Unit 4 NAME

Class Work 11/25/13

4.5 Organization of the Periodic Table

SPARK:

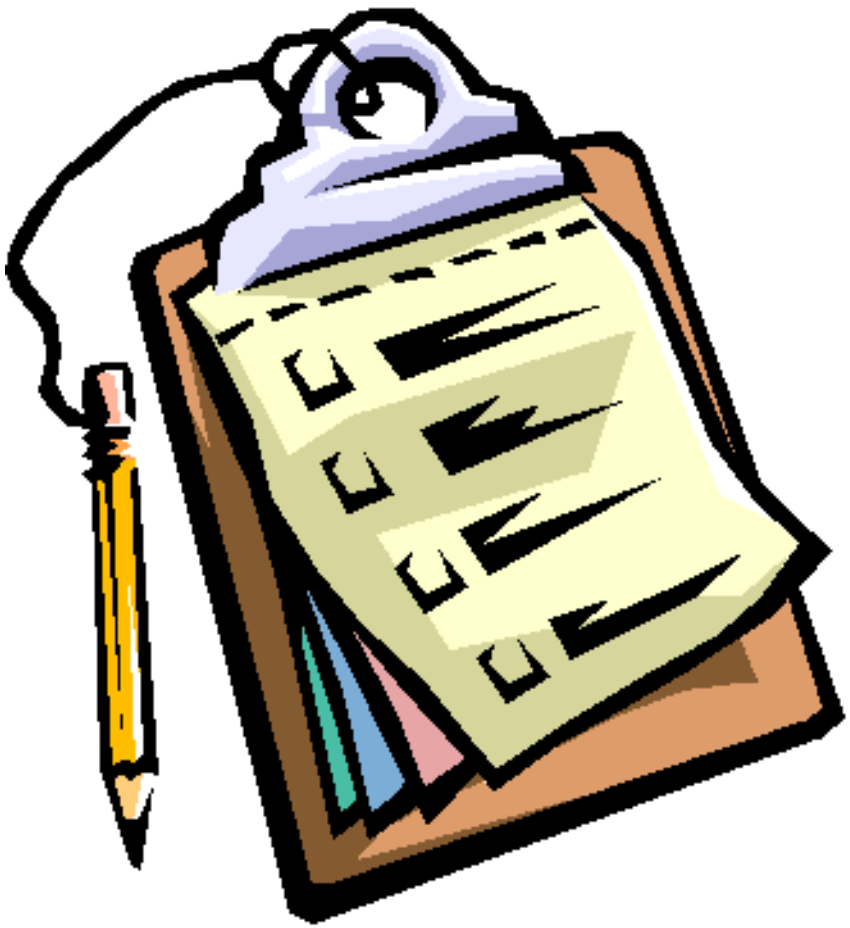
1. What are valence electrons?
2. What is the Bohr Model for calcium?
3. Draw the Lewis Dot diagram for Neon

Objective

SWBAT to classify an element as a metal, non-metal, or metalloid based on its properties and location on the periodic table.

Agenda:

- Do Now/Objective
- Quiz
- Thought Provoker
- Mini Lesson
- Classwork
- Homework



Objective: SWBAT to classify an element as a metal, non-metal, or metalloid based on its properties and location on the periodic table.

QUIZ TIME!

- 8 minutes!

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Thought Provoker

- OBJECT:
- What are at least two adjectives you could use to describe the object in front of you?
- Do you think your object will get hot quickly if put over a flame?
- Would it be easy to take your object and make other things out of it like tools, pots, cups, etc?
- Describe two ways that your object is different from another object that your classmates have.

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Vocab Refresher

- Which member of group 13 is found in the second period?

(1) Be

(2) Mg

(3) B

(4) Al

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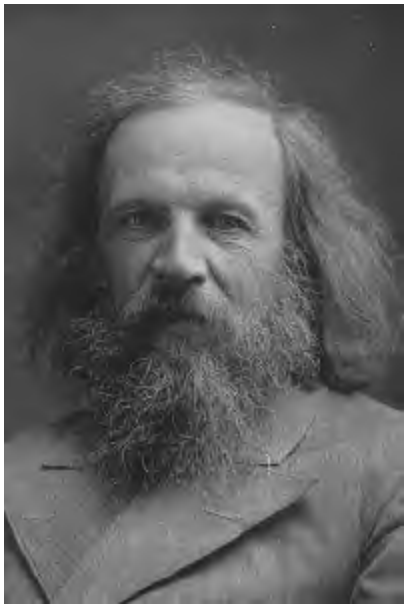
Periodic Table Pass Out!

Mendeleev

- In 1869, Dmitri Ivanovitch Mendeléev created the first the periodic table.
- Elements were grouped according to their atomic mass.
- He found that the groups had similar chemical properties.
- Blank spaces were left open to add the new elements he predicted would occur.



