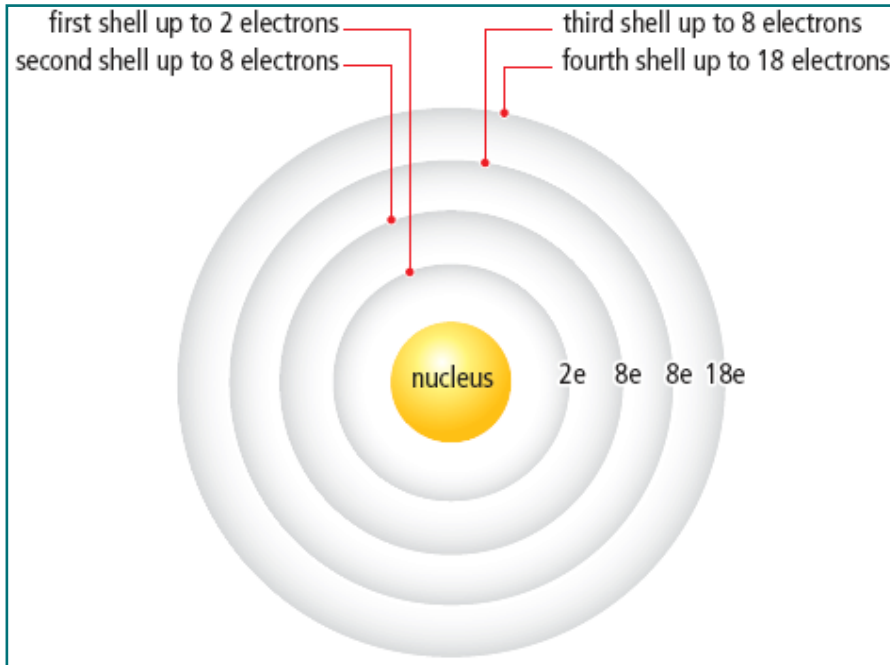


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Science 8

Notes on: Periodic Table and Atomic Theory

Elements with similar properties have similar **electron arrangements**
Bohr models display the following electron arrangement in shells:



Bohr model patterns

Chemical families on the periodic table have the same number of **valence electrons**

Elements in the **same period** have the same number of **shells**

Period number indicates the **number** of electron shells

	1								18
1	1 H								2 He
2	3 Li	4 Be	5 B	6 C	7 N	8 O	9 F	10 Ne	
3	11 Na	12 Mg	13 Al	14 Si	15 P	16 S	17 Cl	18 Ar	

Atom Stability

Noble gases are very **unreactive** because their atoms have filled **valence shells**. A filled valence shell makes atoms **stable**. Atoms with filled shells do not easily trade or share electrons. Other atoms **gain or lose electrons** in order to achieve the stability displayed by the **noble gases**. Gaining or losing electrons turns atoms into **ions**.

Metals **lose** electrons to form **positive ions**

Non-metals **gain** electrons to form **negative ions**

Ions have a similar electron arrangement to the nearest **noble gas**

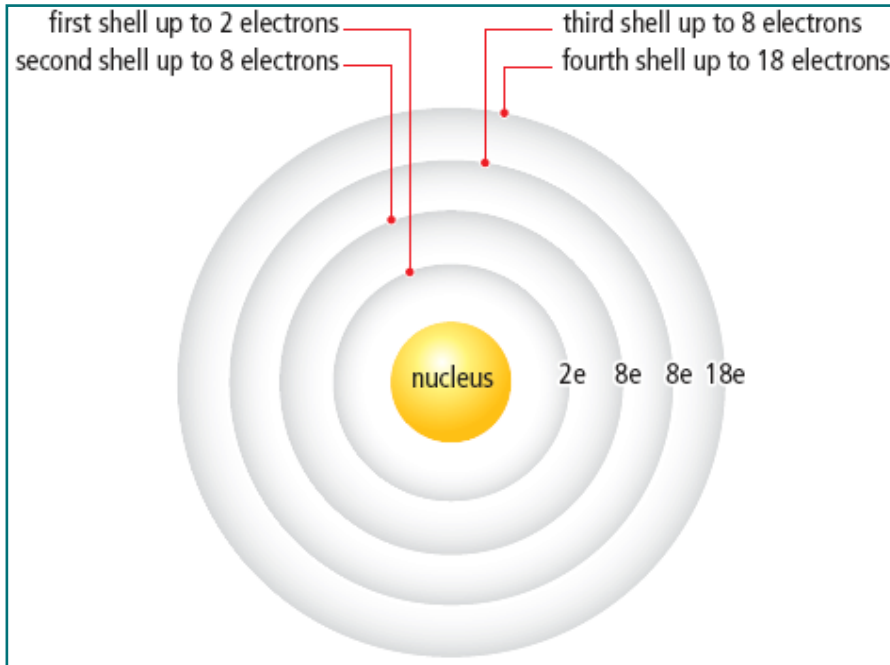
Example: Sodium ion (**Na⁺**) has 11 protons (**11⁺**) and 10 electrons (**10⁻**) for a total charge of **1⁺**

	Lithium	Magnesium	Chlorine
Atom	Li 3 p 2, 1	Mg 12 p 2, 8, 2	Cl 17 p 2, 8, 7
Ion	Li ⁺ 3 p 2	Mg ²⁺ 12 p 2, 8	Cl ⁻ 17 p 2, 8, 8

Name: _____
Blk: ___ Date: _____

Science 8 Notes on: Periodic Table and Atomic Theory

Elements with similar properties have similar _____
Bohr models display the following electron arrangement in shells:



Bohr model patterns

Chemical families on the periodic table have the same number of _____
Elements in the _____ have the same number of _____
Period number indicates the _____ of electron shells

	1								18
1	1 H								2 He
2	3 Li	4 Be	5 B	6 C	7 N	8 O	9 F	10 Ne	
3	11 Na	12 Mg	13 Al	14 Si	15 P	16 S	17 Cl	18 Ar	

Atom Stability

Noble gases are very _____ because their atoms have filled _____.

A filled valence shell makes atoms _____.

Atoms with filled shells do not easily trade or share electrons.

Other atoms _____ in order to achieve the stability displayed by the _____. Gaining or losing electrons turns atoms into _____.

Metals _____ electrons to form _____

Non-metals _____ electrons to form _____

Ions have a similar electron arrangement to the nearest _____

Example: Sodium ion (_____) has _____ protons (_____) and _____ electrons (_____) for a total charge of _____

	Lithium	Magnesium	Chlorine
Atom	Li 3 p 2, 1	Mg 12 p 2, 8, 2	Cl 17 p 2, 8, 7
Ion	Li ⁺ 3 p 2	Mg ²⁺ 12 p 2, 8	Cl ⁻ 17 p 2, 8, 8