

S. F. Austin High School Pre-AP Chemistry Summer Assignment

A Tour of the The Periodic Table of the Elements

1 H Hydrogen 1.00794																	2 He Helium 4.003
3 Li Lithium 6.941	4 Be Beryllium 9.012182											5 B Boron 10.811	6 C Carbon 12.0107	7 N Nitrogen 14.00674	8 O Oxygen 15.9994	9 F Fluorine 18.9984032	10 Ne Neon 20.1797
11 Na Sodium 22.989770	12 Mg Magnesium 24.3050											13 Al Aluminum 26.981538	14 Si Silicon 28.0855	15 P Phosphorus 30.973761	16 S Sulfur 32.066	17 Cl Chlorine 35.4527	18 Ar Argon 39.948
19 K Potassium 39.0983	20 Ca Calcium 40.078	21 Sc Scandium 44.955910	22 Ti Titanium 47.867	23 V Vanadium 50.9415	24 Cr Chromium 51.9961	25 Mn Manganese 54.938049	26 Fe Iron 55.845	27 Co Cobalt 58.933200	28 Ni Nickel 58.6934	29 Cu Copper 63.546	30 Zn Zinc 65.39	31 Ga Gallium 69.723	32 Ge Germanium 72.61	33 As Arsenic 74.92160	34 Se Selenium 78.96	35 Br Bromine 79.904	36 Kr Krypton 83.80
37 Rb Rubidium 85.4678	38 Sr Strontium 87.62	39 Y Yttrium 88.90585	40 Zr Zirconium 91.224	41 Nb Niobium 92.90638	42 Mo Molybdenum 95.94	43 Tc Technetium (98)	44 Ru Ruthenium 101.07	45 Rh Rhodium 102.90550	46 Pd Palladium 106.42	47 Ag Silver 107.8682	48 Cd Cadmium 112.411	49 In Indium 114.818	50 Sn Tin 118.710	51 Sb Antimony 121.760	52 Te Tellurium 127.60	53 I Iodine 126.90447	54 Xe Xenon 131.29
55 Cs Cesium 132.90545	56 Ba Barium 137.327	57 La Lanthanum 138.9055	72 Hf Hafnium 178.49	73 Ta Tantalum 180.9479	74 W Tungsten 183.84	75 Re Rhenium 186.207	76 Os Osmium 190.23	77 Ir Iridium 192.217	78 Pt Platinum 195.078	79 Au Gold 196.96655	80 Hg Mercury 200.59	81 Tl Thallium 204.3833	82 Pb Lead 207.2	83 Bi Bismuth 208.98038	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 (261)	105 Db Dubnium (262)	106 Sg Seaborgium (263)	107 Bh Bohrium (262)	108 Hs Hassium (265)	109 Mt Meitnerium (266)	110 (269)	111 (272)	112 (277)						

58 Ce Cerium 140.116	59 Pr Praseodymium 140.90765	60 Nd Neodymium 144.24	61 Pm Promethium (145)	62 Sm Samarium 150.36	63 Eu Europium 151.964	64 Gd Gadolinium 157.25	65 Tb Terbium 158.92534	66 Dy Dysprosium 162.50	67 Ho Holmium 164.93032	68 Er Erbium 167.26	69 Tm Thulium 168.93421	70 Yb Ytterbium 173.04	71 Lu Lutetium 174.967
90 Th Thorium 232.0381	91 Pa Protactinium 231.03588	92 U Uranium 238.0289	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 Einsteinium (252)	100 Fm Fermium (257)	101 Md Mendelevium (258)	102 No Nobelium (259)	103 Lr Lawrencium (262)

Book Information:
The Periodic Kingdom
By P. W. Atkins
ISBN#: 0-465-07266-6
\$15.00

Welcome to the 2018-2019 pre-AP Chemistry class. One of the most powerful tools you will learn about and have access to in this class is the periodic table. Over the summer your assignment is to read the book titled *The Periodic Kingdom* by P. W. Atkins. The author will take you on a journey through the periodic table as though it were a far off land. This awesome text will provide you with an overview of the origin of the elements, their names, and their properties. The book also covers the development of early atomic theory and the development of the modern periodic table. At times you may find parts of the book difficult to read. Don't despair. Read through it and come back to parts you don't understand later. Also, the author uses numerous S.A.T. words. When you encounter a word you do not know, write it down and look it up. You will see many of these words on the S.A.T.

The Assignment:

1. Obtain a copy of the book which you will be required to read. As you get to certain chapters you will be asked to do an assignment for that chapter. These are listed below.
2. Chapter 1: Using an outline of the Periodic Table of Elements, create a map of the kingdom similar to the one on page 5 in Chapter 1. (This will be very important to do before you read any more of the book, because you will need to use it to follow along with the author.)

3. Chapter 3: Using another outline of the Periodic Table of Elements, create a periodic table with the metals colored red, the nonmetals colored blue, the metalloids colored purple, and the noble gases colored yellow.
 - a. Define the terms periodic trend, ion, cation, anion, metal, nonmetal, and metalloid at the bottom of the periodic table.

4. Chapter 8: Pick one of the following experiments and write a summary describing its purpose, how it worked, and the results. Include a diagram of the apparatus used.
 - i. Thomson's Cathode Ray experiment.
 - ii. Millikan's Oil Drop experiment.
 - iii. Rutherford's Gold Foil experiment.
 - iv. Bohr's Hydrogen Line Spectrum experiment.

5. Chapter 9: Create a diagram that illustrates the shapes of *s*, *p*, and *d* orbitals. Not all of the possible shapes are illustrated in the book. You will need to look them up. If you include the shapes of the *f*-orbitals you will receive bonus points. There is one *s*-orbital shape, three *p*-orbital shapes, five *d*-orbital shapes and seven *f*-orbital shapes.
 - a. Include in your diagram a small periodic table and label the s-block, the p-block, the d-block and the f-block.

6. Bonus: Bonus will be given to the projects that contain an SAT word list composed of words that were found in the text, and their definitions. This list may be included as the last page in your project.

Your summer assignment needs to have a cover page that includes the following:

Full Name
Pre-AP Chemistry
Academy
Class Period
Date

It will be counted as a project grade in the first six weeks. Projects and exams account for 60% of the six weeks grade.

Due Date: September 4, 2018