

Chemistry Summer Assignment

This assignment provides students with an opportunity to learn more about chemistry prior to starting the course. Make sure to complete all parts of this assignment and complete work independently. Please show work where applicable. The assignment will be due the first Friday we return (August 11th) . This will count towards your chemistry grade. Please print this assignment and fill in your answers to turn in. We are looking forward to meeting you in August! - Mrs. Stewart & Ms. Fontenot

1. Video “A Day Without Chemistry” (1 min 54 sec)

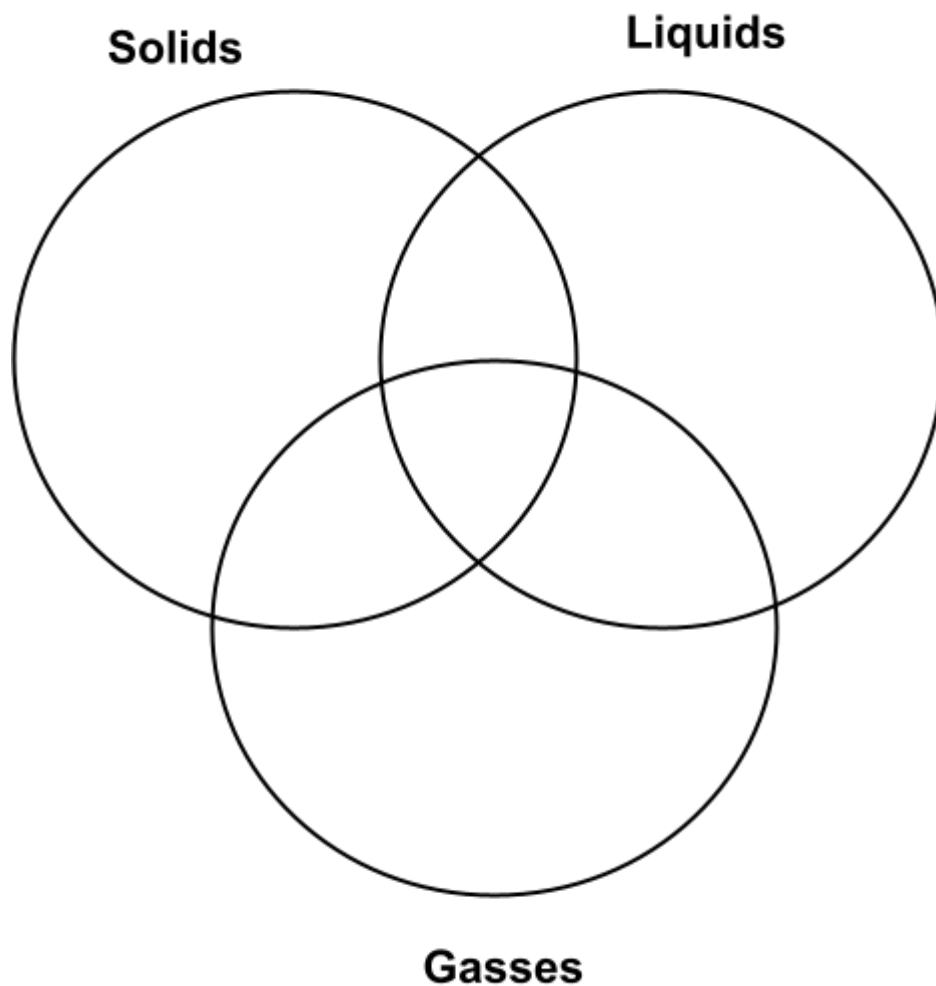
- a. https://www.youtube.com/watch?v=AbfW_CMM48
- b. Name three ways that you have used chemistry today
 - 1.
 - 2.
 - 3.