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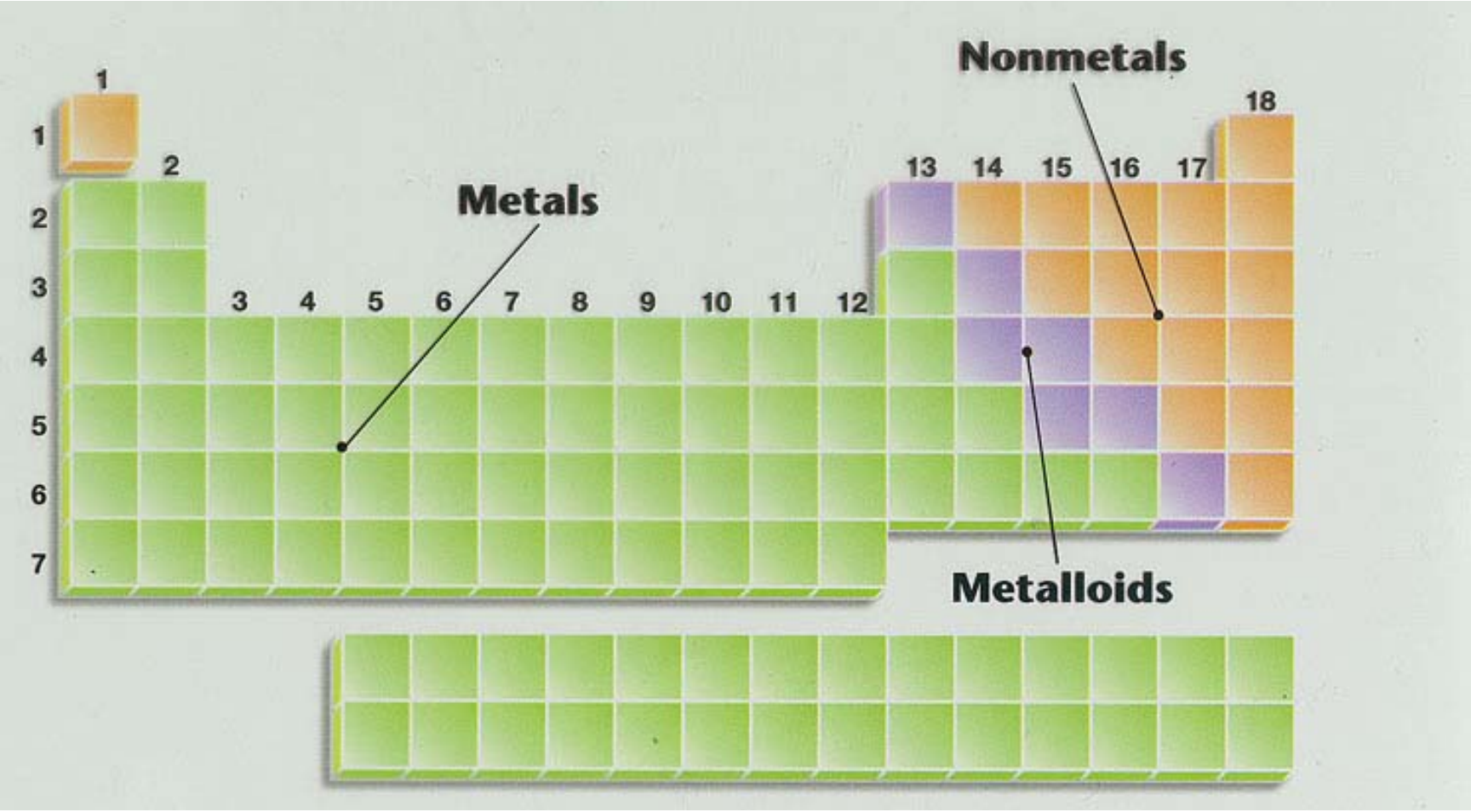
Organization of the Periodic Table



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Metals

- Metals** are elements that are shiny, solid at room temperature, and good conductors of heat and electricity

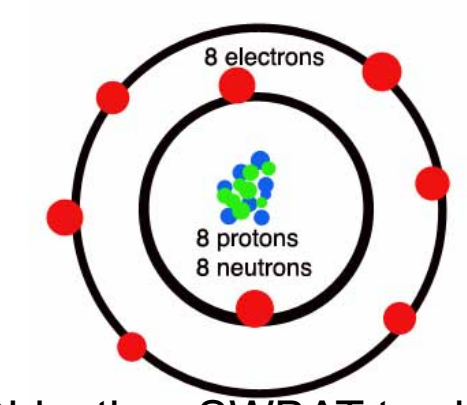
Examples: Copper (Cu) and Gold (Au)

Objective: SWBAT to classify an element a metalloid based on its properties and location on the periodic table.

