

Study Guide

Name Key hour _____

Obj: I can name, list the charge/location/mass of each subatomic particle.

1. Name the 3 subatomic particles: proton, neutron, electron
 2. Charge of each: +1, 0, -1
 3. Location of each: nucleus, nucleus, e-cloud
 4. Unit for mass number amu which stands for atomic mass unit
 5. Atomic number = no. of pt
 6. Mass number = Dt + no
 7. Average atomic mass is average mass of element as found in nature
 - a. And is found on the periodic table

Obj: I can define an ion and determine its charge by the subatomic particles.

Obj: I can define an isotope and determine its atomic mass by the subatomic particles.

Obj: I can calculate subatomic particles from a Chemical symbol or write a Chemical symbol from subatomic particles.

1. Isotopes are atoms with same # of protons and different # of neutrons

2. Ions are atoms that have gained or lost electrons

3. Write the nuclear symbol for an atom with 47 protons, 47 electrons, and 62 neutrons $\begin{array}{c} 109 \\ \text{ } \\ 47 \end{array}$

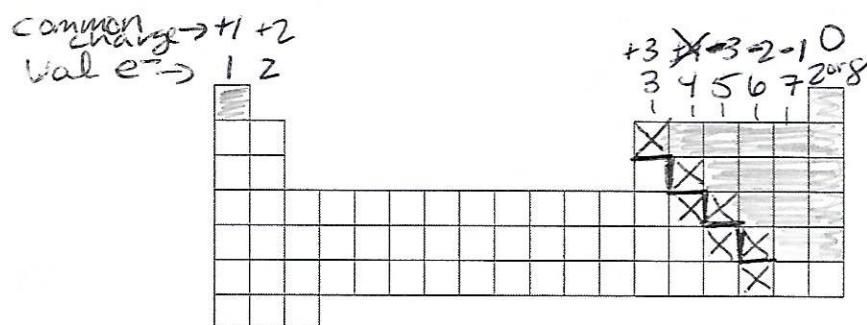
4. Write the nuclear symbol for an atom with 56 protons, 56 electrons and 81 neutrons $\begin{array}{c} 137 \\ \text{ } \\ 56 \text{ Ba} \end{array}$

5. Write the nuclear symbol for an atom that is an isotope of #3. $\begin{array}{c} 138 \\ \text{ } \\ 56 \text{ Ba} \end{array}$ this # must be different

Nuclear Symbol	Average atomic mass	Atomic number	Atomic Mass	# of protons	# of electrons	# of neutrons	charge
$^{136}_{53}\text{I}$	126.9	53	136	53	53	83	0
$^{135}_{53}\text{I}$	126.9	53	135	53	53	82	0
$^{135}_{53}\text{I}^{-1}$	126.9	53	135	53	54	82	-1

Obj: I am able to determine the number of valence electrons an atom contains using the periodic table or electron configuration.

1. On the periodic table, label metals, nonmetals, metalloids, and noble gases.
 2. Label the number of valence electrons (by group).
 3. Label the most common charge (by group).

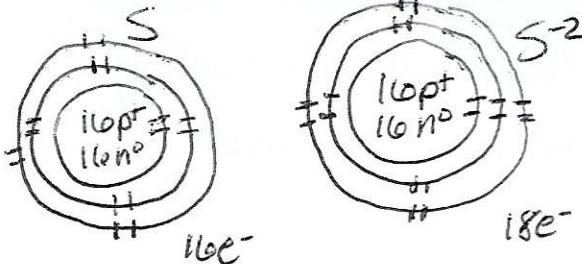


- metalloids
- nonmetals
- metals

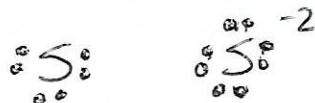
6. Number of valence electrons for Br: 7 Al: 3 Ca: 2 Fr: 1 P: 5 Ar: 8
 7. Most common charge for Br: -1 Al: +3 Ca: +2 Fr: +1 P: -3 Ar: 0
 8. What is the octet rule? atoms gain or lose e- to achieve 8e- in valence shell for stability
 9. What is an ion? charged particle
 10. What is a cation? positively charged particle
 11. What is an anion? negatively charged particle
 12. What is an electron configuration? arrangement of e- around an atom
 13. How many valence electrons does an atom with an electron configuration of $1s^2 2s^2 2p^4$ have? 6
 What is the atom? Oxygen
 14. How many valence electrons does an atom with an electron configuration of $1s^2 2s^2 2p^6 3s^2 3p^2$ have? 4 What is the atom? Silicon

Obj: I can draw a Bohr & e-dot model of an element.

1. a. Draw a Bohr orbital model of both the sulfur atom and the sulfur ion:

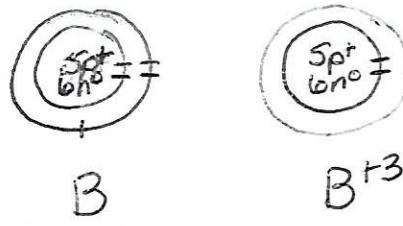


- b. Draw Lewis e- Dot diagram of both the sulfur atom and the sulfur ion:



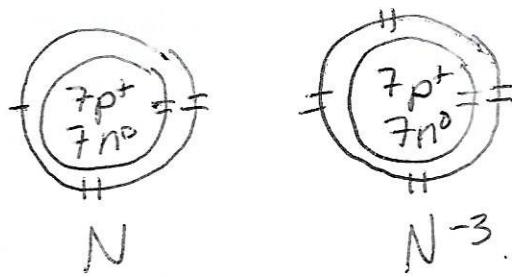
Draw Bohr diagrams of the boron atom and ion. Write the number of each indicated:

2. Total electrons on boron atom 5
 3. Valence electrons on boron atom 3
 4. Common charge on a boron ion +3
 5. Total electrons on a boron ion 2
 6. Valence electrons on a boron ion 2 on 1st energy level



Draw Bohr diagrams of the Nitrogen atom and ion. Write the number of each indicated:

7. Total electrons on nitrogen atom 7
 8. Valence electron on a nitrogen atom 5
 9. Common charge on a nitrogen ion -3
 10. Total electrons on a nitrogen ion 10
 11. Valence electron on nitrogen ion 8



12. How many electrons does a cesium (#55) atom have? 55 cesium ion? 54 Common charge on cesium ion? +1
 13. How many electrons does a aluminum atom have? 13 aluminum ion? 10 Common charge on aluminum ion? +3