AP Biology Sunlake High School Ms. Pugh

Summer assignment 2017-18

Welcome! Congratulations on deciding to take on the challenge of Advanced Placement Biology. Don't worry! This may look a lot worse than it is. I just want to get you all the information you'll need & address some common questions before you start enjoying your summer break. Thanks!

I know what you are thinking…..

…….Why a summer assignment?

AP Biology is a vigorous, yet manageable and rewarding class. In order to meet the demands of the curriculum it is necessary for you to complete some work before you come back in August. Your summer assignment will be based around pre-requisite information that you need a refresher on before coming back. Many of you may be well versed in these topics already so it shouldn't be too difficult.

What are you required to do?

Part #1 (Introduction Letter)

First, I would like to know a little about who you are so your first assignment is to send me an email. Yup….that's it! Your first AP Biology grade will be sending me an email…if only all of the grades were this easy! I will reply so you have electronic record that your assignment was received. Here is what I would like you to email me at **epugh@pasco.k12.fl.us before the beginning of 2017-18 school year:**

Subject Line: AP Biology 17-18, Your Name
Body: Your full name (& nickname that you go by if you have one) & stuff about you!

- Who was your last science teacher? What class?
- What other science classes have you taken? Are planning to take next year?
- How many AP courses are you taking next year?
- What do you like to do (hobbies, sports, music, interests, job etc.)?
- Was there anything that you particularly liked or disliked about your earlier biology class?
- What are you looking forward to the most in AP Biology?
- What are you most anxious about in AP Biology?
- **Why are you taking AP Biology? What do you hope to accomplish/gain?**

There is no right or wrong answer….be honest so that I can figure out the best way to help you next year! ☺
A word of advice: I am your future teacher (not your Instagram/SnappyChat follower) so please remember to use proper salutations, closing, phrasing, etc. **I should receive this email before the 1st day of school (August 14th)**

Part #2 (Websites & Social Media)

While you are online sending me the email, go to the following websites & bookmark them. We will be using these sites/media all year & it wouldn't be a bad idea to glance through them this summer.
Bookmark https://apstudent.collegeboard.org/apcourse/ap-biology

Bookmark http://www.bozemanscience.com/ap-biology/ **Get to know Mr. Anderson from Bozeman Science.** This website has summary lectures for a lot of scientific concepts. We will use the video lists called AP Bio essentials & Biology often.
Watch the following BozemanBiology Videos – **Take notes, your first quiz will be over the information from these videos on the 3rd day of school (August 16th)**

"Models & Representations" http://www.bozemanscience.com/apb-practice-1-models-representations
"Using Mathematics" http://www.bozemanscience.com/apb-practice-2-using-mathematics
"Scientific Questioning" http://www.bozemanscience.com/apb-practice-3-scientific-questioning
"Data Collection Strategies" http://www.bozemanscience.com/apb-practice-4-data-collection-strategies
"Analysis & Evaluation of Evidence" http://www.bozemanscience.com/apb-practice-5-analysis-evaluation-of-evidence

Follow me on twitter: @Ms_EPughAPBio for class announcements and reminders as well as new research and Biology in the news.

Sign up for Remind!: text the number 81010 and enter the message @6eb76c in the subject line. Send and wait for a confirmation text. I promise I won't bug you all summer! Just a reminder closer to the end!

Part # 3 (Summer Assignment Information)

The next 16 pages are tables, charts and Venn diagrams you are to fill in. It will be assumed that you know all of what you learned in honors biology the **1st day** of AP Biology. AP Biology is not designed to reteach you all of these prior concepts, we do not have that kind of time. This summer assignment will be your review. It is meant to be completed individually, meaning that no two student's assignments turned in should be identical. Print out the assignment, staple it and put your name on the top. Complete each box, table or Venn diagram with descriptions, definitions or explanations that will help you review the material. Personalize it by using color and drawings to help make this assignment "your own"! **A completed packet will be turned in on the 2nd day of school (August 15th).**

The AP Biology course is designed to be the equivalent to a college introductory biology course usually taken by biology majors during their first year. AP Biology includes those topics regularly covered in a college biology course for majors and differs significantly from the usual first high school course in biology with respect to the kind of textbook used, the range and depth of topics covered, the kind of laboratory work done by students, and the time and effort required of students. We will spend more time on learning to analyze data, checking for statistical significance of data, discussing data collection and writing conclusions. This will be quite different from the recalling of facts from previous biology class

Therefore, the expectations are the same for AP Biology students as college biology majors. There will not be traditional homework assignments. Every activity or assignment we do will not be graded and entered into the gradebook. You are expected to participate in all of the daily activities and complete them in a timely manner.

Classes will consist of inquiry-based labs, lectures, videos, case studies, cooperative group work and POGILS (of course). Students are required to bring their notebooks (type of notebooks and material list will be given on the first day) to class every day. You will be issued a textbook at the beginning of school, and you will be required to bring it to class on days that I designate. There may not be make-up lab sessions for every lab, so it is extremely important that you attend class regularly.

The level of expectation for this type of course is very high. Only students who are truly committed to high standards of excellence and commitment will succeed in AP Biology. This course is taught in the anticipation of having students take the Advanced Placement Exam in Biology and do well.

In order to be successful in AP Biology, you need to have a background in chemistry and biology. You should have received high A's or B's in all science classes you have taken. You must also be willing to ask for help. I will be more than happy to work with you because my job is to help you be successful.

Hope you have a GREAT summer!

