AP Biology "I LOVE SUMMER!!" Assignment
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Congratulations on your decision to embark on the fun and exciting journey that is AP Biology here at Averill Park! The course is an intensive learning experience aimed at providing you with a basis for better understanding of the mechanisms and relationships that drive the world around you. It is assumed that you have had an introductory level biology course and have already taken chemistry. The summer assignment aims to provide a little background information on biology as a whole and introduce the themes we will be visiting and re-visiting throughout the year.

Summer Assignment: This is a 2 part assignment.
The Study Guide should be handed in on the first day of classes. The article response should be submitted on Google Classroom and is also due on the first day of classes.

1. Complete the Reading Study Guide for Chapter One in the Campbell text. It follows the text very closely and will walk you through some of the basics this course will cover in detail. It will also review the basics from your introductory level biology course.

2. The second part of the assignment focuses on interactions and relationships between organisms. Your task is to choose 4 out of the 8 articles and read the articles (linked below). After you have read the articles, you must respond to them in **a** written, typed piece. The response should be a **single** response to all of the articles, not a separate response for each. It should be 1-2 pages long, and not be longer than two pages, typed. In your response, be sure to include the following:

    a. A summary of ideas contained in the articles.

    b. A discussion of biological concepts that were discussed, or are related to, the articles. The concepts listed are basic biology concepts that were mentioned in Chapter 1. If you are unsure about the concept, look it up!
        - Concepts that should be included in your discussion:
            a. Symbiosis
            b. Evolution
            c. Ecology
            d. Genetics

        - please **bold** or **highlight** each term as you use it in your response paper.
        -

    c. A Personal reaction/response to the article

⇨ Links to the articles can be found on the next page

The study guide is also at the end of this if you didn't pick one up from me during the last week or you lost it.

Articles:

