

# 0008 - Group 0 - The Noble Gases

## Lesson Objectives

- Why the noble gases are so unreactive.
- The electron structure of the noble gases and the trend in their boiling points.

## Course Notes

Noble gases are found in Group 0 on the periodic table.

They are very unreactive and this can also be called inert.

Noble gases are considered inert because they do not form molecules easily and stay as single atoms (mono-atomic).

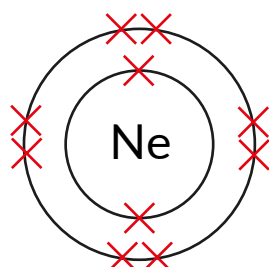
## Uses of Noble Gases

Element	Use
Helium	Balloons, blimps
Neon	Neon signs
Argon	Filament light bulbs, welding
Krypton	Fluorescent light bulbs, lasers
Xenon	Fluorescent light bulbs, lasers
Radon	Radioactive, used in medicine

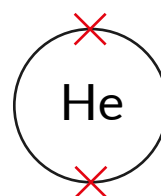
Helium is lighter than air so when something is filled with helium it will rise.

Noble gases have stable arrangements of electrons. They all have eight electrons in their outer energy level (shell), except for Helium which has two because it only has a single energy level.

Below you can find electron shell diagrams for both Neon and Helium:



Neon





Helium

## Trends in Noble Gases

The boiling points increase with relative atomic mass. Both increase as you go down the group on the periodic table.



Increase of boiling point 	4 <b>He</b> helium 2	Increase of relative atomic mass 
	20 <b>Ne</b> neon 10	
	40 <b>Ar</b> argon 18	
	84 <b>Kr</b> krypton 36	
	131 <b>Xe</b> xenon 54	
	[222] <b>Rn</b> radon 86	

