Chemistry (I, II, & III) Non-Traditional Instruction
Lessons → Days 6-10

Name: _____

English/Metric Conversions

1 hour = 3600 seconds
1 yard = 3 feet
1 km = 0.62 miles
1 kg = 2.2 lbs
1 m/s = 2.2 miles/hour
1 inch = 2.54 cm

1 mile = 5280 feet
1 meter = 3.28 feet
1 lb = 0.45 kg
1 quart = 0.946 liters
1 foot = 12 inches

Factor	Prefix	Symbol	Examples
10^{9}	giga	G	1 Gm = 1 gigameter = 10^{9} m 1 Gb = 1 gigabyte = 10^{9} bytes
10^{6}	mega	M	1 Mm = 1 megameter = 10^{6} m 1 Mb = 1 megabyte = 10^{6} bytes
10^{3}	kilo	K	1 Km = 1 kilometer = 10^{3} m 1 Kg = 1 kilogram = 10^{3} g
10^{-1}	deci	d	1 dm = 1 decimeter = 0.1 m
10^{-2}	centi	c	1 cm = 1 centimeter = 0.01 m
10^{-3}	milli	m	1 mg = 1 milligram = 0.001 g 1 ms = 1 millisecond = 0.001 s
10^{-6}	micro	μ	1 μm =1 micrometer = 10^{-6} m 1μs = 1 microsecond = 10^{-6} s
10^{-9}	nano	n	1 ns = 1 nanosecond= 10^{-9} s
10^{-12}	pico	p	1 pg = 1 picogram = 10^{-12} g

Examples

1. How many centimeters are in 4.5 inches?

$$4.5 \text{ inches} \times \frac{2.54 \text{ cm}}{1 \text{ inch}} = 11.4 \text{ cm}$$

given — desired

2. How many deciliters (dL) are in 1 liter (L)?

$$1L\left(\frac{10\ dL}{1\ L}\right) = 10\ dL \text{ OR } 1L\ \left(\frac{1dL}{0.1\ L}\right) = 10\ dL$$

3. How many seconds are in 1.25 days?

$$1.25 \text{ days} \times \frac{24 \text{ hours}}{1 \text{ day}} \times \frac{60 \text{ min}}{1 \text{ hour}} \times \frac{60 \text{ s}}{1 \text{ min}} = 108000 \text{ s}$$

DAY 6

On your OWN PAPER, work out the following metric conversions. SHOW YOUR WORK.

1) How many kilometers are in 3 meters?
2) How many grams are in 5 micrograms?
3) How many liters are in 2000 milliliters?
4) How many centimeters are in 4 meters?
5) How many decigrams are in 20 grams?

DAY 7

On your OWN PAPER, work out the following English/metric conversions. SHOW YOUR WORK.

1) How many feet are in 30 yards?
2) How many feet are in 1,000 inches?
3) How many pounds (lbs) are in 500 kg?
4) How many feet are in 50 miles?
5) How many liters are in 60 quarts?

DAY 8

Answer the following questions on your OWN PAPER.

1. What are the horizontal rows on the periodic table called?
2. What are the vertical columns on the periodic table called?
3. What is the name for group 1 elements?
4. What is the name for group 2 elements?
5. What is the name for group 17 elements?
6. What is the name for group 18 elements?
7. In terms of reactivity, what is Fluorine special?
8. In terms of reactivity, why are the Noble Gases special?
9. List 3 properties of metals.
10. What type of elements are on the LEFT side of the periodic table?

DAY 9

Use the periodic table to answer the following questions on your OWN PAPER.

1) What is the atomic number for sulfur (S)?
2) What is the atomic number for osmium (Os)?
3) What is the atomic mass number for vanadium (V)?
4) What is the atomic mass number for aluminum(Al)?
5) How many protons does yttrium (Y) have?
6) How many electrons does selenium (Se) have?
7) How many neutrons does gallium (Ga) have?
8) How many protons, neutrons, and electrons does chlorine (Cl) have?
9) How many neutrons does potassium (K)?
10) How many neutrons does cobalt (Co) have?

