**Unit 5 test review**

**Photosynthesis, Cellular respiration, and Plant structures**

1. What is an autotroph?
2. Do they use organic or inorganic materials to obtain their energy?
3. Name at least two organisms that obtain their energy through autotrophic nutrition.
4. What is a heterotroph?
5. Name at least two organisms that obtain their energy through heterotrophic nutrition.
6. What process converts radiant energy into a form that can be stored and later used by cells?
7. Which types of organisms perform photosynthesis?
8. Write the chemical equation for Photosynthesis:
   1. What are the reactants?
   2. What are the products?
   3. Which of the molecules used or produced during photosynthesis are organic molecules?
   4. Which of the molecules used or produced during photosynthesis are inorganic molecules?
9. Within which organelle does photosynthesis take place?
10. Draw this organelle
    1. Label the light reaction and the Calvin cycle (light independent reaction).
    2. Show which molecules enter and exit each phase.
11. What is ATP?
12. Is ATP used during photosynthesis? If so, which phase needs to use it?
13. How does the amount of sunlight affect the rate of photosynthesis?
    1. Increased light:
    2. Decreased light:
    3. No light:
14. How does temperature affect the rate of photosynthesis?
15. What is glucose?
16. Where is the energy stored within a glucose molecule? (Where is chemical energy stored?)
17. Where does this energy come from (originally)?
18. Draw and label a cross section of a leaf.
19. Where does most photosynthesis take place in a leaf (location in leaf, not inside a cell)? Why is this?
20. What are stomata? Draw a stomata and label the guard cells.
21. What is the purpose of a stoma?
22. Where are stomata located? Why are they located here?
23. What regulates the opening and closing of stomata? What life process does this help to maintain?
24. What is transpiration?
25. Through which plant structure does water travel? Which direction does it move?
26. Through which plant structure do nutrients travel? Which direction do they travel?
27. Describe the movement of water as it flows from the ground, enters the plant, moves through the plant, and exits the plant. Be sure to use the proper terminology of plant structures that are involved.
28. What part of the human body can be compared to a plant’s xylem and phloem?
29. Fill in the missing parts of the following flowchart (you may cut out and glue in notebook)

Is used during

Is produced during

Involves

Releases

Which is required for

Which is used as fuel in

Leads to the synthesis of

Includes and

Includes and

1. What process releases the chemical energy stored in food and converts it into a form that is usable by the cell?
2. Write the chemical formula for cellular respiration.
   1. What are the reactants?
   2. What are the products?
   3. Which are considered organic molecules?
   4. Which are considered inorganic molecules?
3. Which types of organisms perform cellular respiration?
4. What is anaerobic respiration?
5. What are the two types of fermentation? What are the products of each? Give an example of each type (ie which organism does it, what products can we make using this process, etc)
6. What is produced during glycolysis?
7. Where does glycolysis take place?
8. Does glycolysis require oxygen?
9. What is aerobic respiration?
10. Within which organelle does aerobic respiration take place?
11. How many ATP molecules are made during anaerobic respiration? How many are made during aerobic respiration? Which process is more efficient?
12. Describe what happens to oxygen and carbon dioxide levels during:
    1. Cellular respiration: oxygen levels: carbon dioxide levels:
    2. Photosynthesis: oxygen levels: carbon dioxide levels: