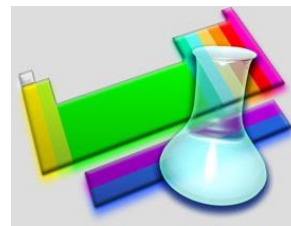


Name _____
Regents Chemistry 2014-15



Unit 2 - The Periodic Table

This unit will be both quick and easy, serving as a bridge between two very challenging units.

Objectives:

At the end of this unit, students will:

- ✓ understand the placement of each of the elements on the periodic table and be able to predict the location of an "unknown" element based on its chemical and physical properties.
- ✓ be able to classify elements as metals, non-metals, metalloids or noble gasses based on their properties.
- ✓ be able to compare and contrast the properties of the elements in a group or period and explain the trends in first ionization energy, electronegativity, atomic radius, ionic radius and metallic/non-metallic properties.
- ✓ identify the group of an element based on its formula in an ionic compound.

Chapter 6 and Section 7.1

Reference Tables: Periodic Table and Table S

Period	Date	Day	Content
1			Go over Atomic Structure Test Homework – Periodic Table Vocabulary
2	Lab		Periodic Table Puzzle
3			Geography of the Periodic Table -Metals, Metalloids, and Non-Metals -Periods, Groups/Families Homework – Assignment 1 (Problems in the back of packet)
3			Graphing and Analyzing Trends Homework – Assignment 2 (Problems in the back of packet)
4	Lab		The "WHY" of Periodic Trends
5			Bringing it all together: Organization of the Periodic Table Periodic Law Homework – Assignment 3 (Problems in the back of packet)
6			Periodic Table Challenge Lab
7	Lab		Periodic Table Challenge Lab
8			Periodic Table Exam

Vocabulary Unit 2: *The Periodic Table*

Name _____

Metals-

Metalloids/Semi-Metals-

Nonmetals-

Representative Elements-

Alkali Metals-

Alkaline Earth Metals-

Transition Metals-

Chalcogens-

Halogens-

Noble Gases-

Group-

Octet Rule-

Period-

Periodic Law-

Mendeleev-

Atomic Radius-

Ionic Radius-

Valence Electrons-

Electronegativity-

(First) Ionization Energy-

Ductile-

Malleable-

Brittle-

Luster-

Non-Metals

Metalloids / Semimetals

Group 1: Alkali Metals

Group 2: Alkaline Earth Metals

Group 15: The Nitrogen Family/Pnictogens

Group 16: The Oxygen Family/Chalcogens

Group 17: Halogens

Group 18: The Noble Gases

Transition Metals

Periodic Trends

A. The trend of atomic radius:

	Trend Down Group	Trend Across Period
What the data says:		
Reason:		

B. Ionization Energy

	Trend Down Group	Trend Across Period
What the data says:		
Reason:		

C. Electronegativity

	Trend Down Group	Trend Across Period
What the data says:		
Reason:		

D. Ionic Radius

Metals	Non-Metals
Ion is SMALLER than atom	Ion is LARGER than atom

Name _____

Per. _____

Regents Chemistry

Periodic Table Notes

The Periodic Table: History and Organization

History: Up until the early 1820's, only a fraction of the elements on the modern periodic table had been discovered. Some chemists had suggested the idea of trying to classify them, just as biologists were classifying plants and animals. None of these systems were widely accepted, so chemistry students were forced to memorize the elements, along with their chemical and physical properties! (and you thought YOU had it bad!)

In 1860, _____, a Russian Chemist and Teacher was trying to create a “study guide” for his students, and developed the first Periodic Table.

This periodic table contained _____ elements, arranged according to _____ . There were even spaces left blank _____ .

The Modern Periodic Table:

The modern Periodic Table is arranged according to _____ .

Periodic Law:

The Periodic Law is the result of increasing atomic number, and therefore increasing number of electrons. The _____ electrons determine how an element will react (or not react) with other elements. In order to discuss these attributes, it is helpful to visualize the electron configurations.

Lewis Dot Structures:

A system of describing the outer electrons for an element.

Octet Rule:

Name _____

Per. ___

Regents Chemistry

Periodic Table Pattern Challenge

Periodic Table Challenge

Below are 8 elements from a single period. All elements are either S or P block elements. With your knowledge of Periodic Trends, and WITHOUT using Table S, answer the following questions. Good Luck!

A Atomic Radius: 128 Electroneg: 2.2 Melting Pt: 317 Boiling Pt: 553	X Atomic Radius: 97 Electroneg: 3.2 Melting Pt: 172 Boiling Pt: 239	B Atomic Radius: 190 Electroneg: 0.9 Melting Pt: 371 Boiling Pt: 1156	C Atomic Radius: 160 Electroneg: 1.3 Melting Pt: 922 Boiling Pt: 1363
D Atomic Radius: 132 Electroneg: 1.9 Melting Pt: 1683 Boiling Pt: 2628	E Atomic Radius: 143 Electroneg: 1.6 Melting Pt: 934 Boiling Pt: 2740	F Atomic Radius: 88 Electroneg: --- Melting Pt: 84 Boiling Pt: 87	G Atomic Radius: 127 Electroneg: 2.6 Melting Pt: 386 Boiling Pt: 718

1. The elements above belong to a single period. Arrange them in the order you think they would appear on the table. Using the questions below to help find the proper arrangement.
2. Identify 2 of the elements that are definitely metals and 2 that are definitely non-metals.
3. Explain your answers for question 2, based on the data given for each element.
4. Identify which element is a Noble Gas. How do you know?

Periodic Table Homework Assignment

Assignment 1 – Geography of the Periodic Table

Read 6.1 and answer Q's: 1-7

P. 181: 27-32

Assignment 2 – Groups of the Periodic Table

Read 6.2 and answer Q's: 10-12, 14

P. 181-182: 35-38, 42+43

Assignment 3 – Periodic Trends

Read 6.3 and answer Q's: 16-23

P. 182: 44, 46, 47, 49-51, 58-60, 66