"My No-Soap, No-Shampoo, Bacteria-Rich Hygiene Experiment", by Julia Scott

How the Right Foods May Lead to a Healthier Gut by Anahad O'Connor

Fiber and Yogurt Tied to Lower Lung Cancer Risk by NIcholas Bakalar

Mental Health May Depend on Creatures in the Gut by Charles Schmidt

"Tending the Body's Microbial Garden", by Carl Zimmer

"Study Sees Bigger Role for Placenta in Newborns' Health", by Denise Grady

"Breastfeeding the Microbiome", by Ed Yong

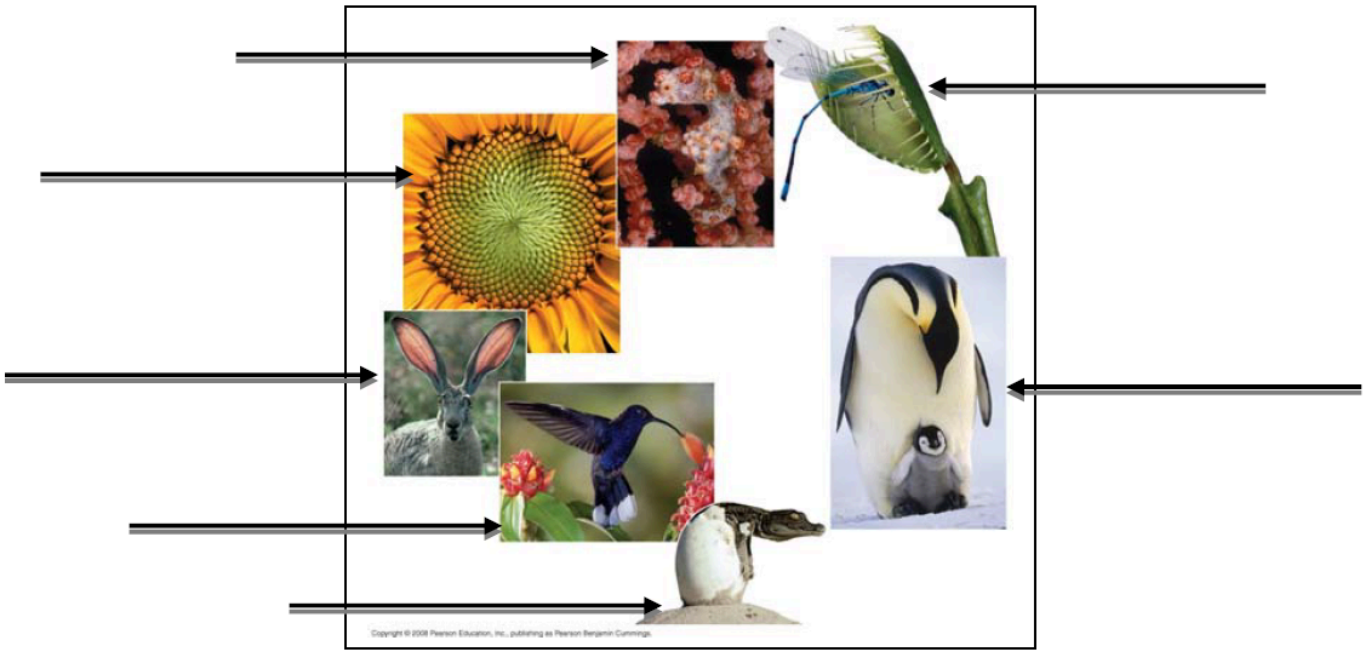
Microbes Meet Cancer by Kate Yandell

Chapter 1: Introduction: Themes in the Study of Life

Name_____

Begin your study of biology this year by reading Chapter 1. It will serve as a reminder about biological concepts that you may have learned in an earlier course and give you an overview of what you will study this year.

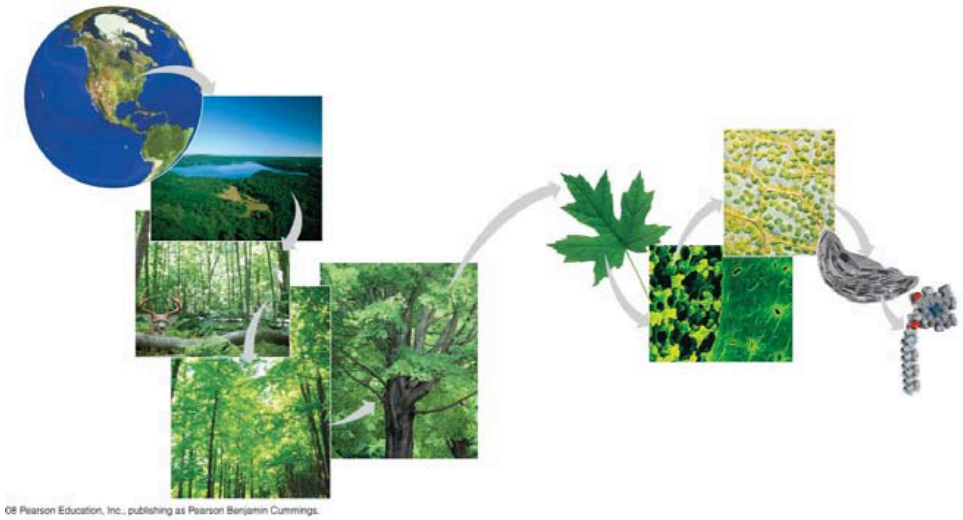
1. In the overview, Figure 1.3 recalls many of the properties of life. Label the seven properties illustrated here, and give a different example of each.



Concept 1.1 Themes connect the concepts of biology

2. What are emergent properties? Give two examples.

3. Life is organized on many scales. Figure 1.4 zooms you in from viewing Earth from space all the way to the level of molecules. As you study this figure, write in a brief definition of each level.



biosphere

ecosystem

community

population

organism

organs/organ systems

tissues

cells

organelles

molecules

4. Our study of biology will be organized around recurring themes. Make a list here of the themes that are presented, and give an example that illustrates each theme. Watch for these themes throughout your study this entire year. This will help you see the big picture and organize your thinking. (Go to the Summary of Key Concepts at the end of the chapter for a concise look at the themes.)

Theme 1	*Example*
Theme 2:	
Theme 3:	
Theme 4:	
Theme 5:	
Theme 6:	
Theme 7: (Find it in 1.2.)	