-Ms. Erika Pugh

SUNLAKE

***** Mark your calender: AP Biololgy Exam is Monday, May 14, 2018 *****

AP BIOLOGY SUMMER REVIEW

Characteristics of Living Things:

1.

2.

3.

4.

5.

6.

7.

8.

Steps of the Scientific Method:

1.

2.

3.

4.

5.

6.

7.

8.

pH Scale:

Independent variable	**Dependent variable**
Constant	**Control**

Property of Water	***Explanation***
1.	
2.	
3.	
4.	
5.	

Organic chemistry is the study of carbon or living things. Why carbon?

1.
2.
3.
4.

WHAT ARE THE MACROMOLECULES?

Molecule	***Monomer***	***Polymer***	***Structure***	***Function***
1.				
2.				
3.				
4.				

Monomers combine to form polymers using _____.

Polymers break to form monomers using _____.

SOLUTE + SOLVENT = SOLUTION _____ REACT TO PRODUCE ⇨ _____

_____+_____=_____

Draw GRAPH w/enzyme and w/o enzyme.

Enzymes:

1.
2.
3.
4.
5.

LEVELS OF ORGANIZATION
Atom to Biosphere…

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.
11.
12.
13.
14.

Symbiotic Relationships:

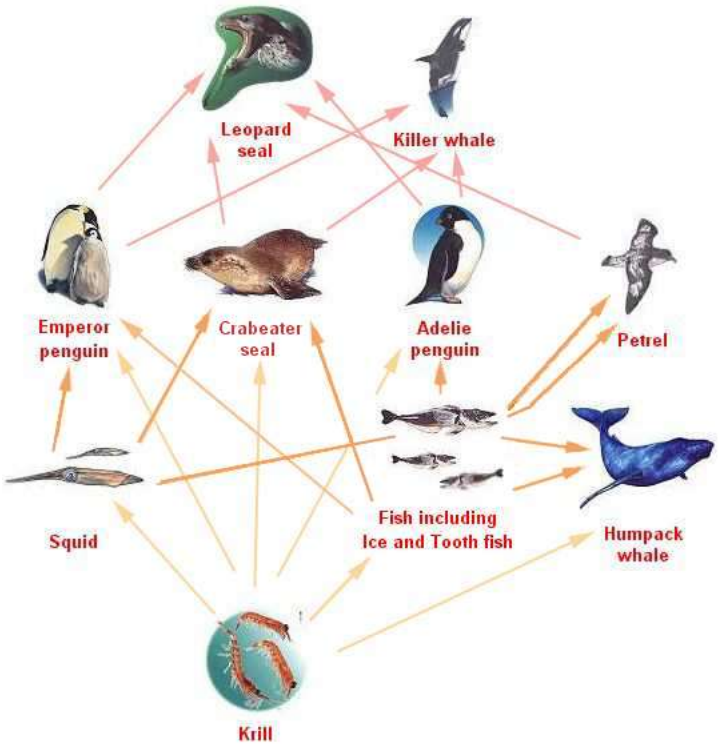
1.

2.

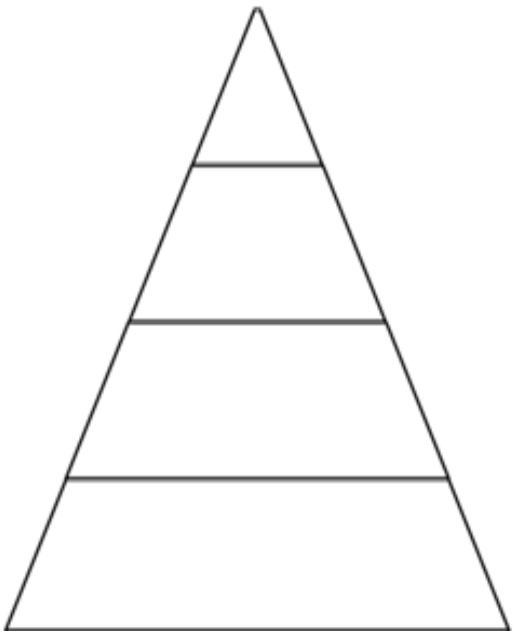
3.

Primary Succession:

Secondary Succession:

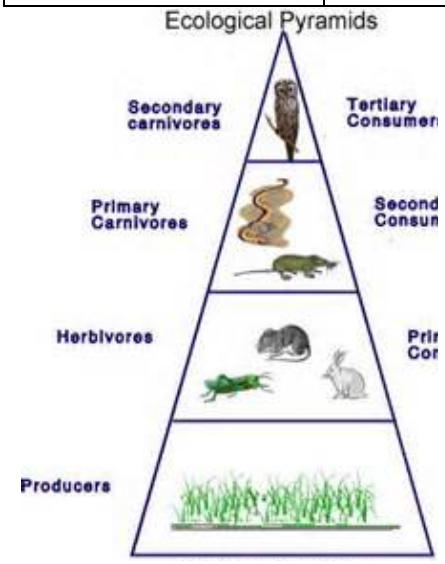


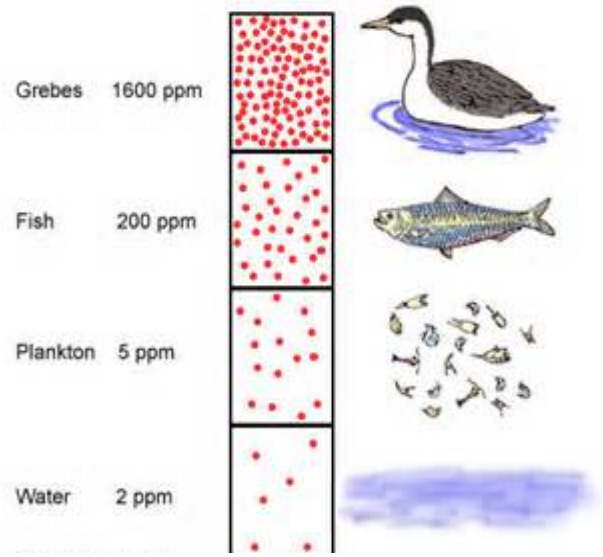
Fill in energy pyramid with the food chain, label the trophic levels, type of organisms and amount of energy passed on:



