



2019 Advanced Academics Summer Assignment

Pre-AP Chemistry
Dayton High School

Mrs. Smith

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Due Date: 08/30/19

Welcome to Pre-AP Chemistry!

The Pre-AP Chemistry course is an honors level course which provides an in depth overview of chemical concepts. This is a fast paced course requiring outside class study time. These assignments will help us with reviewing math skills and gaining a basic understanding of the Periodic Table of Elements and their history.

Chemistry – the study of matter and energy and more importantly, the changes between them. Why study chemistry? When a car starts do you think about chemistry? When a battery in your cell phone dies do you think about chemistry? In fact, the food you eat for lunch provides energy, through chemical reactions, and you are able to read these sentences and comprehend them because of chemical reactions occurring in your brain. Did you know the theory that a huge meteor hit the earth 65 billion years ago, causing the extinction of the dinosaurs, was first recognized as a plausible explanation by chemists, who noticed that rocks from that time period contained amounts of the elements iridium (Ir) and niobium (Nb) that are seen only in meteors. If the Roman's had understood lead-poisoning, their civilization would not have fallen. All of these ideas can be understood with a basic foundation in chemistry. Chemistry is around you all the time; you encounter chemistry every waking moment of your life, whether you recognize it or not. A large part of chemistry is constantly asking “why?” things happen. You will become a better problem solver in all areas of your life and better understand all areas of science.

What supplies will I need?

- **Required Materials**
 - **100 page Composition Notebook**
 - *This is extremely important!! – 100 pages, not 70 or 80*
 - **Scientific Calculator TI-36X Pro is strongly recommended**
 - Available from *Amazon.com* for about \$20
 - **The Disappearing Spoon novel**
 - Available from *Amazon.com* or *Barnes & Nobles* for about \$10



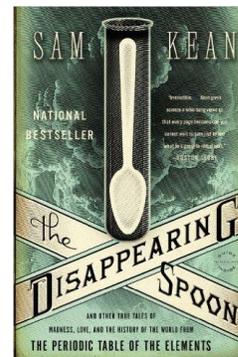
Assignment (Exam Grade)

Summer Reading: *The Disappearing Spoon and Other True Tales of Madness, Love, and the History of the World from the Periodic Table of Elements.*

- Must be purchased on your own, but is available from the following online sources:
 - *Amazon.com or Barnes & Nobles for about \$10*

About the book...

“The Periodic Table is a crowning scientific achievement, but it's also a treasure trove of adventure, betrayal, and obsession. These fascinating tales follow every element on the table as they play out their parts in human history, and in the lives of the (frequently) mad scientists who discovered them. **THE DISAPPEARING SPOON** masterfully fuses science with the classic lore of invention, investigation, and discovery--from the Big Bang through the end of time. Though solid at room temperature, gallium is a moldable metal that melts at 84 degrees Fahrenheit. A classic science prank is to mold gallium spoons, serve them with tea, and watch guests recoil as their utensils disappear.” – *Amazon.com summary*



- **Reflection Summary Paper**
 - **Element Summaries**
 - Select any **10 elements** from the book
 - Write 1 paragraph (3-5 sentences) per element describing it in detail. Suggested topics to discuss are origins, properties, uses, importance, etc.
 - This means you will have 10 paragraphs about elements.
 - **Conclusion**
 - Write 1 conclusion paragraph (3-5 sentences) about **The Disappearing Spoon...** including the following information:
 - How did reading this book change your ideas about the day-to-day life of scientists and the work they do?
 - What was the most surprising fact you learned from reading this book?
 - What expectations/concerns do you have for Pre-AP Chemistry this year?
 - **Formatting**
 - Paper must be typed single spaced with 12 point Times New Roman font or neatly handwritten in ink on notebook paper.
 - Paper must use proper grammar and punctuation.
 - **Citations**
 - Use in-text citations showing the author and page number of the information used (Kean, 101).
 - If sources other than the book were used, then a reference page must be included and in text citations showing the author and date of publication (Smith, 2019).

Completed paper must be emailed or a hard copy turned in by August 30, 2019.

Be sure to complete all of this work **BEFORE** school starts. Make sure you read and understand the expectations. If you have any questions, feel free to come see me before school is out. You may also email me over the summer.

I look forward to meeting you in the fall,



Mrs. Bonnie Smith
Pre-AP & AP Chemistry
Science National Honor Society Sponsor

PERIODIC TABLE OF THE ELEMENTS

1 1A	2 2A	3 3B	4 4B	5 5B	6 6B	7 7B	8 8B	9 9B	10 10B	11 11B	12 12B	13 3A	14 4A	15 5A	16 6A	17 7A	18 8A																																											
1 H 1.008 Hydrogen	2 He 4.003 Helium	3 Li 6.941 Lithium	4 Be 9.012 Beryllium	5 Na 22.990 Sodium	6 Mg 24.305 Magnesium	7 K 39.098 Potassium	8 Ca 40.078 Calcium	9 Sc 44.956 Scandium	10 Ti 47.867 Titanium	11 V 50.942 Vanadium	12 Cr 51.996 Chromium	13 Mn 54.938 Manganese	14 Fe 55.845 Iron	15 Co 58.933 Cobalt	16 Ni 58.693 Nickel	17 Cu 63.546 Copper	18 Zn 65.38 Zinc	19 Ga 69.723 Gallium	20 Ge 72.64 Germanium	21 As 74.922 Arsenic	22 Se 78.96 Selenium	23 Br 79.904 Bromine	24 Kr 83.798 Krypton	25 Rb 85.468 Rubidium	26 Sr 87.62 Strontium	27 Y 88.906 Yttrium	28 Zr 91.224 Zirconium	29 Nb 92.906 Niobium	30 Mo 95.96 Molybdenum	31 Tc (98) Technetium	32 Ru 101.07 Ruthenium	33 Rh 102.906 Rhodium	34 Pd 106.42 Palladium	35 Ag 107.868 Silver	36 Cd 112.412 Cadmium	37 In 114.818 Indium	38 Sn 118.711 Tin	39 Sb 121.760 Antimony	40 Te 127.60 Tellurium	41 I 126.904 Iodine	42 Xe 131.294 Xenon	43 Fr (223) Francium	44 Ra (226) Radium	45 Lu 174.967 Lutetium	46 Hf 178.49 Hafnium	47 Lu 174.967 Lutetium	48 Ta 180.948 Tantalum	49 W 183.84 Tungsten	50 Re 186.207 Rhenium	51 Os 190.23 Osmium	52 Ir 192.217 Iridium	53 Pt 195.085 Platinum	54 Au 196.967 Gold	55 Hg 200.59 Mercury	56 Tl 204.383 Thallium	57 Pb 207.2 Lead	58 Bi 208.980 Bismuth	59 Po (209) Polonium	60 At (210) Astatine	61 Rn (222) Radon



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

57 La 138.905 Lanthanum	58 Ce 140.116 Cerium	59 Pr 140.908 Praseodymium	60 Nd 144.242 Neodymium	61 Pm (145) Promethium	62 Sm 150.36 Samarium	63 Eu 151.964 Europium	64 Gd 157.25 Gadolinium	65 Tb 158.925 Terbium	66 Dy 162.500 Dysprosium	67 Ho 164.930 Holmium	68 Er 167.259 Erbium	69 Tm 168.934 Thulium	70 Yb 173.055 Ytterbium
89 Ac (227) Actinium	90 Th 232.038 Thorium	91 Pa 231.036 Protactinium	92 U 238.029 Uranium	93 Np (237) 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

Lanthanide Series

Actinide Series