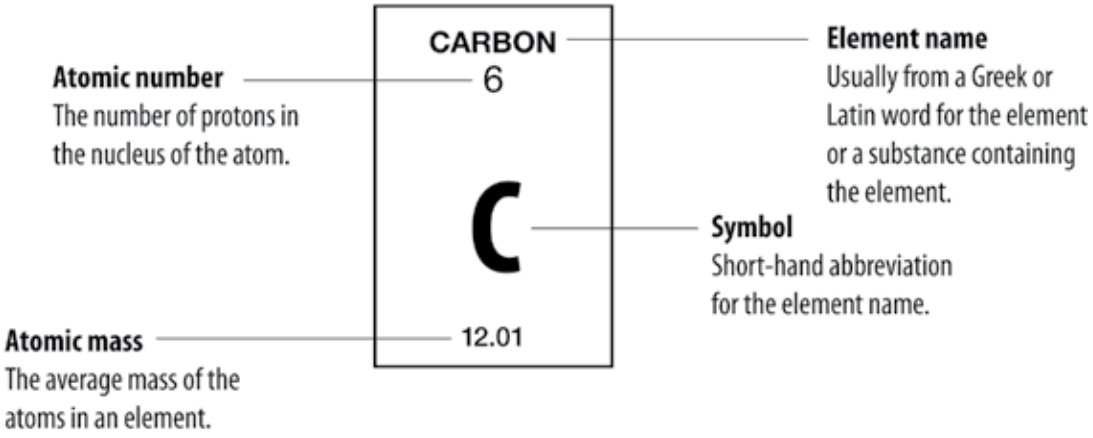
Activity Sheet **Name**_____
Chapter 4, Lesson 2
The Periodic Table **Date** _____

Your group will receive a set of cards with information that describes a particular atom. Your job is to figure out which atom the card describes and to place it in the area in your classroom for that atom.

You will use the Periodic Table, Elements 1–20 chart to help you determine what atom your card describes. The diagram and information below will help you match your cards to the correct atoms.



Parts of an Atom

Proton
Positively charged particle in the nucleus of the atom.
The number of protons in an atom's nucleus is the atom's atomic number.

Electron
Negatively charged particle surrounding the nucleus of the atom.
The number of electrons surrounding the nucleus of an atom is equal to the number of protons in the atom's nucleus.

Neutron
Particle in the nucleus that has about the same mass as a proton but has no charge. For the atoms of the first 20 elements, the number of neutrons is either equal to or slightly greater than the number of protons.

Placing your cards

Once you know what the information in each box on your periodic table stands for and you know the parts of the atom, you will be able to correctly place most of your cards with the atoms they describe. You will need to know the following additional information in order to answer any question having to do with neutrons.

To match the number of neutrons listed on your card to the correct element, look for an element on the periodic table so that if you add the number of neutrons on your card to the protons of the element, you will get close to the atomic mass for that element.

For example, you may have a card that says, “The atom you are looking for has 5 neutrons.” Look at the periodic table to find an atom that you could add 5 to its number of protons that would give you a sum close to the atomic mass given for that element. The answer is beryllium (Be), which has 4 protons and an atomic mass of 9.01.

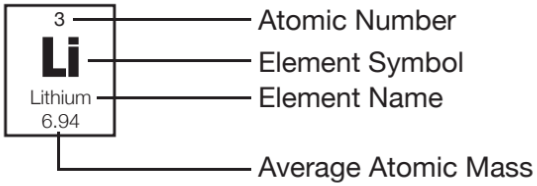
PERIODIC TABLE
ELEMENTS 1–20

Write the number of protons, electrons, and neutrons in each element.

HYDROGEN 1 # of Protons: # of Electrons: # of Neutrons: 1.01							**HELIUM** 2 # of Protons: # of Electrons: # of Neutrons: 4.00
LITHIUM 3 # of Protons: # of Electrons: # of Neutrons: 6.94	**BERYLLIUM** 4 # of Protons: # of Electrons: # of Neutrons: 9.01	**BORON** 5 # of Protons: # of Electrons: # of Neutrons: 10.81	**CARBON** 6 # of Protons: # of Electrons: # of Neutrons: 12.01	**NITROGEN** 7 # of Protons: # of Electrons: # of Neutrons: 14.01	**OXYGEN** 8 # of Protons: # of Electrons: # of Neutrons: 16.00	**FLUORINE** 9 # of Protons: # of Electrons: # of Neutrons: 19.00	**NEON** 10 # of Protons: # of Electrons: # of Neutrons: 20.18
SODIUM 11 # of Protons: # of Electrons: # of Neutrons: 22.99	**MAGNESIUM** 12 # of Protons: # of Electrons: # of Neutrons: 24.31	**ALUMINUM** 13 # of Protons: # of Electrons: # of Neutrons: 26.98	**SILICON** 14 # of Protons: # of Electrons: # of Neutrons: 28.09	**PHOSPHORUS** 15 # of Protons: # of Electrons: # of Neutrons: 30.97	**SULFUR** 16 # of Protons: # of Electrons: # of Neutrons: 32.07	**CHLORINE** 17 # of Protons: # of Electrons: # of Neutrons: 35.45	**ARGON** 18 # of Protons: # of Electrons: # of Neutrons: 39.95
POTASSIUM 19 # of Protons: # of Electrons: # of Neutrons: 39.10	**CALCIUM** 20 # of Protons: # of Electrons: # of Neutrons: 40.08						