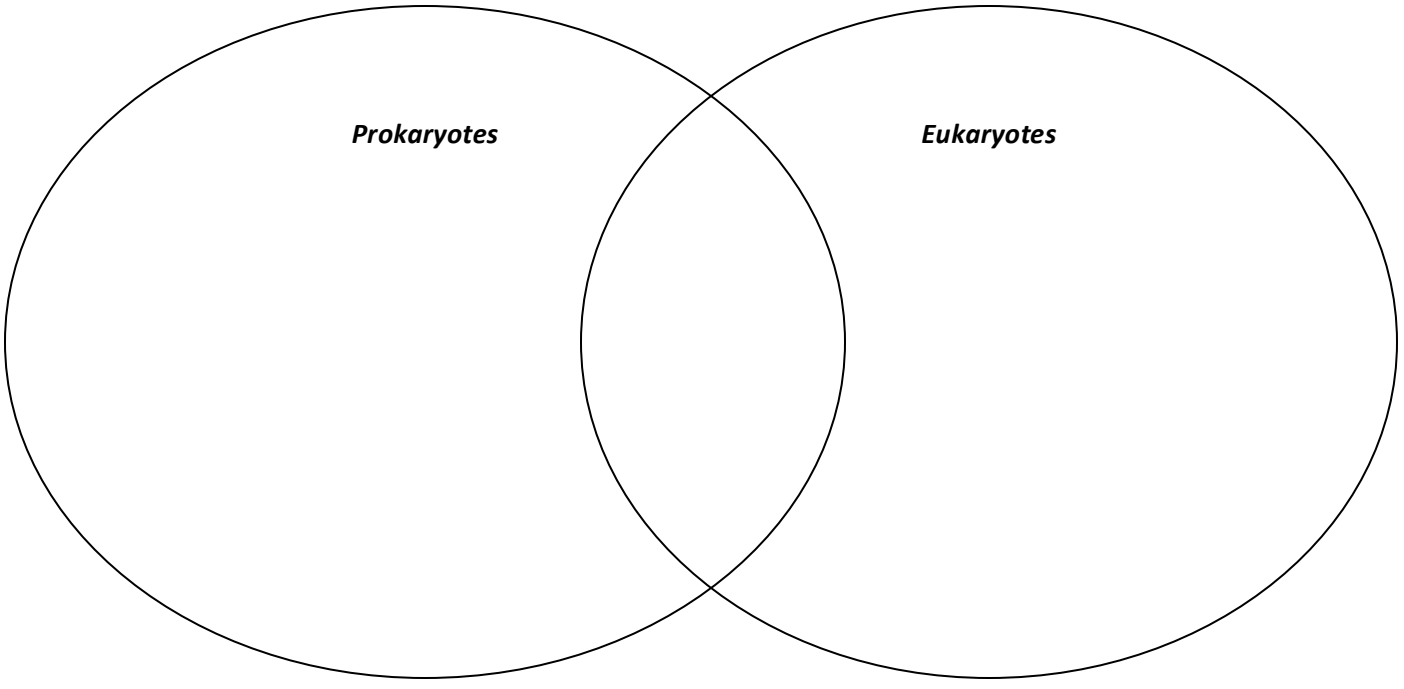
From the food web above: make a food chain with 4 organisms:

