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?
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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)