

Lesson Outline

Teacher Name _____ Matt Brandstetter _____
School _____ Waynesburg Central High School _____
Course Title _____ Earth Science / Chemistry _____
Topic/Unit _____ Atomic Structure/ Subatomic Particles _____
Model Topic _____ Atom Generator _____
Modeling Tool _____ Excelette manipulating subatomic particles _____

Please provide a brief description for each section.

1. Describe the preparation you will do with the students prior to the model.

We will discuss subatomic particles, and solving for atomic mass and charge. Students will know the masses and charges of particles. I plan to use this model with a Skittle activity in which students use the atom symbol to determine number of particles. The model does the reverse.

2. Describe the learning objectives related to the model and how you will achieve them.

The students will:

- vary subatomic particles and relate to change in mass/charge (activity)
- compare particles (assignment)
- analyze nuclear stability using Segre plot * (assignment)

3. Describe the discussion questions you will use after the model.

1. How does changing the protons change the atomic number? The charge?
2. How does changing the electrons change the atomic number? The charge?
3. What do we call atoms of the same element with different mass?
4. What particle changes the symbol?
5. Stable heavier atoms do not have a 1:1 proton:neutron ratio. Which particle is in greater abundance? Propose a reason. *

* = advanced

4. Describe the type of student assessment you will use.

Students will use this as a supplementary tool to the Skittle © activity. They can check their work with the Excelette. They will also use the program to complete a written assignment on nuclear stability. Students can also use the table of physical constants as a resource in lab.