Water Cycle	*Carbon Cycle*	*Nitrogen Cycle*	*Phosphorus Cycle*

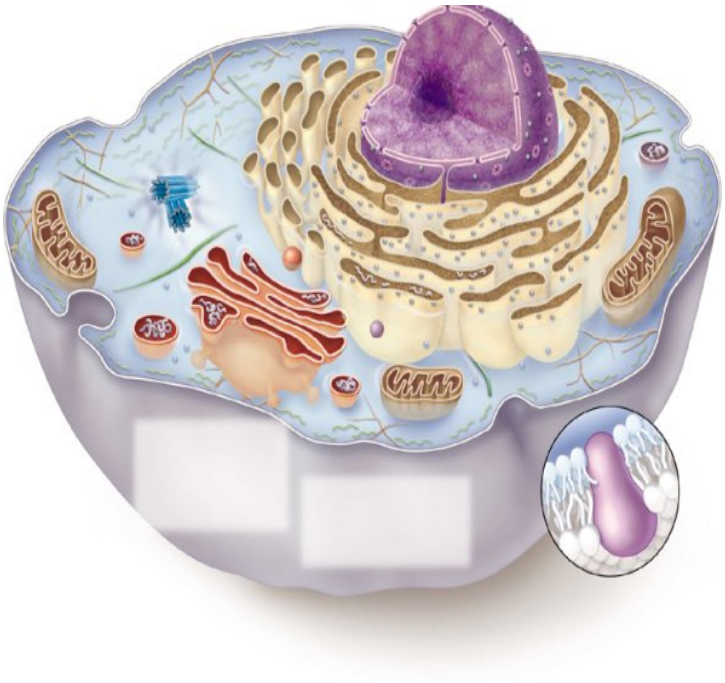


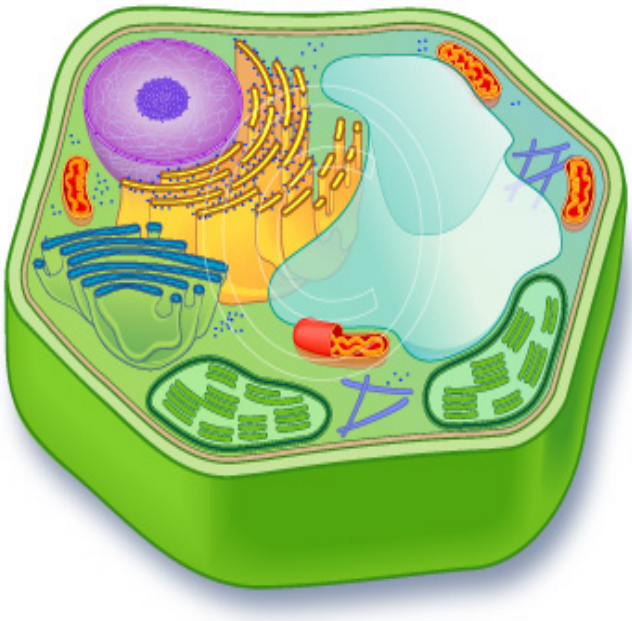


Energy Pyramid VS Biomass Pryamid	*Biological Magnification:*



You should be able to identify the cell type & organelles





Plant Cells:	***Animal Cells:***

Draw and label a plasma membrane here:

Plasma Membrane	
Cytoplasm	
Nucleus	
Nucleolus	
Chromatin	
Vacuole	
Ribosome	
Rough ER	
Smooth ER	
Golgi Apparatus	
Lysosome	

Mitochondria	
Cytoskeleton	
Cilia	
Flagella	
Chloroplast	
Cell Wall	

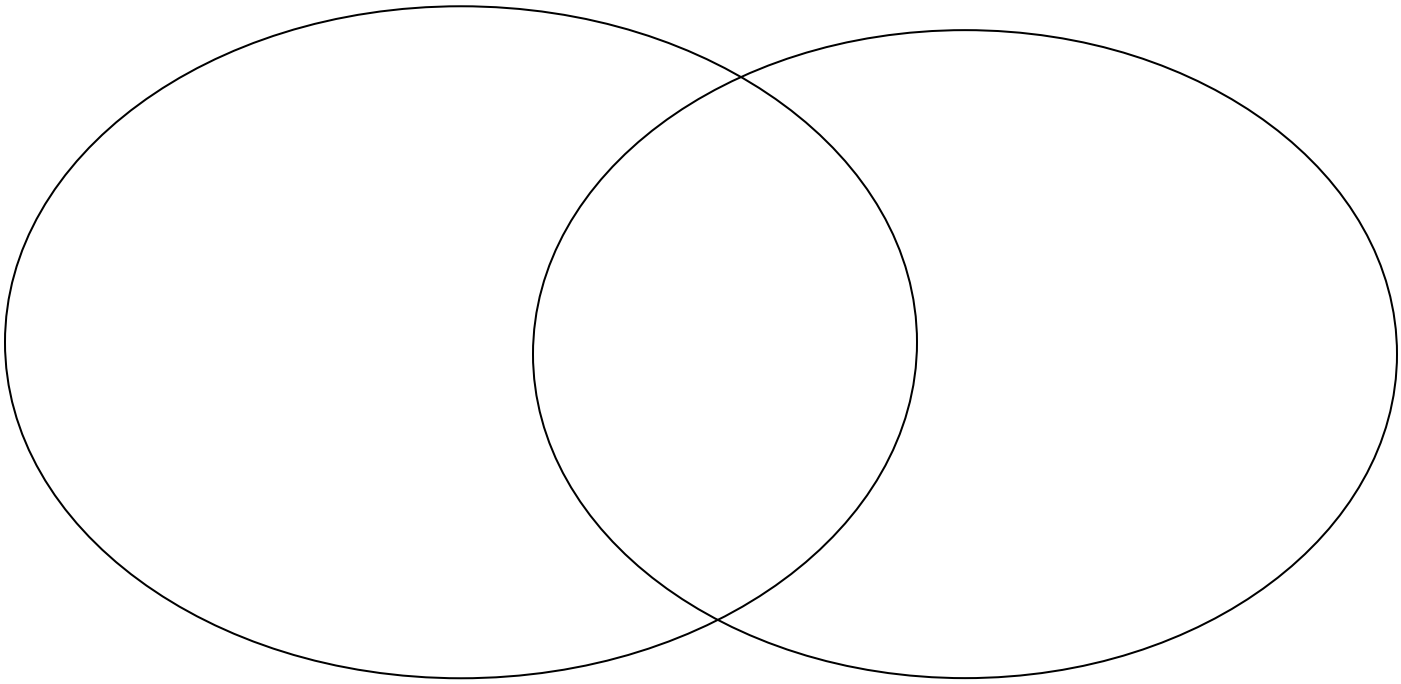
How do some of these organelles interact with one another?

