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)?

☐ + ☐ → ☐ + ☐ + energy

water oxygen gas carbon dioxide gas glucose

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

☐ + ☐ → ☐ + ☐ + ATP

$C_6H_{12}O_6$ $6\ H_2O$ $6\ CO_2$ $6\ O_2$

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**
the energy is colored	**energy easily dissolves**	**lots of energy is wasted**	**stores energy in exact amount needed**

LIVEWORKSHEETS

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.

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

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.	

LIVEWORKSHEETS

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 and plant cell**	**glucose and oxygen**
produced	**plant cell only**	**carbon dioxide and water**	**chloroplast**	**glucose and oxygen**

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

LIVEWORKSHEETS