SCIENCE PLANNER: WEEK OF 8.12.19

OBJECTIVES FOR THE WEEK:

Honors Biology : What tools do we need to study biology? Students will understand metrics, conversion, graph analysis, and the scientific method.

Honors Chemistry: What tools do we need to study chemistry? Students will understand metrics, conversion, graph analysis, and the scientific method.

DAILY AGENDA – (SUBJECT TO CHANGE)

DAY	Honors Biology	Honors Chemistry
Mon 8/12 	-Warm up and collect HW https://www.youtube.com/watch?v=AhsIF-cmoQQ -QUIZ! (20 q) -Inquiry lab! Graphing HW= finish #1-30 (ok to answer right on that paper)	-Warm up and collect HW https://www.youtube.com/watch?v=UdQreBq6MOY -Presentations: measurement lab -Inquiry lab! Graphing HW= Finish #1-30 (ok to answer right on that paper), study for **QUIZ!!**
Tues 8/13	-Warm up -NOTES: The chemistry of life and water -Activity: ATOMS HW= finish Graph lab, # 1-9 on that sheet =)	-Warm up -QUIZ! -NOTES: Sig figs -Practice: sig figs and measurement HW= finish Graph lab,CK12 is due THURSDAY at 11pm!, finish all odd (or all evens) from sig figs packet!
Wed 8/14	-Warm up https://scaleofuniverse.com/ -finish NOTES: The chemistry of life and water	-Warm up https://scaleofuniverse.com/ -PRESENTATIONS!! Measurement ☺

	HW=Worksheet: scale of universe (pick 10 total). As always, study notes!	-NOTES: complex conversions -Practice HW= finish #1-12 on Sep paper show all work and units! Work more on CK12 due Thurs at 11pm.
Thur 8/16	-Warm up and HW check -finish NOTES: the chemistry of life ATOMIC STRUCTURE LAB!! http://phet.colorado.edu/en/simulation/build-an-atom) -HW= Test tomorrow!! pHET lab pages 1, 2, and 3 due FRI.	-Warm up -go over HW (If questions) -Measurement lab #2!!! DENSITY https://phet.colorado.edu/en/simulation/legacy/density HW= Study for test and CK12 is due by 10pm tonight!!
Fri 8/16	TEST: Ch1 and Chemistry of liife -Activity: Culture21	TEST- measurement, conversion, sig figs, and density -Activity: Culture21

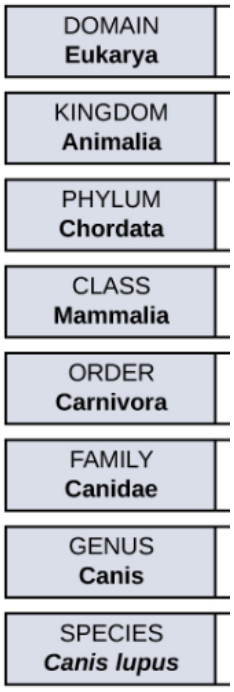
https://www.youtube.com/watch?v=UdQreBq6MOY

WARM UP ACTIVITIES

MON	The three things that I found to be the most interesting about this video are: (see video link above for your subject)
TUES	Describe stomata, guard cell, ovum and ovule. Surrounding each **stomata** are two **guard cells**, which regulate the opening and closing of **stomata** to facilitate gas exchange and control transpiration in plants. ** **ovum** is (label) the female gamete in animals; the **egg** cell while **ovule** is (botany) the structure in a plant that develops into a seed after fertilization Explain why it is ok to multiply something by

	$\left(\frac{10^3\,g}{1kg}\right)$
WED	Describe 2 small and two big things as well as their diameter in 1x $10^{?}$m
THUR	**List the classification of life from biggest to smallest. https://cnx.org/contents/s8Hh0oOc@15.8:-Yx1m5Xz@12/1-1-Themes-and-Concepts-of-Biology#91821 MAKE A *MNEMONIC*!!** DKPCOFGS **A moped can travel at 2.2 m/s. The nearest grocery store is 8.3 miles away. Bobby REALLY wants some ice cream. How long would it take him to get to the store? 88 Km= 55 mi**
FRI	**List the levels of organization of life from biggest to smallest.** **1 mole of gold = 197 grams. Ms. Evans' ring has a mass of 11.52 grams. How many moles of gold does Ms. Evans have in that ring?**
FRI HAND IN!	**BIO- 1) Warm up with 30 GRAPH questions** **2) PhET atomic structure lab** **3) Scale of universe** **CHEM- 1) Warm up with 30 GRAPH questions**

