

Periodicity

<http://www.unit5.org/chemistry/Periodicity.htm>

Learning Objectives/Targets

Worksheet / Lab

PERIODICITY and THE PERIODIC TABLE

6.1 CLASSIFICATION OF ELEMENTS

- To state the original periodic law proposed by Mendeleev.

6.2 THE PERIODIC LAW CONCEPT

- To explain the modern periodic law concept proposed by Moseley.

6.3 GROUPS AND PERIODS OF ELEMENTS

- To apply the following terms to the periodic table of elements:
 - (a) groups (families) and periods (series)
 - (b) representative elements and transition elements
 - (c) metals, semimetals, and nonmetals
 - (d) alkali metals, alkaline earth metals, halogens, and noble gases
 - (e) lanthanide series and actinide series
 - (f) rare earth elements and transuranium elements
- To designate a group of elements in the periodic table using both the American convention (IA–VIIIA) and the IUPAC convention (1–18).

6.4 PERIODIC TRENDS

- To predict the trend in atomic size within a group or period of elements.
- To predict the trend in metallic character within a group or period.

6.5 PROPERTIES OF ELEMENTS

- To predict a physical property for an element given the values of other elements in the same group.
- To predict a chemical formula for a compound given the formulas of other compounds containing an element in the same group.

6.6 BLOCKS OF ELEMENTS

- To predict the highest energy sublevel for an element given its position in the periodic table.
- To predict the electron configuration for an element given its position in the periodic table.

6.7 VALENCE ELECTRONS

- To predict the number of valence electrons for any representative element.

6.8 ELECTRON DOT FORMULAS

- To draw the electron dot formula for any representative element.

6.9 IONIZATION ENERGY

- To state the general trends of ionization energy in the periodic table.
- To state the group with the highest and the lowest ionization energy.

6.10 IONIC CHARGES

- To predict the ionic charge for any representative element.
- To write the predicted electron configuration for selected ions.

Vocabulary

actinides	coinage metals	ionization energy	nonmetal
alkali metals	electronegativity	lanthanides	period
alkaline-earth metals	group	main block elements	periodic law
anion	halogens	metal	shielding effect
atomic radius	ion	metalloid (semimetal)	transition elements
cation	ionic radius	noble gases	

Labs/Activities

- (1) [Aliens Lab \(II\) pdf](#) Cards [A pdf](#) [B pdf](#)
- (2) [Element Project Example Brochure \(Publisher\)](#)
- (3) [Timeline of Elements Discovery pdf](#)
- (4) [Polyatomic Ions pdf](#)
- (5) [Physical Constants of Elements pdf](#)
- (6) [Chemical BINGO pdf](#) [Study Sheet pdf](#)
- (7) [3-D Periodic Trends \(microwell plates\) pdf](#)
[Plotting Trends](#)

Worksheets

- (8) [Vocabulary: Periodic Table and Periodicity pdf](#)
- (9) [Periodic Table - Word List Paragraph pdf](#)
- (10) [Periodicity Packet HW pdf](#)
- (11) [Coloring Activity pdf](#)
- (12) [Periodic Table \(to be colored\) pdf](#) [Categories pdf](#)
- (13) [Molar Masses of the Elements pdf](#)
- (14) [Grading Rubric for Element Project pdf](#)
- (15) [Ionization Energies pdf \(beta\)](#) [Graph II](#)
- (16) [Test Review pdf](#)
- (17) [Textbook Questions pdf](#)

LECTURE OUTLINE: [Unit 4 Notes - Periodicity pdf](#) (6 pages) ([students](#)) [pdf](#)

Calendar

- Day 1 – Aliens Activity (1)
Day 2 – Periodicity Packet (10)
Day 3 – Periodicity Packet, (10), (11), (12) [WEBSITE for Chemistry Textbook](#)
Day 4 – Lecture on Periodicity (15)
Day 5 – Organization of the Periodic Table (9)
Day 6 – Summarize Periodic Trends (16)
Day 7 – Review Day
Day 8 – QUIZ: Periodic Table

TOPICS REVIEW / EXTERNAL LINKS

[Periodic Table & Periodicity](#)
[Periodic Table\(s\)](#)
[Interactive Periodic Table](#)
[Chinese Periodic Table](#)
[Development of the Periodic Table](#)
[Various Elements and their Uses](#)
[PRINTABLE PERIODIC TABLES](#)
[Elemental Spectra](#)
[Animated "Element Song"](#)

[Dynamic Periodic Table](#) (available in many languages)
[Web Elements](#)
[Interactive Periodic Table II](#)
[Pictorial Periodic Table](#)
[Visual Periodic Table](#)
[The Comic Book Periodic Table](#)
[Elements - Discovery and Origins of their Names](#)
[Chemicool Periodic Table](#)
[Other Tables](#)