

Advanced Placement Biology 2018 Summer Assignment

Welcome to AP Biology. This is a college-level course and therefore is taught with the rigor and expectations of an equivalent freshman course. In order for us to move quickly through the content, perform multiple in-depth labs, and prepare you to be successful on the AP exam, it is imperative that you are well-prepared to begin the fall semester.

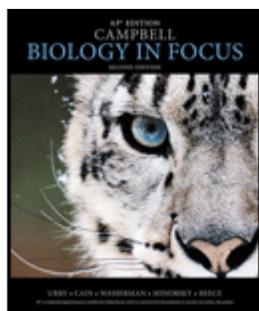
This summer assignment is designed to give you a head-start on the path to success. You will need to have internet access to complete the summer assignment. The public library is a great resource for this if you do not have access at home. You will always have this resource available to you on campus during the school year. **Your summer assignment will be due on the first day of school! Assignments turned in late will receive a 50% penalty. Late registrants or move-ins should receive information from their counselor.**

If you haven't already done so, you should become familiar with the College Board website. Go to: http://apcentral.collegeboard.com/apc/public/courses/teachers_corner/2117.html to find the AP Biology home page. Many colleges offer credit for their introductory biology class to students who receive a score of a 3, 4 or 5 on the AP test. You should discuss transfer or acceptance of grades with the college or university you wish to attend.

If you have any questions over the summer regarding the course or the summer assignment, you may email me at Stephen.dzienis@guhsdaz.org. Please put your name, first and last, in the subject line. I will check my email on a weekly basis over the summer, so don't stress out if I don't get back to you right away. Plan ahead – don't wait until the last week to complete this work, if you do a little at a time it will not be overwhelming and you will be well-prepared to begin the course in August. I look forward to working with you and helping you make your AP Biology experience a fun and entertaining challenge.

Summer Activities:

1. Sign up for MasteringBiology using the following instructions:
 - a. Register at: www.pearsonschool.com/access
 - b. Enter the first six digits of your code: **SSNAST**
 - c. Click on "Covered Titles"
 - d. Click on "Science"
 - e. Click on "Campbell Biology In Focus (Urry) 2e AP® Edition MasteringBiology"
 - f. You will see a book cover like this:



- g. Click on "Student Registration"
- h. Accept the Pearson License Agreement
- i. Create an account (it is free for my class)
 - Use your school email address and password as your username and password on MasteringBio so that you do not forget it!
 - Enter the access code: [email me for the code](mailto:Stephen.dzienis@guhsdaz.org)

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- j. Complete the Account Information
 - You **MUST** use your real name – I will use the gradebook assigned to this class, and must be able to determine who is turning in assignments.
 - Under school name, choose OTHER, then type in Moon Valley High School. Our zip code is 85029.
 - Choose your security question and answer
 - k. Choose “Log in now”
 - l. Enter your course ID: MBDZIENIS20182019
 - m. **Using this resource at a later date, DO NOT GO BACK TO THE PEARSON SITE! After you have registered, enter the class through: <http://www.masteringbiology.com/site/login.html>**
 - n. Using the e Text to help you answer the honors biology review later in your summer assignment.
2. Sign up for google classroom
 - a. Log in to classroom.google.com by signing in with your school provided google account.
 - b. Once logged in click on the “+” in the top right hand corner to join a new class
 - c. Enter the following code: **spflem**
 - d. You should now be in the class **AP Biology Summer 2018**
 3. Do the attached **Honors Bio Review**
 4. Do the attached **Graphing Review**

Returning to School:

- On the first day of class please have already completed the reviews and be prepared to do a short quiz over them.
- Be prepared to participate!
- Have necessary materials:
 - Pens
 - Pencils
 - 3-ring binder
 - A 5-subject notebook for AP Biology only!
 - Highlighters
 - Barron’s AP Biology 6th edition, we will be writing in them they are around 15 dollars on amazon, if you cant afford one, please come see me and we will work something out.

**** In this class I will expect you to be proactive and self-directed to research difficult concepts. If there is any part of this assignment that is confusing or challenging for you I expect you to recognize that you need more practice, and find resources on your own to further your understanding. Search the internet, use study books, visit the public library, read old biology book, or check out useful websites online to assist you in completing the task. Do not wait for me to tell you how to study!**

Honors/Regular Biology Review

1. What are the overall reactions for photosynthesis?
2. Cellular respiration uses one molecule of glucose to produce how many ATP's?
3. What is the equation for cellular respiration?
4. Which type of respiration requires oxygen ?
5. Where in the cell does the process of photosynthesis takes place?
6. Where does the process of cellular respiration happen?
7. Where does lactic acid fermentation occur inside the cell?
8. What is a mutation?
9. What is produced during transcription?
10. What is the mRNA strand matched to the following DNA strand? GTCCATTCGTA
11. What is a nucleotide?
12. Where does the process of transcription take place? Translation?
13. What are the three types of RNA and their function?
14. What is a homozygous individual?
15. What is a heterozygous individual?

