SNC1D7	**The Structure of Atoms**
Atoms, Elements & Compounds	

Atoms are made up of three types of particles: _____, _____ and _____.

Particle	Electric Charge	Mass (in Atomic Mass Units)	Location in the Atom

Bohr-Rutherford Diagrams (BR diagrams)
BR diagrams are a model that describes _____. Consider the atom of lithium. What does the BR diagram look like?

Step 1
Calculate the number of protons, neutrons and electrons.

Atomic number =
Atomic mass = therefore the mass number is

Therefore
protons =

neutrons =

electrons =

Step 2
Draw the nucleus as a circle, and inside indicate the number of protons (p=) and the number of neutrons (n=)

Step 3
Draw the electrons in their orbits. Only a certain number of electrons can be held in each orbit.
- The first orbit can only hold _____ electrons
- The second and third orbit can only hold _____ electrons
- Although they exist, we will not draw elements with more than three orbits.

Extra Rules:
- You have to put electrons into the lowest orbits first.
- Put electrons in the second and third orbits one at a time until you get 4 electrons in the orbit, and then start to pair them up.

Draw the Bohr-Rutherford Diagram for Lithium

A Shortcut: As you can probably see, for large elements the BR diagram would get very cumbersome. We often use a shortened form of the BR diagram. You do not worry about pairing electrons or drawing dots. Instead:

- draw the nucleus as usual
- put partial circles to the right, and write the number of electrons for each orbit on the circles

For Lithium:

Try drawing both types of Bohr Rutherford diagrams for aluminum below.

Homework: Draw BR diagrams for elements 1,2,3,5,8,10,11,14,17. Try element 19!