Bond-Jackson’s

Cell Energy Study Sheet

1. **Carbohydrates** found in the foods that we eat are broken down to make energy.
2. When an organism is carrying out **cell respiration**, the level of oxygen surrounding the organism decreases and the level of carbon dioxide increases because the organism is taking in oxygen and releasing carbon dioxide. (Assessed as graphical interpretation on test)
3. **ATP** is the **energy** molecule that cells use for cellular activities.
4. Carbon dioxide, water, and energy are the **reactants** of photosynthesis.
5. Sugars (glucose) and oxygen are the **products** of photosynthesis.
6. Sugars (glucose) and oxygen are the **reactants** of cell respiration.
7. Carbon dioxide, water, and energy are the **products** of cell respiration.
8. When not enough oxygen is present for cell respiration, **lactic acid is formed during fermentation**.
9. The sugars that are made during photosynthesis are used for cell respiration.
10. Cell respiration is called an **aerobic** process because it uses **oxygen.**
11. During cell respiration, organic (carbon-containing) molecules are broken down to provide energy.
12. **Aerobic respiration** produces 36 molecules of ATP for every molecule of glucose that is “burned”.
13. **Anaerobic respiration** (lactic acid fermentation and alcoholic fermentation) produces 2 ATP molecules for every molecule of glucose that is “burned”.
14. Anaerobic respiration is less efficient than aerobic respiration because **the net gain of ATP molecules is less** than in anaerobic respiration.
15. **Lactic acid fermentation** occurs in muscles during heavy exercise when not enough oxygen is available.
16. Photosynthesis uses sunlight to convert water and carbon dioxide into oxygen, sugars, and starches.
17. A plant that has a large number of leaves loses more water through its leaves than a plant with fewer leaves because water is lost through the **stomata** (mouth) of leaves. **The more leaves, the more water that is loss.**
18. The function of the **root** is to **absorb water** for the process of photosynthesis.
19. ATP consists of **3 phosphate groups** held together by high-energy bonds.
20. ATP releases energy when it **loses** one of its 3 phosphate groups.
21. In photosynthesis, 6 molecules of carbon dioxide result in 6 molecules of oxygen.
22. Photosynthesis takes place in the chloroplast of plant cells.
23. Cell respiration takes place in the “mighty” mitochondria, the “powerhouse”, of animal cells.
24. **Lactic acid fermentation** takes place in muscle cells when the oxygen level is low.
25. Humans pay back an **“oxygen debt”** during heavy breathing after strenuous exercise.
26. The correct sequence of cell respiration is **1) glycolysis, 2) Krebs cycle, and 3) electron transport**.
27. ADP is converted to ATP during electron transport.
28. Photosynthesis is to chloroplasts as cell respiration is to mitochondria. (This is called an analogy because photosynthesis takes place in chloroplasts and cell respiration takes place in mitochondria)
29. Living things (plants and animals) are **interdependent** because animals use the oxygen gas produced by plants. Plants use carbon dioxide gas that is produced by animals.
30. The **oxygen that is released** as a byproduct during photosynthesis comes from the reactant water.
31. Plants contain 2 types of vascular tissue located inside **vascular bundles.** Xylem and phloem are 2 types of vascular tissue.
32. **Xylem transports sugars and starches** made by the leaves to other parts of the plant.
33. **Phloem transport water from the roots** to the leaves to be used in the process of photosynthesis.
34. During an experiment, a student is collecting gas that is being given off from a green plant located in bright sunlight. The gas that is given off is most likely oxygen.
35. When carbon dioxide is removed from a plant’s environment, the production of sugars stops.

The End