**Lesson Plan: Lecture 4**

**Green Chemistry: It All Starts at the Beginning**

**Description**

In this lecture students will refresh their fundamental chemistry knowledge: periodic table and atoms. Knowing fundamentals is vital for understanding the Green Chemistry reactions which will be covered later in the semester.

**Prior to Lecture**

Required Readings:

* Compound Interest: History of the Atom

<http://www.compoundchem.com/2016/10/13/atomicmodels/>

* The Periodic Table’s Endangered Elements

<http://www.compoundchem.com/2015/08/19/endangered-elements/>

Optional/Supplemental Readings:

* Additional readings from Instructors Chemistry textbook are encouraged

Videos:

* [Introduction to Periodic Table](https://www.khanacademy.org/science/chemistry/periodic-table/copy-of-periodic-table-of-elements/v/periodic-table-introduction)
* [Groups in the Periodic Table](https://www.khanacademy.org/science/chemistry/periodic-table/copy-of-periodic-table-of-elements/v/periodic-table-groups)
* [Ionization Energy](https://www.khanacademy.org/science/chemistry/periodic-table/periodic-table-trends-bonding/v/ionization-energy-trends)
* [Electronegativity](https://www.khanacademy.org/science/chemistry/periodic-table/periodic-table-trends-bonding/v/electronegativity-trends)

**Topics to Cover in Lecture**

* The Periodic Table
  + What is it?
  + Why do Chemist use it?
  + What type of information does it show use
  + Trends associated with the Periodic Table
* The Atom
  + Who discovered it
  + What is an atom made of?
  + Protons, Neutrons, and Electrons
* Isotopic Symbols
  + Mass Number
  + Atomic Number
* The “Endangered” Periodic Table
  + While technological advancements have been great for society, it has come with a cost of over utilizing precious metals.

**Class Exercises**

Periodic Table Battleship Game

This is a fun and interactive way to help students learn the periodic table and all its elements. See class exercise folder for classroom instructions on Periodic Table Battleship Game exercise.

Periodic Table “Guess Who” Game

Depending on the professor’s preference, the periodic table game can be changed into a “Guess Who” format, as well. Students may ask leading question like “Is your element a noble gas?” or “Is your element a precious metal?”. Allow the students to use their creativity to ask questions to identify the opponent’s chosen element.

**Handout**

* The History of the Atom- Theories and Models