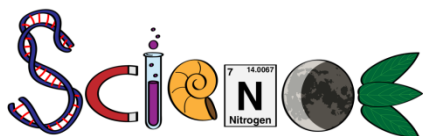


SCIENCE PLANNER: WEEK OF 10.14.19



OBJECTIVES FOR THE WEEK:

Biology : What is DNA and how does it work? Bio.3.1.2 Explain how DNA and RNA code for proteins and determine traits. Bio.3.1.3 Explain how mutations in DNA that result from interactions with the environment (i.e. radiation and chemicals) or new combinations in existing genes lead to changes in function and phenotype.

Chemistry: How do we count (and account for) atoms? Chm.2.2.4 Analyze the stoichiometric relationships inherent in a chemical reaction.

DAILY AGENDA – (SUBJECT TO CHANGE) <https://evanscca.weebly.com/>

DAY	Biology	Chemistry
Mon 10.14	<p>Finish notes: Karyotypes (slides 22-29)</p> <p>Virtual lab! Karyotype investigations!</p> <p>*HW= Finish lab and #1-31 for tomorrow!</p>	<p>NOTES: product predictions, limiting reactant</p> <p>Practice (teams)</p> <p>*HW= finish predicting products 1-3 and limiting reactant problems (whole packet.</p>
Tues 10.15	<p>TUES 10.15- HAND IN:</p> <ul style="list-style-type: none"> -DNA extraction virtual lab -Karyotype lab -mitosis/meiosis #1-31 <p>https://www.youtube.com/watch?v=gG7uCSkUOrA ,</p> <p>NOTES: DNA, RNA and transcription</p> <p>*HW = ALL of page 9 in packet.</p>	<p>TUES 10.15- HAND IN:</p> <ul style="list-style-type: none"> -Ch 13 questions and answers -predicting products i-iii -limiting reactant problems #1-2 -balanced equation (25%) -determine limiting reactant (25%) -determine amount of products (25%) -determine amount of left over reactant (25%) <p>NOTES: % Yield</p> <p>Practice (teams)</p> <p>Inquiry activity: limiting reactant</p> <p>DUE WED= green presentation!! (take picture</p>


		of the board on the way out).
Wed 10.16	PSAT testing day *HW= Due Thursday AM: YOUR flipgrid video: code =7ec31a39 https://flipgrid.com/7ec31a39	We will still have a short class to look at our presentations. DUE THURSDAY: make a quick flipgrid video of yourself! code =7ec31a39
Thurs 10.17	Finish Protein synthesis notes. TRANSCRIPTION DEMO HW= FIX pg 9! Study for test! <u>Know BOTH</u> tutorials on presentation website!	Warm up Finish notes: % Yield - Remainder of class time making the green presentation and doing CK12 review. *HW DUE tonight= CK12 review (only 2 sections), study for test.
Fri 10.18	Test- Transcription/translation. Student translation Tutorial VIDEO! DUE MONDAY! CK12 (genetics), & test corrections due TUES	TEST- stoichiometry, empirical formulas, limiting reactant and % yield http://somup.com/cq6bcKeRrw https://screencast-o-matic.com/watch/cq6Dr7uarW DUE MONDAY! 1) TEST corrections (all 4 questions plus equations sections posted on schoology for you). 2) Grade all limiting reactant videos (1-10)

