

Name: _____

Valence electrons

1. What is a valence electron and why are they important to a chemist?
2. What is the periodic trend for valence electrons when looking at the representative elements?
3. How many valence electrons are there an atom of oxygen? _____
4. Valence electrons can be shown using Lewis structre. What is another name for a Lewis structure?
5. Draw out the Lewis structure for...
 - a. calcium
 - b. oxygen

Structure of an ion

6. Elements that are classified as _____ tend to form cations and those elements that are classified as _____ tend to form anions.
7. A cation _____ electrons causing the ion to have a _____ charge and an anion _____ electrons causing it to have _____ charge.
8. Fill in the information missing from the table below.

Atom	Atomic #	# of protons	# of neutrons	Mass #	# of Valence e ⁻	Electrons are lost or gained	# of e ⁻ lost or gained	Cation or Anion
Potassium				40				
	16		16					
	17							
	33							
Aluminum				22				
	88							

Charges of Ions Worksheet

Name _____

1. What is an *ion*?
2. How does an atom become an *ion*?
3. What is the charge on a *cation*? (circle one) positive or negative
 - a. What type of elements become *cations*? (circle one) metals or nonmetals
4. What is the charge on an *anion*? (circle one) positive or negative
 - a. What type of elements become *anions*? (circle one) metals or nonmetals
5. What does a roman numeral tell you when it is written after an element?
6. Write the symbols and charges for the atoms given below and then identify it as anion/cation and metal/nonmetal...

element	symbol and charge	metal or nonmetal	anion or cation
calcium	Ca ⁺²	metal	cation
bromine	Br ⁻¹	nonmetal	anion
nitrogen			
iron (III)			
tin (II)			
fluorine			
cesium			
iodine			
phosphorus			
copper (I)			
lithium			
aluminum			
sulfur			
manganese(IV)			
chlorine			
oxygen			