AP BIOLOGY SUMMER ASSIGNMENT 2020

Welcome to the world of Advanced Placement Biology!
The attached summer assignment is required for all AP Biology students for the 2019-20 school year.

DO THESE THINGS FIRST!

1) **Sign up for my Remind.com** **AP Biology 2020** to receive messages about class
   by sending a text to: **81010** with the message: **@g6aach4**

2) **Join my google classroom – AP BIOLOGY 2020**
   Go to: www.**classroom.google.com** Use code: **ygycoqb** to join class
   You must use your school google account, with your name, then @longbranch.k12.nj.us We will use google classroom throughout year and you can submit your assignment to me here. I will be putting this assignment on google drive

You are required to do 2 things before school starts in September:

Part 1 – Biology Scavenger hunt – 100 pts Summative
Part 2 – Root word investigation – 100 pts Summative – will be QUIZ
Part 3 – EXTRA CREDIT - Video Learning- Bozeman AP Biology – 100 pts

The assignments are due NO LATER than the second day of class, if not submitted earlier. Note that the summer assignment will be your first summative grades for the class

1) If you do not do the summer assignment, you will start behind in the course.
2) Don't get overwhelmed. Plan out when you will do it. Have your list of terms ready to take a quick picture when you see something

The AP Biology course.
The AP Biology course is rigorous. It is a college level course. Expect to do homework every night. You will get out what you put in to the course. You will be given the tools needed to get a 4 or 5 on the AP Biology exam by taking this course, but it will be up to you to use them and employ them.
The text we use is Raven-Johnson Biology 8th ed. 2008 in class, but most of your assignments will be using computers and other technology. During the year we will complete the 8 required AP labs as well as many additional labs and activities. You will gain practice in writing AP Free Response Questions, and in answering AP level multiple choice questions.

I STRONGLY SUGGEST that you invest in an AP Biology study guide (revised version) such as Cliff's AP biology or Princeton review. Students who regularly use a study guide on their own beyond class work greatly increase their chances of getting a 5 on AP exam.

If you have questions about this assignment, you may contact me via remind.com for a quick response or you can email me at dclark@longbranch.k12.nj.us if you are not in a hurry for the response. Don't wait until the week before school to find out what you need to do!

Have a great summer!

Mr. D. Clark

Part I: Biology Term Scavenger Hunt - 100 pt summative

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" 25 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 classroom to create a slide show 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 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:** Pholem - Phloem is part of the vascular bundle of a land dwelling plant that brings sugars created by photosynthesis in the leaves to the rest of the plant to provide energy. The picture is of a peony with phloem inside the stem. The flower is cut, so the sugars that are normally brought to the roots cannot go there any more though sugars are still flowing from the leaves until flower dies.

- **ORIGINAL PHOTOS ONLY:**
  You cannot use an image from any publication or the Web. *You must have taken the photograph yourself*. You have to prove this by placing a small item (stuffed animal, a button, toy car, etc.) in all of your photographs that only you could have added each time. You could also make a small sign of your name that will be in each photo/drawing. You can even have yourself in the picture.

  - **EXAMPLE:** In photo of flower I placed my scorpion egg

- **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 cannot 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), shoprite (plant and animal products) 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
  You can use the same photo for more than one term

Biology Scavenger Hunt list.

You must photograph at least 25 of the terms below as well as identify and describe each