5. As you read this section, you will be reminded of things you may have studied in an earlier course. Since this material will be presented in detail in future chapters, you will come back to these ideas, so don't fret if some of the concepts presented are unfamiliar. However, to guide your study, define each of the terms in bold as you come to them.

eukaryotic cell

prokaryotic cell

DNA

genes

genome

negative feedback/positive feedback

Concept 1.2 The Core Theme: Evolution accounts for the unity and diversity of life

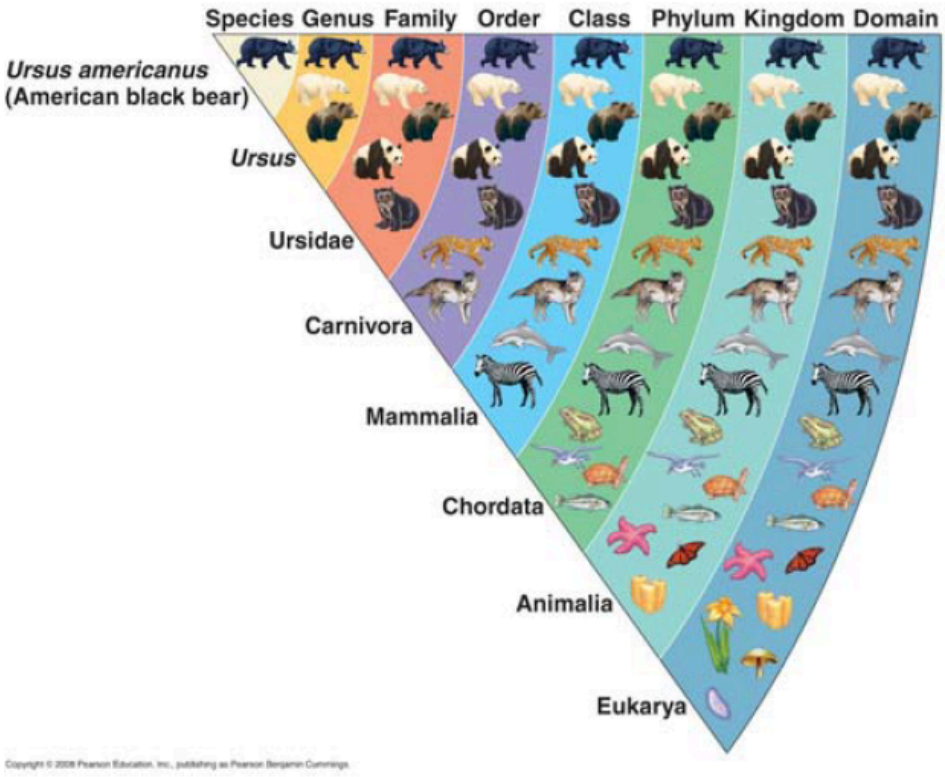
6. Life is organized into groups. Study Figure 1.14.