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16. In flowers WW = white, RW = pink, and RR = red. Cross a white flower with a pink flower and show your work. What percentage will be white? What percentage will be red?

17. In humans, $X^N X^N$ = normal female, $X^N X^n$ = carrier female, $X^n X^n$ = hemophilia female, $X^N Y$ = normal male, and $X^n Y$ = hemophilia male. Cross a carrier female with a normal male, show your work. What percentage would be hemophilic?

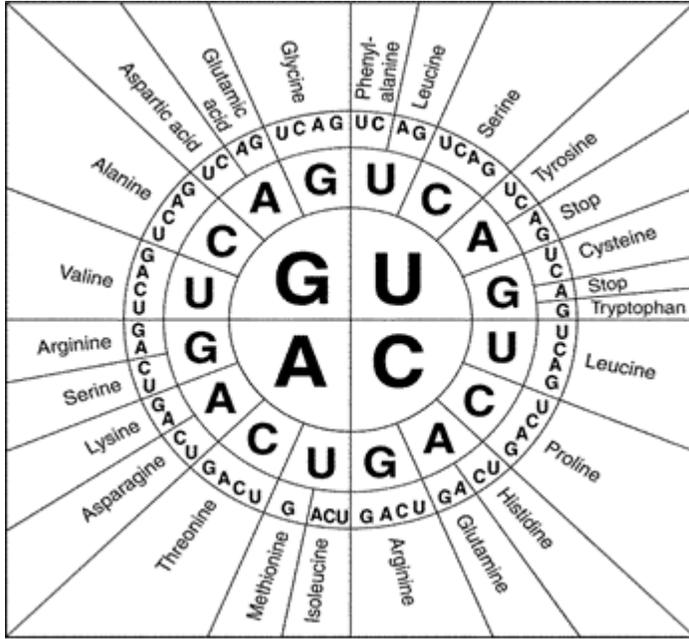
18. What is crossing over?

19. Unlike mitosis, meiosis results in the formation of what?

20. Where is DNA located in eukaryotes?

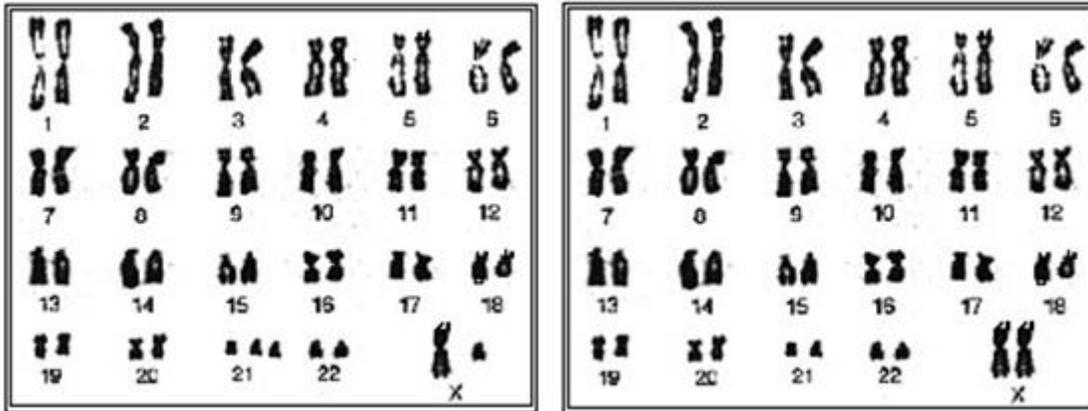
21. What are three differences between DNA and RNA?

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22. According to the Codon Wheel above, how many codons mean “stop”?

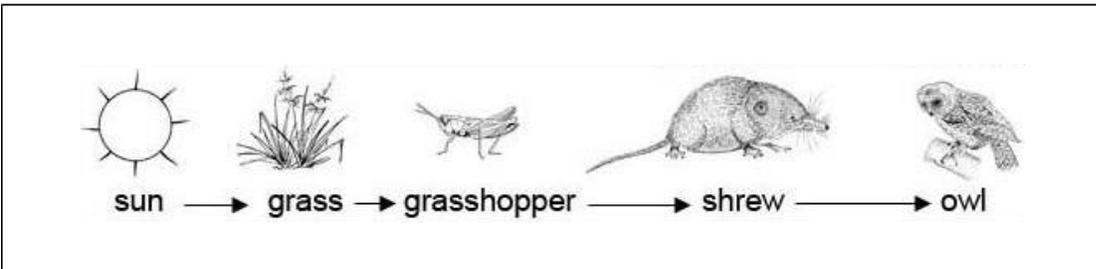
23. How many codons are needed to specify 7 amino acids?



