# ATOMS

Name _____

Date _____

Per _____ Page _____

**OBJECTIVE**: _____

_____

**RESEARCH: (You will be getting your notes from pages 125 – 130 in the Physical Science Textbook)**

atom**:** _____

nucleus: _____

**ATOMIC PARTICLES**:

| Name | Charge | Location? |
|---|---|---|
| electron | | |
| proton | | |
| neutron | | |

atomic number: _____

atomic mass: _____

(think of atomic mass as the "weight" of an atom)

The atomic number gives the number of protons. It also gives the number of electrons. How do you arrive at the number of neutrons?

Number of neutrons = _____ - _____

Electron energy levels: _____

_____

**PRACTICE:**

1. Since carbon has 6 protons in its nucleus, it will have _____ electrons in its energy levels.
2. If neon has 10 total electrons, there are _____ electrons in the outermost energy level.
3. If sodium has 11 total electrons, there are _____ electrons in the outermost energy level.
4. Copper (Cu) : Atomic number = _____
   Atomic mass = _____
   How many protons in the nucleus? _____
   How many total electrons? _____
   How many neutrons in the nucleus? _____
   How many total energy levels? ____
   How many electrons in each energy level? _____
   _____

**ACTIVITY:**

"The Model of Atoms" page is divided into 4 sections. You will be drawing models of atoms for 4 elements: carbon, oxygen, neon, and sodium.

| | # P & # E | # P + # N | |
|---|---|---|---|
| ELEMENT | ATOMIC # | ATOMIC MASS | NUMBER of NEUTRONS |
| Carbon | 6 | 12 | |
| Oxygen | 8 | 16 | |
| Neon | 10 | 20 | |
| Sodium | 11 | 23 | |

1. Draw a circle (at least the size of a quarter) to represent the nucleus for each of the 4 atoms. Make solid **black** circles to represent **protons**. Put the correct number in each nucleus.
2. Draw solid **red** circles to represent **neutrons**. Put the correct number in each nucleus. You need to use the table above to figure out the correct number of neutrons.
3. Draw the appropriate number of energy levels for electrons around each nucleus. Fill in **green open circles** (not solid) to represent **electrons** in each energy level. Remember the maximum number of electrons that can be in each energy level.

**CONCLUSIONS:**

1. What particles are found in the nucleus of an atom?
   _____
2. What particle has a positive charge? _____
3. What particle has a negative charge? _____
4. What particle has no charge (is neutral)? _____
5. Do you think the electrons of an atom really travel in definite circular orbits as represented in your models? _____ What do you think they do? _____
   _____
6. How are the number of protons, the number of electrons, and the atomic number related?
   _____
7. How do you find the number of neutrons in the nucleus of an atom? _____
   _____