--	--	--

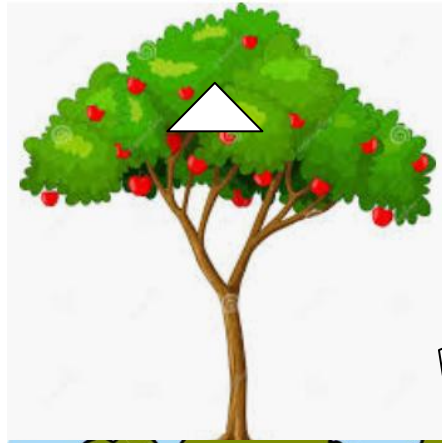
WARM UP ACTIVITIES

<https://www.flippity.net/rp.asp?k=19gHRdW2GcdwupUkaHcPleOXeQbljVpy9vB-Tpchw9Us>

https://www.flippity.net/rp.asp?k=1JY_BNWQKX871207FC41QKNPFEGZP7XYF-6YRTTSJWK

<p>MON 10.14</p>	<p>Draw your revised picture of an apple tree and your three car garage with an explanation of what it means in terms of DNA</p> <p>Write a balanced equation for ANY single displacement reaction that has phosphate in it.</p> <table border="0" style="width: 100%; text-align: center;"> <tr> <td style="width: 30%;">potassium</td> <td style="width: 30%; color: purple;">most reactive</td> <td style="width: 30%;">K</td> </tr> <tr> <td>sodium</td> <td></td> <td>Na</td> </tr> <tr> <td>calcium</td> <td></td> <td>Ca</td> </tr> <tr> <td>magnesium</td> <td></td> <td>Mg</td> </tr> <tr> <td>aluminium</td> <td></td> <td>Al</td> </tr> <tr> <td style="color: red;">carbon</td> <td></td> <td style="color: red;">C</td> </tr> <tr> <td>zinc</td> <td></td> <td>Zn</td> </tr> <tr> <td>iron</td> <td></td> <td>Fe</td> </tr> <tr> <td>tin</td> <td></td> <td>Sn</td> </tr> <tr> <td>lead</td> <td></td> <td>Pb</td> </tr> <tr> <td style="color: red;">hydrogen</td> <td></td> <td style="color: red;">H</td> </tr> <tr> <td>copper</td> <td></td> <td>Cu</td> </tr> <tr> <td>silver</td> <td></td> <td>Ag</td> </tr> <tr> <td>gold</td> <td></td> <td>Au</td> </tr> <tr> <td>platinum</td> <td style="color: blue;">least reactive</td> <td>Pt</td> </tr> </table> 	potassium	most reactive	K	sodium		Na	calcium		Ca	magnesium		Mg	aluminium		Al	carbon		C	zinc		Zn	iron		Fe	tin		Sn	lead		Pb	hydrogen		H	copper		Cu	silver		Ag	gold		Au	platinum	least reactive	Pt
potassium	most reactive	K																																												
sodium		Na																																												
calcium		Ca																																												
magnesium		Mg																																												
aluminium		Al																																												
carbon		C																																												
zinc		Zn																																												
iron		Fe																																												
tin		Sn																																												
lead		Pb																																												
hydrogen		H																																												
copper		Cu																																												
silver		Ag																																												
gold		Au																																												
platinum	least reactive	Pt																																												
<p>TUE 10.15</p>	<p>Bio- Name 2 things you learned from this video:</p> <p>https://www.youtube.com/watch?v=gG7uCskUOrA</p> <p>Write a balanced equation for the pictures below. How many sandwiches can you make according to the pictures? 0.75 oz peanut butter per sandwich, 0.55 oz jelly per sandwich, 2 slices of bread per sandwich.</p>																																													
<p>WED</p>	<p>Bio: Explain what genetic code can leave the nucleus and why?</p> <p>Chem: we already did a limiting reactant problem for</p>																																													

10.16	this one ☺
THU 10.17	<p>Bio: What causes mutations?</p> <p>What is the balanced equation for the decomposition of chromium(III) hydrogen carbonate? (products are chromium(III) carbonate, water, and carbon dioxide)</p>
FRI 10.18	<p>Bio: What is the difference between tRNA and mRNA?</p> <p>Limiting reactant problems:</p> $4\text{FeS} + 7\text{O}_2 \rightarrow 2\text{Fe}_2\text{O}_3 + 4\text{SO}_2$ $2\text{Ca}(s) + \text{O}_2(g) \rightarrow 2\text{CaO}(s)$ $6\text{NO} + 4\text{NH}_3 \rightarrow 5\text{N}_2 + 6\text{H}_2\text{O}$ $2\text{AgNO}_3 + \text{H}_2\text{S} \rightarrow \text{Ag}_2\text{S} + 2\text{HNO}_3$ $\text{N}_2(g) + 3\text{H}_2(g) \rightarrow 2\text{NH}_3(g)$ $\text{NaHCO}_3(s) + \text{HCl}(aq) \rightarrow \text{NaCl}(s) + \text{H}_2\text{O}(l) + \text{CO}_2(g)$



Adenine and Thymine



Guanine and

cytosine

Purine vs. Pyrimidine

• *A purine is always **complementary paired** with a pyrimidine:

• **Purine:**

- Adenine (A)
- Guanine (G)

• **Pyrimidine:**

- Thymine (T) **DNA** or Uracil (U) **RNA**
- Cytosine (C)

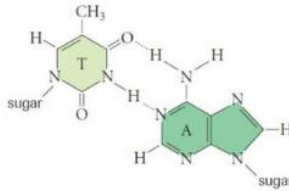
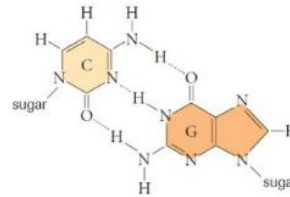


Figure 2
Adenine forms two hydrogen bonds with thymine, while guanine forms three hydrogen bonds with cytosine.



• **Hydrogen bonds** between the bases on opposite strands hold the double helix together.



