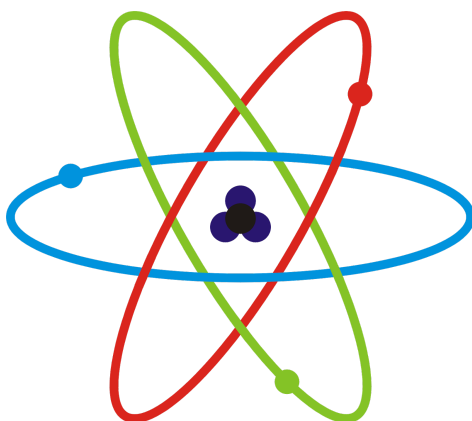
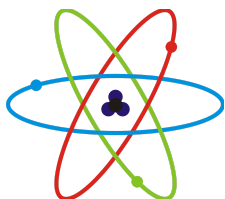


UNIT 1: ELEMENTS AND THE PERIODIC TABLE



7th Grade Science

This packet belongs to:



Learning Goals

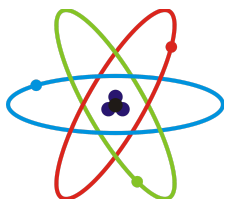
	F	D	C	B	A
1.1	No evidence	I can identify the location of protons OR neutrons OR electrons within an atom	I can identify the location of protons, neutrons, AND electrons within an atom	I can ALSO identify the charge of protons OR neutrons OR electrons	I can identify the location AND charge of protons, neutrons, AND electrons within an atom
1.2	No evidence	I can identify the name and symbol of an element using the periodic table	I can identify the name, symbol, and atomic number of an element using the periodic table	I can identify the name, symbol, atomic number, and mass of an element using the periodic table	I can identify the name, symbol, atomic number, mass, and group of an element using the periodic table
1.3	No evidence	I can find a given element on the periodic table	I can predict the correct number of protons in a given atom using the periodic table	I can ALSO predict the number of neutrons using the periodic table	I can predict the correct number of protons, neutrons, and electrons in a given atom using the periodic table
1.4	No evidence	I can illustrate an incomplete general model of an atom (no particular element)	I can illustrate a general model of an atom (no particular element)	I can accurately illustrate a model of an atom of a given element	I can illustrate models of atoms AND identify an atom based on an illustration

My Grades

Assignment	Score	Percentage	Letter Grade
Homework check #1			
Homework check #2			
Element Presentation			
Elemenstagram			
Vocab Quiz			
Goal Quizzes	Score	Letter Grade	
Goal 1.1 Quiz			
Goal 1.2 Quiz			
Goal 1.3 Quiz			
Goal 1.4 Quiz			

$\text{Points Earned} \div \text{Points Possible} \times 100 = \% \text{ Grade}$
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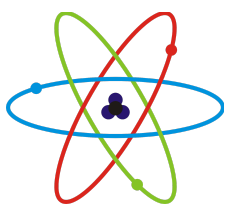
Percentage	Letter Grade
90-100%	A
80-89%	B
70-79%	C
60-69%	D
<60%	F



Important Vocabulary

Directions: Use your textbook or the notes on Google Classroom to define the terms below.

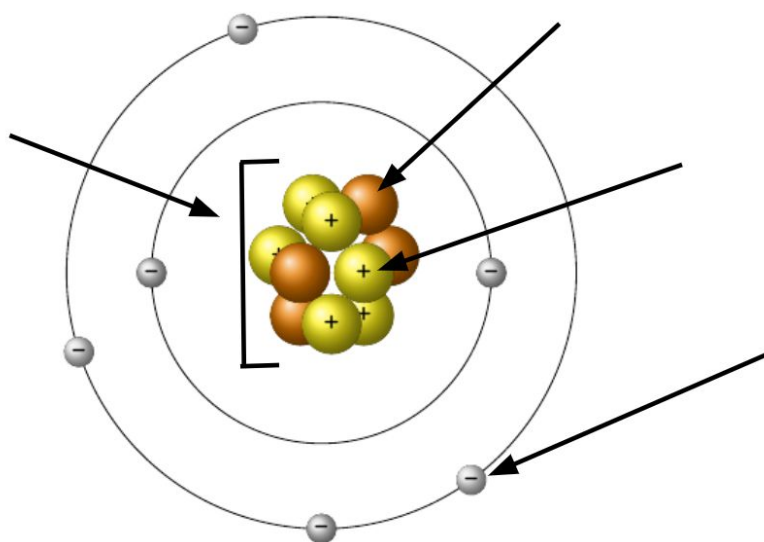
Atom	
Proton	
Neutron	
Electron	
Nucleus	
Electron Cloud	
Element	
Atomic Number	
Atomic Mass/Weight	
Group	
Period	



