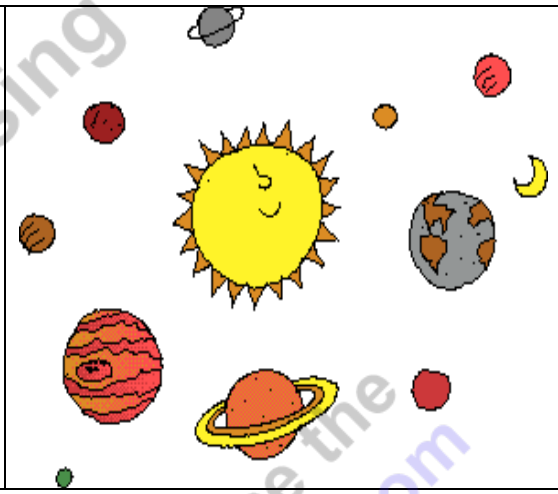
THE PERIODIC ATOMOFE

(MAJOR INVESTIGATION + OFE GRADE)

Name:

Due Date:

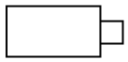
How are you and a picture of hot gases swirling around our universe billions of years ago connected?

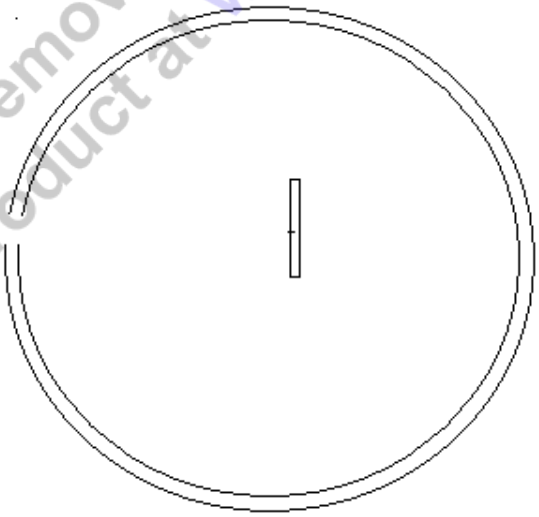


How small is an atom?

What is an atom made of?

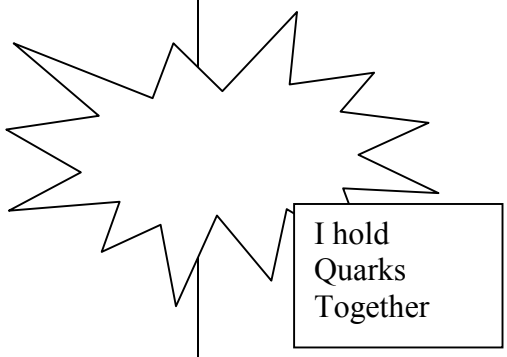
Please describe Rutherford's gold foil experiment using the diagram below. What did it show? Use the box on the right to draw a close up of what it found.





Please draw your best picture of what an atom might look like according to Bohr's Atomic Cloud theory.	Please draw an atom according to Jimmy Neutron, or one you might see in a cartoon or on T.V.

Please draw a picture of Hydrogen and label the protons, neutrons, and electrons with the <u>correct charge</u>. Use P+, N_o, E-. Please correctly label the dense hard core with its proper name.	Please draw a picture of Aluminum and label the protons, neutrons, and electrons with the <u>correct charge</u>. Use P+, N_o, E-. Please correctly label the dense hard core with its proper name.

Please name and accurately show the fundamental particles that make up a proton	Please name and accurately show the fundamental particles that make up a neutron 

Please put the following in the correct box according to their size.