Types of Transport:

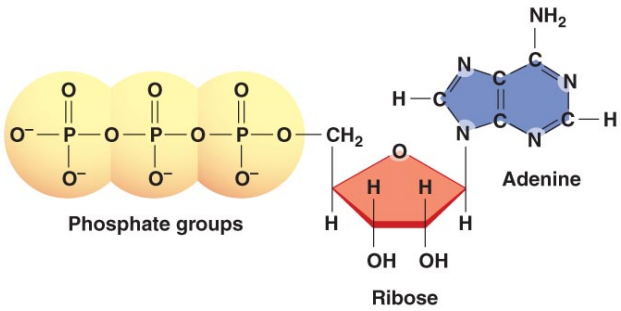
Passive	***Active***
1. 2. 3.	

Endocytosis:	***Exocytosis:***

Photosynthesis ***Cell Respiration***

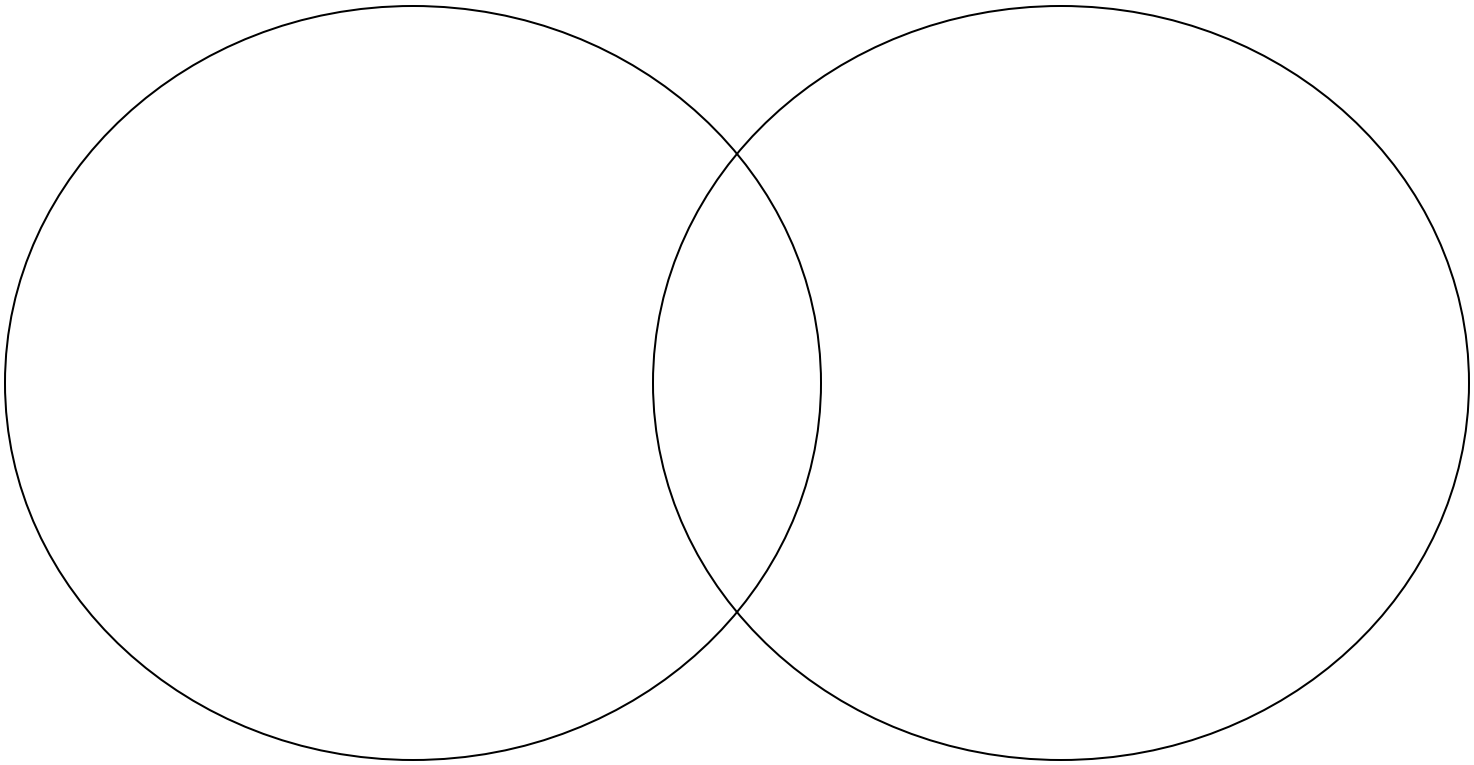


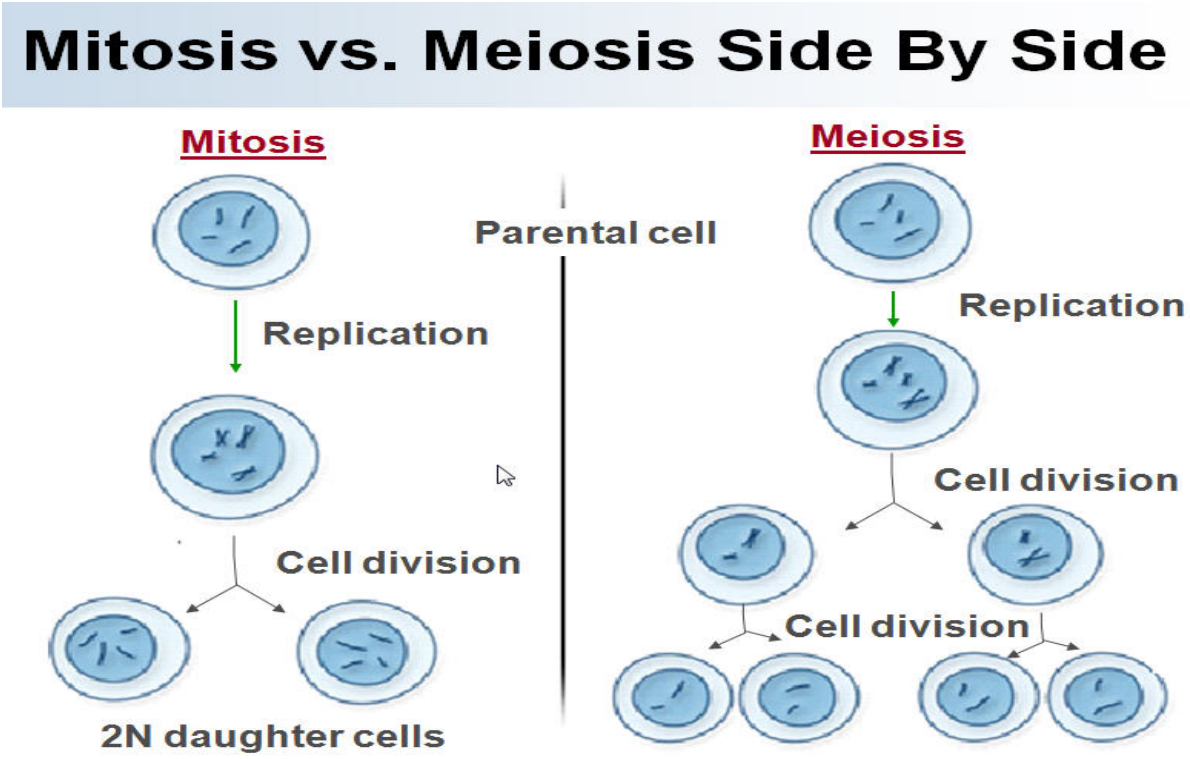
What molecule is this?



What is this molecule used for and how does it change?

Mitosis ***Meiosis***





What is the one main difference between Mitosis and Meiosis??

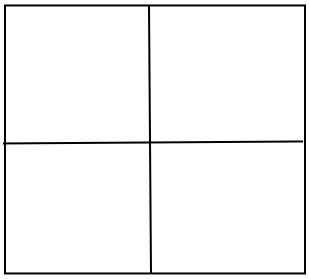
	Pros	***Cons***
Sexual		
Asexual		

Genotype:	***Phenotype:***
1. 2. 3.	

