

Atomic Theory 6: Bohr Model

Name:

Date:

Block:

Where do we find the electrons in an atom?

- Before the development of the Bohr model by Neils Bohr, there was no explanation for why the negatively charged electrons didn't _____ the positively charged protons
- We now know that we find the electrons in the _____ surrounding the _____ of the atom, also known as electron _____

How many electrons fit in each energy level?

- The first electron shell holds a maximum of ____ electrons.
- Each of the next shells holds a maximum of ____ electrons.
- Shells cannot be created until the lower shell is _____
- _____ are the outermost electrons: the electrons in the shell farthest from the nucleus. Elements in the same _____ or _____ have the same number of valence electrons.

How do we draw a Bohr model?

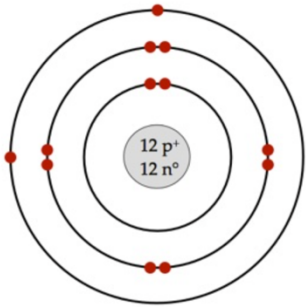
- Protons (____ or p^+) and neutrons (____ or n^0) are written in the _____, representing the _____.
- Electrons (____ or e^-) are drawn in the shells surrounding the nucleus: ____ in the first shell, then ____ in the following shell(s)
- Electrons are added starting at the _____ and moving clockwise
- Electrons are added _____ before they are _____ up

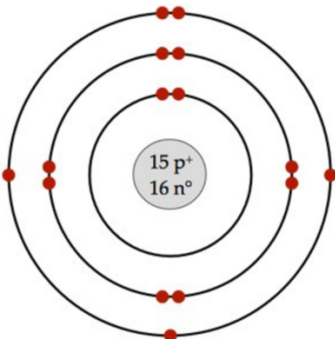


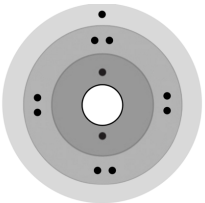
Examples:

Element	Helium	Lithium	Beryllium	Boron
Mass				
Atomic #				
n^0				
p^+				
e^-				
Bohr model				

Practice: Fill in the blanks for the following atoms:

	Element name	
	Atomic #	
	Atomic mass	
	e ⁻	
	n ⁰	12
	p ⁺	12
	# valence e ⁻	

	Element name	
	Atomic #	
	Atomic mass	
	e ⁻	
	n ⁰	
	p ⁺	
	# valence e ⁻	

	e ⁻	
	n ⁰	
	p ⁺	
	Element name	

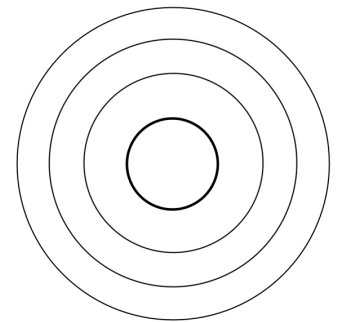
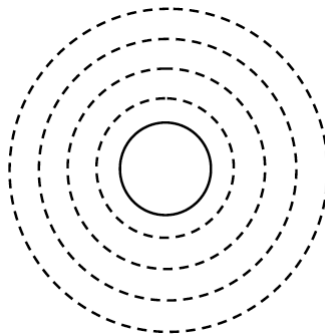
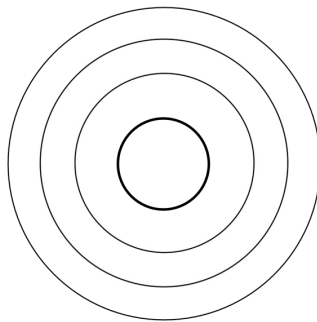
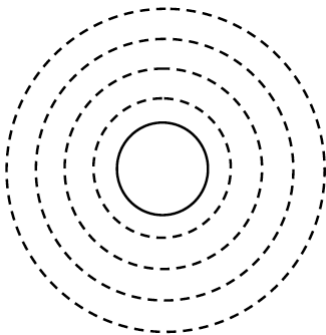
Practice: complete the Bohr models for the following elements