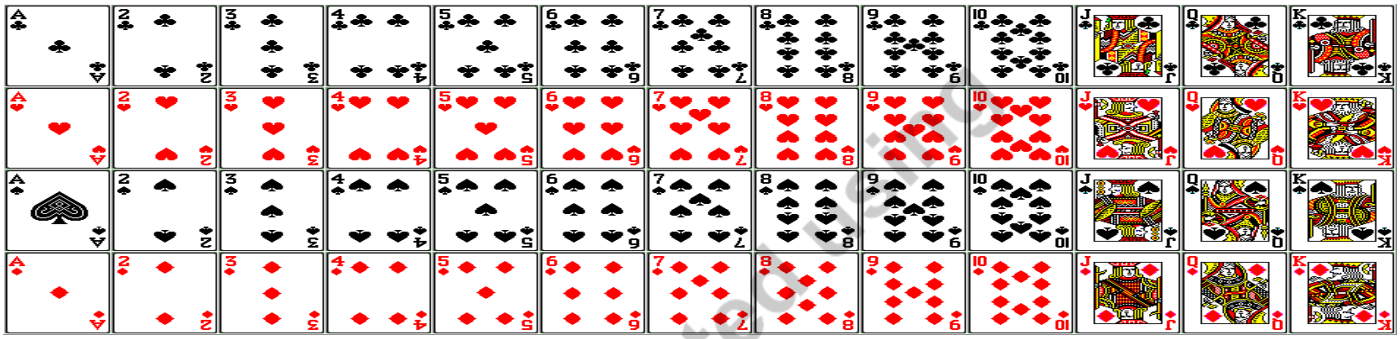
Atom	Molecule	Quark	Neutron	Nucleus	Electron

Smallest ----------→ Largest

What am I and all matter made of?
A correct answer dives deep into the recipe of the universe.

Please make some reference to John Daltons Atomic Assumptions in the space below.

Please describe how this arrangement of playing cards relates to the periodic table of elements

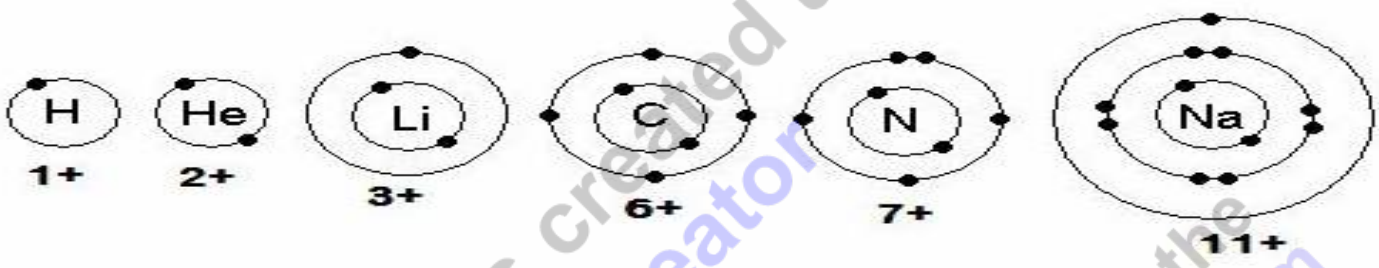


Please fill in the boxes with all of the correct information using the periodic table of the elements.

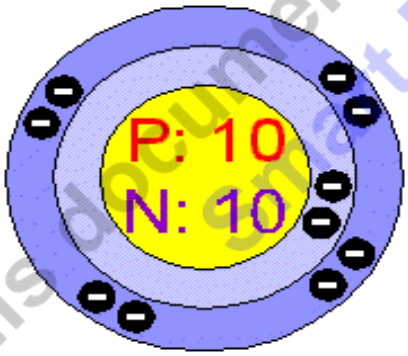
Protons (P+)+ – Electrons (E-)– Neutrons (No) Li	Protons – 6 Electrons – 6 Neutrons-	Protons – Electrons – Neutrons- Ne	Protons – Electrons – Neutrons- 11
Protons – Electrons – 13 Neutrons-	Protons – 17 Electrons – Neutrons-	Protons – Electrons – Neutrons- Ca	Protons – Electrons – Neutrons- 29

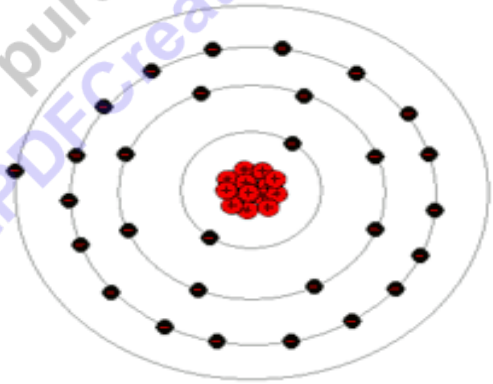
Please record the number of electrons that inhabit the first four energy levels (shells) for the first 18 elements.