Goal 1.1

I can identify the location and charge of protons, neutrons, and electrons within an atom

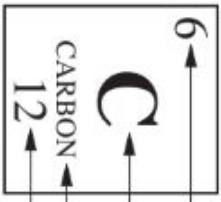
Label each arrow on the diagram below with the correct term.



Complete the table below.

	Charge of particle	Where it is found
Protons		
Neutrons		
Electrons		

The Periodic Table of Elements



1 H HYDROGEN	2 He HELIUM	NON-METALS																																
3 Li LITHIUM	4 Be BERYLLIUM	5 B BORON	6 C CARBON	7 N NITROGEN	8 O OXYGEN	9 F FLUORINE	10 Ne NEON	11 Na SODIUM	12 Mg MAGNESIUM	13 Al ALUMINUM	14 Si SILICON	15 P PHOSPHORUS	16 S SULFUR	17 Cl CHLORINE	18 Ar ARGON	19 K POTASSIUM	20 Ca CALCIUM	21 Sc SCANDIUM	22 Ti TITANIUM	23 V VANADIUM	24 Cr CHROMIUM	25 Mn MANGANESE	26 Fe IRON	27 Co COBALT	28 Ni NICKEL	29 Cu COPPER	30 Zn ZINC	31 Ga GALLIUM	32 Ge GERMANIUM	33 As ARSENIC	34 Se SELENIUM	35 Br BROMINE	36 Kr KRYPTON	
37 Rb RUBIDIUM	38 Sr STRONTIUM	39 Y YTRBIUM	40 Zr ZIRCONIUM	41 Nb NIOBIUM	42 Mo MOLYBDENUM	43 Tc TECHNETIUM	44 Ru RUTHENIUM	45 Rh RHODIUM	46 Pd PALLADIUM	47 Ag SILVER	48 Cd CADMIUM	49 In INDIUM	50 Sn TIN	51 Sb ANTIMONY	52 Te TELLURIUM	53 I IODINE	54 Xe XENON	55 Cs CESIUM	56 Ba BARIUM	57 La LANTHANUM	58 Ce CELIUM	59 Pr PRASEODYMIUM	60 Nd NEODYMIUM	61 Pm PROMETHIUM	62 Sm SAMARIUM	63 Eu EUROPIUM	64 Gd GADOLINIUM	65 Tb TERBIUM	66 Dy DYSPRIDIUM	67 Ho HOLMIUM	68 Er ERBIUM	69 Tm THULIUM	70 Yb YBBIUM	71 Lu LUTETIUM
87 Fr FRANCIUM	88 Ra RADIUM	104 Rf RUTHERFORDIUM	105 Db DUBNIUM	106 Sg SEABORGIUM	107 Bh BOHRIUM	108 Hs HASSIUM	109 Mt MEITNERIUM	110 Ds DARWINIUM	111 Rg ROSENBLUTHIUM	112 Cn COOPERIUM	113 Nh NIHONIUM	114 Fl FLEROVIUM	115 Mc MOSCOWIUM	116 Lv LIVERMORIUM	117 Ts TENNESSEIUM	118 Og OGANESSON	223 Fr	226 Ra	227 Ac	232 Th	231 Pa	238 U	237 Np	244 Pu	243 Am	247 Cm	247 Bk	251 Cf	252 Es	257 Fm	258 Md	259 No	262 Lr	

