AP Biology
General Information

Course Grade Breakdown:

- 50% Test
- 20% Cumulative Test (each marking period)
- 15% Quiz
- 15% Lab

TO SUCCEED IN THIS COURSE, YOU MUST COMMIT TO THE FOLLOWING:

1. Attend class as regularly as humanly possible
2. Be honest with yourself about how much effort you will put into your classes during your senior year. You may decide to drop the class
3. Study outside of class – average 1-2 hours per day for this class alone
4. Accept less than an A, even with your best effort
5. The real mastery of the material will come with your own study. Your questions are welcome, but MUST be narrowed down and specific, AFTER your study efforts
6. Work willingly with assigned lab partners – be safe, methodical, thorough & efficient. In lab, it is not personal, it's "business" and a critical part of the course
7. Take FULL responsibility for making up any absent work (including lessons, field trips, illness, etc.)

I **SUGGEST:**

1. Organize student study groups during common free periods and outside of school
2. Utilize and maintain a highly organized note-taking system – do what works best for you
3. Review material THE SAME DAY from class (re-write notes, add to a growing vocabulary list, consult the textbook for clarification, etc.). This way, you solidify your understanding AND ask timely questions.
4. Leave negative attitudes at the door – foster a healthy enthusiasm for the content and the challenge.

AP Biology
Summer Assignment

Part 1: Video Learning - 3 Bozeman AP Biology Videos - 60 points (20 points each)

Due: Friday, September 10th

Part 2: Biology Scavenger hunt - 40 points

Due: Friday, September 10th

***Parts 1 & 2 will combine to be a lab grade for the 1st marking period.**
****10% off each day late.**

Part 3: Vocabulary - Root Words

Quiz: Monday, September 13

***Part 3 will be a quiz grade for the 1st marking period.**

All questions and concerns related to this assignment should be directed to Mrs. Kipp on or before Tuesday, June 22, 2021.
If any concerns should arise over the summer, please email both the teacher and the supervisor listed below:

Teacher: Mrs. Kipp – dkipp@dumontnj.org
Supervisor of Mathematics & Science: Ms. Warnock – dwarnock@dumontnj.org

AP Biology Practice 1 - Models and Representations Video Questions - 20 points

Please watch the video below and answer the following questions. You will need to pause the video to write or type answers.
http://www.bozemanscience.com/apb-practice-1-models-representations

1) What are scientific practices?
2) How many are there for AP Biology?
3) What is the first image Mr. Anderson describes?
4) What are you actually looking at?
5) What is a model?.....A visual representation of _____
6) Why is your "mental model" not considered a "model?"
7) A _____ of how it works is a "Conceptual Model".
8) What are the four Big Ideas we will be discussing in AP Biology? List below along with associated example:
   A) _____ - example shows natural _____
   B) _____ - example:
   C) _____ - genetics and cell
   D) _____ - pyramid of
9) What are the 5 things you will need to be able to do using models and visual representations? List below and then answer [Please keep in mind, some of the examples that he uses may be unknown to you at this time, focus on the "practice" not the content.]
   A) _____
      i. Relating to beetles, draw/label the final graph he created below:
      ii. Why do you think there were fewer light colored beetles when the trees became darker?
   B) _____ What is going to move in his example? _____
   C) _____ They will give you a model and then _____ based on that. …
   D) _____ Means that you are _____ your knowledge to a visual representation
   E) _____ Asking you to _____ the knowledge that you have.

10) Models allow us to make _____ of a _____ model.
11) What is the most famous model of all? _____ That was created by _____

AP Biology Practice 2 - Using Mathematics Video Questions - 20 points

Please watch the video below and answer the following questions. You will need to pause the video to write or type answers.
www.bozemanscience.com/apb-practice-2-using-mathematics

1) In AP Biology you not only need to know the content, but you need to know how to _____ that.
2) All sciences have what at their core? _____
3) What is the new field exploding in Biology?
4) What is "Mathematical Biology" driven by:
    A) _____: sequencing DNA – what is the trend? _____
    B) _____ Theory: being used to predict _____ Rule of _____
    C) Computing _____: computers are getting _____
    D) Laboratory experiments in silico:
        a) In vitro: _____
        b) In vivo: _____
        c) In silico: simulating _____
5) What are the advantages of performing experiments in silico?

6) Four equations in the four big ideas: You want to be familiar with these
    A) Evolution:
    B) Free energy:
    C) Information:
    D) Systems:

7) Understandings in Using Mathematics:
    A) _____ the _____ of a Mathematical Routine
    B) Apply _____ Routines
    C) _____ quantities that _____ natural phenomena.