DAY 10

Use the periodic table to answer the following questions on your OWN PAPER.

1) What is the atomic number for phosphorus (P)?
2) What is the atomic number for Gold (Au)?
3) What is the atomic mass number for chromium (Cr)?
4) What is the atomic mass number for silicon (Si)?
5) How many protons does zirconium (Zr) have?
6) How many electrons does bromine (Br) have?
7) How many neutrons does germanium (Ge) have?
8) How many protons, neutrons, and electrons does iron (Fe) have?
9) How many neutrons does copper (Cu)?
10) How many neutrons does nickel (Ni) have?

PERIODIC CHART OF THE ELEMENTS

IA	IIA	IIIB	IVB	VB	VIB	VIIB	VIII			IB	IIB	IIIA	IVA	VA	VIA	VIIA	INERT GASES
1 H 1.00797																1 H 1.00797	2 He 4.0026
3 Li 6.939	4 Be 9.0122											5 B 10.811	6 C 12.0112	7 N 14.0067	8 O 15.9994	9 F 18.9984	10 Ne 20.183
11 Na 22.9898	12 Mg 24.312											13 Al 26.9815	14 Si 28.086	15 P 30.9738	16 S 32.064	17 Cl 35.453	18 Ar 39.948
19 K 39.102	20 Ca 40.08	21 Sc 44.956	22 Ti 47.90	23 V 50.942	24 Cr 51.996	25 Mn 54.9380	26 Fe 55.847	27 Co 58.9332	28 Ni 58.71	29 Cu 63.54	30 Zn 65.37	31 Ga 69.72	32 Ge 72.59	33 As 74.9216	34 Se 78.96	35 Br 79.909	36 Kr 83.80
37 Rb 85.47	38 Sr 87.62	39 Y 88.905	40 Zr 91.22	41 Nb 92.906	42 Mo 95.94	43 Tc (99)	44 Ru 101.07	45 Rh 102.905	46 Pd 106.4	47 Ag 107.870	48 Cd 112.40	49 In 114.82	50 Sn 118.69	51 Sb 121.75	52 Te 127.60	53 I 126.904	54 Xe 131.30
55 Cs 132.905	56 Ba 137.34	*57 La 138.91	72 Hf 178.49	73 Ta 180.948	74 W 183.85	75 Re 186.2	76 Os 190.2	77 Ir 192.2	78 Pt 195.09	79 Au 196.967	80 Hg 200.59	81 Tl 204.37	82 Pb 207.19	83 Bi 208.980	84 Po (210)	85 At (210)	86 Rn (222)
87 Fr (223)	88 Ra (226)	‡89 Ac (227)	104 Rf (261)	105 Db (262)	106 Sg (266)	107 Bh (262)	108 Hs (265)	109 Mt (266)	110 ? (271)	111 ? (272)	112 ? (277)						

Numbers in parenthesis are mass numbers of most stable or most common isotope.

Atomic weights corrected to conform to the 1963 values of the Commission on Atomic Weights.

The group designations used here are the former Chemical Abstract Service numbers.

*Lanthanide Series

58 Ce 140.12	59 Pr 140.907	60 Nd 144.24	61 Pm (147)	62 Sm 150.35	63 Eu 151.96	64 Gd 157.25	65 Tb 158.924	66 Dy 162.50	67 Ho 164.930	68 Er 167.26	69 Tm 168.934	70 Yb 173.04	71 Lu 174.97

‡Actinide Series

90 Th 232.038	91 Pa (231)	92 U 238.03	93 Np (237)	94 Pu (242)	95 Am (243)	96 Cm (247)	97 Bk (247)	98 Cf (249)	99 Es (254)	100 Fm (253)	101 Md (256)	102 No (256)	103 Lr (257)