



AP Biology @ Belmont High School (2020-2021) Ms. Saxena

Dear future AP Biology students,

Welcome to an exciting, fast-paced course diving deeply into the subject of biology. We are looking ahead to a great year. This course explores many biological processes at the detailed level of an introductory college course with a focus on development of your scientific research, analysis, and communication skills. I will do everything I can to help you prepare and learn, but that is only effective when you do your part as well.

I hope you find these summer assignments (see details on next pages) to be a fun, interesting, worthwhile, and engaging way to become familiar with some terms, processes, and tools we will be using throughout the entire year.

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 September.

I look forward to meeting you soon!

Sincerely,

Ms. Saxena

rsaxena@belmontschools.net

WHAT ARE YOU REQUIRED TO DO?

Summer Assignments

You will be expected to arrive on the first day of the class with the following assignments completed. Assignments can be turned in on google classroom.

Assignments	Details	✓			
#1	<table border="1"><tr><td>Sign up for google classroom</td></tr><tr><td>Design a binder cover</td></tr><tr><td>Safety Contract Signature</td></tr></table> <p>Email to Ms. Saxena</p>	Sign up for google classroom	Design a binder cover	Safety Contract Signature	
Sign up for google classroom					
Design a binder cover					
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#2	Knowing about AP Biology				
#3	Graphing the Data Skills Packet				
#4	Chapter 1				
#5	Chapter 2				
#6	Chapter 40				

Assignment #1:

1. Sign up for google classroom. Class code: 3jtxki7 .Post your introduction on the class comments page. [3jtxki7](#)
2. Design AP Biology binder cover sheet. Design a cover sheet that has your name and AP Biology on it. Create a collage that reflects who you are and your love for nature/AP Biology.
3. Safety Contract. Please read and sign the contract.(posted on google classroom)
4. Send me a proper email : subject (AP Biology 2020-2021) name
 - Why do you want to take this course? What do you want to accomplish or gain?
 - What are your previous science courses?
 - What are your interests/hobbies? What is your learning style?
 - What are your expectations from me? What are your goals/ expectations for this course? What questions do you have about AP Biology?

Assignment # 2:

Familiarize with college board AP Biology by checking the following link:

<https://apstudents.collegeboard.org/courses/ap-biology>

Answer the following questions:

What are the skills you will learn in this course? How many units? When is the exam? What is the exam format?

Assignment # 3: Graphing and Data Skills Practice Packet

The new A.P. Biology curriculum stresses the importance of being able to analyze and graph data. Go to the following website and watch the video and then answer the following questions. Please answer in complete sentences and be descriptive. You may need to use the internet to look up the answer to some of the questions. *Please write the question and the answer.*

<http://www.bozemanscience.com/beginners-guide-to-graphing-data>

3A: Questions to answer:

1. Why do we use graphs?
2. What are the 5 major types of graphs?
3. Did you get all the types of graphs correct on his quiz? If not, which one(s) did you get wrong?
4. How are graphs used by a scientist?
5. What is a line graph? What is it used for?
6. What is a scatter plot? When would we use a scatter plot?
7. What is an independent variable? Which axis is it on?
8. What is a dependent variable? Which axis is it on?
9. What is a bar graph? When would we use a bar graph?
10. What does an individual bar represent?
11. What is the definition of mean, median, and mode?
12. What is a histogram? When would we use a histogram?
13. What is a pie chart? When would we use a pie chart?
14. How can one set of data be placed in several different types of graphs?
15. What are the 5 important things that must be included on a graph? Please provide an explanation of each item or their significance to the graph.
16. On the example student graph he shows you, list at least 5 errors on the graph and explain how they can be corrected.

Next go to the following website, and as you watch the video answer the following questions.

<http://www.bozemanscience.com/graphing-data-by-hand>

3B: Questions to answer:

1. Explain why the independent variable is the fertilizer. (You may need to refer back to your definition of independent variable from the first video questions).
2. Explain why the dependent variable is the plant growth. (You may need to refer back to your definition of dependent variable from the first video questions).
3. Why did he decide to create a scatter plot graph?
4. Why did he place the fertilizer amount on the x –axis?
5. Why did he place the plant growth on the y-axis?
6. After placing the graph title and titles of the x-axis and y-axis on the graph, what is the next step?
7. Why does using the entire graph paper make the graph better and easier to read?
8. Why do you never extend your best fit line past your last data plot?

3C:Experimental Design

Some of the components expected for Experimental Design in AP Biology will be new to you. It is of the utmost importance that you have an understanding of these concepts as you begin the course. Each video is only about 4 minutes long and can be found on YouTube under “Experimental Design for Biologists”

Video #1: [Experimental Design System Validation](#) (4:05)

1. What question does Dr. Johnson wants to answer with his experiment?
2. The feline assistant mentions “advanced work” that the professor must have done in preparation for the experiment. What six things did the assistant mention that the professor needed to consider? \
3. Why does the video say that it is important to validate the experimental system?
4. If validation is not performed, what could result?

Video # 2: [Experimental Design Negative Controls](#) (4:51)

1. Again, what question is being posed by Dr. Johnson?
2. What hypothesis does Dr. Johnson propose?
3. What does the assistant say is wrong with sharing the hypothesis with the study participants?
4. The professor claims that coffee causes high blood pressure after the participants drank two cups of coffee. What other two things does the assistant think could have explained the increase in blood pressure besides the coffee?
5. This video talks about negative controls. What does it say the negative control allows for?
6. What is the consequence of not having a negative control?
7. Why must one of the control groups in this experiment drink decaffeinated coffee instead of water?
8. Why does another control group drink water?
9. A proper set of negative controls is critical to determine what?

Video #3: [Experimental Design Positive Controls](#) (4:41)

1. According to the video, what is the purpose of using a positive control?
2. What two positive control groups are added to the experiment?
3. Is an experiment successful based on results matching original predictions? If not, explain what makes an experiment successful.

Assignment # 4:

Read Ch 1 from Textbook. Ch 1 is posted on google classroom. Assignment with the chapter is posted.

Assignment# 5:

Read Ch 2 from Textbook. Ch 2 is posted on google classroom. Assignment with the chapter is posted.

Assignment #6:

Read Ch 40 from Textbook. Ch 40 is posted on google classroom. Assignment with the chapter is posted.

How to ask questions?

If you have any questions, please post them on class comments.