	2) PhET density lab **3) HW #1-12 show work and units! (4 pts each!)**



Levels of Organization

- **Subatomic particles** (p^+, e^-, n^0)
- **Atom** (O)
- **Element** (O)
- **Molecule** (O_2)
- **Macromolecules** (lipid)
- **Cell** (blood cell) ***<--life begins here***
- **Tissue** (epithelial tissue)
- **Organ** (lung)
- **Organ system** (Respiratory System)
- **Organism** (*Homo sapien)*

QUIZ! (20 q)

QUESTION #	Where to find in text	Key word(s) for the tricky ones
1	1.1	Properties of life
2	1.1	Cell
3	1.1	Individual
4	1.1	
5	1.1	
6	1.1	DKPCOFGS "Homo Sapiens"
7	1.1	
8	1.1	Extreme and tough bacteria
9	1.2	Inductive vs. deductive reasoning

10	1.2	Inductive vs. deductive reasoning
11	1.2	guess
12	1.2	(the warm up today)
13	1.1	
14	1.1	
15	1.1	
16	1.1	
17	1.1	
18	1.1	You are still doing this….
19	1.1	DKPCOFGS
20	1.1	

ZIPGRADE

Answer Key
Quiz: Chem 8.12.19

Quiz Date: Aug 12, 2019

Class: BIO1

Key A		
1	E	1
2	C	1
3	D	1
4	D	1
5	C	1
6	C	1
7	B	1
8	A	1
9	D	1
10	A	1
11	C	1
12	A	1
13	B	1
14	B	1
15	A	1
16	C	1
17	A	1
18	D	1
19	D	1
20	D	1

ANSWER KEY

READING THERMOMETERS

Name _____

What temperature is indicated on each of the thermometers below?

a) 68.0° b) −2.8° c) 11.0°

d) −1.1° e) 28.1° f) 16.0°

g) 8.0° h) −11.5° i) 98.7°

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DIMENSIONAL ANALYSIS (FACTOR LABEL METHOD)

Name _____

Using this method, it is possible to solve many problems by using the relationship of one unit to another. For example, 12 inches = one foot. Since these two numbers represent the same value, the fractions 12 in/1 ft and 1 ft/12 in are both equal to one. When you multiply another number by the number one, you do not change its value. However, you may change its unit.

Example 1: Convert 2 miles to inches.

2 miles × (5,280 ft / 1 mile) × (12 inches / 1 ft) = 126,720 in

(using significant figures, 2 mi = 100,000 in.)

Example 2: How many seconds are in 4 days?

4 days × (24 hr / 1 day) × (60 min / 1 hr) × (60 sec / 1 min) = 345,600 sec

(using significant figures, 4 days = 300,000 sec.)

Solve the following problems. Write the answers in significant figures.

1. 3 hrs = _____ sec 180
2. 0.035 mg = _____ cg 0.0035
3. 5.5 kg = _____ lbs 12
4. 2.5 yds = _____ in 90
5. 1.5 yrs = _____ hr (1 yr = 365 days) 11,000
6. 3 moles = _____ molecules (1 mole = 6.02×10^{23} molecules) 2×10^{24}
7. 2.5×10^{24} molecules = _____ moles 4.2
8. 5 moles = _____ liters (1 mole = 22.4 liters) 100
9. 100. liters = _____ moles 4.46
10. 50. liters = _____ molecules 1.3×10^{24}
11. 8.0×10^{24} molecules = _____ liters 180
12. 7.5×10^{3} mL = _____ liters 7.5

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METRICS AND MEASUREMENT

Name _____

In the chemistry classroom and lab, the metric system of measurement is used, so it is important to be able to convert from one unit to another.

mega	kilo	hecto	deca	Basic Unit	deci	centi	milli	micro
(M)	(k)	(h)	(da)	gram (g) liter (l) meter (m)	(d)	(c)	(m)	(μ)
1,000,000	1000	100	10	1	0.1	0.01	0.001	0.000001
10^{6}	10^{3}	10^{2}	10^{1}	10^{0}	10^{-1}	10^{-2}	10^{-3}	10^{-6}

Factor Label Method

1. Write the given number and unit.
2. Set up a conversion factor (fraction used to convert one unit to another)
   a. Place the given unit as denominator of conversion factor.
   b. Place desired unit as numerator.
   c. Place a "1" in front of the larger unit.
   d. Determine the number of smaller units needed to make "1" of the larger unit.
3. Cancel units. Solve the problem.