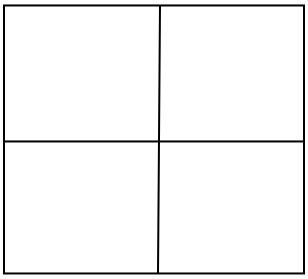
Multiple Alleles:	***Polygenic Traits:***

Give an example of each type of punnett square:

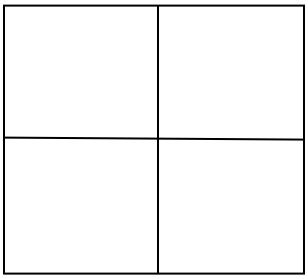
Complete Dominance:



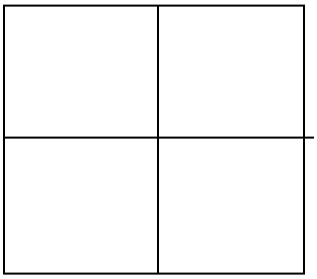
Incomplete Dominance:



Codominance:



Blood Type:



What 4 occurrences lead to genetic diversity?

1.

2.

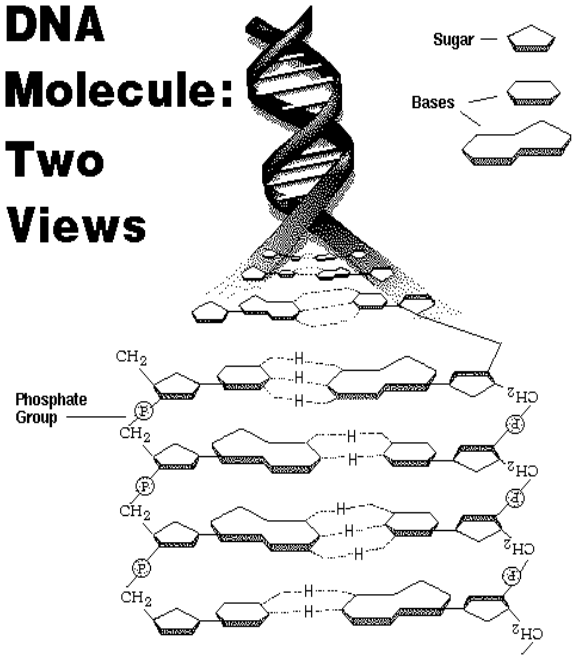
3.

4.

Blood Type Genotypes

A	*B*	*AB*	*O*

DNA Molecule: Two Views



Steps of DNA Replication:

1.

2.

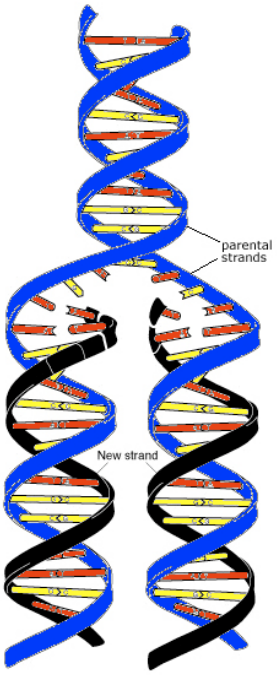
3.