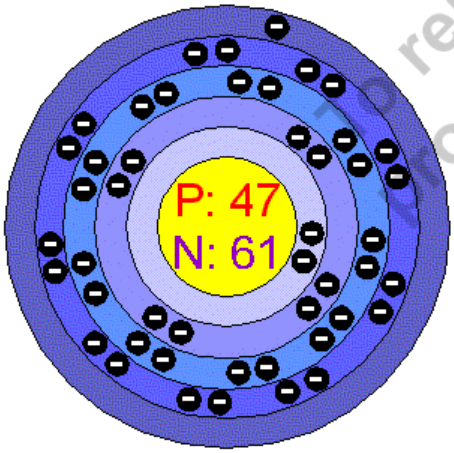
Please record in large bold numbers the number of valence electrons in the elements below.

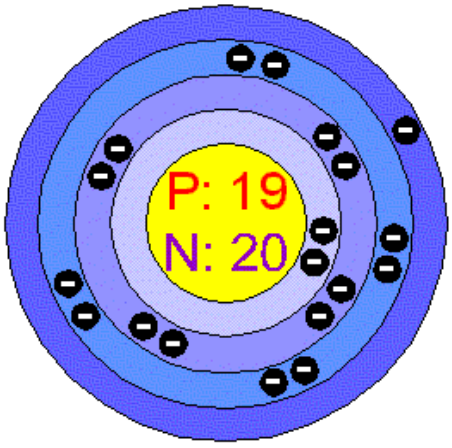


Please label the mystery elements below with the correct atomic number, symbol, name, and atomic mass around the image









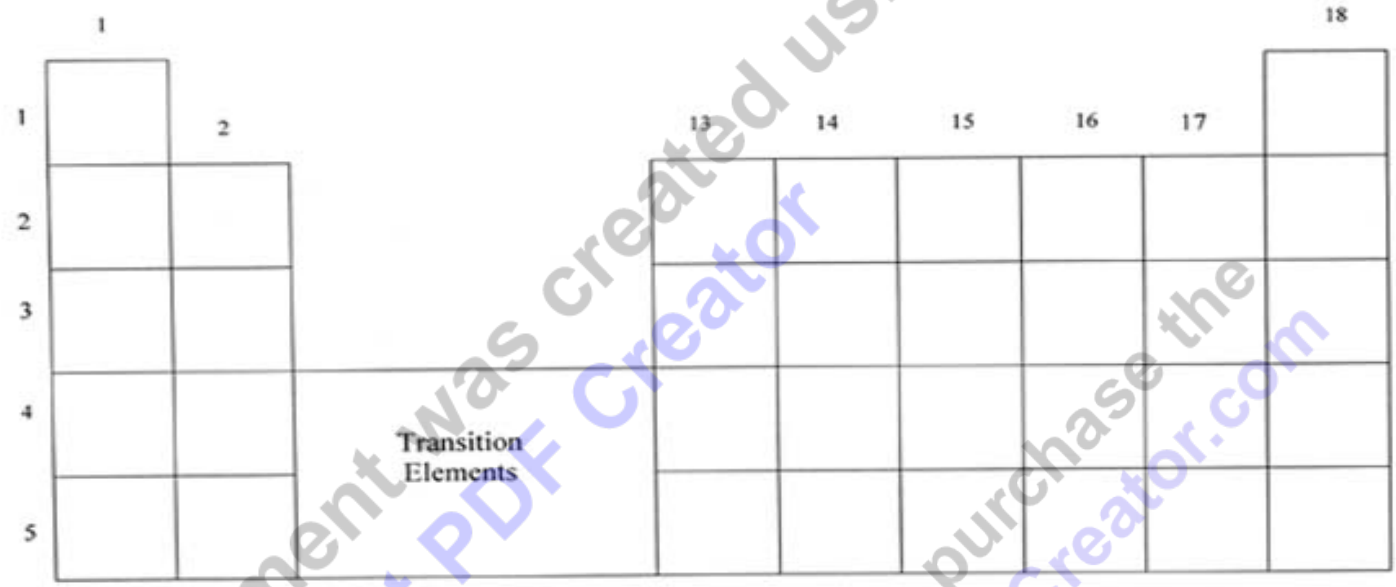
Please create an electron dot structure for the following elements.

Symbol (Ar)	amu = 19.00
# of neutrons = 12	Atomic number # 14

Please complete Lewis Dot Structures for the following molecules

H_2O	C_2H_6	CH_4
NH_3	AlH_3	NaCl
Draw another hydrocarbon of your choice	Please create an alcohol	Nitrogen gas N_2 (triple bond)

Warning 4 part question! 1) Please color code the following: Noble Gases, Non-Metals, Metalloids, Alkai Metals, Halogens, Alkaline-Earth Metals, and Transition Metals. 2) Record the number of valence electrons in each period. 3) Please draw arrows showing the direction of increasing atomic number and atomic mass 4) Please show an arrow showing increasing electronegativity.



