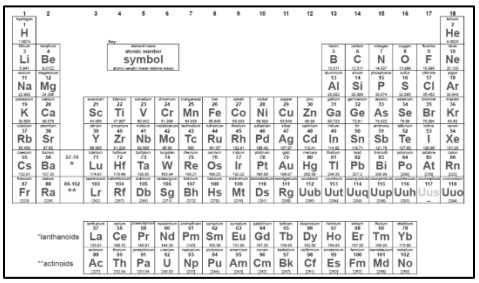
Ramirez – SCIENCE Distance Learning 2020 Student Name:_____ Per#___

WEEK #2 **NOTE:** You may choose to complete this assignment on MobyMax using a cell phone.

DAY #1 - DIRECTIONS: Read each passage and complete the activities after each.



All matter is made up of the same elements. Scientists have arranged all the known elements on a chart called the periodic table of the elements. The periodic table is arranged in a particular way. It includes the name of each element, and it helps us see how many protons and neutrons an atom of each element has.

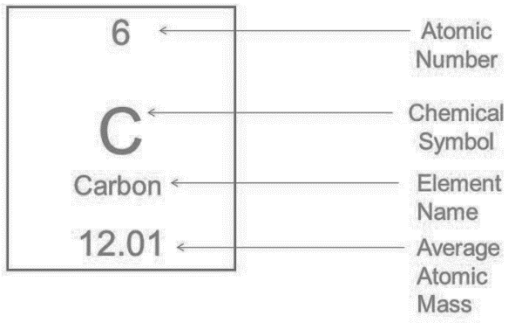
What is the Periodic Table used for? Check all that apply

- ☐ to find out how many neutrons an element has
- ☐ to find the names of the elements
- ☐ to find out how many protons an element has
- ☐ to eat dinner off of in bed

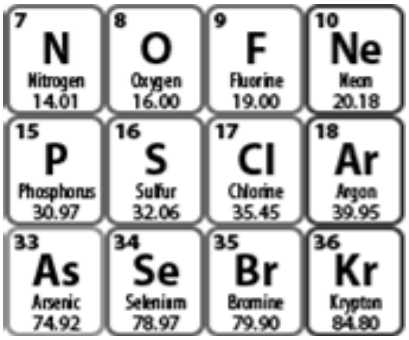
People that most likely to use the Periodic Table: Select all correct answers

- ☐ a scientist who studies how people communicate with each other
- ☐ a student who wants to know the number of protons in a carbon atom
- ☐ a scientist who studies how atoms can gain or lose neutrons
- ☐ a teacher who is teaching his class about all the elements on Earth

People who are studying atoms, elements, molecules, and compounds are most likely to use the periodic table. A scientist who studies how people communicate is not very likely to need the periodic table of the elements. How can one chart fit so much information about each element? The trick to using the periodic table is knowing what all the symbols mean. Let's look closer at the entry for carbon.



The atomic number of an element is the number of protons an atom has – the number of protons determines what an element is. For example, if an atom has six protons, it can only be carbon. The atomic number can also tell us how many electrons an atom has. From this, we can work out how the electrons are arranged, and this will tell us how an element will react with others.



Shade in the element with 18 protons in its nucleus in RED:

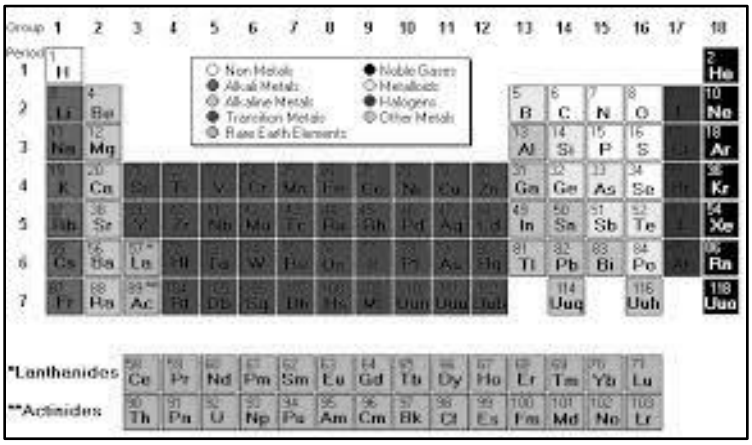
Shade in the element with 75 neutrons in its nucleus in BLUE: (Hint: Round the atomic mass to the nearest whole number)

K stands for potassium. Some elements have symbols that relate to their names in English, such as O for oxygen. However, many elements have atomic symbols that relate to their names in Latin. Potassium in Latin is kalium.

Which element has the atomic symbol K? _____

Silicon's atomic symbol is _____
Silicon's atomic number is _____
Rounded down, silicon's atomic mass is _____
A silicon atom has _____ protons in its nucleus.
A silicon atom has _____ neutrons in its nucleus.

