

NAME: \_\_\_\_\_ DATE: \_\_\_\_\_

### AEROBIC AND ANAEROBIC RESPIRATION

1. Respiration makes \_\_\_\_\_ available to all \_\_\_\_\_ to keep them alive.
2. Aerobic respiration uses the gas \_\_\_\_\_.
3. Aerobic respiration is also called \_\_\_\_\_ respiration and the process is sped up using \_\_\_\_\_.
4. CELLS use the energy from respiration for the following activities \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_.
5. The entire organism itself uses energy from its respiring cells to \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_.
6. How do the oxygen and glucose get to the cells for respiration to occur?

GLUCOSE \_\_\_\_\_ SYSTEM

OXYGEN \_\_\_\_\_ SYSTEM and \_\_\_\_\_ SYSTEM

7. What is the word equation for aerobic respiration (oxidation of glucose)?



8. What is the balanced chemical equation for the aerobic respiration?



9. What does ATP and ADP stand for? ATP \_\_\_\_\_ ADP \_\_\_\_\_

10. Which of the following are advantages of storing energy from respiration in Adenosine triphosphate (ATP) molecules.

stores energy permanently	stores energy temporarily	stores food and water	energy easy to travel from place to place
energy disappears without creating a problem	energy easily dissolves	lots of energy is wasted	stores energy in exact amount needed

11. In which organelle does (aerobic) respiration occur? \_\_\_\_\_

12. Complete the table below to compare anaerobic respiration in yeast and fatigued animal muscle cells.

	YEAST CELLS	FATIGUED ANIMAL MUSCLE CELLS
STARTING MATERIAL		
PRODUCTS		

13. What is the result of a build-up of lactic acid in animal muscle cells?

\_\_\_\_\_ and \_\_\_\_\_

14. How can the lactic acid in animal cells be reduced after exercising? \_\_\_\_\_

15. Define the term oxygen debt. \_\_\_\_\_

\_\_\_\_\_

16. Name the waste product from anaerobic respiration in yeast and state their uses in human industries.

PRODUCT	USES

17. Differentiate the difference between aerobic and anaerobic respiration. Drag the correct content to the space.

<b>Carbon dioxide and water are waste.</b>	<b>Glucose completely oxidized and broken down.</b>
<b>Small amounts of energy released (2ATP)</b>	<b>Occurs in the cytoplasm.</b>
<b>Glucose combines with no oxygen.</b>	

AEROBIC RESPIRATION	ANAEROBIC RESPIRATION
Glucose combines with oxygen.	
	In animal cells, lactic acid is the waste. In plants and yeast, carbon dioxide and ethanol are the waste.
Large amounts of energy produced (38 ATP molecules) per glucose molecule.	
	Glucose not completely broken down (ethanol and lactic acid can still be broken down further to release energy if oxygen is added).
Occurs in the mitochondria of cells.	

18. In some ways the process of **photosynthesis** is like the opposite of **aerobic respiration**. There are, however, ways in which it is not the exact opposite. Complete the table below to compare and contrast the two processes.

Drag the answers to the correct box.

mitochondrion	carbon dioxide and water	used	animal cell	glucose and oxygen
produced	plant cell	carbon dioxide and water	chloroplast	glucose and oxygen

	PHOTOSYNTHESIS	AEROBIC RESPIRATION
REACTANTS		
PRODUCTS		
ORGANELLE RESPONSIBLE		
ENERGY USED OR PRODUCED?		
PLANT OR ANIMAL CELL?		