Why are the noble gases considered noble?_____

_____

_____

Please describe unique properties of metals, non-metals, and metalloids in the correct boxes below. Use ductile, malleable, luster, electrical conduction, and reaction to acid

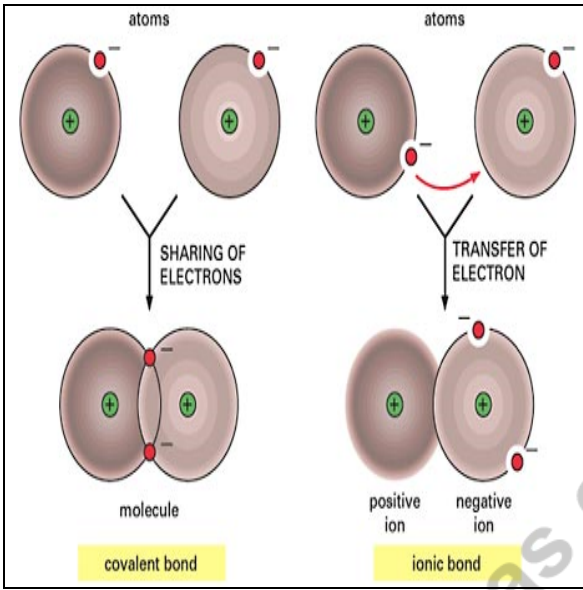
		

Please visit the class periodic table of elements and record information about elements in the space below. Please describe the elements uses, unique properties, isotopes, location of earth, etc.

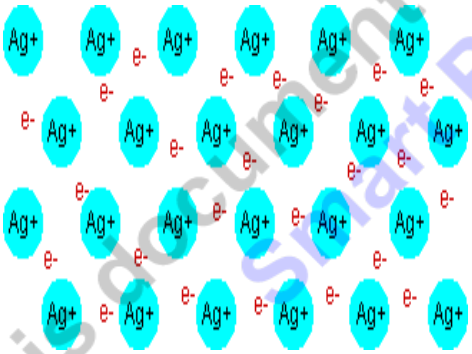
Please record some of the basics of the letters below

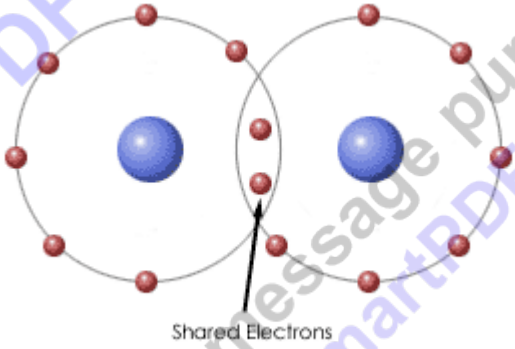
S	P	O	N	C	H

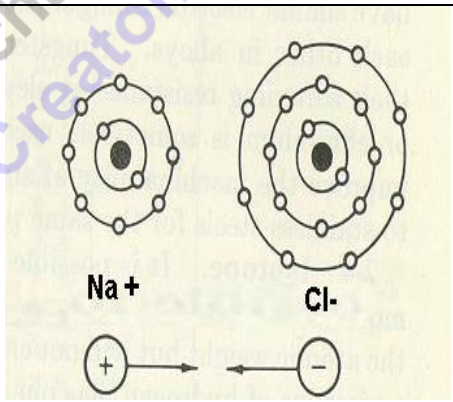
Please describe the difference between ionic and covalent bonds based on the picture below.