METALS

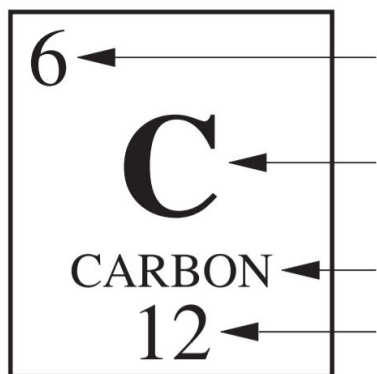
KEY

- = Solid at room temperature
- = Liquid at room temperature
- = Gas at room temperature
- = Radioactive
- = Artificially Made

89 Ac ACTINIUM	90 Th THORIUM	91 Pa PROTACTINIUM	92 U URANIUM	93 Np NEPTUNIUM	94 Pu PLUTONIUM	95 Am AMERICIUM	96 Cm CURIUM	97 Bk BERKELIUM	98 Cf CALIFORNIUM	99 Es EINSTEINIUM	100 Fm FERMIUM	101 Md MENDELIUM	102 No NOBELIUM	103 Lr LAWRENCIUM
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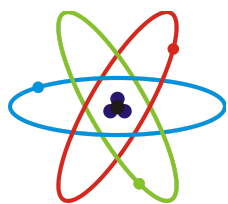
* The atomic weights listed on this Table of Elements have been rounded to the nearest whole number. As a result, this chart actually displays the mass number of a specific isotope for each element. An element's complete, unrounded atomic weight can be found on the I.T's Elemental website: <http://education.jlab.org/elemental/>

Label the components of the following square from the periodic table.



Fill in the blanks in the table below using your periodic table.

#	Element Name	Symbol	Atomic Number	Mass	Group
1	Potassium				
2			30		
3		O			
4				20	
5	Radon				
6			47		
7		H			
8				195	
9	Gold				
10			17		



Goal 1.3

I can predict the correct number of protons, neutrons, and electrons in a given atom using the periodic table

Fill in the blanks correctly for each of the following atoms using your periodic table.

#	Element Name	Symbol	Protons	Neutrons	Electrons
1	Copper				
2	Tin				
3	Silicon				
4	Uranium				
5	Carbon				
6	Lithium				
7	Oganesson				
8	Helium				
9	Chromium				
10	Cobalt				
11		B			
12		Kr			
13		Hf			
14		Lr			
15		Ca			
16		Sr			
17		F			
18		S			
19		P			
20		Be			

PERIODIC TABLE SCAVENGER HUNT

Part I - Names and Symbols

Write down the name of the element that goes with each symbol; or write down the symbol of the element that goes with the name.

- | | |
|-------------|---------------------|
| 1) Sr:_____ | 6) Copper:_____ |
| 2) C:_____ | 7) Silver:_____ |
| 3) Al:_____ | 8) Potassium:_____ |
| 4) Og:_____ | 9) Mercury:_____ |
| 5) Au:_____ | 10) Lanthanum:_____ |

Part II - Atomic Numbers

Find the atomic number for each of the following elements.

- | | |
|-------------------|---------------------|
| 1) Chromium:_____ | 6) Magnesium:_____ |
| 2) Calcium:_____ | 7) Nickel:_____ |
| 3) Radon:_____ | 8) Aluminum:_____ |
| 4) Nitrogen:_____ | 9) Tungsten:_____ |
| 5) Osmium:_____ | 10) Americium:_____ |

Part III - Atomic Weight/Mass

Find the atomic weight/mass for each of the following elements.

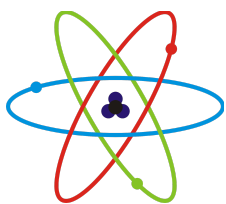
- | | |
|-------------------|-----------------------|
| 1) Copper:_____ | 6) Radium:_____ |
| 2) Nitrogen:_____ | 7) Cobalt:_____ |
| 3) Helium:_____ | 8) Lawrencium:_____ |
| 4) Mercury:_____ | 9) Fluorine:_____ |
| 5) Tin:_____ | 10) Californium:_____ |

Part IV - Who Am I?