2. Element Flashcards

- a. Create element flashcards (element name on one side and symbol on the other) for elements #1-36
- b. <https://ptable.com/?lang=en#Properties> (Online Periodic Table)
- c. Practice learning them

3. Structure of Matter

- a. https://preparatorychemistry.com/KMT_Canvas.html
- b. Complete the Venn diagram to compare and contrast solids, liquids and gasses



4. Scientific Notation

- <https://www.youtube.com/watch?v=6y35Jlz332M>
- <https://www.ixl.com/math/grade-8/convert-between-standard-and-scientific-notation>
- <https://www.youtube.com/watch?v=Sj46quLDbOw&feature=youtu.be> (Ti-30Xa Calculators)
- <https://www.youtube.com/watch?v=QNim8poxZIM> (Ti-30XIIS Calculators)

Convert the following numbers into scientific notation:

- 3,400 _____
- 0.000023 _____
- 101,000 _____
- 0.010 _____
- 45.01 _____

Convert the following numbers into standard notation:

- 2.30×10^4 _____
- 1.76×10^{-3} _____
- 1.901×10^{-7} _____
- 8.65×10^{-1} _____
- 9.11×10^3 _____

5. Metric Unit Flashcards

- Create metric unit flashcards (prefix and symbol on one side and factor on other side)

b. Example →

Tera, t

10^{12}

- Practice learning them

Symbol	Prefix	Multiplication Factor
T	tera	1, 000, 000, 000, 000 or 10^{12}
G	giga	1, 000, 000, 000 or 10^9
M	mega	1, 000, 000 or 10^6
k	kilo	1, 000 or 10^3
h	hecto	100 or 10^2
da	deka or deca	10 or 10^1
d	deci	0.1 or 10^{-1}
c	centi	0.01 or 10^{-2}
m	milli	0.001 or 10^{-3}
μ	micro	0.000, 001 or 10^{-6}
n	nano	0.000, 000, 001 or 10^{-9}
p	pico	0.000, 000, 000, 001 or 10^{-12}
f	femto	0.000, 000, 000, 000, 001 or 10^{-15}

6. Atomic Structure

a. <https://www.youtube.com/watch?v=IP57gEWcisY> (1 min, 56 sec)

b. What are the charges and locations of the protons and neutrons?

c. What is the charge and location of an electron?

d. A neutral atom contains the same number of which subatomic particles?

e. Which subatomic particle identifies an atom?

7. Density

a. <https://www.youtube.com/watch?v=4tYXaCADxfE> (2 min, 49 sec)

b. <https://www.youtube.com/watch?v=TFXC3SV50R0> (5 min, 23 sec)

1. Density is the measurement of _____ & _____.

2. The mathematical formula for density is _____ & the units are _____.

3. What is the density of Aluminum if 50 g has a volume of 18.5 mL?

4. What is the mass, in grams, of lead if its density is 11.35 g/mL and there is a volume of 1.3 L?

5. A piece of silver metal has a mass of 2.365 g. If the density of silver is 10.5 g/cm³, what is the volume of silver?

6. What is the mass of a cube of aluminum 5.0 cm on each edge if the density of the aluminum is 2.7 g/cm³?

7. A sample of unknown metal is placed in a graduated cylinder containing water. The mass of the sample is 57.8 grams and the water level rises from 50 mL to 57.34 mL. Which metal is the sample likely to be?

Mg = 1.75 g/cm ³	Ag = 10.5 g/cm ³	Al = 2.70 g/cm ³	Fe = 7.87 g/cm ³	Cu = 8.96 g/cm ³	Pb = 11.3 g/cm ³
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8. Periodic Table

Using the periodic table below, complete the following;

- 1) Shade the metals in red
- 2) Shade the nonmetals in blue
- 3) Shade the metalloids in yellow
- 4) Label the following groups:
 - a) Halogens
 - b) Noble Gases
 - c) Alkali Metals
 - d) Alkaline Earth Metals
 - e) Boron Family
 - f) Carbon Family
 - g) Nitrogen Family
 - h) Oxygen Family

1
IA
1A

18
VIIIA
8A

1 H Hydrogen 1.008	2 He Helium 4.003
3 Li Lithium 6.941	4 Be Beryllium 9.012
5 B Boron 10.811	6 C Carbon 12.011
7 N Nitrogen 14.007	8 O Oxygen 15.999
9 F Fluorine 18.998	10 Ne Neon 20.180