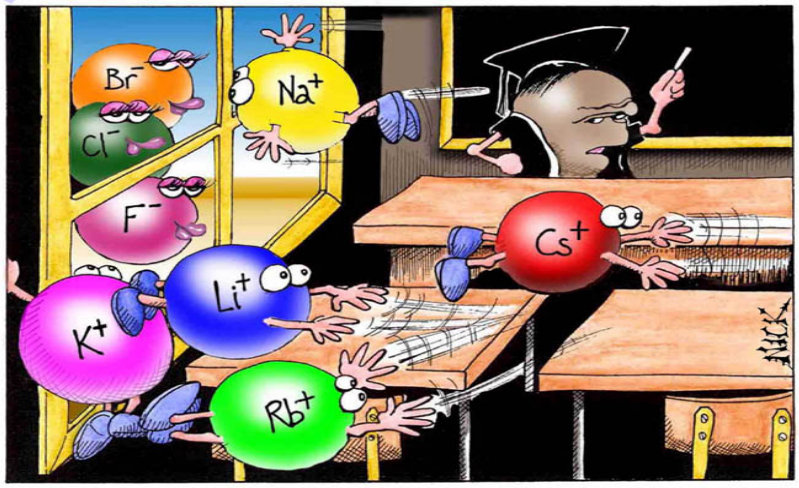
Please label as ionic, covalent, or metallic bond





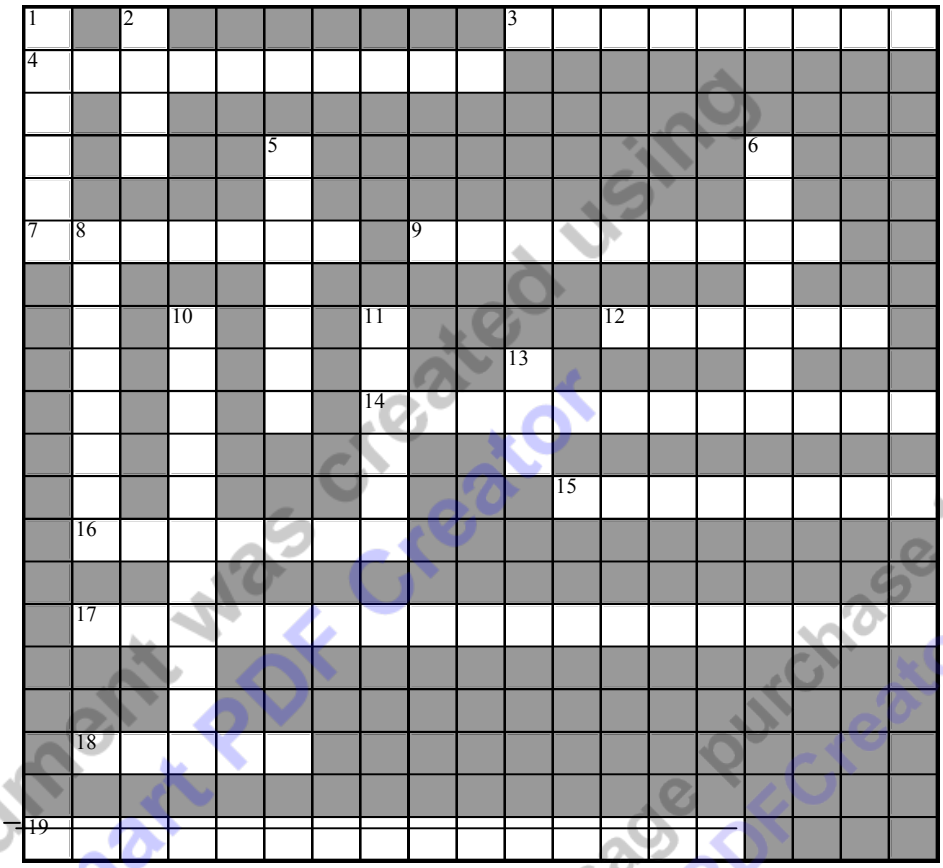


Please explain the cartoon on the right using your knowledge of the periodic table of elements.



"Perhaps one of you gentlemen would mind telling me just what it is outside the window that you find so attractive..?"

THE PERIODIC ATOMOFE CROSSWORD PUZZLE



ACROSS

3. Has properties of metals and non-metals
4. Gold Foil Experiment that discovered + nucleus
7. Neutral particle in an atom
9. Elements want 8 electrons in their outer shell (valence).
12. Biologically important molecules
14. John Dalton helped create this
15. This is the type of bond broken when a spoon is bent
16. Dense center of an atom
17. A chart of all the known elements (doesn't fit?)
18. Bond where you gain or lose an electron.

DOWN

1. Positive particle in an atom
2. Smallest part of an element
5. Same number of protons but different number of N(o)
6. Electrons in the outer shell
8. Negatively charged particle that orbits an atom
10. Molecule made completely of carbon and hydrogen
11. These particles make up protons and neutrons
13. Abbreviation for atomic mass unit.