<u>AP Biology Practice 3 -</u> Scientific Questioning Video Questions - 20 points

Please watch the video below and answer the following questions. You will need to pause the video to write or type answers.
http://www.bozemanscience.com/apb-practice-3-scientific-questioning

1. I should be able to ask you, “How do we….

2. Students should be able to answer, “This is how….

3. What is a good example of how you ask questions all the time?

4. What is the problem with:
    a. Smallest bird question?
    b. Universe question?
    c. Genetically modified food question?

5. Why is the plant growth question more scientific?....but what is a problem with it too?

6. Why is the CO_2 question a good scientific question?

7. A good question is going to lead to: (2x)

8. What are the three things you have to be able to do during the practice of “Scientific Questioning”?

9. Write out one of the three questions he “posed” concerning the phylogenetic tree. (You are just asking, not answering.)

10. When you “refine” a question, you are taking it to another _____

11. What is the third part of scientific questioning?

12. What can you then do if you are good at scientific questioning?

Part II: Biology Term Scavenger Hunt - 40 pts

For this part of your summer assignment, you will be familiarizing yourself with science terms that we will be using at different points throughout the year and finding them in a practical situation

- ★ Select and “collect” 20 words/terms from the list (On Next Page) When I say “collect”, I mean you should collect that item by finding it and taking a photograph. You will make a digital “collection”, along with corresponding explanations. Use google drive to create a slideshow or just make a google doc with pictures pasted in along with identification and description for each. If you do not have computer access, I will accept an actual photo album to physically turn in. You can have more than one item on a page.

You do not need to find the exact item on the list, say for example, if it is an internal part to an organism, but you must apply the term to the specimen you find and explain in your finished project how this specimen represents the term.

- ★ EXAMPLE: For the word “phloem”, take a picture of a flower and stem and then write a description of phloem and where it is in the flower

- ★ ORIGINAL PHOTOS ONLY: You cannot use an image from any publication or the Web. You must have taken the photograph yourself.

- ★ NATURAL ITEMS ONLY: Specimens may be used for only one item/word, and all must be from something that you have found in nature that is or once was alive. Ex. You can not use your little sister’s stuffed pony for a picture of a mammal. Take a walk around your yard, neighborhood, and town or even the beach. Go to a store that has living things, like home depot (plants) or PetSmart (animals) DON’T SPEND ANY MONEY! Research what the term means and in what organisms it can be found... and then go out and find one.

- ★ Be sure to include a description of the term and how it relates to the photograph

Biology Scavenger Hunt list.

- ★ **You must photograph at least 20 of the terms below as well as identify and describe each**
- ★ **Each photo and description is 2 pts for a total of 40 pts**

1. adaptation of an animal 2. adaptation of a plant 3. amylase 4. angiosperm 5. archaebacteria 6. autotroph 7. auxin producing area of a plant 8. Batesian mimicry 9. C 4 plant 10. Calvin cycle 11. cellulose 12. chitin 13. commensalism 14. diploid chromosome number 15. enzyme 16. eubacteria 17. eukaryote 18. fermentation 19. genetically modified organism 20. glycogen	20. glycogen 21. haploid chromosome number 22. K-strategist 23. lipid 24. long-day plant 25. mutualism 26. fungi 27. mycorrhizae 28. myosin 29. niche 30. parasite 31. phloem 32. pollen 33. pollinator 34. Prokaryote 35. r-strategist 36. unicellular organism 37. xylem 38. C3 plant 39. gymnosperm 40. Legume 41. Adhesion 42. cohesion

Part III – Root word investigation

Research each root word and write a definition.
****I will not collect this - I will base your grade for this assignment on the quiz****
The main reason students find it difficult to understand science is because of all the hard to write, spell and read words. Actually, scientific vocabulary is a mix of small words that are linked together to have different meanings. If you learn the meanings of the little words, you'll find scientific vocabulary much easier to understand. Find the meaning to the following Greek/Latin root words.

Word	Meaning	Word	Meaning
a- / an-		hetero-	
meso-		homo-	
leuco-		kary-	
aero-		saccharo-	
anti-		-phyll	
amphi-		hemo-	
aqua- / hydro-		hyper-	
Arthro-		hypo-	
auto-		intra-	
Bi- / di-		-itis	
bio-		-logy	
chloro-		-lysis	
chromo-		mono-	
cyto-		micro-	
haplo-		macro-	
ecto- / exo-		multi- / poly-	

endo-		- path / -pathy	
epi-		phago-	
- genesis		-phobia	
-phili		photo-	
proto-		pseudo-	
-stasis		sub-	
sym-		-synthesis	
-taxis		-therm	
-troph		tri-	
zoo- / -zoa		primi- / archea-	
zyg- / -zygous		derm-	