

Name \_\_\_\_\_

**AP Biology**

**TEXT: *Biology, Campbell and Reece***

**7<sup>th</sup> Edition**

**Chapter 8**

**Cell Biology – Bioenergetics: Cell Metabolism  
Thematic Review Guide**

1. Define the following terms:

a. Catabolic pathway \_\_\_\_\_

b. Anabolic pathway \_\_\_\_\_

c. Kinetic energy \_\_\_\_\_

d. Potential energy \_\_\_\_\_

2. The First Law of Thermodynamics is the principle of... \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3. The Second Law of Thermodynamics involves changes in... \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

4. What is meant by a change in free energy? \_\_\_\_\_

\_\_\_\_\_

5. Compare reactions that are...

a. Exergonic \_\_\_\_\_

\_\_\_\_\_

b. Endergonic \_\_\_\_\_

\_\_\_\_\_

6. Sketch the ATP cycle.

7. How does ATP "couple reactions"? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

8. Sketch the profile of an exergonic reaction.

9. How do enzymes affect the energy profile? \_\_\_\_\_

\_\_\_\_\_

10. Define activation energy. \_\_\_\_\_

\_\_\_\_\_

11. Why are enzymes said to be specific? \_\_\_\_\_

\_\_\_\_\_

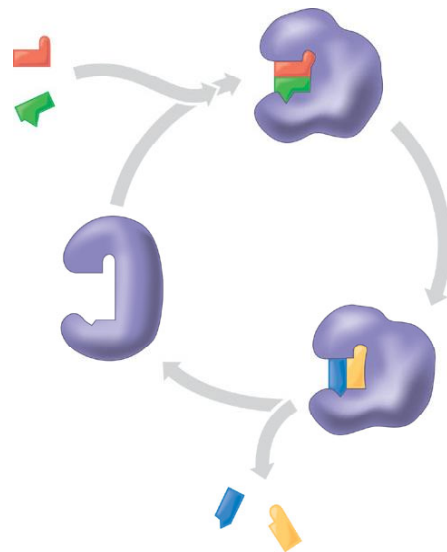
\_\_\_\_\_

12. List factors that influence the rate of enzyme reactions. \_\_\_\_\_

\_\_\_\_\_

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13. Label the diagram of the catalytic enzyme cycle.



14. How do competitive and noncompetitive inhibitors differ in their enzyme interactions?

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15. What happens during allosteric regulation? \_\_\_\_\_

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16. Describe feedback inhibition. \_\_\_\_\_

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17. Define enzyme cooperativity. \_\_\_\_\_

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