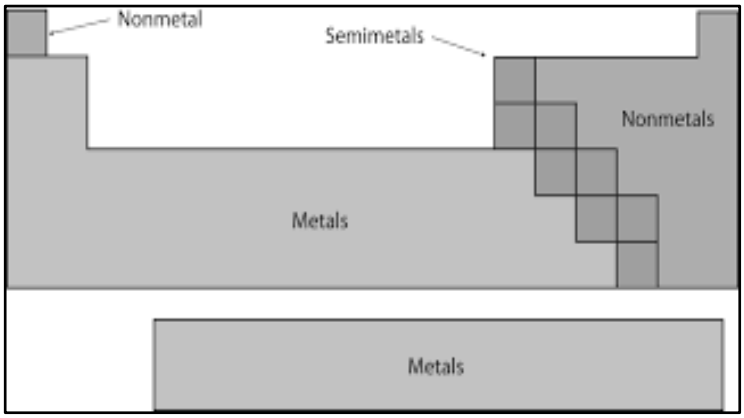
DAY #2 – DIRECTIONS: Read each passage and complete the activities after each.



The periodic table itself can also teach us information about the elements. There are nine basic groups of elements shown in the periodic table. They are the alkali metals, alkaline earth metals, transition metals, other metals, metalloids, non-metals, halogens, noble gases and rare earth elements. The columns of the periodic table are called groups. All elements in a group share the same number of valence electrons. The three broad categories of elements are metals, nonmetals, and metalloids. Most elements are metals.

Helium is a gas that does not react easily with other elements. What can you guess about the element neon, which is below helium on the periodic table?

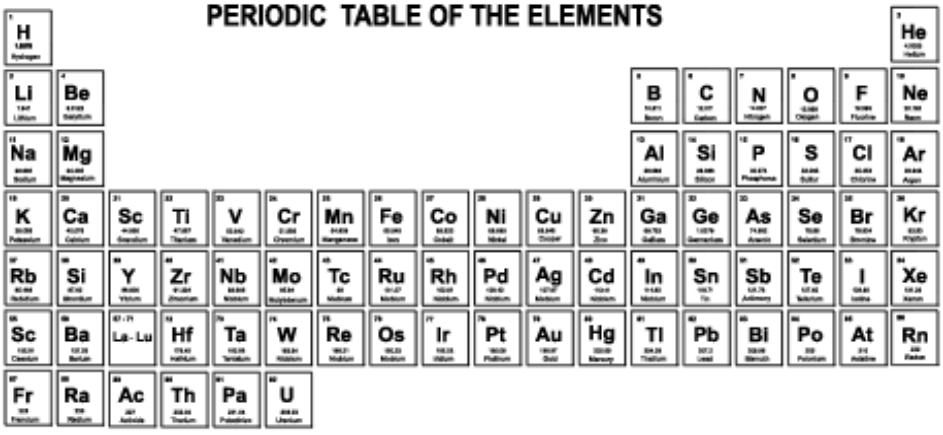
- ☐ *Neon is a gas.*
- ☐ *Neon is a solid.*
- ☐ *Neon does not easily react with other elements.*
- ☐ *Neon is nothing like helium.*



For many years, scientists have discovered new elements in nature or created them in labs. Therefore, the periodic table often changes. This is a periodic table from 1979. Hydrogen is the first element on the periodic table. It is farthest to the left and highest on the chart. Therefore, it is the smallest. The largest element on this periodic table is uranium, shown by its atomic symbol, U. It is the farthest down and to the right on the table. Uranium is sometimes used to build nuclear weapons.

Shade it in BLUE on the periodic table:

What is the largest atomic number? _____



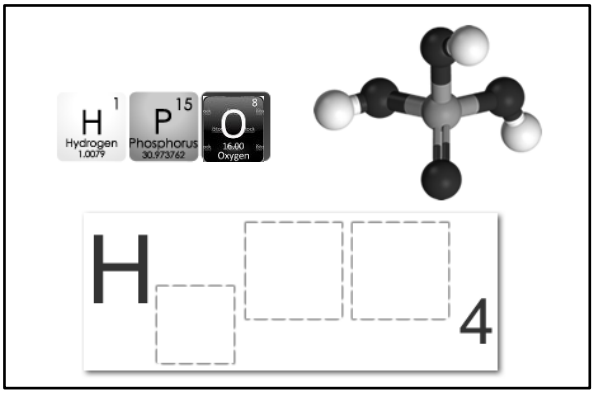
DAY #3 – DIRECTIONS: Read each passage and complete the activities after each.

number of atoms	prefix	example	
1	mono	NO	nitrogen monoxide
2	di	NO_2	nitrogen dioxide
3	tri	N_2O_3	dinitrogen trioxide
4	tetra	N_2O_4	dinitrogen tetraoxide
5	penta	N_2O_5	dinitrogen pentaoxide
6	hexa	SF_6	sulphur hexa fluoride
7	hepta	IF_7	iodine hepta fluoride
8	octa	P_4O_8	tetra phosphur decoxide
9	nona	P_4S_9	tetra phusphur nona sulphide
10	deca	AS_4O_{10}	tetra arsinic decoxide

Knowing the atomic symbol, number, and mass of elements helps scientists understand more about atoms, molecules, and compounds. The atomic symbol is especially important when naming molecules and compounds. The name of a molecule or compound is its chemical formula. A molecular compound is usually composed of two or more nonmetal elements. Molecular compounds are named with the first element first and then the second element by using the stem of the element name plus the suffix -ide. Numerical prefixes are used to specify the number of atoms in a molecule.

