Chemistry Lesson Plan
Jason Pavlich

Grade Level:

Honors Chemistry (10^{th} and 11^{th} Grade)

Standards Addressed:

Standard 4; Key Idea 3 from NYS Physical Setting Chemistry Core Curriculum

Time Length:

40 minutes

Objective:

Students will be able to correctly predict the product of a decay series.

Key Vocabulary Terms:

Atom	Proton	Atomic number	Transmutation
Isotope	Neutron	Mass number	Hyphen notation
Nuclide	Nucleon	Apha decay	Positron
Beta decay	Positron emission	Decay series	Valley of Stability
Radioactive	Alpha particle	Beta particle	

Background Information:

Students will know what defines an element (atomic number) and that each element exists in multiple versions (isotopes) that differ only in the number of neutrons. Students will also have previously been taught the main types of natural transmutation and have balanced simple one step nuclear equations.

Materials:

For each student pair – 1 laminated nuclide exercise chart (similar to one in Prof. Simon's handout except in a 5x5 format), 1 laminated large nuclide chart, 1 overhead marker.

Introductory Activity:

Using the nuclide exercise chart, students will use their balanced nuclear reactions from the previous day's lecture to practice moving about the nuclide chart. For example, they will see that an alpha decay results in a move two boxes down and two boxes to the left and a beta decay results in a move one box up and one box to the left.

Main Activity:

In pairs, using the larger laminated nuclide chart and overhead marker, students will follow the decay series of three unstable nuclei and predict the eventual stable product, located in the valley of stability. Some nuclei could be U-238, Th-232, and NP-237.