1. Carbon

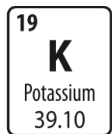
2. Hydrogen

3. Oxygen

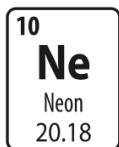
4. Chlorine



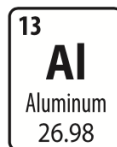
5. Potassium



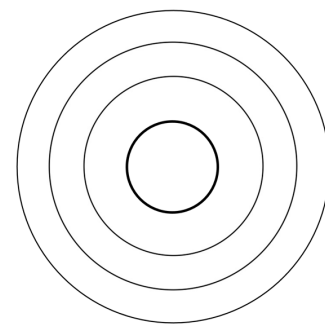
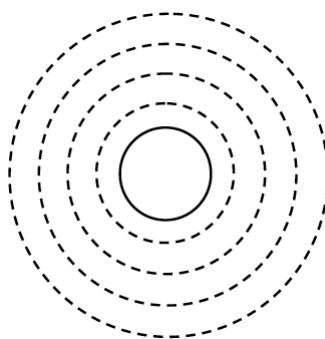
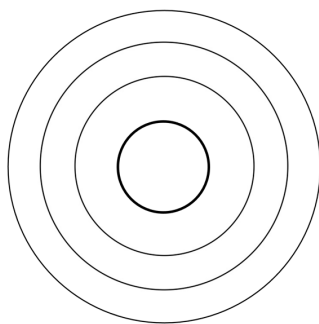
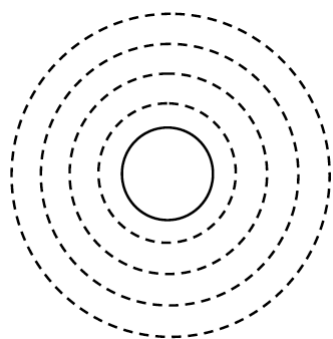
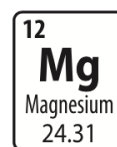
6. Neon



7. Aluminum



8. Magnesium

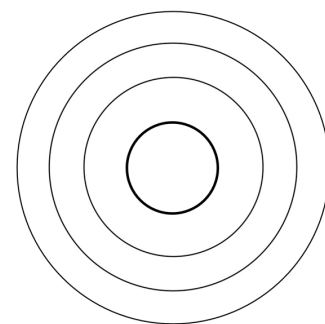
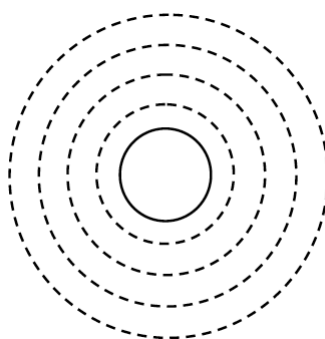
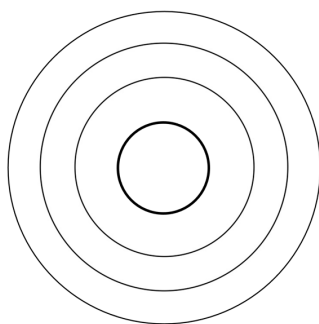
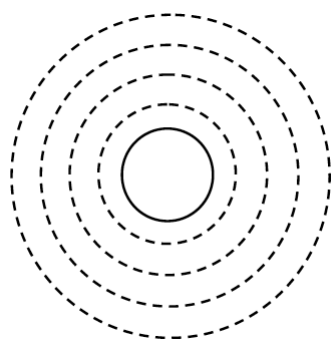