Periodic Table of the Elements

11 Na Sodium 22.990	12 Mg Magnesium 24.305	13 Al Aluminum 26.982	14 Si Silicon 28.086	15 P Phosphorus 30.974	16 S Sulfur 32.066	17 Cl Chlorine 35.453	18 Ar Argon 39.948
19 K Potassium 39.098	20 Ca Calcium 40.078	21 Sc Scandium 44.956	22 Ti Titanium 47.867	23 V Vanadium 50.942	24 Cr Chromium 51.996	25 Mn Manganese 54.938	26 Fe Iron 55.845
37 Rb Rubidium 85.468	38 Sr Strontium 87.62	39 Y Yttrium 88.906	40 Zr Zirconium 91.224	41 Nb Niobium 92.906	42 Mo Molybdenum 95.95	43 Tc Technetium 98.907	44 Ru Ruthenium 101.07
55 Cs Cesium 132.905	56 Ba Barium 137.328	57-71	72 Hf Hafnium 178.49	73 Ta Tantalum 180.948	74 W Tungsten 183.84	75 Re Rhenium 186.207	76 Os Osmium 190.23
87 Fr Francium 223.020	88 Ra Radium 226.025	89-103	104 Rf Rutherfordium [261]	105 Db Dubnium [262]	106 Sg Seaborgium [266]	107 Bh Bohrium [264]	108 Hs Hassium [269]

3 III 3B	4 IV 4B	5 VB 5B	6 VIB 6B	7 VII 7B	8 VIII 8	9 VIII 9	10 VIII 10	11 IB 1B	12 IIB 2B
31 Ga Gallium 69.723	32 Ge Germanium 72.631	33 As Arsenic 74.922	34 Se Selenium 78.971	35 Br Bromine 79.904	36 Kr Krypton 83.798	37 Rb Rubidium 85.468	38 Sr Strontium 87.62	39 Y Yttrium 88.906	40 Zr Zirconium 91.224
47 Ag Silver 107.868	48 Cd Cadmium 112.414	49 In Indium 114.818	50 Sn Tin 118.711	51 Sb Antimony 121.760	52 Te Tellurium 127.6	53 I Iodine 126.904	54 Xe Xenon 131.294	55 Cs Cesium 132.905	56 Ba Barium 137.328
63 Eu Europium 151.964	64 Gd Gadolinium 157.25	65 Tb Terbium 158.925	66 Dy Dysprosium 162.500	67 Ho Holmium 164.930	68 Er Erbium 167.259	69 Tm Thulium 168.934	70 Yb Ytterbium 173.055	71 Lu Lutetium 174.967	72 Hf Hafnium 178.49

19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
K Potassium 39.098	Ca Calcium 40.078	Sc Scandium 44.956	Ti Titanium 47.867	V Vanadium 50.942	Cr Chromium 51.996	Mn Manganese 54.938	Fe Iron 55.845	Co Cobalt 58.933	Ni Nickel 58.693	Cu Copper 63.546	Zn Zinc 65.38	Ga Gallium 69.723	Ge Germanium 72.631	As Arsenic 74.922	Se Selenium 78.971	Br Bromine 79.904	Kr Krypton 83.798
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
Rb Rubidium 85.468	Sr Strontium 87.62	Y Yttrium 88.906	Zr Zirconium 91.224	Nb Niobium 92.906	Mo Molybdenum 95.95	Tc Technetium 98.907	Ru Ruthenium 101.07	Rh Rhodium 102.906	Pd Palladium 106.42	Ag Silver 107.868	Cd Cadmium 112.414	In Indium 114.818	Sn Tin 118.711	Sb Antimony 121.760	Te Tellurium 127.6	I Iodine 126.904	Xe Xenon 131.294
55	56	57-71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86
Cs Cesium 132.905	Ba Barium 137.328		Hf Hafnium 178.49	Ta Tantalum 180.948	W Tungsten 183.84	Re Rhenium 186.207	Os Osmium 190.23	Ir Iridium 192.217	Pt Platinum 195.085	Au Gold 196.967	Hg Mercury 200.592	Tl Thallium 204.383	Pb Lead 207.2	Bi Bismuth 208.980	Po Polonium [208.982]	At Astatine 209.987	Rn Radon 222.018
87	88	89-103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118
Fr Francium 223.020	Ra Radium 226.025		Rf Rutherfordium [261]	Db Dubnium [262]	Sg Seaborgium [266]	Bh Bohrium [264]	Hs Hassium [269]	Mt Meitnerium [278]	Ds Darmstadtium [281]	Rg Roentgenium [280]	Cn Copernicium [285]	Nh Nihonium [286]	Fl Flerovium [289]	Mc Moscovium [289]	Lv Livermorium [293]	Ts Tennessine [294]	Og Oganesson [294]