



## Student Guide for Build an Atom


Name \_\_\_\_\_

### Start:

1. [Click HERE to download the PhET "Build-an-Atom" simulation.](#)
2. If prompted to "Keep" or "Discard" the simulation file, select "Keep."
3. Open the simulation.

4.  Explore the simulation. Be sure to click on everything.


5. When you are ready to begin with the lab activity, do the following:

- click on the reset all button,  and
- click on the green plus signs to open the boxes called "**Net Charge**" and "**Mass Number**."



- These boxes and the periodic table box will help you fill in the data needed below.


6.  Experiment by putting some **protons** into the nucleus of the atom (on the orange X).

 On your own paper, fill in the table to the right to keep track of what you are learning about **protons**.

**When you finish, put the protons back into the bowl.**

Mass number?	Charge?	Stays on the X?	Symbol changes on the periodic table?

7  Experiment by putting some **neutrons** into the nucleus of the atom (on the X).

 On your own paper, fill in the table to the right to keep track of what you are learning about **neutrons**.

**When you finish, put the neutrons back into the bowl.**

Mass number?	Charge?	Stays on the X?	Symbol changes on the periodic table?



8.  Experiment by putting some 10 **electrons** into the nucleus of the atom (on the X).



On your own paper, fill in the table to the right to keep track of what you are learning about electrons.

**When you finish, put all of the electrons back into the bowl.**



Mass number?	Charge?	Stays on the X?	Symbol changes on the periodic table?

9.  Look over your data tables for **protons**, **neutrons** and **electrons**.

Two things we noticed are: 1. \_\_\_\_\_  
2. \_\_\_\_\_

### Time to apply your understanding of the atom...

10. Put 3 protons into nucleus of the atom.



On your own paper, fill in the following:

Name of atom: \_\_\_\_\_ atom or ion? \_\_\_\_\_ net charge \_\_\_\_\_



Decide how you will build a **neutral atom** that is **stable**. Practice making atoms using your ideas.

Once you are able to do this several times on the simulation- starting with different numbers of protons- write out the steps of your building plan!



**steps to build a neutral atom starting with protons:**

1. First I choose \_\_\_\_\_ protons and put them in the center (nucleus) of the atom.
- 2.
- 3.
- 4.



Atoms/The Periodic Table of Elements Lab Activity Instructions Document  
<http://phet.colorado.edu/en/simulation/build-an-atom>

\*My stable atom: \_\_\_\_ mass \_\_\_\_protons \_\_\_\_ neutrons \_\_\_\_ electrons \_\_\_\_ name of atom?

**Make sure you ask questions if you do have any trouble with this lab instructions document. Your lab quiz will have questions very similar to those asked in this document. When you are ready, give the lab quiz a try. You have only TWO chances to attempt the lab quiz.**