9. Helium

10. Boron

11. Silicon

12. Beryllium

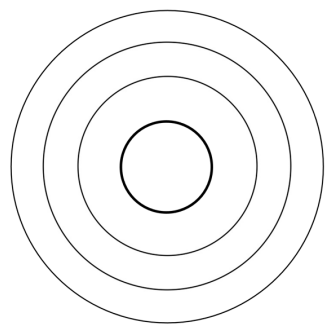
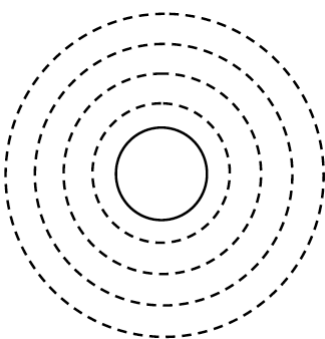
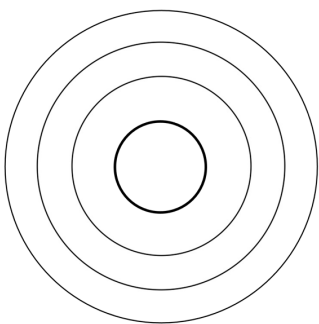
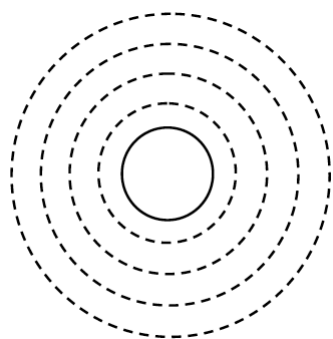


13. Sulfur

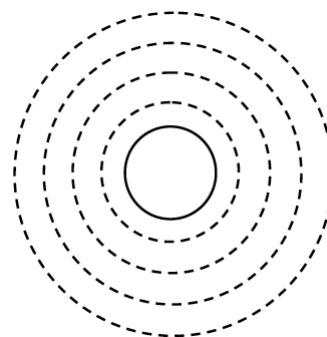
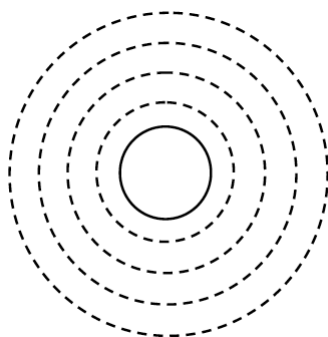
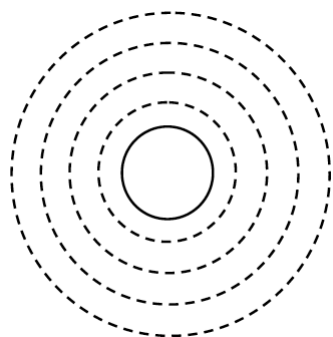
14. Nitrogen

15. Fluorine

16. Argon

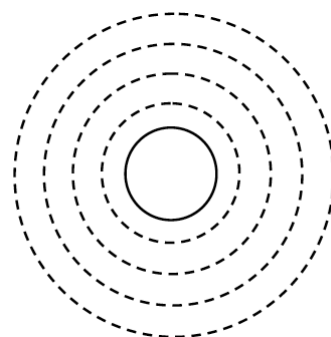
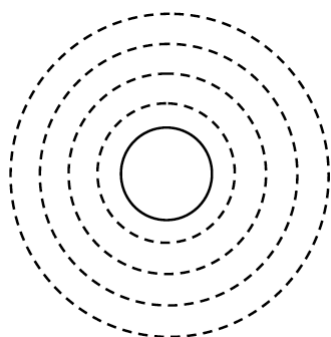


Draw the Bohr diagrams for Li, Na, K (group _____, called the _____)



What do you notice about the **number of electrons** on the OUTERMOST shell?

Draw the Bohr diagrams for F and Cl (group _____, called the _____)



What do you notice about the **number of electrons** on the OUTERMOST shell?

How many electrons do you think are on the outermost shell for the following sets of elements?

a) Be, Mg, Ca

b) He, Ne, Ar

c) B, Al

What is the term for the electrons on the outermost shell?