

Lesson plan for *Build an Atom* : Introduction (homework version)

<http://phet.colorado.edu>

Learning Objectives: Students will be able to

1. Make atom models that show stable atoms or ions.
2. Use given information about subatomic particles to
 - Identify an element and its position on the periodic table
 - Draw models of atoms
 - Determine if the model is for a neutral atom or an ion.
3. Predict how addition or subtraction of a proton, neutron, or electron will change the element, the charge, and the mass of their atom or ion.
4. Describe all vocabulary words needed to meet the goals.
5. Use a periodic symbol to tell the number of protons, neutrons, and electrons in an atom or ion.
6. Draw the symbol for the element as you would see on the periodic table

Background:

This lesson is for High School students who have some introduction to atomic particles, but could use a refresher or deeper understanding

Lesson for Build an Atom tips:

Students should be able to work at home at a variety of paces using the **Student Directions for Build an Atom**. New vocabulary is introduced integrated into the lesson. Definitions are specifically not given at the beginning, but left for the students to explore and make their own sense of the new words. Then question 7 is designed as a group review where the students can check their understanding and make any corrections.

I have included a step for students to use the game to check their ideas.

If you want to help students understand what happens when an atom is unstable, you could use these simulations, but I have not written any lesson for these:

- [Alpha Decay Activity](#)
- [Beta Decay Activity](#)
- [Nuclear Fission Activity](#)
- [Radioactive Dating Game Activity](#)