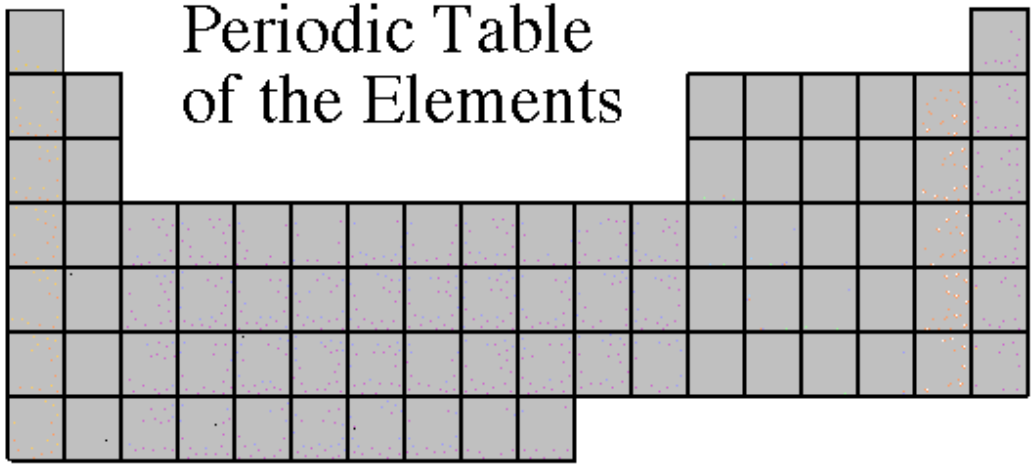
Noble Gases



Group 8

- Exist as gases
- Non-metals
- 8 electrons in the outer shell = Full
- Helium (He) has only 2 electrons in the outer shell = Full
- Not reactive with other elements

Rare Earth Metals



58	59	60	61	62	63	64	65	66	67	68	69	70	71
Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu
140.12	140.91	144.24	(144.91)	150.36	151.97	157.25	158.93	162.50	164.93	167.26	168.93	173.04	174.97
90	91	92	93	94	95	96	97	98	99	100	101	102	103
Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr
232.04	231.04	238.03	(237.05)	(244.06)	(243.06)	(247.07)	(247.07)	(251.08)	(252.08)	(257.10)	(258.10)	(259.10)	(262.11)

- Some are Radioactive
- The rare earths are silver, silvery-white, or gray metals.
- Conduct electricity