Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Unit 4: Cellular Energy**

***Unit 4 Study Guide***

**Directions:** Answer every question on this study guide. Use the Unit 4: Cellular Energy Summary and any Unit 4 notes for assistance if you need it.

*Photosynthesis*

1. What is the purpose of photosynthesis?
2. In what part of the plant cell does photosynthesis occur? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. What are the two stages of photosynthesis?

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1. What does chlorophyll do to help begin photosynthesis?
2. What type of energy is needed at the beginning of photosynthesis? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. What is the balanced chemical equation for photosynthesis?

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1. What two reactants are needed by the plant for photosynthesis, and how does the plant acquire each one?

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1. What two substances do plant cells produce during photosynthesis and what happens to each?

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1. Why do plants need humans?

*Cellular Respiration*

1. What organisms use cellular respiration to produce energy? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What is the purpose of cellular respiration?
3. What energy transformation occurs during cellular respiration?
4. What is the balanced chemical equation for cellular respiration?



1. What are the three stages of cellular respiration?
2. Aerobic means \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and anaerobic means \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. What is produced during glycolysis that is used during the Krebs cycle? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. What anaerobic process comes after glycolysis when no oxygen is available for cells? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_What does this process produce?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. Which of the three stages of cellular respiration produces the most energy?

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1. Complete the chart below comparing anaerobic and aerobic respiration

|  |  |  |
| --- | --- | --- |
| **Anaerobic Respiration** |  | **Aerobic Respiration** |
|  | *Where does it occur in the cell?* |  |
|  | *What stage(s) of cellular respiration is/are considered this?* |  |
|  | *How many ATP are produced?* |  |

1. Why do humans need plants? (You may draw a picture to help you explain)