Example 1: 55 mm = ____ m

55 μm × (1 m / 1000 μm) = 0.055 m

Example 2: 88 km = ____ m

88 km × (1000 m / 1 km) = 88,000 m

Example 3: 7000 cm = ____ km

7000 cm × (1 m / 100 cm) × (1 km / 1000 m) = 0.7 km

Example 4: 8 dkl = ____ cl

8 dkl × (10 l / 1 dkl) × (10 dl / 1 l) × (100 cl / 1 dl) = 8000 cl

The factor label method can be used to solve virtually any problem including changes in units. It is especially useful in making complex conversions dealing with concentrations and derived units.

Convert the following:

1. 35 mL = _____ dL 0.35
2. 950 g = _____ kg 0.950
3. 275 mm = _____ cm 27.5
4. 1.000 L = _____ kL 1.000
5. 1,000 mL = _____ L 1.000
6. 4,500 mg = _____ g 4.5
7. 25 cm = _____ mm 250
8. 0.500 kg = _____ dag 0.5
9. 0.075 m = _____ cm 7.5
10. 15 g = _____ mg 15,000

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SCIENTIFIC NOTATION

Name _____

Scientists very often deal with very small and very large numbers, which can lead to a lot of confusion when counting period. We have learned to express these numbers as powers of 10.

Scientific notation takes the form of $M \times 10^{n}$ where $1 \le M < 10$ and "n" represents the number of decimal places to be moved. Positive n indicates the standard form is larger than zero whereas negative n would indicate a number smaller than zero.

Example 1: Convert 1,500,000 to scientific notation.

We move the decimal point so that there is only one digit to its left, a total of 6 places.

1,500,000 = 1.5×10^{6}

Example 2: Convert 0.000025 to scientific notation.

For this, we move the decimal point 5 places to the right.

0.000025 = 2.5×10^{-5}

(Note that when a number starts out less than one, the exponent is always negative.)

Convert the following to scientific notation.

1. 0.005 = 5×10^{-3}
2. 5.050 = 5.05×10^{0}
3. 0.0008 = 8×10^{-4}
4. 1,000 = 1×10^{3}
5. 1,000,000 = 1×10^{6}
6. 0.25 = 2.5×10^{-1}
7. 0.025 = 2.5×10^{-2}
8. 0.0025 = 2.5×10^{-3}
9. 500 = 5×10^{2}
10. 5,000 = 5×10^{3}

Convert the following to standard notation.

1. 1.5×10^{3} = 1,500
2. 1.5×10^{-3} = 0.0015
3. 3.75×10^{-2} = 0.0375
4. 3.75×10^{2} = 375
5. 2.2×10^{5} = 220,000
6. 3.35×10^{-1} = 0.335
7. 1.2×10^{-4} = 0.00012
8. 1×10^{4} = 10,000
9. 1×10^{-1} = 0.1
10. 4×10^{0} = 4

