

Name _____

AP Biology

TEXT: *Biology*, Campbell and Reece

7th Edition

Chapter 1 – The Chemical Context of Life
Guided Reading

1. Explain the properties of life listed below:
 - a. Order
 - b. Evolutionary adaptation
 - c. Response to the environment
 - d. Regulation
 - e. Energy processing
 - f. Growth and development
 - g. Reproduction
2. List and define ALL ten levels of biological organization.
3. Describe how energy flows through an ecosystem. **Can energy be recycled?**
4. What is the relationship between genes, DNA, and cells as the basic unit of structure and function in living organisms?

5. Compare and contrast eukaryotic and prokaryotic cells.
6. Explain the concept of emergent properties and how they relate to “being alive”.

7. In your own words, what is reductionism?

8. Briefly explain bioinformatics?

9. What is feedback and how does it relate to the property of life, *regulation*?

10. By the end of the year you will be able to explain this in your sleep. Define the following terms and give an example of each, in your own words. Then relate the example you choose to your definition and explain how it meets the criteria.
 - a. Positive feedback

 - b. Negative feedback

11. Why is classification of living organisms necessary to understanding biology?

12. Label each photograph and give a brief description of each organism(s). Then address the following question: How have the recent advances in DNA technology, specifically DNA sequencing, affected how these organisms are classified? *Explain the current evidence discussed in the debate concerning how these organisms should be properly grouped.*



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13. What does the statement “there is unity in diversity” mean in terms of biology and why is it said that “Evolution is the unifying theme of biology?”

14. Based on your reading of Darwin’s Theory of Natural Selection – imagine you are at the dinner table – explain the theory, in your own words, and give an example that supports your statements.

15. What are the elements of a well-designed controlled experiment? List and define these terms.

16. Review Table 1 on page 27 – list each of these themes and explain each them briefly in a sentence or phrase of your own.

AP BIOLOGY EXAM CHECKPOINT

17. Which of the following is an example of positive feedback regulation?
- a. The hormones insulin and glucagon regulate blood-sugar levels.
 - b. In the birth of a baby, uterine contractions stimulate release of chemicals that stimulate more uterine contractions.
 - c. A rise in temperature when you exercise stimulates sweating and increased blood flow to the skin
 - d. When cells have sufficient energy available, the pathways that break down sugars are turned off.
 - e. A rise in CO₂ in the atmosphere correlates with increasing global temperature.