Which level contains the greatest diversity of organism?_____

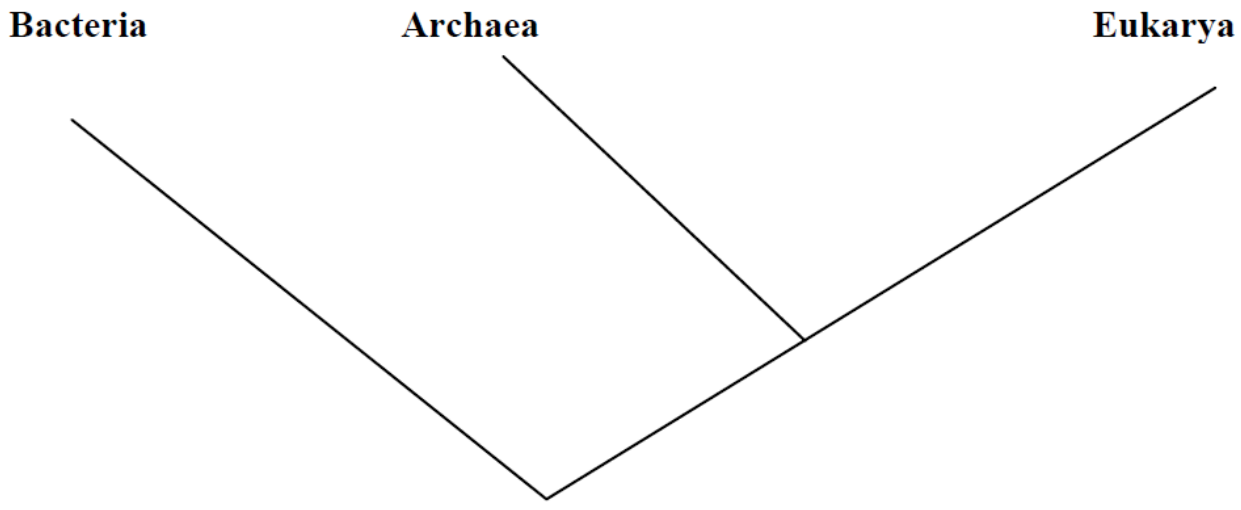
The least?_____

Write out the levels of organization in order.

Most people use a mnemonic device to remember these levels. If you have one, write it here.

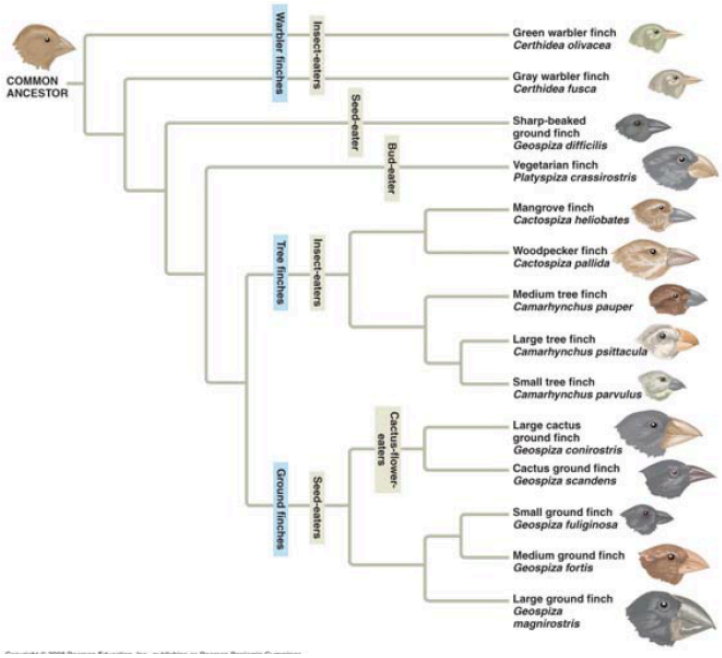


7. Taxonomy is the branch of biology that names and classifies organisms. Because of new molecular information, there have been many changes in placement of certain groups in recent years. Notice that all life is now organized in your text into 3 domains rather than the 5 kingdoms you may have learned earlier. Put the kingdoms mentioned in the text in the space above the proper domain names shown here.



8. What two main points were articulated in Darwin's The Origin of Species?

9. What did Darwin propose as the mechanism of evolution? Summarize this mechanism.



10. Study Figure 1.22, which shows an evolutionary "tree."
What is indicated by each twig?_____

What do the branch points represent?_____

Where did the "common ancestor" of the Galápagos finches originate?

Concept 1.3 Scientists use two main forms of inquiry in their study of nature

11. What are the two main types of scientific inquiry? Give an example of each.

12. What is data?

13. Distinguish between quantitative and qualitative data. Which type would be presented in a data chart and could be graphed? Which type is found in the field sketches made by Jane Goodall?

14. In science, how do we define hypothesis?

15. A scientific hypothesis has two important qualities. The first is that it is testable. What is the second?

16. Are scientific hypotheses proved? Explain your answer!

17. Look at Figure 1.24. Use it to write a hypothesis using the "If . . . then . . ." format.

18. What is a controlled experiment?

19. The text points out a common misconception about the term "controlled experiment". In the snake mimicry experiment, what factors were held constant?

20. Why are supernatural explanations outside the bounds of science?

21. Explain what is meant by a scientific theory by giving the three ways your text separates a theory from a hypothesis or mere speculation.

1.

2.

3.

Testing Your Knowledge: Self-Quiz Answers

Now you should be ready to test your knowledge. Place your answers here:

1. _____
2._____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____