AP Biology Summer Assignment

Attn: **2023-2024** Advanced Placement Biology Students

Summer Assignment:

- Access the summer assignment on the school's website or my website.
- **Optional** -You will care for and nurture your plants for the summer! Follow the directions attached.
- **Required** - Compose a letter of introduction as outlined in attachment by **June 30th or sooner.**
- **Optional - Biology Scavenger Hunt** – 1st due date **August 3rd**.
- The items below will be due on the first day of class, **August 15th.**
    1. **Required - Review**: Read chapter 1 (Review of Biology 1 Themes) and Chapter 2 (The Chemical Context of Life-a review of chemistry). We will not be spending a lot of time on this during class because it is review and **NOT** part of the AP Biology curriculum but this material comes up regularly through the year. So, make sure you come with questions if you have them. It is up to you if you take notes. The test over these chapters will within the first few days of class.
    2. **Required - Ecology**: Read and take notes over chapter 41 and 42. This is an introduction to ecological topics and should be mostly review. We will incorporate ecological topics throughout the year. The first test will not cover this material but you are expected to have this completed by the first day of class.
    3. **Required - Adaptations** - Pick a biome of your choice and select 2 keystone organisms (1 plant and 1 animal that interests you) from this biome. Discuss 3 adaptations of each organism you pick and tell how the adaptation makes them well suited for their environment.

Things to know:

- To succeed in this class, you will cultivate an enduring understanding of biological concepts and make connections to the world around us and between concepts we cover in different units. *Understanding, not memorization is the goal*.

For your benefit:

- On my website (under AP Biology) is a list of root words that would be beneficial to know because they are frequently used in biological terminology. During the course of the beginning of the year you will be quizzed over these root words.
- You will be expected to know the organic chemistry functional groups during the second unit we study so I have included these as well so you can learn them ahead of time if you choose to do so.

Grading:

- Failure to complete summer assignments on time will result from removal from class.
- All assignments are due on the due date. No late credit is awarded for late work.
- All grades will be entered within the first two weeks of school

Have a wonderful, restful summer. Let me know if you have any questions.

Thank you,

Mr. Hardin
phardin@wayne-local.com

Grow a Vegetable/Fruit

My Objective:
To get you to experience that plants are living, breathing, growing, and responsive creatures.

Your Goal:
To nurture your plants successfully throughout the summer. Get them to grow, get them to flower, grow them big and productive!

Questions:
How do I take care of the plant? How do I get bigger, better fruits/vegetables? What conditions make my plant grow the best? Do these plants like lots of sun or do they need some shade?

We will discuss the successes, frustrations, and failures in class.

Answers:
Look it up! Do some research!

Extra Credit:
Bring in a dish made from the vegetable you personally grew over the summer!

LETTER OF INTRODUCTION

Welcome to AP Biology!

Why write a letter of introduction? We are going to spend a lot of time together next year, so it is best I can get a head start on learning a bit more about you. Some of you I already but it will be good to get to know you better. In addition, I am thinking about your future in terms of career, college recommendations, and college preparedness so knowing more about you will help me assist you in these areas. Your first digital assignment is to successfully send an e-mail to your AP Biology teacher. Being able to communicate clearly to your teachers and professors is important to your success so this is good practice.

Due date: Thurs., June 30, 2023

Draft an e-mail to me following these rules:

a. Use clearly written, **full sentences**. Do not abbreviate words like you would when texting or tweeting. Use **spell check**! This is a professional communication like you would have with a college professor, so let's practice for your rapidly nearing future!

b. Address it to: phardin@wayne-local.com

c. Make the **Subject**: "**AP Bio: Introduction to <Insert Your Name Here>**"
    a. (Do not include the quote marks or the brackets, just the words)

d. Begin the e-mail with a **formal salutation**, like "Mr. Hardin," or "Dear Mr. Hardin,"

e. Now introduce yourself (your name) and tell a little bit about yourself, like:
    - What do you like to do (hobbies, sports, music, interests, etc.)?
    - What was the last book you read for fun?
    - What are your favorite books, movies, music groups?
    - What things do you value most in life?
    - Do you have a job? Where?
    - Tell me a little bit about your family (Mom? Dad? Guardian? Siblings? Pets?)
    - What do your parents/guardians do for a living? Maybe if they are in a science field they can come in for a talk!
    - Do you have college plans? Do you know where? Do you have a career in mind?
    - What topic/topics in Biology 1 did you like the best?
    - Why are you taking AP biology?
        a. What are you looking forward to the most in AP Biology?
        b. What are you most anxious about in AP Biology?
        c. What are you looking to gain from this class?

f. End the e-mail with a **formal closing**: "Cordially", "Sincerely", "Warm regards", etc. and add your name as if you signed a letter.

g. This 10-point assignment will be graded following the above criteria and submitting it on time.