4.

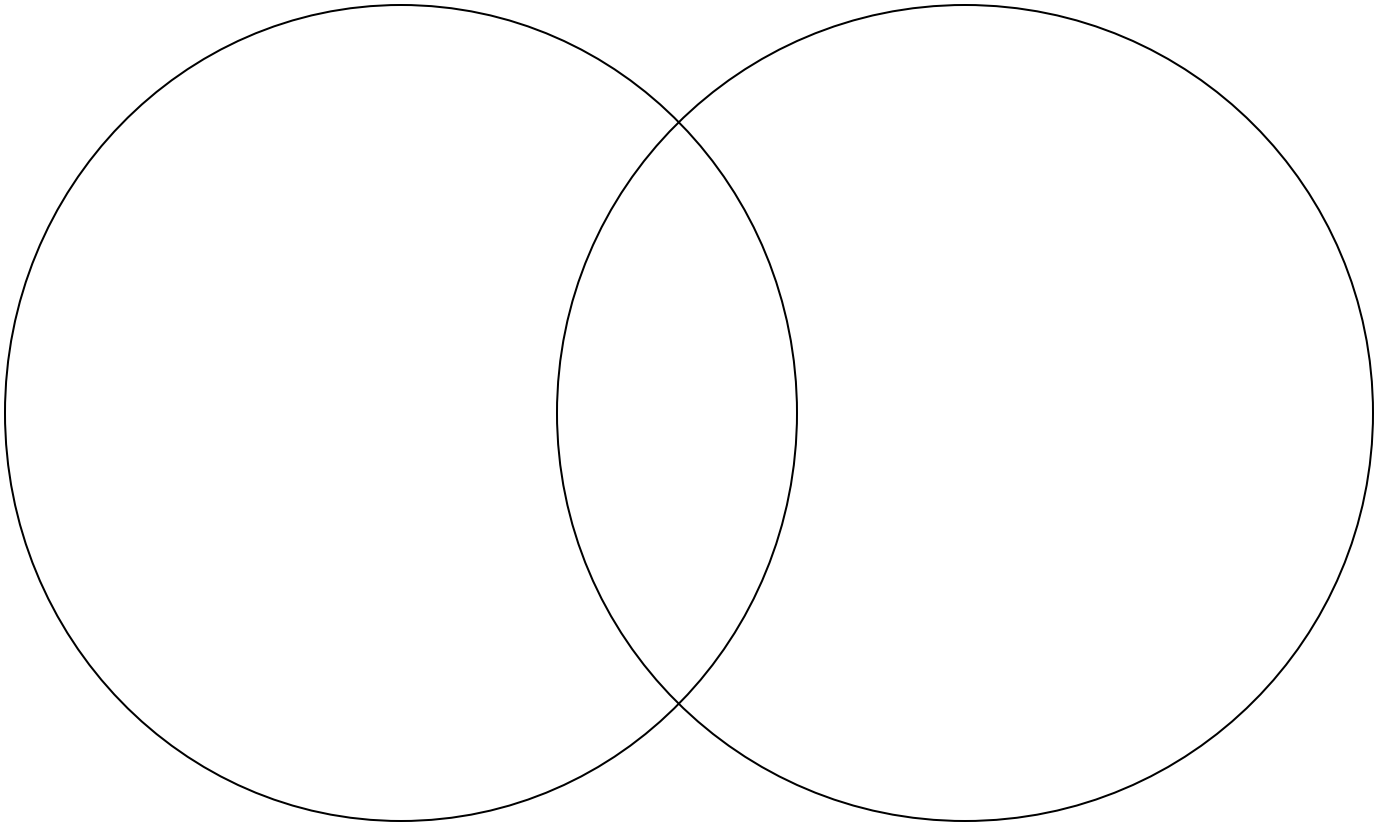
What is DNA Replication?

Why is it used?

What is semi-conservative replication (semi-conservative model)?



