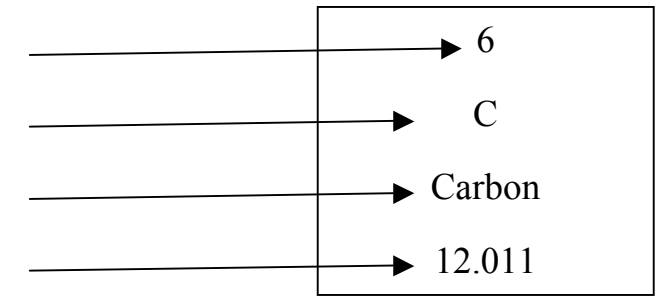
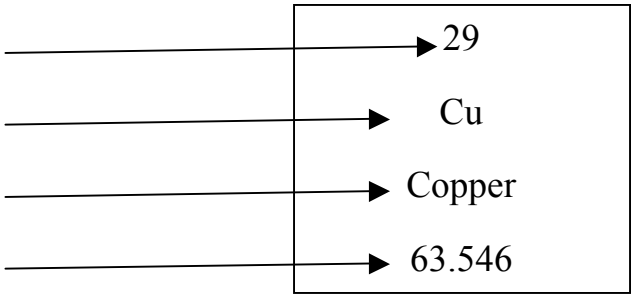
Introducing the Periodic Table

Back in 1869, Russian chemist Dimitri Mendeleev organized all the known elements into a chart according to their physical and chemical properties. Today that chart is known as the Periodic Table of Elements. The periodic table organizes information about the elements and their properties.

The periodic table is made up of horizontal rows and vertical columns of boxes. Each box contains specific information about a single element. This information includes the element's name, the chemical symbol for the element, the element's atomic number and the element's atomic mass.

With your teacher label the information indicated by the arrows below. Find each on your periodic table.





Materials: Copy of the Periodic Table, colored pencils

What To Do:

1. Element symbols are written with the first letter a capital letter and any other letters as lower case letters. Write the symbols for 5 different elements.

   _____

2. Find the numbers across the top. These vertical columns are called groups because the elements in them tend to have the same chemical and physical properties. How many groups are on the periodic table? _____

3. Find the numbers down the left side. These horizontal rows are called periods because they fall in order like a calendar. How many periods are on the periodic table?

   _____

4. Find the zigzag line that starts in the group 13. These seven elements (Boron, Silicon, Germanium, Arsenic, Antimony, Tellurium, Polonium) are the metalloids. They sometimes act like metals and at other times like nonmetals. Color them purple.

5. On the right side of the zigzag line are the nonmetals. Color them yellow.

6. Most of the elements are known as metals. Metals are located on the left side of the periodic table. The only element on the left side of the periodic table that is **NOT** a metal is hydrogen. Color hydrogen yellow.

7. Use a colored pencil to color the metals green. (Don't color them so dark that you can't read the information.)

Directions: Find the information on your Periodic Table.

1. What is found in group 1 and period 4? _____
2. What is found in group 16 and period 5? _____
3. What is found in group 17 and period 2? _____
4. In what group will you find copper? _____
5. In what group will you find krypton? _____
6. In what group will you find mercury? _____
7. What is the symbol for copper? _____
8. What is the symbol for gold? _____
9. What is the symbol for krypton? _____
10. What is the symbol for mercury? _____
11. What is the symbol for oxygen? _____
12. In what period will you find gold? _____
13. In what period will you find silver? _____
14. In what period will you find oxygen? _____
15. In what groups will you find metalloids?

    _____ _____ _____ _____

16. What element has the symbol H? _____
17. What element has the symbol He? _____
18. What element has the symbol Ca? _____
19. What element has the symbol Cl? _____
20. What element has the symbol C? _____

Directions: Do Not Glue until teacher says.
Cut out each rectangle and glue them on the page only across the top. Draw something representing each topic.

THE PERIODIC TABLE

3 KINDS OF ELEMENTS

GROUPS

PERIODS

Name _____ period _____

EXIT TICKET

What's wrong with these element symbols?

1. CA _____

2. mg _____

3. aT _____

How should these element symbols be written?

4. CA _____

5. mg _____

6. aT _____

Conclusion: (capital, metals, small, symbol, nonmetals, metalloids)

Elements can be classified as _____, _____ and _____. Each element has a unique _____. The first letter of a symbol is always a _____ and the second letter of a symbol is always a _____ letter.

Name _____ period _____

EXIT TICKET

What's wrong with these element symbols?

