

Name: \_\_\_\_\_  
Sci 6-\_\_\_\_ Date: \_\_\_\_\_

## Life Science Chapter 2: Cell Processes and Energy...Study Guide

- 1. cytokinesis:**  
final stage of the cell cycle...the cell pinches in and separates into two daughter cells
- 2. The 1<sup>st</sup> stage of respiration takes place where?**  
cytoplasm
- 3. photosynthesis:**  
process by which plants use the energy in sunlight to make food
- 4. prophase:**  
1<sup>st</sup> phase in the 2<sup>nd</sup> stage of the cell cycle (MITOSIS) where the replicated chromatin shortens and condenses to form chromosomes
- 5. stomata...what is it?...what goes into it?...what goes out of it?...**  
tiny openings on the undersides of leaves, allows CO<sub>2</sub> (and some water) to enter the leaf and allows O<sub>2</sub> to exit the leaf
- 6. alcoholic fermentation:**  
fermentation process that occurs in single celled organisms (yeast) and some bacteria in which alcohol (and CO<sub>2</sub>) is produced
- 7. interphase:**  
1<sup>st</sup> stage of the cell cycle...cell grows to its full size and DNA is replicated, copies of ribosomes and mitochondria are made
- 8. cancer:**  
**mutation of cells...a disease in which cells grow and divide uncontrollably**
- 9. chlorophyll:**  
green pigment in plants that captures energy in sunlight...found in chloroplasts
- 10. What are the 4 bases of DNA?**  
A (adenine), T (thymine), C (cytosine), and G (guanine)
- 11. What are the complementing base pairs of DNA?**  
A – T, C – G
- 12. Which stage of the cell cycle does a cell grow to its full size?**  
interphase
- 13. Where is most of the energy that is released during respiration produced?**  
mitochondria
- 14. What is the main cause of lung cancer?**  
Smoking

15. **What are the products of photosynthesis?**

$C_6H_{12}O_6$  (glucose) and  $O_2$  (oxygen)

16. **What is the main difference between photosynthesis and respiration?**

Photosynthesis requires light energy from the sun to power the reaction.

Respiration produces energy...ATP.

17. **What are the raw materials of photosynthesis?**

$CO_2$  and  $H_2O$  and LE...carbon dioxide, water, and light energy

18. **What are the raw materials of respiration?**

$O_2$  and  $C_6H_{12}O_6$ ...oxygen and glucose

19. **What are the products of respiration?**

$CO_2$  and  $H_2O$  and ATP...carbon dioxide, water, and energy

20. **How can people reduce their risk of getting skin cancer?**

avoid UV light exposure

21. **mitosis:**

2<sup>nd</sup> stage of the cell cycle...includes 4 phases...the cell's nucleus divides into 2 nuclei

22. **chromatid:**

an identical rod-like structure in a chromosome

23. **autotrophs:**

an organism that produces its own food

24. **heterotrophs:**

an organism that does not produce its own food...depends on autotrophs for energy (directly or indirectly)

25. **How do heterotrophs depend on autotrophs?**

Heterotrophs depend on autotrophs for food and the energy the food contains.

26. **Explain why photosynthesis and respiration are considered opposite processes.**

Photosynthesis requires light energy from the sun to change carbon dioxide and water into glucose and oxygen.

Respiration changes glucose and oxygen into carbon dioxide and water and produces energy in the form of ATP.

**\*Raw materials for one are the products for the other.**

27. **How is a cell able to produce 2 almost identical daughter cells?**

During interphase, the DNA in the nucleus copies itself and cell structures in the cytoplasm also make copies of themselves. When the cell divides, each daughter cell receives 1/2 the DNA, cytoplasm, and organelles so that each daughter cell is identical.

28. **What is the main difference between respiration and fermentation?**

Fermentation does not require oxygen.

29. **Interphase is sometimes referred to as the “resting” stage of the cell cycle. Why is this reference misleading?**

The cell grows to its full (mature) size, makes a copy of its DNA, and prepares to divide into 2 daughter cells. It is not resting but getting ready to divide.

30. **Explain how the structure of DNA is related to DNA replication.**

Structure of DNA is a double helix. Alternating sugar and phosphate on the sides of the ladder and the rungs are paired nitrogen bases. Bases always pair up A – T, C – G. When DNA is copied, it unzips, and pairs up with the alternating bases...forming 2 identical DNA molecules.

**\*Unzip the double helix to copy complementary base pairs.\***

**\* Know how to draw (easily) the 4 phases of mitosis and what each phase is named. \***

# THE CELL CYCLE

## Mitosis