Find the element that fits each description.

- 1) I am a noble gas with a mass greater than 150 and less than 200: _____
- 2) I am a transition metal that is a liquid at room temperature: _____
- 3) I am a rare earth metal with an atomic number less than 72. I am also radioactive: _____
- 4) I am the lightest of all the alkali metals: _____
- 5) I am the heaviest of the alkaline earth metals: _____
- 6) I am a halogen that is a gas at room temperature and I am lighter than aluminum: _____
- 7) I am a transition metal that is closest in atomic number to strontium: _____
- 8) I am the first radioactive metalloid: _____
- 9) I am the lightest gas: _____
- 10) I am the lightest artificially made element: _____

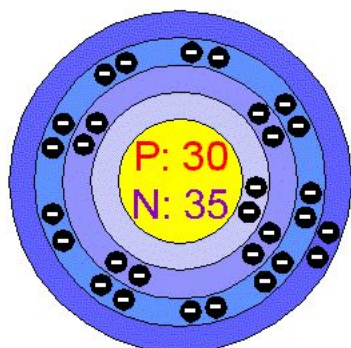
- _____ 1. Which element is number 14 on the periodic table?
- _____ 2. What is the element symbol for californium?
- _____ 3. How many protons are in an atom of bismuth?
- _____ 4. To which element group does argon belong?
- _____ 5. Which element would you expect to have a higher mass:
cadmium or zinc?
- _____ 6. What is the atomic mass of carbon?
- _____ 7. What do you call the element series from atomic number 57-71?
- _____ 8. Which element has a symbol that starts with a letter different
from the first one in its name: aluminum, copper, gold,
rhenium?
- _____ 9. Which element has the lowest atomic mass?
- _____ 10. What is the first element with an atomic mass greater than 100?
- _____ 11. What is the first basic metal on the periodic table?
- _____ 12. True or false: Tin and antimony are in the same element group.
- _____ 13. What is the heaviest alkali metal?
- _____ 14. How many protons are in an atom of magnesium?
- _____ 15. Which of the following is not a nonmetal: sulfur, oxygen, silicon,
nitrogen?
- _____ 16. What is the name of the element with the symbol W?
- _____ 17. Which element has an atomic mass of 106.42?
- _____ 18. Astatine belongs to which element group: nonmetal, halogen,
noble gas?
- _____ 19. What is the element with the symbol Ba?
- _____ 20. Name a letter never used in any element symbol?



Goal 1.4

I can create models/illustrations of given atoms and I can identify an atom based on a given model/illustration

Identify the information for each of the atoms.

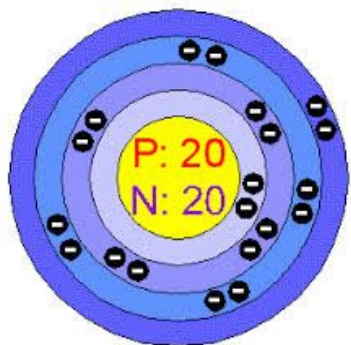


Element Name _____

Element Symbol _____

Atomic Number _____

Atomic Mass _____

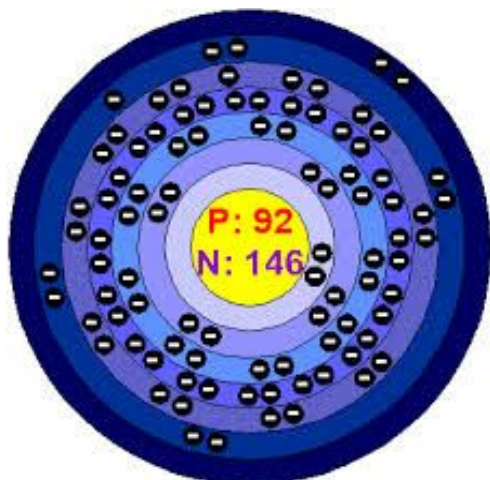


Element Name _____

Element Symbol _____

Atomic Number _____

Atomic Mass _____



Element Name _____

Element Symbol _____

Atomic Number _____

Atomic Mass _____

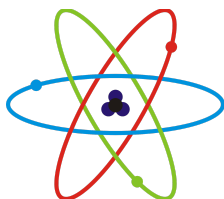
Illustrate a model of the following atoms. Be sure that you have the **correct number** of protons, neutrons, and electrons in the **correct location** with the **correct charge**.