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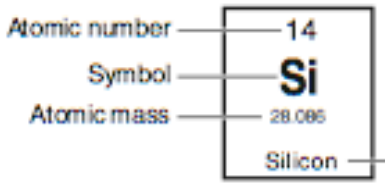
Conclusion: (capital, metals, small, symbol, nonmetals, metalloids)

Elements can be classified as _____, _____ and _____. Each element has a unique _____. The first letter of a symbol is always a _____ and the second letter of a symbol is always a _____ letter.

Periodic Table of the Elements



Group 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1 H 1.008 Hydrogen																	2 He 4.0026 Helium
3 Li 6.941 Lithium	4 Be 9.012 Beryllium											5 B 10.81 Boron	6 C 12.011 Carbon	7 N 14.007 Nitrogen	8 O 15.999 Oxygen	9 F 18.998 Fluorine	10 Ne 20.179 Neon
11 Na 22.990 Sodium	12 Mg 24.305 Magnesium											13 Al 26.982 Aluminum	14 Si 28.086 Silicon	15 P 30.974 Phosphorus	16 S 32.066 Sulfur	17 Cl 35.453 Chlorine	18 Ar 39.948 Argon
19 K 39.098 Potassium	20 Ca 40.08 Calcium	21 Sc 44.956 Scandium	22 Ti 47.88 Titanium	23 V 50.942 Vanadium	24 Cr 51.996 Chromium	25 Mn 54.938 Manganese	26 Fe 55.847 Iron	27 Co 58.933 Cobalt	28 Ni 58.69 Nickel	29 Cu 63.546 Copper	30 Zn 65.39 Zinc	31 Ga 69.72 Gallium	32 Ge 72.61 Germanium	33 As 74.922 Arsenic	34 Se 78.96 Selenium	35 Br 79.904 Bromine	36 Kr 83.80 Krypton
37 Rb 85.468 Rubidium	38 Sr 87.62 Strontium	39 Y 88.906 Yttrium	40 Zr 91.224 Zirconium	41 Nb 92.906 Niobium	42 Mo 95.94 Molybdenum	43 Tc (98) Technetium	44 Ru 101.07 Ruthenium	45 Rh 102.906 Rhodium	46 Pd 106.42 Palladium	47 Ag 107.868 Silver	48 Cd 112.41 Cadmium	49 In 114.82 Indium	50 Sn 118.71 Tin	51 Sb 121.763 Antimony	52 Te 127.60 Tellurium	53 I 126.904 Iodine	54 Xe 131.29 Xenon
55 Cs 132.905 Cesium	56 Ba 137.33 Barium	57 La 138.906 Lanthanum	72 Hf 178.49 Hafnium	73 Ta 180.948 Tantalum	74 W 183.84 Tungsten	75 Re 186.207 Rhenium	76 Os 190.23 Osmium	77 Ir 192.22 Iridium	78 Pt 195.08 Platinum	79 Au 196.967 Gold	80 Hg 200.59 Mercury	81 Tl 204.383 Thallium	82 Pb 207.2 Lead	83 Bi 208.980 Bismuth	84 Po (209) Polonium	85 At (210) Astatine	86 Rn (222) Radon
87 Fr (223) Francium	88 Ra 226.025 Radium	89 Ac 227.028 Actinium	104 Rf (261) Rutherfordium	105 Db (262) Dubnium	106 Sg (263) Seaborgium	107 Bh (262) Bohrium	108 Hs (265) Hassium	109 Mt (266) Meitnerium	110 (269)								

Mass numbers in parentheses are those of the most stable or most common isotope.

Lanthanide Series	58 Ce 140.12 Cerium	59 Pr 140.908 Praseodymium	60 Nd 144.24 Neodymium	61 Pm (145) Promethium	62 Sm 150.36 Samarium	63 Eu 151.97 Europium	64 Gd 157.25 Gadolinium	65 Tb 158.925 Terbium	66 Dy 162.50 Dysprosium	67 Ho 164.930 Holmium	68 Er 167.26 Erbium	69 Tm 168.934 Thulium	70 Yb 173.04 Ytterbium	71 Lu 174.967 Lutetium
Actinide Series	90 Th 232.038 Thorium	91 Pa 231.036 Protactinium	92 U 238.029 Uranium	93 Np 237.048 Neptunium	94 Pu (244) Plutonium	95 Am (243) Americium	96 Cm (247) Curium	97 Bk (247) Berkelium	98 Cf (251) Californium	99 Es (252) Einsteinium	100 Fm (257) Fermium	101 Md (258) Mendelevium	102 No (259) Nobelium	103 Lr (262) Lawrencium