Geology I Student Notes Name _____
Chapter I and 8 **Period _____**

Vocabulary:

Please number and identify each term below on a separate sheet of paper, the first column will be your first vocabulary assignment (For those that are *, please illustrate).

Biosphere*	Astronomy*	Ecology	Geology
Hypothesis	Experimentation	Observation	Scientific Law
Scientific Methods	Theory	Variable	Alloy
Atom*	Atomic Number*	Chemical Bond	Chemical Formula
Chemical Property	Compound	Covalent Bond*	Diatomic
Electron*	Electron Cloud	Energy Level	Gas*
Ion*	Ionic bond*	Isotope	Liquid*
Mass Number*	Matter	Mixture	Molecule
Neutron*	Nucleus	Periodic Table*	Physical Property
Proton *	Smog*	Solid*	Solution

Chapter 1 Intro to Earth Science

1.1. What is Earth Science?

1. How did ancient people explain natural phenomena such as Earthquakes?
   -Myths and legends- earthquakes due to _____
2. What assumption is needed to discover new theories in the earth Sciences?
   -A scientist needs to use careful _____
3. What does geology deal with?
   -Origin, history and structure of the solid Earth and _____
4. List six different fields in oceanography?
   1.Waves
   2._____
   3. Ocean Currents
   4._____
   5.Mineral Deposits
   6. _____
5. List at least 6 tools that a meteorologist would use?
   1. _____
   2. Air gauge
   3. _____
   4. Satellites
   5. Radar
   6. Computer data
6. What is the oldest field of Earth Science? _____
7. What type of training would an ecologist need?
   - A strong background in _____
8. Why might the study of Earth Science contribute to the survival of the biosphere?
   -Many fields of Earth Science (climate, volcanoes, earthquakes, hydrology) deal directly with the survival _____

1.2. Scientific Method

1. Summarize the general flow of steps of the Scientific Method:
   1. _____
   2. _____
   3. _____
   4. _____
   5. _____
2. How is a variable used in a controlled experiment?
   -A variable is a factor in an experiment that can be _____, only one variable can be tested at a time, this is why scientists will also run a _____ where a variable is not being changed

1.3. Birth of a Theory: The Big Bang

1. How is a theory different from a hypothesis?
   -A hypothesis has been tested over and over becomes a _____
   -A consensus of scientists agree with the hypothesis and the theory provides a general explanation that are consistent with _____
2. How is a theory different from a scientific law?
   -A law differs from a theory by when a law is tested over and over and is proven correct every time it is tested, it is never _____
3. What is our best evidence that the Universe is expanding?
   -Galaxies showing _____ in their spectra, this would be the known facts that support the Big Bang Theory

Chapter 8 Earth Chemistry

8.1 Matter

1. What is matter defined as?
   -Anything that takes up _____
2. What are the two major distinguishing features of matter, how are they different?
   -_____- characteristics that can be observed without changing the composition of the substance (density, color, hardness, freezing point, etc.)
   -_____- characteristics that describe how a substance interacts with other substances to produce different kinds of matter, (iron and oxygen interact to produce rust)
3. How is an element different than matter?
   -_____ cannot be broken down into a simpler form, matter can
4. How many elements occur naturally on Earth, what are the two most abundant?
   -_____ elements occur naturally
   -_____ (27.7%) and _____ (46.6%) are the two most abundant
5. How many atoms fit into the thickness a single page, how are they related to elements?
   -Smallest form of an _____, it would take over a million atoms lined to equal the thickness of _____
6. List and describe the 5 parts of an atom and
   -_____-subatomic particle found outside of the nucleus that has a negative charge
   -_____-subatomic particle found in the nucleus that have a positive charge
   -_____-subatomic charge found in the nucleus that do not have a charge
   -_____-protons and neutrons are packed close together making up a small region at the center of an atom
   -_____- the rest of the atom outside of the nucleus where electrons are found
7. What does the atomic number determine in an atom, where does it appear on the periodic table?
   -The total number of _____ in an atom- top number in box of each element on the periodic table, the atom is naturally neutral, so the atomic number also equals= _____
8. What does the mass number determine in an atom, where does it appear on the periodic table?
   -The total number of _____ in an atom, the bottom number in the box of each element on the periodic table
9. Why are electrons ignored when calculating the atomic mass?
   -Electrons have very little mass, one proton mass = _____ in mass
10. What subatomic particles do atoms always have the same amount of, what can differ?
    -The number of protons are always _____, neutrons can differ, they are called _____(have a different mass number)

-Hydrogen has isotopes called _____(1 proton and electron, no neutron), _____ (1 proton, electron and neutron, different mass number) and _____ (1 proton and electron, 2 neutrons, what is its atomic number and mass number?)

11. How is matter classified, how are these forms different?
    -_____- definite shape and volume
    -_____- definite volume but not a definite shape
    -_____- does not have a definite shape or volume

8.2 Combination of Atoms

1. How is a compound different than a molecule?
   -A compound is two or more _____ chemically united, the _____ is the smallest unit of a compound (water molecule- two hydrogen and one oxygen atoms)
2. What type of atoms give up electrons relatively easy?
   -Atoms with 1-3 electrons in the outermost level usually elements with _____ (examples Aluminum (Al), Copper (Cu), Gold (Au)
   -Atoms such as Carbon (C), Nitrogen (N) and Oxygen (O) have 4-6 electrons and don't _____
3. How is a chemical bond produced?
   -The interaction of electrons from the _____ of two or more atoms
4. How is an ionic bond different than a covalent bond?
   -_____- electrons are transferred from one atom to another producing an ionic compound
      -Both atoms become electrically charged and are called ions (Sodium becomes positive and Chlorine becomes negative= NaCl)
   -_____- electrons are shared based on the attraction between atoms
      -A water molecule is an example of a covalent bond
   -Ionic bonds are far stronger than covalent bonds
5. How are various molecules and compounds represented?
   -By a _____: H_2O, NaCl
6. How is a mixture different than a compound or element, what are some examples?
   -Mixtures contain two or more substances that are not _____
   -Examples: rocks, mixture of gases in atmosphere (smog), soil
7. How is a solution different than a mixture, what are some examples?
   -Solution is a mixture in which one substance is uniformly dispersed in another substance
   -Examples: _____, _____ such as brass (zinc and copper) and bronze (copper and tin)