**Periodic Table of the Elements Activity—Instructor’s Notes**

*Earth Materials—Prof. Laura Wetzel*

*Homework:*

Give each student one, or more, of the pre-formatted cards with specified elements.

92 elements = 23 pages with 4 elements on each page.

Distribute these evenly among the students—some can do extras or I can assign more than one student to do some of the elements.

Collect the homework, and then make as many copies of the cards as needed, with a maximum of four total, one set for each lab table. Cut up the pages after making copies.

Optional: Use the Period Table quick study cards for after they have completed the exercise.

Optional: Use a few of the Ward’s cards to look up the mineral info.

*Space Needed:*

Each 4 x 8 foot lab table is perfect for the 92 elements:

18 cards across x 4.3” per card = 77.4” = 6.45’

9 cards down x 5.5” per card = 49.5” = 4.125’ (While this is a little longer than 4 ft., the last row is just the 3 actinide elements.)

*Homework Below:*

If you do not use pre-formatted cards for the elements, then students can simply use index cards and hand write multiple copies as needed.

**Properties of the Elements—Homework**

*Earth Materials—Prof. Laura Wetzel*

Create an index card for each element you have been assigned. (The list is on the next page.) Include the following information prominently displayed on one side of the index card:

Element name

Element abbreviation

Atomic number

Atomic mass

Electron configuration (e.g., Carbon: 1s22s22p2)

Element classification:

alkali metal, alkaline earth metal, transition metal, post-transition metal, lanthanide, actinide, metalloid, halogen, noble gas, other non-metal

Common chemical properties

On the other side of the index card indicate the following information:

Your name

Element name

Element abbreviation

Major uses for the element

Names and chemical formulae of four minerals containing the element OR an explanation indicating why there are not six minerals containing the element (e.g., element is not naturally occurring on Earth, element has a short half-life, element is liquid at room temperature).

Arrange all information neatly and consistently in the same format on each card. Organize the information in a manner that makes sense to you, which means that your cards may not be organized in the same way as those created by others.

On one additional index card indicate your name, the names of the elements you were responsible for, and the sources of your information.

*These cards will be used in an exercise in class, so it is crucial that you complete them by the deadline.*

**NOTE: Because we have \_\_\_\_\_\_\_ students in class, we need \_\_\_\_\_\_\_\_ copies of each element card. In this way, we will be able to spread out people in multiple groups.** Simply make your original cards and then write the necessary number of duplicates to bring to class.

*Last modified by LRW on February 6, 2013.*

**Elements (1-92)**

To randomly assign elements, we will go around the room, with each person receiving an element in each round. Absent individuals will also be assigned elements.

Actinium
Aluminum
Antimony
Argon
Arsenic
Astatine
Barium
Beryllium
Bismuth
Boron
Bromine
Cadmium
Calcium
Carbon
Cerium
Cesium
Chlorine
Chromium
Cobalt
Copper
Dysprosium
Erbium
Europium
Fluorine
Francium
Gadolinium
Gallium
Germanium
Gold
Hafnium
Helium

Holmium
Hydrogen
Indium
Iodine
Iridium
Iron
Krypton
Lanthanum
Lead
Lithium
Lutetium
Magnesium
Manganese
Mercury
Molybdenum
Neodymium
Neon
Nickel
Niobium
Nitrogen
Osmium
Oxygen
Palladium
Phosphorus
Platinum
Polonium
Potassium
Praseodymium
Promethium
Protactinium
Radium
Radon
Rhenium
Rhodium
Rubidium
Ruthenium
Samarium
Scandium
Selenium
Silicon
Silver
Sodium
Strontium
Sulfur
Tantalum
Technetium
Tellurium
Terbium
Thallium
Thorium
Thulium
Tin
Titanium
Tungsten
Uranium
Vanadium
Xenon
Ytterbium
Yttrium
Zinc
Zirconium

**Notes:**

References

Elements can be sorted in various ways:

http://www.science.co.il/PTelements.asp

Basic history of Periodic Table:

Student paper: http://serendip.brynmawr.edu/exchange/node/158

Sortable table:

http://en.wikipedia.org/wiki/List\_of\_elements

Other Periodic Table Sources:

http://www.lenntech.com/periodic/elements/

http://www.webelements.com/

chemicalelements.com

http://education.jlab.org/itselemental/

http://periodictable.com/ (This is the poster I have of all the elements in their pure state. The website is clickable with embedded info.)

Provides geological information for each element in the Periodic Table:

http://www.webelements.com/geology.html

Chemistry Info:

http://chemistry.about.com/

http://chemistry.about.com/od/famouschemists/p/mendeleevbio.htm

Mineral Information:

http://www.galleries.com/minerals/by\_class.htm

**Misc Info:**

http://chemistry.about.com/

## [This Day in Science History - February 8](http://chemistry.about.com/od/februaryinscience/tp/february8history.htm) - Dmitri Mendeleev

February 8th is Dmitri Mendeleev's birthday. Most people associate Mendeleev the first [accepted periodic table](http://chemistry.about.com/od/periodictableelements/f/who-invented-the-periodic-table.htm) of the elements. His table ordered the elements by increasing atomic weight where columns of elements had similar chemical properties and is the immediate forerunner of the modern [periodic table](http://chemistry.about.com/library/blperiodictable.htm).

Mendeleev was also the man responsible for making Russia "metric". As Director of Russia's Bureau of Weights and Measures, he was instrumental in bringing the metric system to Russia.

In his personal life, he was famous for his "grooming". Mendeleev was widely known for his long hair and wild beard. He would only cut his hair or trim his beard once a year. He had one minor scandal where he was labeled a bigamist for a legal technicality for not waiting the required seven years after a divorce before marrying his second wife.