**Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Period\_\_\_\_Date\_\_\_\_\_\_\_**

**Drawing Bohr Models of the Atom**

**How to do it:**

1. Determine the number of electrons, protons, & neutrons from the atomic number and atomic mass.
   * Atomic # = # protons and # electrons
   * Atomic mass – atomic # = # neutrons
2. Draw a little circle in the middle for the nucleus and label with the number of protons and neutrons.
3. Draw larger circles for each energy level and place dots representing the electrons in each energy levels on these circles.
   * # of energy levels = which row it is in on the periodic table
   * Placing electrons on model:
     + 1st energy level (closest to nucleus)= 2 e
     + 2nd energy level= 8 e
     + 3rd energy level= 8 e
     + 4th energy level= 18 e
     + 5th energy level= 18 e
     + 6th energy level=32 e
     + 7th energy level = 32 e
   * You will only be responsible for drawing the first 3 rows of the period table!

**Example: Sodium**

1. Determine the number of electrons, protons, and neutrons

Atomic #: 11

Atomic Mass: 23

So.......

# protons=11

# electrons=11

# neutrons= 23-11=12

1. Draw the nucleus & label the nucleus with # protons and # neutrons
2. Figure out the number of energy levels from which row the

element is in and draw them around the nucleus

Energy levels=3

1. Place a dot for each electron on the energy levels

using the guide from above.

**Practice**

1. Hydrogen is the simplest atom. It has an atomic number of \_\_\_\_\_ and an atomic mass of \_\_\_\_\_\_

* 1. It only has \_\_\_\_ electron, \_\_\_\_\_ proton, and \_\_\_\_\_ neutron.
  2. How many electron shells does a hydrogen atom have? \_\_\_\_\_
  3. Is this shell complete? \_\_\_\_\_\_\_
  4. Draw the Bohr-Rutherford model to the right, using the gray circle as your nucleus

1. Lithium has an atomic number of \_\_\_\_\_ and an atomic mass of \_\_\_\_\_\_

* 1. It has \_\_\_\_ electrons, \_\_\_\_\_ protons, and \_\_\_\_\_ neutrons.
  2. How many electron shells does a lithium atom have? \_\_\_\_\_
  3. Which shells are complete? \_\_\_\_\_\_\_\_\_
  4. Which shells are incomplete? \_\_\_\_\_\_\_\_\_\_\_\_
  5. Draw the Bohr-Rutherford model to the right, using the gray circle as your nucleus

1. Sulfur has an atomic number of \_\_\_\_\_ and an atomic mass of \_\_\_\_\_\_

* 1. It has \_\_\_\_ electrons, \_\_\_\_\_ protons, and \_\_\_\_\_ neutrons.
  2. How many electron shells does a sulfur atom have? \_\_\_\_\_
  3. Which shells are complete? \_\_\_\_\_\_\_\_\_\_
  4. Which shells are incomplete? \_\_\_\_\_\_\_\_\_\_\_\_
  5. Draw the Bohr-Rutherford model to the right, using the gray circle as your nucleus