

Periodic Table Day 2

New Seating Charts

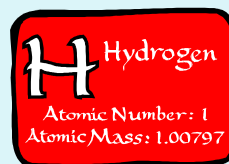
Grade Homework

- Metals, Non-Metals and Valence Electrons Worksheet

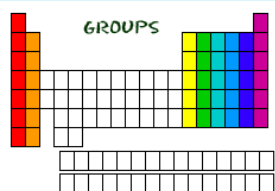
Quiz 7

Lewis Structures

- Find your element on the periodic table.
- Determine the number of valence electrons.
- This is how many electrons you will draw.



Lewis Structures



- Find out which group (column) your element is in.
- This will tell you the number of valence electrons your element has.
- You will only draw the valence electrons.

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Groups - Review

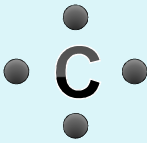
Group 1 = 1 electron
Group 2 = 2 electrons
Group 3 = 3 electrons
Group 4 = 4 electrons
Group 5 = 5 electrons
Group 6 = 6 electrons
Group 7 = 7 electrons
Group 8 = 8 electrons

★ Except for He, it has 2 electrons

- Each column is called a "group"
- Each element in a group has the same number of electrons in their outer orbital, also known as "shells".
- The electrons in the outer shell are called "valence electrons"

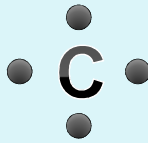
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Lewis Structures



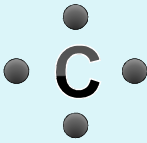
- 1) Write the element symbol.
- 2) Carbon is in the 4th group, so it has 4 valence electrons.
- 3) Starting at the top, draw 4 electrons, or dots, clockwise around the element symbol.

Lewis Structures



- 1) Check your work.
- 2) Using your periodic table, check that Carbon is in the 4th group.
- 3) You should have 4 total electrons, or dots, drawn in for Carbon.


Lewis Structures



On your worksheet, try these elements on your own:

- a) H
- b) P
- c) Ca
- d) Ar
- e) Cl
- f) Al

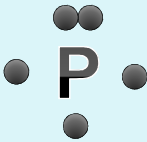
Lewis Structures



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Lewis Structures



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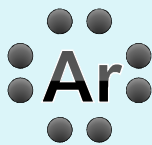
Lewis Structures



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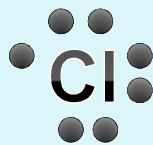
Lewis Structures



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Lewis Structures



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Lewis Structures



On your worksheet, try these elements on your own:

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- Groups or Families
 - The Vertical Columns
 - Tells you the number of electrons in the outershell

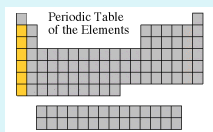
- Periods or Rows
 - The Horizontal Rows
 - Tells you the number of Energy Levels around the Nucleus

Hydrogen

- The hydrogen square sits atop Family Al, but it is not a member of that family. Hydrogen is in a class of its own.
- It's a gas at room temperature.
- It has one proton and one electron in its one and only energy level.
- Hydrogen only needs 2 electrons to fill up its valence shell.

Alkali Metals

- The alkali family is found in the first column of the periodic table.
- Atoms of the alkali metals have a single electron in their outermost level, in other words, 1 valence electron.
- They are shiny, have the consistency of clay, and are easily cut with a knife.



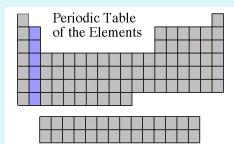
Alkali Metals



- They are the most reactive metals.
- They react violently with water.
- Alkali metals are never found as free elements in nature. They are always bonded with another element.

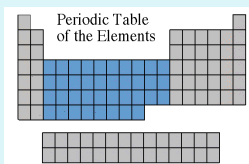
Alkaline Earth Metals

- They are never found uncombined in nature.
- They have two valence electrons.
- Alkaline earth metals include magnesium and calcium, among others.



Transition Metals

- Transition Elements include those elements in the B families.
- These are the metals you are probably most familiar: copper, tin, zinc, iron, nickel, gold, and silver.
- They are good conductors of heat and electricity.

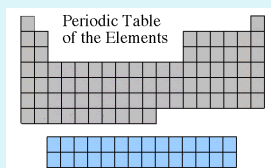


Transition Metals



- The compounds of transition metals are usually brightly colored and are often used to color paints.
- Transition elements have 1 or 2 valence electrons, which they lose when they form bonds with other atoms. Some transition elements can lose electrons in their next-to-outermost level.

Rare Earth Elements

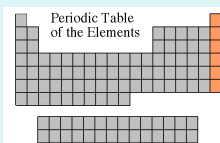


- The thirty rare earth elements are composed of the lanthanoid and actinoid series.
- One element of the lanthanoid series and most of the elements in the actinoid series are called trans-uranium, which means synthetic or man-made.

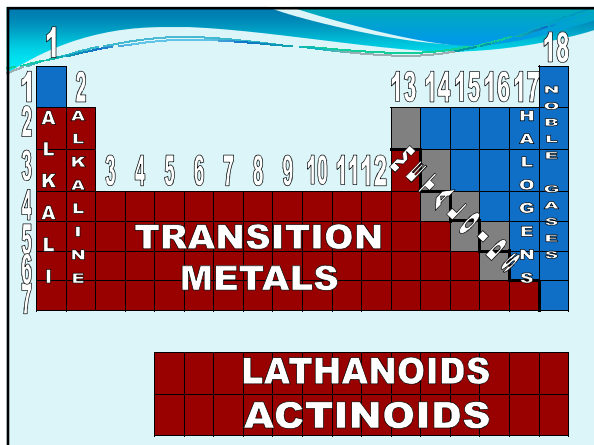
Halogens

- Halogens are highly reactive can be found in many minerals and in seawater
- At room temperature and pressure, fluorine and chlorine are gases, bromine is a liquid and iodine and astatine are solids
- Group 17(7) is therefore the only periodic table group exhibiting all three states of matter at room temperature

Noble Gases



- Noble Gases are colorless gases that are extremely un-reactive.
- One important property of the noble gases is their inactivity. They are inactive because their outermost energy level is full.
- Because they do not readily combine with other elements to form compounds, the noble gases are called inert.
- The family of noble gases includes helium, neon, argon, krypton, xenon, and radon.
- All the noble gases are found in small amounts in the earth's atmosphere.



Homework

- Periodic Table Worksheet
- Next Class-Build a Periodic Table Lab