Make a title page and Make 1 slide for each item

Each photo is 2 pts and each description is 2 points for a total of 100 pts

1. abiotic
2. adaptation of an animal
3. adaptation of a plant
4. abscisic acid
5. actin
6. amniotic egg
7. amphibian
8. amylase
9. angiosperm
10. annelid
11. anther
12. arthropod
13. archaebacterial
14. autotroph
15. auxin
16. basidiomycete
17. Batesian mimicry
18. biological magnification
19. bivalve mollusk
20. bryophyte
21. C 4 plant
22. Calvin cycle
23. carbohydrate –fibrous
24. cambium
25. cellulose
26. chitin
27. chlorophyte
28. chrysalis
29. cnidarian
30. coelomate
31. coniferous tree
32. commensalism
33. connective tissue
34. cuticle layer of a plant
35. deciduous tree
36. deuterostome
37. dicot plant
38. diploid chromosomes
39. duodenum
40. echinoderm
41. ectotherm
42. endosperm
43. endotherm
44. enzyme
45. epiphyte
46. epithelial tissue
47. erythrocyte
48. ethylene
49. eubacteria
50. eukaryote
51. exoskeleton
52. fermentation
53. flower ovary
54. four chamber heart
55. frond
56. fruit – dry for dispersal
57. fruit – edible for dispersal
58. gametophyte
59. gastropod
60. genetically modified org.
61. gibberellins
62. glycogen
63. gymnosperm
64. haploid chromosome
65. heartwood
66. hermaphrodite
67. heterotroph
68. hormone
69. insect
70. isopod
71. K-strategist
72. Keratin
73. larvae
74. Lepidoptera
75. Lichen
76. Lignin
77. lipid
78. littoral zone organism
79. long-day plant
80. meristem
81. modified leaf of a plant
82. modified root of a plant
83. modified stem of a plant
84. modified ovipositor
85. monocot plant
86. muscle fiber – striated
87. mutualism
88. mycelium
89. mycorrhizae
90. myosin
91. nematode
92. niche
93. nymph stage of an insect
94. pancreas
95. parasite
96. parenchyma cells
97. phloem
98. phototroppism
99. pine cone – female
100. platelets
101. Platyhelminthes
102. Pollen
103. Pollinator
104. Porifera
105. Prokaryote
106. protein – fibrous
107. protein – globular
108. protostome
109. pteridophyte
110. r-survival strategist
111. radial symmetry
112. rhizome
113. two-chambered heart
114. three chamber heart
115. segmented body
116. spore
117. sporophyte
118. stamen
119. stem – herbaceous
120. stem – woody
121. stigma & style of carpel
122. tendril of a plant
123. thorn of a plant
124. unicellular organism
125. vascular plant tissue
126. xerophyte
127. xylem

Part II – Root word investigation – Research each root word write definition - **100 pts**

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 mean to the following Greek/Latin root words.

Word	Meaning
a- / an-	
meso-	
leuco-	
aero-	
anti-	
amphi-	
aqua- / hydro-	
arthro-	
auto-	
bi- / di-	
bio-	
cephal-	
chloro-	
chromo-	
-cide	
cyto-	
derm-	
haplo-	
ecto- / exo-	
endo-	
epi-	
gastro-	
-genesis	
herba-	
hetero-	
homo-	
ov-	
kary-	
neuro-	
soma-	
saccharo-	
primi-/ archea-	
-phyll	

Word	Meaning
hemo-	
hyper-	
hypo-	
intra-	
-itis	
lateral	
-logy	
-lysis	
-meter	
mono-	
morph-	
micro-	
macro-	
multi- / poly-	
-path / -pathy	
-ped /-pod	
phago-	
-phobia	
-philia	
proto-	
photo-	
pseudo-	
-stasis	
sub-	
sym- / -syn	
-synthesis	
-taxis	
-troph	
-tropism	
-therm	
tri-	
zoo-, -zoa	
zyg- / -zygous	

Using Root words to define unknown words

Once you have completed the above root word table, use it to develop a SIMPLE definition, **in your own words,** for each of the following terms:

1. Hydrology _____

2. Cytolysis _____

3. Protozoa_____

4. Epidermis _____

5. Spermatogenesis _____

6. exoskeleton_____

7. Abiotic _____

8. Pathogen _____

9. pseudopod _____

10. Hemophilia _____

11. Endocytosis _____

12. herbicide _____

13. Anaerobic _____

14. Bilateral _____

15. autotroph _____

16. Monosaccharide _____

17. Arthropod _____

18. Polymorphic _____

19. Hypothermia _____

20. Biogenesis _____

You will have a QUIZ on these words and the above root words on the first day of class

Part III: Video learning Bozeman Science – EXTRA CREDIT

You can choose to do this to prepare for skills used in AP biology
You will not be penalized if not done

You will learn about 3 key practices to succeed in AP biology by watching a video and answering questions about each. We will be using a lot of videos for Bozeman science this year as homework so this will give you a good introduction to the Host Mr. Anderson and the videos. Each video is about 10 minutes but allow yourself 30 minutes each to pause video and answer questions

Each video centers on the **4 Big Ideas of AP biology:**

Big Idea 1: EVOLUTION
The process of evolution drives the diversity and unity of life.

