WODSS SCIENCE
SCH 4CI

Name: _____
Date: _____

ATOMS

The atom is the smallest unit of matter. Each element is made of _____ kind of atom.

Atoms are made up of three smaller particles called _____ particles. These are called: _____, _____, and _____.

Protons and neutrons are found in dense central area of the atom called the _____. The nucleus contains almost all of the atom's mass.

Protons are positively charged. Each proton has a charge of _____ and a mass of _____ _____. Protons are located in the _____.

Neutrons are _____ (they have no charge). Each neutron has _____ _____ and a mass of _____. Neutrons are located in the _____.

Electrons are negatively charged, and they travel rapidly in energy levels called "orbits" or "shells" outside the nucleus. Each electron has a charge of _____. Electrons are extremely light. They are _____ times lighter than a protons or a neutron. Since their mass is so small, we say they have a mass of _____. As we'll learn later, electrons are responsible for _____.

Diagram of an atom:

Important Numbers and Atoms

Atomic number – Number of _____ in the nucleus.
- Determines the identity of the atom (for example, the element with an atomic number of 3 has _____ protons and is always _____)
- Atoms are always _____, which means they have no overall charge. This is because the number of _____ (negative charges) equals the number of _____ (positive charges) in every atom. So the atomic number also equals the number of _____.

Mass number – The number of _____ plus the number of _____
- If we know the mass number (number of protons and neutrons) and atomic number (the number of protons), we can calculate the number of neutrons. How?

Number of Neutrons =

Example: How many protons, electrons, and neutrons are in an atom of beryllium?

4 Be Berylium 9

Standard Atomic Notation

Scientists show the numbers of subatomic particles using standard atomic notation. In this notation, we write the chemical symbol of the atom, and place the atomic number to the lower left and the mass number to the upper left. For example, the atomic notation for chlorine would be:

This tells us that chlorine has _____ protons and _____ electrons. The number of neutrons will be _____ - _____ = _____

Practice: Complete the table below to find the number of subatomic particles in the first twenty elements. Use your periodic table to find the atomic number and mass number for each element.

Element Name	Symbol	Atomic #	Mass #	Standard Atomic Notation	# of protons	# of electrons	# of neutrons
Hydrogen							
Helium							
Lithium							
Beryllium							
Boron							
Carbon							
Nitrogen							
Oxygen							
Fluorine							
Neon							
Sodium							
Magnesium							
Aluminum							
Silicon							
Phosphorus							
Sulfur							
Chlorine							
Argon							
Potassium							
Calcium							