Non Metals

- Non-metals** are generally gases or dull looking solids. Poor conductors of heat and electricity

- Examples: Oxygen (O) and Carbon (C)



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Metallic VS Nonmetallic Properties

METALS	NONMETALS
•Shiny! •Malleable/Bendable •Conducts Electricity •REACTS w/ ACID •Usually SOLID at room temp. (EXCEPTION: Mercury (Hg) is liquid at room temp)	•Dull (NOT shiny) •Brittle/Fragile/Breakable •Not a conductor of electricity •NO REACTION w/ ACID •Can be solid, liquid, or gas at room temp.
•Examples: Copper (Cu), Silver (Ag), Platinum (Pt), and Vanadium (V)	•Examples: Sulfur (S), Neon (Ne), Fluorine (F), Iodine (I)

Objective: SWBAT to classify an element as a metal, non-metal, or metalloid based on its properties and location on the periodic table.

Metalloids

- Metalloids** have physical and chemical properties of both metals and nonmetals

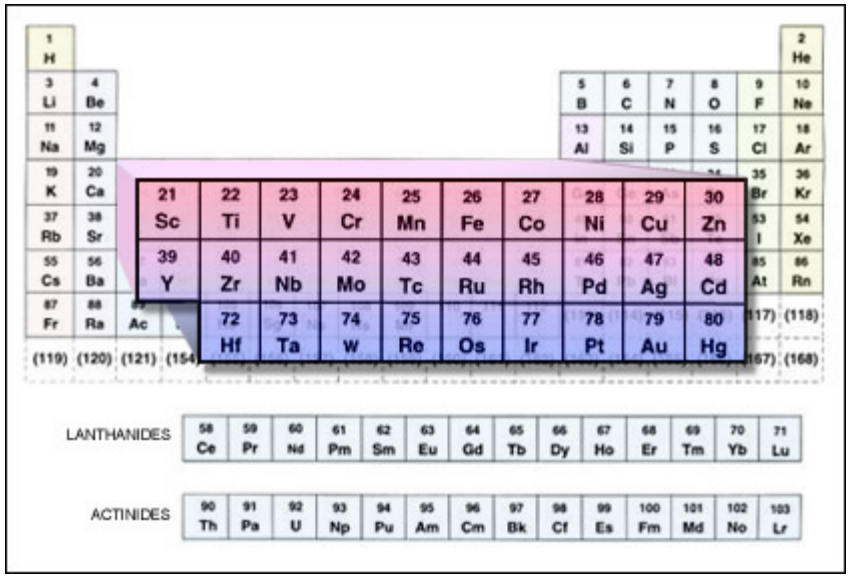
- For example: shiny gray solid, reacts with HCl (acid), but DOES NOT conduct electricity

Examples: Boron (B), Silicon (Si)

Objective: SWBAT to classify an element as a metal, non-metal, or metalloid based on its properties and location on the periodic table.

Transition Metals

- Transition metals** are in groups 3 through 12
- Emit energy with frequencies of visible colors



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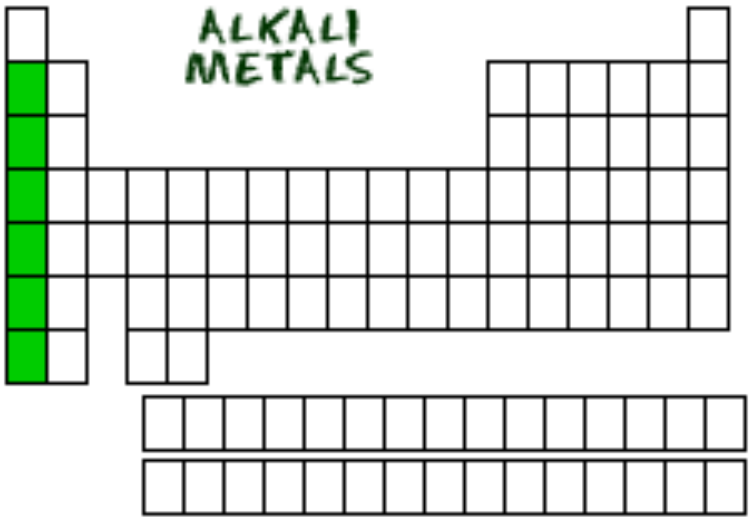
Alkali Metals



- Group #1 (except hydrogen) = alkali metals**.

- Extremely reactive.