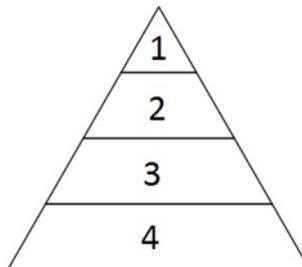
24. Describe the differences between the above karyotypes.

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25. What is evolution?
26. What are all of the genes in a population known as?
27. What is the difference between artificial and natural selection?
28. When lions prey on a herd of antelope, some antelope are killed and some escape. Which concept of Darwin's natural selection might be used to describe this situation?



29. Which organism is considered a producer in the food chain above?
30. Which organism is considered a third order consumer in the food chain above?
31. What is a decomposer?



32. Which level of the above numbers in the biomass pyramid has the most biomass?
33. Which level of the following numbers of the pyramid are the producers?

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34. Type of symbiosis where both organisms benefit.

35. Type of symbiosis where the host is affected.

36. Type of symbiosis where only one organism benefits.

AP Biology Graphing Practice Packet

Graphing is an important procedure used by scientists to display the data that is collected during a controlled experiment. When a graph is put together incorrectly, it detracts the reader from understanding what you are trying to present. Most graphs have 5 major parts:

1. Title
 2. Independent Variable (X-axis)
 3. Dependent Variable (Y-axis)
 4. Scale for each variable
 5. Legend (or Key)
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- A. **Title:** Depicts what the graph is about. The Title gives the reader an understanding about the graph. A good title is closer to a sentence than a phrase and is usually found at the top of the graph.
 - B. **Independent Variable:** Variable controlled by the experimenter. The variable that “I” am testing (I for Independent). Common independent variables include: time, generations, measurements (length, distance), and temperature. This variable goes on the X-axis.
 - C. **Dependent Variable:** Variable that is affected by the independent variable; what the experimenter measures. This variable goes on the Y-axis.
 - D. **Scale:** Before you can plot your data points, you must figure out how much each box on your graph paper is worth. The scale doesn’t always have to start at zero, but it must be consistent. If you start off making each box worth 5 cm, each subsequent box must also be 5 cm. Always make sure your scale is labeled with what it is and what the units are. The equation for figuring out a scale is: biggest data number – smallest data number, divided by the number of boxes on the axis.
 - E. **Legend:** A short description about the graph’s data. Most often used to show what different patterns or colors stand for on your graph. Not all graphs have them.

Rules and Tips for Graphing:

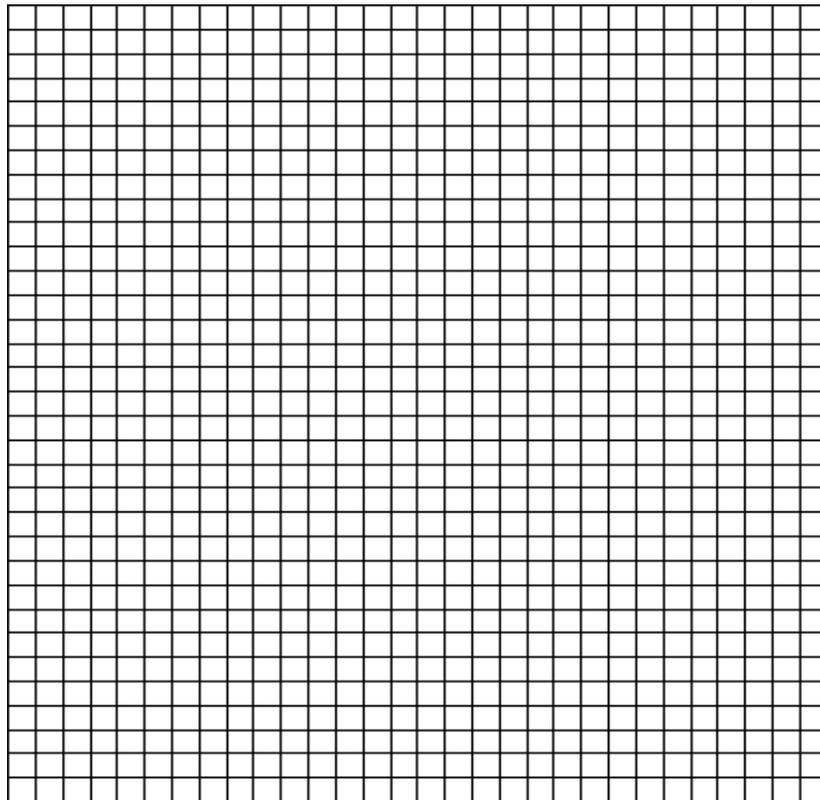
1. Always use a pencil to draw your graph. It’s easier to fix mistakes (Or use Excel!).
2. Always draw lines with a ruler. Do not freehand.
3. Make sure Independent Variable is on the X-axis and Dependent Variable is on the Y- axis.
4. Include all parts:
 - a. Title
 - b. Axis Labels WITH Units
 - c. Legend
5. If you are graphing multiple subjects, use different colored or patterned lines and explain what they are in the legend.
6. Choose an appropriate graph to explain your data. Examples:
 - a. LINE: Measuring a change in something over time
 - b. BAR: Comparing individuals to each other with only one data point.
 - c. PIE: Show percentages that add up to 100%.

