

UNIT 3 TEST REVIEW: ENERGETICS & CELL CYCLE

1. Define energy:
2. Name the two main forms of energy, define them, and give an example of each
3. What is ATP? Where is the highest energy bond? How does ATP release energy throughout the body?
4. Compare the 3 ways in which cells can extract energy from glucose:

Name Reaction	Reactants	Products (include # ATP)	Location in Cell and Type of Cell	Short/Fast

5. How does the mitochondria maximize efficiency in making ATP?
6. In terms of evolution, which type of energy production processes do scientists believe evolved first? Give evidence to support this hypothesis.
7. Photosynthesis:
 - A. Overall Reactants:
 - B. Overall Products:
 - C. Type of Cell:
 - D. Location in Cell:
 - E. What occurs in the light dependent reaction?
 - F. What occurs in the light independent reaction?
 - G. What is a thylakoid? How does the thylakoid maximizes efficiency in photosynthesis?
 - H. What is the role of NADPH and ATP?
 - I. What is the role of primary and accessory pigments? Which is the primary pigment?
 - J. Why do some leaves change color in the fall?
8. The following questions are about enzymes:
 - A. What type of organic compound is an enzyme?
 - B. What do enzymes do?
 - C. Define catabolic (exergonic) and anabolic (endergonic) reactions. Describe how they pertain to chemical bonding.
 - D. Draw an energy diagram for a catabolic and anabolic reaction with and without an enzyme.
 - E. Explain the lock and key method. Why is this important?
 - F. What are the suffixes of enzymes?
 - G. What factors influence enzyme activity? Explain.
9. Mitosis
 - A. Name the phases of interphase in order.
 - B. Name the phases of mitosis in order.
 - B. What occurs in each phase?
 - C. What do you make at the end of mitosis?
 - D. Where in the body does mitosis occur?
 - E. What does the cell look like in each phase? Sketch a diagram.
 - F. Why do we need to do mitosis?
 - G. What occurs if mitosis is out of control?
 - H. Does mitosis make diploid or haploid cells?
 - I. What are embryonic stem cells and why are they important?
 - J. According to the recent UCSD study, how is autism related to the cell cycle?