- Examples:
  - Sodium (Na) in salt
  - Lithium (Li) used in batteries

H	
Li	Lithium
Na	Sodium
K	Potassium
Rb	Rubidium
Cs	Cesium
Fr	Francium

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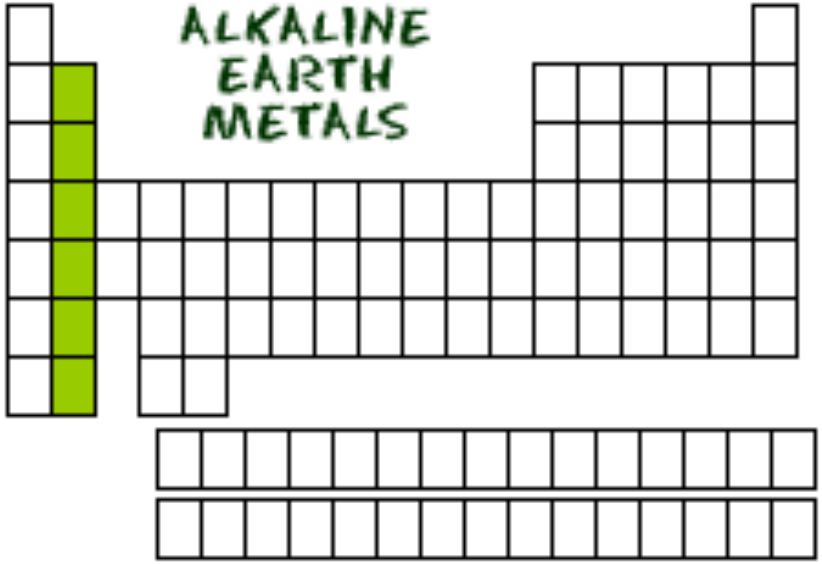
Alkaline Earth Metals



- Group #2 =
  alkaline earth metals.

- Also highly reactive

- Examples:
  - Calcium (Ca) in milk and muscles
  - Magnesium (Mg) used in computers

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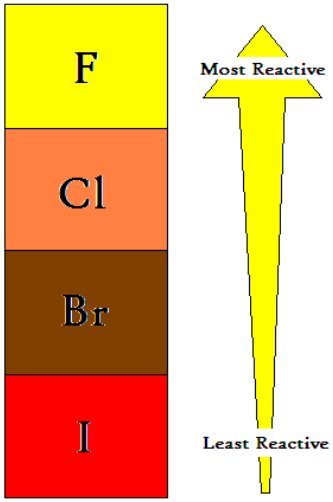
Halogens



- Group #17 = halogens
- Highly Reactive
- Examples:
  - Fluorine (F) used in toothpaste
  - Bromine (Br) used in hot tubs

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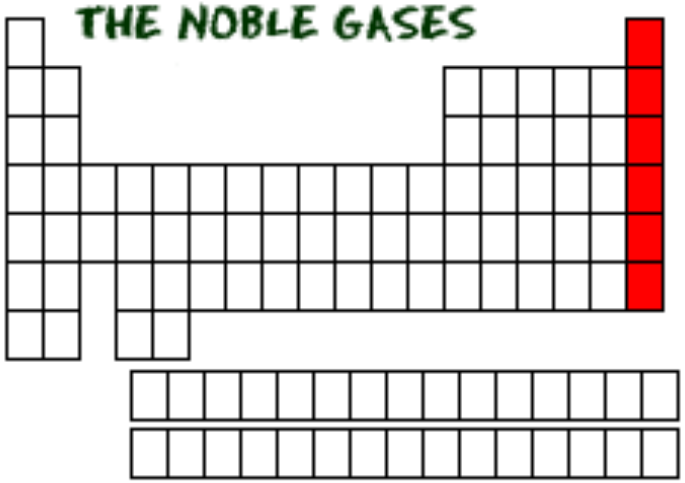
Noble Gases



- Group #18 = noble gases
- These gases are extremely unreactive.
- Examples:
  - Used in lasers and light bulbs

NEON IS USED
IN MANY STREET SIGNS.

Objective: SWBAT to classify an element as a metal, non-metal, or metalloid based on its properties and location on the periodic table.

Movie Time!

- http://education-portal.com/academy/lesson/the-periodic-table-properties-of-groups-and-periods.html#lesson

Objective: SWBAT to classify an element as a metal, non-metal, or metalloid based on its properties and location on the periodic table.

Hands up!

- Most of the elements in the Periodic Table are classified as
  - Metalloids (3) Nonmetals
  - Noble gases (4) Metals
- Phosphorus is best classified as a
  - Nonmetal (3) Metalloid
  - Metal (4) Transition element

Objective: SWBAT to classify an element as a metal, non-metal, or metalloid based on its properties and location on the periodic table.

Classwork

- Complete 4.5 classwork with your neighbors!

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HOMEWORK

Complete 4.5 HW

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