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1. Experiment 1

Depth (meters)	Bubbles per minute Plant A	Bubbles per minute Plant B
2	29	21
5	36	27
10	45	40
16	32	50
25	20	34
30	10	20

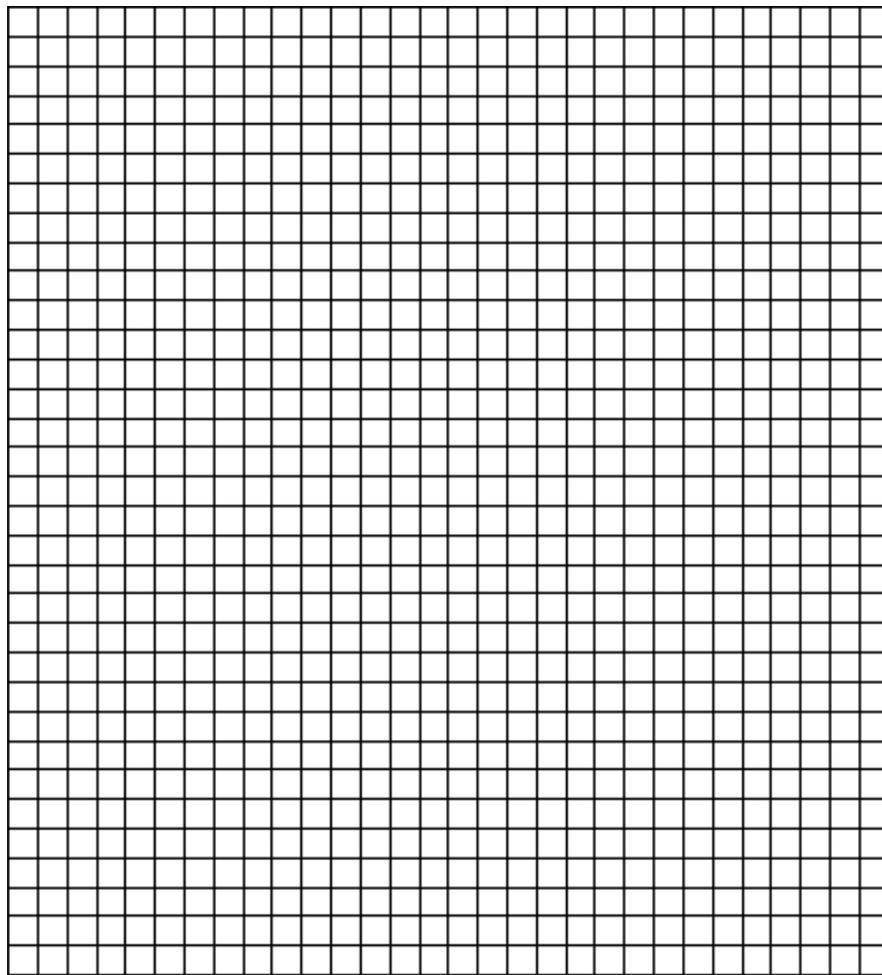
- What is the dependent variable? Why did you pick that answer?
- What is the independent variable? Why did you pick that answer?
- What type of graph would be best for this data? Why did you pick that answer?
- What title would you give this graph?
- What information would you include in the legend of the graph?
- What will you label the X-axis with?
- What will you label the Y-axis with?



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2. Experiment 2

Time after eating (Hours)	Glucose in mg/dL Person A	Glucose in mg/dL Person B
0.5	170	180
1	155	195
1.5	140	230
2	135	245
2.5	140	235
3	135	225
4	130	200



- Which individual would you potentially diagnose as diabetic?
- What evidence do you have that supports your answer to #10?

- IF the time period was extended to 6 hours, what would be the expected blood glucose level for Person A _____? Person B? _____ (assume they don't eat again).
- What conclusion can you make about the data and graph for experiment 1?
- What evidence did you use to support your conclusion?
- What conclusion can you make about the data and graph for experiment 2?
- What evidence did you use to support your conclusion?