Optional Biological Scavenger Hunt

This part of your summer assignments will be like a scavenger hunt to get outside and get familiar with biological terms we will be looking at this year. Get together with others from your class, involve your family and have fun!

Guidelines for Collections

- Take **digital pictures of 15 of the items** on the list below. You may also make a simple sketch of the item. Each picture must include the following:
    - The identification of the specimen (just what is it, not scientific names)
    - The location of the specimen
    - Explanation of the relationship between your specimen and the term
    - The term's meaning (a definition or used correctly in a sentence)

- **Post your collection** to one of the following free website/blogging formats. Each server has its own tutorial or you can do a search on Google or YouTube to get directions on how to setup the website.
    - Wordpress: http://wordpress.com/
    - Weebly: http://www.weebly.com/
    - Google Sites: https://sites.google.com/

- **Your own pictures.** The items you submit must be your own pictures/drawings to count. To ensure this is your own work, **please include yourself or an item of yours with every digital picture** (a key, necklace, ring, a pen/pencil). You can work together with other people during the project but your pictures have to be unique so they should include you or your personal item. **You will receive a zero if you copy images from the internet**.

- The picture does not have to be the actual item; it can be present in or represented by the specimen. So for example if you wanted to show a ligament, you don't have to dissect the specimen. You can show a specimen that has a ligament and address the term in your explanation. So, not all of the pictures have to be a literal representation just be sure your picture accurately shows the term and is not too abstract of a connection.

- **Each organism can only be used once**. So you need a different organism for each picture.

- **Include only specimens found in nature.** Most or all of the terms can be shown from things in your yard and in your neighborhood so **don't purchase anything!!**
- **There are a few extra fun items you can choose if you like!!**

Due Dates:

- **August 1st** - Please send me a link to your website at phardin@wayne-local.com with your first 5 terms. This is so I can give you feedback before you turn in the rest if you need correction.
- **August 15th** – the last 10 terms

Grading: You will get 4 points for every term by correctly identified and thoroughly explained term.

1. 10% rule
2. Actin & myosin
3. Adaptation in an animal
4. Adaptation in a plant
5. Altruistic behavior
6. Angiosperm
7. Anther and filament of stamen
8. Archaebacteria
9. Asexual reproduction
10. Autotroph
11. Auxin producing structure
12. Batesian mimicry
13. Biological magnification
14. Bryophyte
15. C3 plant
16. C4 plant
17. CAM plant
18. Cellular respiration
19. Vascular cambium
20. Cellulose
21. Chitin
22. Chlorophyta
23. Coevolution
24. Connective tissue
25. Covalent compound
26. Detritovore
27. Dicot
28. Diploid organism
29. Dominant v. Recessive phenotype
30. Ectotherm
31. Endotherm
32. Eubacteria
33. Fermentation
34. Genetic variation in a population
35. Genetically modifies organism
36. Gymnosperm
37. Hermaphrodite
38. Heterotroph
39. Homologous structures
40. Hydrophilic
41. Hydrophobic
42. Invasive species
43. Ionic compound
44. Keystone species
45. Lepidoptera
46. Lipid (used for energy storage)
47. Lipid (not for energy storage)
48. Modified leaf
49. Modified stem
50. Modified root
51. Monocot
52. Monoculture
53. Müllerian mimicry
54. Mutualism
55. Mycelium
56. Mycorrhizae
57. Niche
58. Parasitism
59. Phloem
60. Plant cuticle
61. Plant lacking turgor pressure
62. Pollen
63. K-strategist
64. Lichen
65. R-strategist
66. Seed dispersal
67. Secondary compound
68. Stigma, style and ovary of pistil
69. Succession
70. Taxis
71. Tropism
72. Xylem
73. Go on a hike in a state/national park
74. See a summer movie (show you and your ticket stub)
75. Identify two Ohio native tree in your neighborhood (picture of each leaf)
76. Hold 5 earthworms or 2 slugs
77. Spend one night sleeping under the stars
78. Play “Risk”, “Settlers of Catan” or “Apples to Apples” with family/friends
79. Visit a museum (picture of you at museum and stub)