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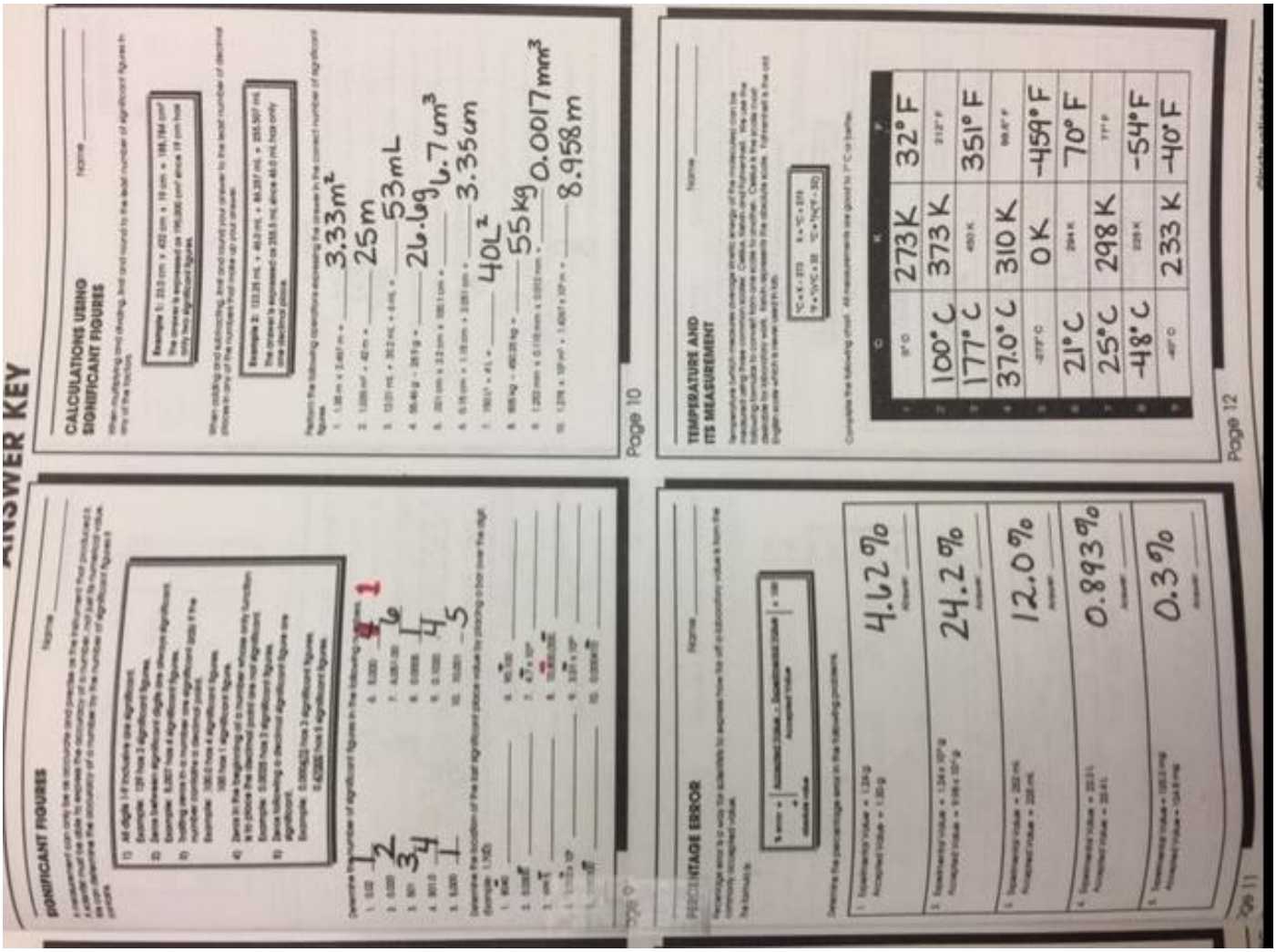

WED 8/14 PRESENTATIONS- CHEM

NAMES AT TOP! THUMB RULE!!!!

- **Explain what you did, how you did it (board A)**
- **Provide all measured data and units (BOARD A)**
- **Show all conversions with units and how they cancel (BOARD B) PUT FINAL ANSWER IN popsicle sticks!!**
- **Calculate % error (BOARD B)**

23.5m (short) 26.91m (long)

-Did you find their name ok?

-Could you replicate the experiment?

-Any place where you couldn't tell what the units were?

-Any numbers show up that you couldn't tell where they came from?

-Was the % error less than 20%

ACTUAL=58.73 x 45.72 cm= 26.85m

51.1 x 45.72 cm= 23.36 m

ZIPGRADE

Answer Key
Quiz: Bio Test 8.16

Quiz Date: Aug 16, 2019

Class: BIO1

Key A		
1	E	1
2	C	1
3	D	1
4	D	1
5	B	1
6	C	1
7	C	1
8	D	1
9	A	1
10	A	1
11	A	1
12	D	1
13	C	1
14	C	1
15	B	1
16	A	1
17	D	1
18	A	1
19	B	1
20	B	1
21	C	1
22	A	1
23	D	1
24	D	1
25	D	1
26	C	1
27	D	1
28	B	1
29	A	1
30	B	1
31	A	1
32	D	1
33	C	1