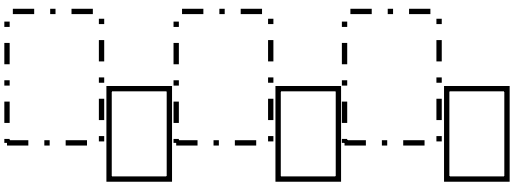
Use the chemical formula for vinegar **$C_2H_4O_2$** to complete these sentences:
H stands for hydrogen. There are _____ hydrogen atoms in vinegar. _____ stands for carbon. There are _____ carbon atoms in vinegar. _____ stands for oxygen. There are _____ oxygen atoms in vinegar.

This compound is a molecule of phosphoric acid. A molecule of phosphoric acid has three hydrogen atoms, one phosphorus atom, and four oxygen atoms. Use the model to complete its molecular formula:



Sugar is made up of 6 carbon atoms, 12 hydrogen atoms, and 6 oxygen atoms.

Write the molecular formula*:*



What is the molecular formula for water? _____ (hint: it is made of hydrogen and oxygen)

DAY #4 - DIRECTIONS: Review Days 1-3 by marking all the correct answers.

What is an atomic number?

- ☐ the number of neutrons in an atom
- ☐ the number of protons in an atom
- ☐ the number of electrons in an atom
- ☐ the number of nuclei in an atom

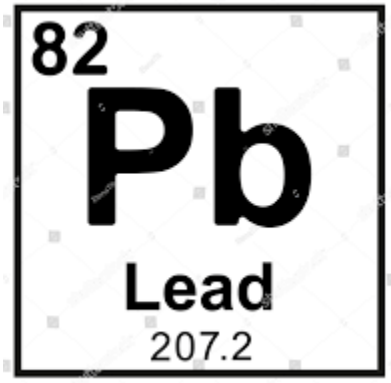
What is atomic mass?

- ☐ the total number of particles in the nucleus of an atom
- ☐ the total number of particles in the whole atom
- ☐ the number of protons in the nucleus of an atom
- ☐ the number of neutrons in the nucleus of an atom

Label this properly:

The _____ _____ of the _____

Use this element, lead, to complete the following:



For this element, 82 is the atomic _____

Pb is the atomic _____

207 is the atomic _____

DAY #5 - DIRECTIONS: Review and complete the activities after each.

Using the section of the periodic table to the left using the following directions. Note that not all items will be shaded in, if directions are followed correctly.

Shade the elements with properties similar to calcium with RED colored pencil.
Shade the ONE non-metal shown with GREEN colored pencil.
Shade Potassium with a BLUE colored pencil.

The chemical formula for caffeine is $C_8H_{10}N_4O_2$.
How many atoms of each element are in caffeine?
Carbon: _____ Hydrogen: _____ Nitrogen: _____ Oxygen: _____

What can you learn from the periodic table?

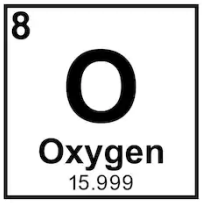
- ☐ the number of neutrons in one atom of an element
- ☐ the number of protons in one atom of an element
- ☐ how large an atom of an element is compared to others
- ☐ an element's atomic symbol
- ☐ all of the above

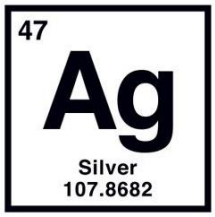
P is _____.

- ☐ the atomic number of sulfur
- ☐ the atomic symbol of sulfur
- ☐ the atomic symbol of phosphorus
- ☐ the atomic number of phosphorus

The 8 represents _____.
Check all that are true.

- ☐ the number of neutrons in the nucleus
- ☐ the number of protons in the nucleus
- ☐ the number of electrons around the nucleus
- ☐ the atomic number





How can you figure out the number of neutrons in the nucleus of silver?

- ☐ 47x108= the number of neutrons
- ☐ 47-108= the number of neutrons
- ☐ 108+47= the number of neutrons
- ☐ 108-47= the number of neutrons

Table salt is made up of one sodium atom and one chlorine atom. Which of the following represents the chemical formula for salt?

- ☐ NaCl
- ☐ Na1Cl1
- ☐ NaCl1
- ☐ Na2Cl