

AP Biology Summer Enrichment Assignment

Dear AP Biology Student,

You have signed up for a challenging and rewarding course for the 2023-2024 school year. In order to make sure that you are thinking about Biology once school is out, I will be asking you to do a little work over the summer. First, you will read, Survival of the Sickest by Sharon Moalem and complete the assignment found in this packet. This is a good read, and we will refer back to the book as the year progresses. Be sure to think about how you can relate the reading to biology topics we might study next year as you enjoy the text. You will have to buy a copy of the book or borrow it from the local library, as we do not have them for you at Western. In addition, you are going to complete a biology scavenger hunt. This will be fun and allow you to review/learn some biology vocabulary while also giving you the chance to be creative with the end project. See the next few pages for the complete summer assignment.

I may need to contact you during the summer. So, I am asking you to send me a quick email to kbickerstaff@bcps.org with your name, your magnet and why you are taking the course. Be sure to do this before the end of this school year if possible.

Your summer enrichment will be due the second Friday, September 8, 2023, after we get back from summer break. If you chose not to work on the assignment over the summer, you will be behind the rest of the class. I promise you; this will not ruin your summer and it will not be an overload of work (I am on summer break too!) If you have any questions, please email me. I will be checking my email frequently over summer break.

Thank you for being a dedicated science student!

Mrs. Bickerstaff
kbickerstaff@bcps.org

Part 1: Survival of the Sickest

I would like for you to use a journal, composition book or other paper to **hand write the answers** to the following questions.

For each chapter, answer the following:

1. What did you learn? In a few sentences summarize what you learned reading the chapter.
2. What did you think? What thoughts do you have about what you learned? Good, bad, personal, or other.
3. What questions do you still have? This is the thinking part. I want you to write at least two questions that you have from the reading. Maybe even look them up.....
4. Briefly relate your favorite or most intriguing tidbit of information—something you are likely to share with family or friends. I challenge you to actually bring it up at the dinner table and write about how the conversation went.

Part 2: Biology Term Scavenger Hunt

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.

On the next page is the list of terms.

- **Select and "collect" 25 words/terms.**

When I say "collect", I mean you should collect that item by finding it and taking a **photograph** (digital or paper printed) or making a **sketch** of that item. You will create a unique way to present your "collection" along with corresponding explanations. You can do this several different ways, PowerPoint, Microsoft Word, or by creating an actual photo album.

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.

- **Definition**

You need to include a definition of each term in your project. Be sure this is **IN YOUR OWN WORDS!**

- **EXAMPLE:**

If you choose the term "phloem", you could submit a photograph you have taken of a plant leaf or a plant stem and then explain in your project what phloem is and specifically where phloem is in your specimen.

- **ORIGINAL PHOTOS/SKETCHES ONLY:**

You cannot use an image from any publication or from a Google search. You must have taken the photograph (or made the sketch) yourself. The best way to prove that is to place an item in all of your photographs that only you could have added each time. If you choose sketches you may use one sketch for two vocabulary terms. This means you will only have to draw 13 sketches!

- **NATURAL ITEMS ONLY:**

Specimens may be used for only one item/word, and all must be from something that you have found in nature. Take a walk around your yard, neighborhood, or while on vacation. **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.

- **TEAMWORK:**

You may work with other students in the class to complete this project, but **each student must turn in his or her own project** with a unique set of terms and pictures chosen.

AP BIOLOGY SCAVENGER HUNT TERMS

1. Phospholipids (egg yolk)
2. Aquatic Ecosystem (Freshwater lake or stream)
3. Denatured proteins (cooked meat)
4. Mixture of polar and nonpolar liquids (oil and water/separated salad dressing)
5. Population (a group of individuals of the same species)
6. Inheritance (genetic trait or traits passed from one generation to another)
7. Organism that performs photosynthesis
8. Organism that performs fermentation or a product of fermentation (careful here!)
9. Organism that performs cellular respiration
10. A simple carbohydrate (sugar or starch)
11. A complex carbohydrate (cotton / cellulose)
12. Community (different populations in the same area)
13. Ecosystem (biotic and
14. abiotic factors together, such as a forest or desert)
15. The Biosphere (planet Earth; no selfie required!)
16. A C₄ plant (corn) or a CAM plant (cactus)
17. An animal that has undergone artificial selection.
18. A plant that has undergone artificial selection.
19. An endotherm
20. An ectotherm
21. You eating the product of a fertilized angiosperm.
22. You eating/holding something with a low pH (i.e., something sour).
23. A parasite/parasitic relationship
24. A mutualistic relationship
25. A decomposer
26. Cohesion / surface tension of water
27. Evaporative cooling (some creature/person sweating)
28. A device that regulates the temperature of your house (thermostat)
29. Evidence of human impact on an ecosystem
30. Object where flowering plants sexually reproduce
31. Herbivory or predation
32. A photoautotroph
33. A chemoheterotroph
34. A primary consumer
35. A Mendelian trait (e.g., extra long second toe, attached earlobe, widows peak, etc.)

36. A non-Mendelian trait (e.g., variegated leaves on a plant)
37. The ultimate source of all energy on Earth (hint: it's not on Earth).
38. Something that changes cellular communication in the human body (i.e., an over-the-counter drug/painkiller)
39. A carcinogen (something that can cause cancer)
40. A plant organ that performs photosynthesis
41. A substance that can bring the pH of the stomach closer to neutral (an antacid).
42. An organism with an internal skeleton (endoskeleton)
43. An organism with an external (exoskeleton)
44. A plant that does not make flowers (i.e., not an angiosperm)
45. Something that contains keratin.
46. Something that protects against mutations, especially mutations caused by ultraviolet (UV) light.
47. A food rich in lipids.
48. A food rich in protein.
49. Phase change of gaseous water to liquid water (condensation)
50. Something related to biology that you absolutely love and why.
51. Something related to biology that you absolutely hate (doesn't have to be a selfie) and why.