Replication in Prokaryotes	*Replication in Eukaryotes*

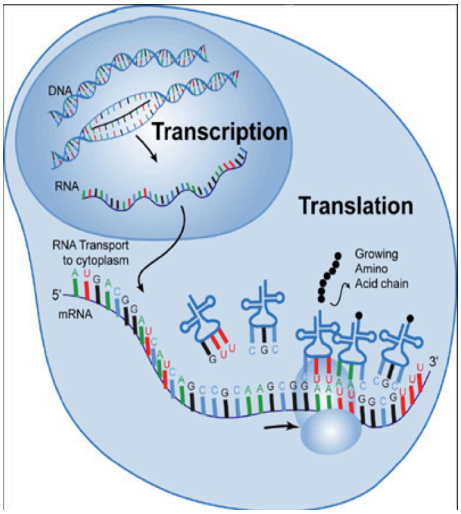


DNA **RNA**

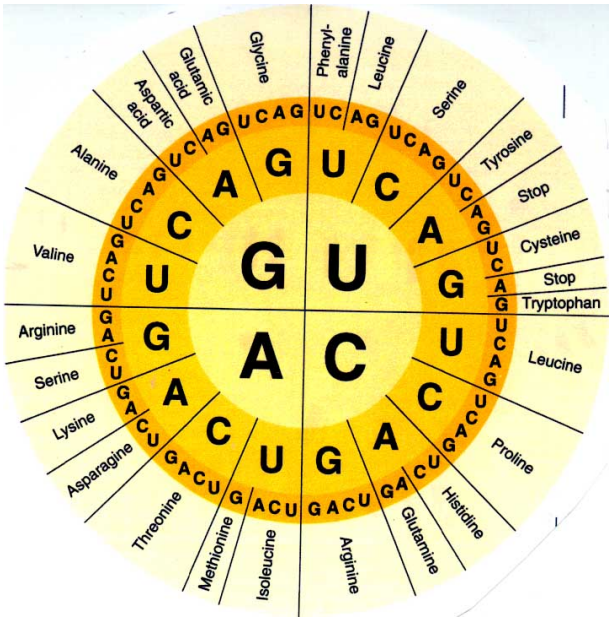
Transcription	*RNA Processing*	*Translation*
1.	1.	1.
2.	2.	2.
3.	3.	3.
		4.
		5.

Practice Transcribing:

G C T T A G G G C C A G T A T A G C



Practice Translating:



A

U

G

C

A

G

G

G

U

U

A

A

What are the 3 stop codons?

1.

2.

3.

What is the 1 start codon?

1.

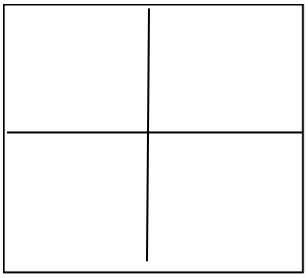
Type of Chromosome Mutation	*Description of Mutation*
Substitution	
Insertion	
Deletion	
Inversion	
Translocation	

Types of DNA mutation

Point Mutation…	***Frameshift Mutation:***

Sex-Linked Cross:

Why are males more likely to get a sex-linked trait than females?



Nondisjunction:

Darwin's Theory of Evolution:

1.

2.

3.

4.

5.

Why was Lamarck "off the mark"?

Evidence of Evolution:

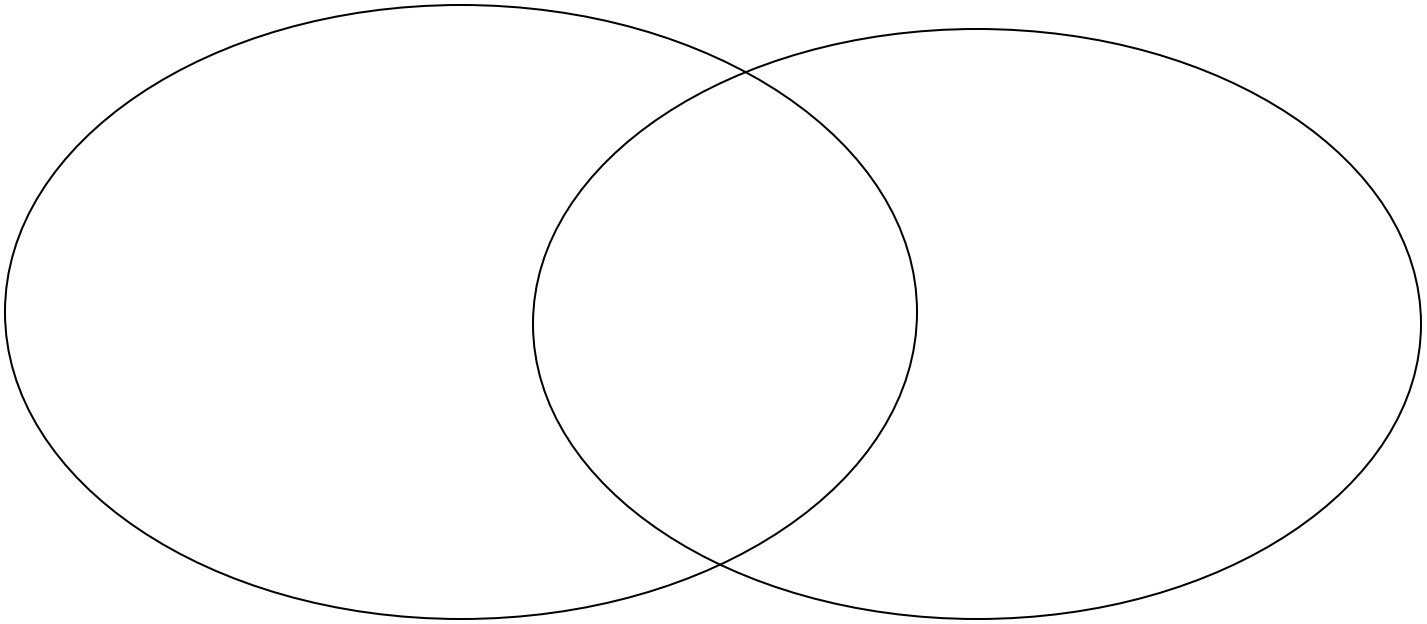
1.

2.

3.

4.

5.



Homologous structure

Analogous structure

What is a vestigial structure?

What is Genetic Drift?

2 Types of Genetic Drift:

1.

2.

What is the result of genetic drift?

Reproductive Isolation: **<u>3 Types</u>**
Behavioral Isolation:
Geographic Isolation:
Temporal Isolation:

Types of Selection	***Description***	***Graph***

Punctuated Equilibrium:

Gradualism:

Endosymbiotic Theory:

What is *Drosophila melanogaster?*

What is the genus? What is the species?

List Linnaeus's levels of classification?

1.

2.

3.

4.

5.

6.

7.

How is this different from the classification system of today?