Note: Remember that the number of neutrons is ***not*** the same for every atom of an element. The number of neutrons you write in this chart will be a number, that when added to the number of protons, gives a sum as close as possible to the atomic mass.

The Periodic Table of the Elements



1 H Hydrogen 1.01																	2 He Helium 4.00
3 Li Lithium 6.94	4 Be Beryllium 9.01											5 B Boron 10.81	6 C Carbon 12.01	7 N Nitrogen 14.01	8 O Oxygen 16.00	9 F Fluorine 19.00	10 Ne Neon 20.18
11 Na Sodium 22.99	12 Mg Magnesium 24.31											13 Al Aluminum 26.98	14 Si Silicon 28.09	15 P Phosphorus 30.97	16 S Sulfur 32.07	17 Cl Chlorine 35.45	18 Ar Argon 39.95
19 K Potassium 39.10	20 Ca Calcium 40.08	21 Sc Scandium 44.96	22 Ti Titanium 47.87	23 V Vanadium 50.94	24 Cr Chromium 52.00	25 Mn Manganese 54.94	26 Fe Iron 55.85	27 Co Cobalt 58.93	28 Ni Nickel 58.69	29 Cu Copper 63.55	30 Zn Zinc 65.39	31 Ga Gallium 69.72	32 Ge Germanium 72.61	33 As Arsenic 74.92	34 Se Selenium 78.96	35 Br Bromine 79.90	36 Kr Krypton 83.80
37 Rb Rubidium 85.47	38 Sr Strontium 87.62	39 Y Yttrium 88.91	40 Zr Zirconium 91.22	41 Nb Niobium 92.91	42 Mo Molybednum 95.94	43 Tc Technetium (98)	44 Ru Ruthenium 101.07	45 Rh Rhodium 102.91	46 Pd Palladium 106.42	47 Ag Silver 107.87	48 Cd Cadmium 112.41	49 In Indium 114.82	50 Sn Tin 118.71	51 Sb Antimony 121.76	52 Te Tellurium 127.60	53 I Iodine 126.90	54 Xe Xenon 131.29
55 Cs Cesium 132.91	56 Ba Barium 137.33	57 La Lanthanum 138.91	72 Hf Hafnium 178.49	73 Ta Tantalum 180.95	74 W Tungsten 183.84	75 Re Rhenium 186.21	76 Os Osmium 190.23	77 Ir Iridium 192.22	78 Pt Platinum 195.08	79 Au Gold 196.97	80 Hg Mercury 200.59	81 Tl Thallium 204.38	82 Pb Lead 207.2	83 Bi Bismuth 208.98	84 Po Polonium (209)	85 At Astatine (210)	86 Rn Radon (222)
87 Fr Francium (223)	88 Ra Radium (226)	89 Ac Actinium (227)	104 Rf Rutherfordium 178.49	105 Db Dubnium (262)	106 Sg Seaborgium (266)	107 Bh Bohrium (264)	108 Hs Hassium (269)	109 Mt Meitnerium (268)	110 Ds Darmstadtium (281)	111 Rg Roentgenium (272)	112 Cn Copernicium (285)	113 Nh Nihonium (286)	114 Fl Flerovium (289)	115 Mc Moscovium (290)	116 Lv Livermorium (293)	117 Ts Tennessine (294)	118 Og Oganesson (294)

58 Ce Cerium 140.12	59 Pr Praseodymium 140.91	60 Nd Neodymium 144.24	61 Pm Promethium (145)	62 Sm Samarium 150.36	63 Eu Europium 151.96	64 Gd Gadolinium 157.25	65 Tb Terbium 158.93	66 Dy Dysprosium 162.50	67 Ho Holmium 164.93	68 Er Erbium 167.26	69 Tm Thulium 168.93	70 Yb Ytterbium 173.04	71 Lu Lutetium 174.97
90 Th Thorium 232.04	91 Pa Proactinium 231.04	92 U Uranium 238.03	93 Np Neptunium (237)	94 Pu Plutonium (244)	95 Am Americium (243)	96 Cm Curium (247)	97 Bk Berkelium (247)	98 Cf Californium (251)	99 Es Einstenium (252)	100 Fm Fermium (257)	101 Md Mendelevium 168.93	102 No Nobelium (259)	103 Lr Lawrencium (262)