<https://www.newsweek.com/methane-boiling-sea-discovered-siberia-1463766>



+



+



=



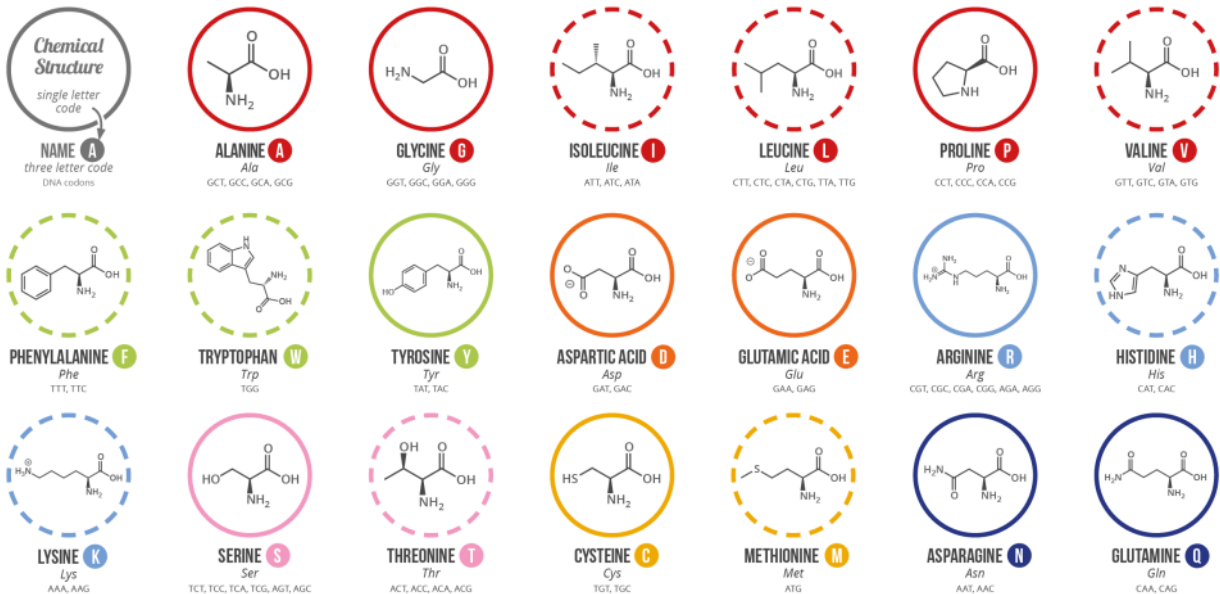
mRNA codons chart:

		Second Position					
		U	C	A	G		
First Position (5' end)	U	UUU } Phe UUC } UUA } Leu UUG }	UCU } Ser UCC } UCA } UCG }	UAU } Tyr UAC } UAA } Stop UAG } Stop	UGU } Cys UGC } UGA } Stop UGG } Trp	U C A G	
	C	CUU } Leu CUC } CUA } CUG }	CCU } Pro CCC } CCA } CCG }	CAU } His CAC } CAA } Gln CAG }	CGU } Arg CGC } CGA } CGG }	U C A G	
	A	AUU } Ile AUC } AUA } Met AUG }	ACU } Thr ACC } ACA } ACG }	AAU } Asn AAC } AAA } Lys AAG }	AGU } Ser AGC } AGA } Arg AGG }	U C A G	
	G	GUU } Val GUC } GUA } GUG }	GCU } Ala GCC } GCA } GCG }	GAU } Asp GAC } GAA } Glu GAG }	GGU } Gly GGC } GGA } GGG }	U C A G	
						Third Position (3' end)	

A GUIDE TO THE TWENTY COMMON AMINO ACIDS

AMINO ACIDS ARE THE BUILDING BLOCKS OF PROTEINS IN LIVING ORGANISMS. THERE ARE OVER 500 AMINO ACIDS FOUND IN NATURE - HOWEVER, THE HUMAN GENETIC CODE ONLY DIRECTLY ENCODES 20. 'ESSENTIAL' AMINO ACIDS MUST BE OBTAINED FROM THE DIET, WHILST NON-ESSENTIAL AMINO ACIDS CAN BE SYNTHESISED IN THE BODY.

Chart key: ● ALIPHATIC ● AROMATIC ● ACIDIC ● BASIC ● HYDROXYLIC ● SULFUR-CONTAINING ● AMIDIC ○ NON-ESSENTIAL ○ ESSENTIAL



Note: This chart only shows those amino acids for which the human genetic code directly codes for. Selenocysteine is often referred to as the 21st amino acid, but is encoded in a special manner. In some cases, distinguishing between asparagine/aspartic acid and glutamine/glutamic acid is difficult. In these cases, the codes asx (B) and glx (Z) are respectively used.

-Karyotype lab
-mitosis/meiosis #1-31

TUES 10.15- HAND IN:

- Ch 13 questions and answers
- predicting products i-iii
- limiting reactant problems #1-2
 - balanced equation (25%)
 - determine limiting reactant (25%)
 - determine amount of products (25%)
 - determine amount of left over reactant (25%)

-----my hints to 2nd block!

ALWAYS show all work and units and units of WHAT

<ul style="list-style-type: none">-Iron III means Fe^{3+}-oxygen is diatomic-Be sure to match up charges correctly to make compounds!-hydrogen gas is diatomic	<ul style="list-style-type: none">-copper II means Cu^{+2}-the pentagon has 5 sides-find % water in the whole thing Mass water/mass whole thing $\times 100 = \%$ water
<ul style="list-style-type: none">-assume out of 100 g and convert all to moles!-find the mole ratio	<ul style="list-style-type: none">- Use units and units of WHAT for everything.- % yield = $\text{ACTUAL} / \text{THEORETICAL} \times 100$-

Part 5- NH_3 is the product