Nitrogen

Beryllium

Sulfur

Potassium



Element Research

1) Basic Information

- a) Element Name: _____ Symbol: _____
- b) #of protons: _____ #of neutrons: _____ #of electrons: _____
- c) Atomic number: _____ Atomic mass: _____
- d) Group on periodic table: _____ Period on periodic table: _____
- e) State of matter at room temperature: _____
- f) Metal, nonmetal, or metalloid?: _____

2) When was the element discovered and who discovered it?

3) How was the element discovered?

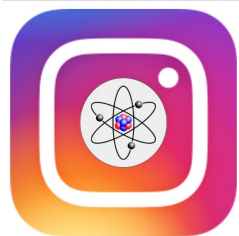
4) Where did the element get its name?

5) Where is the element found on Earth?

6) What is the element most commonly used for (come up with at least 3 uses)?

7) Is the element dangerous? If so, explain.

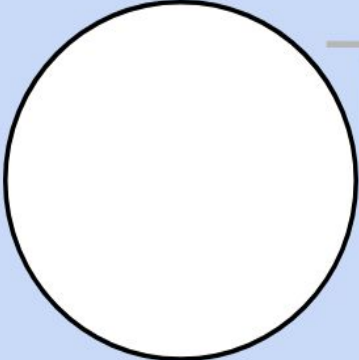
8) At least 2 more *interesting* facts about the element:



Elemenstagram

Directions

- 1) Fill out the basic information on the Elemenstagram profile below (name, atomic #, symbol, etc.) based on your research from pg. 13.
- 2) In the circle, create a small image that represents your element in some way.
- 3) Make a creative username pertaining to your elements properties or uses.
- 4) Include a small bio of interesting facts about your element, its discovery, or its uses.
- 5) Cut out your profile, paste it on the correct colored construction paper, and turn it in to your teacher.



Element Name: _____

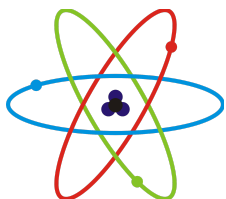
Atomic #	Mass	Group: Period:
----------	------	-------------------

Edit Your Profile

Username: @_____

Bio

Blank Page
(almost)



Unit Review

Fill in the blanks. Use your notes if you need help!

Anything that has mass and volume is considered _____. All matter is made up of tiny particles called _____. Atoms are made up of even tinier “subatomic” particles called _____, _____, and _____. Two of these particles, _____ and _____, are found in the center of the atom, which is called the _____. The _____ are found outside the nucleus in the _____. The number of protons in the nucleus of the atom is called the _____.

Scientists have identified 118 different types of atoms that we call _____, which are all arranged on a large chart that we call the _____. Each element has its own square and each square tells us the name of the element, its _____, the atomic number, and the atomic mass. The periodic table is arranged into vertical columns called _____ and horizontal rows called _____.

- 1) Where are protons found within an atom and what is their charge?
- 2) Where are electrons found within an atom and what is their charge?
- 3) Where are neutrons found within an atom and what is their charge?

- 4) Explain how you would find the number of protons in an atom of Uranium using the periodic table.

- 5) Explain how you would find the number of electrons in a neutral atom of Uranium using the periodic table.

- 6) Explain how you would find the number of neutrons in an atom of Uranium using the periodic table.

- 7) Name four pieces of information you can find in each square on the periodic table.

- 8) How can you tell the difference between the atomic number and the atomic mass when looking at a square on the periodic table?