Big Idea 2: Cellular Processes: ENERGY and Communication
Biological systems utilize free energy and molecular building blocks to grow, to reproduce, and to maintain dynamic homeostasis.

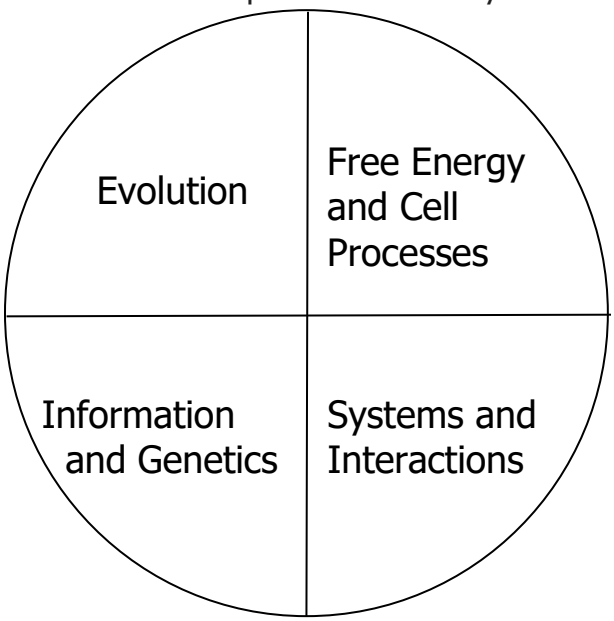
Big Idea 3: Genetics and INFORMATION Transfer
Living systems store, retrieve, transmit, and respond to information essential to life processes.

Big Idea 4: Interactions of SYSTEMS
Biological systems interact, and these systems and their interactions possess complex properties.

The 3 videos are as follows: Each work sheet has a specific link, but you can access them all if you google: < Bozeman AP biology> and choose first link. They will all be listed

1) Video 1 – Using Models – 40 pts
2) Video 2 – Using Mathematics – 40 pts
3) Video 3 – Scientific Questioning – 20 pts

You must print out or obtain the 3 sheets following on next page. They can also be submitted on google drive. Note. There are 7 Intro AP practice videos by Bozeman science, You can do more for extra credit



AP Biology Practice 1 – Models and Representations Video Review – 40 pts

Video - www.bozemanscience.com/apb-practice-1-models-representations

A) What is a model?.....A visual representation of _____

B) A _____ of how it works is a "Conceptual Model".

C) What are the **four Big Ideas** we will be discussing in AP Biology? List below along with associated example:

1) _____ - example shows natural _____

2) _____ - example:

3) _____ - genetics and cell

4) _____ - pyramid of

D) 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.]

1) _____
   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?
   iii.

2) _____ What was is going to move in his example? _____

3) _____ They will give you a model and then _____ based on that. …

4) _____ Means that you are _____ your knowledge to a visual representation

5) _____ Asking you to _____ the knowledge that you have.

E) Models allow us to make _____ of a _____ model.

F) What is the most famous model of all? _____ That was created by _____

AP Biology Practice 2 – Using Mathematics Video Review Sheet – 40 pts

www.bozemanscience.com/apb-practice-2-using-mathematics

A) All sciences have what at their core? _____

B) What is "Mathematical Biology" driven by:

1) _____: sequencing DNA – what is the trend? _____

2) _____ Theory: being used to predict _____ Rule of _____

3) Computing _____: computers are getting

4) Laboratory experiments in silico:

a) In vitro: _____

b) In vivo: _____

c) In silico: simulating _____

C) **Four equations in the four big ideas**: You want to be familiar with these

1) Evolution:

2) Information:

3) Free energy:

4) Systems:

D) Understandings in Using Mathematics:

1) _____ the _____ of a Mathematical Routine: Pause video, try and do it and then check it. If you can no do, just take notes (CALCULATOR REQUIRED)

2) Apply _____ Routines: Again, try this problem. You can do this one based on common sense! (CALCULATOR REQUIRED)

3) _____ quantities that _____ natural phenomena.

a) Estimate which way water will go in each.

b) Potatoes: you can do this, just use graph. Potatoes have_____M Sucrose

AP Biology Practice 3 – Scientific Questioning Video Review Sheet – 20 pts

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 CO2 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?