Respiration

By Cindy Grigg

1 Did you know there are two kinds of respiration? One kind of respiration is when we breathe air in and out of our lungs. The other kind happens in both plant and animal cells, including people's cells.

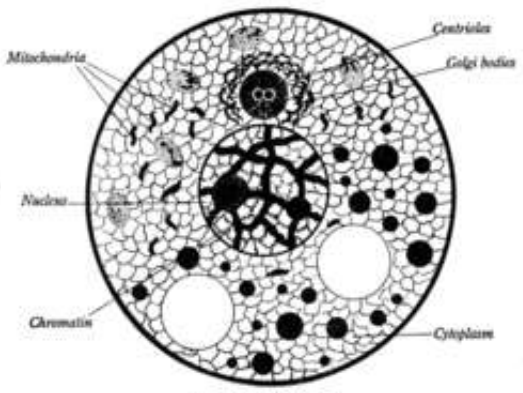

FIG. 26. A Typical Cell

2 Animals and plants need oxygen. When an animal breathes, it takes in oxygen gas and releases carbon dioxide gas into the atmosphere. This carbon dioxide is a waste product produced by the animal's cells during cellular respiration.

3 Cellular respiration occurs in the individual cells. Digested foods have chemical energy stored in them. Energy to live comes from releasing this energy. Cells use oxygen to "burn" food for energy. Water and carbon dioxide are produced as wastes. The cells in both plants and animals perform respiration. Carbon dioxide is also released into the atmosphere when fuels are burned, such as in automobiles or factories. Plants take in carbon dioxide and release oxygen through their leaves.

4 Plants use a process called photosynthesis to make their own food. During photosynthesis, a plant uses light, water, and carbon dioxide to make its own food. Oxygen is given off during photosynthesis as a waste product.

5 The chemical equation for photosynthesis is:
LIGHT (energy) + CO_2 + H_2O --> $C_6H_{12}O_6$ + O_2

6 This is the reaction that only plants and some algae and bacteria can do. They take sunlight and combine carbon dioxide (CO_2) and water (H_2O). They create glucose ($C_6H_{12}O_6$) and oxygen gas (O_2). By this process, plants change energy from the sun into glucose.

7 The reverse of this process is cellular respiration. The sugars made from photosynthesis are broken down with oxygen to release energy. The waste products are carbon dioxide and water.

8 The equation for this is: $C_6H_{12}O_6$ + O_2--> Usable Energy (ATP) + CO_2 + H_2O.

9 Cells then use that energy to power the functions of the cell. The energy has been stored in a compound called adenosine triphosphate (ATP). ATP is the molecule used by cells to power the secondary reactions that keep them alive.

10 Some other organisms such as algae, which are not classified as plants or animals, also make their own food by photosynthesis. Most algae live in water. The amazing thing is that eighty percent of the oxygen on Earth is made by algae living in oceans. Plants living on land replace the remaining twenty percent of the oxygen used by animals. This is a vital reason we must protect our oceans from pollutants. The algae living in our oceans are crucial to life on Earth.

Name _____ Date _____

Respiration

1. Photosynthesis is the process by which: (A) Plants break down food. (B) Animals make their own food. (C) Animals break down food. (D) Plants make their own food.	2. Respiration is the process in which: (A) Cells produce carbon dioxide and water (B) Cells use oxygen to burn food for energy (C) Both a and b (D) Neither a nor b
3. Where do most algae live? _____ _____	4. What do you think would happen to the amount of oxygen in the atmosphere if all of Earth's algae suddenly died off? _____ _____
5. Plants and animals perform respiration. (A) False (B) True	6. Once animals use oxygen, it can never be replaced. (A) False (B) True
7. Algae cannot make their own food. (A) False (B) True	8. Plants produce oxygen as a waste product of photosynthesis. (A) False (B) True

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reactions	perform	respiration	or
process	combine	life	equation
individual	reaction	power	atmosphere
reason	molecule	reverse	adenosine
glucose			

Directions: Fill in each blank with the word that best completes the reading comprehension.

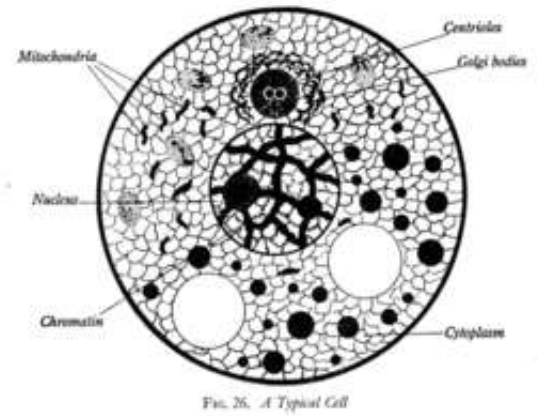

FIG. 26. A Typical Cell

Did you know there are two kinds of respiration? One kind of respiration is when we breathe air in and out of our lungs. The other kind happens in both plant and animal cells, including people's cells.

Animals and plants need oxygen. When an animal breathes, it takes in oxygen gas and releases carbon dioxide gas into the atmosphere. This carbon dioxide is a waste product produced by the animal's cells during cellular respiration.

Cellular *(1)* _____ occurs in the *(2)* _____ cells. Digested foods have chemical energy stored in them. Energy to live comes from releasing this energy. Cells use oxygen to "burn" food for energy. Water and carbon dioxide are produced as wastes. The cells in both plants and animals *(3)* _____ respiration. Carbon dioxide is also released into the *(4)* _____ when fuels are burned, such as in automobiles *(5)* _____ factories. Plants take in carbon dioxide and release oxygen through their leaves.

Plants use a process called photosynthesis to make their own food. During photosynthesis, a plant uses light, water, and carbon dioxide to make its own food. Oxygen is given off during photosynthesis as a waste product.

The chemical *(6)* _____ for photosynthesis is:

LIGHT (energy) + CO_2 + H_2O --> $C_6H_{12}O_6$ + O_2

This is the *(7)* _____ that only plants and some algae and bacteria can do. They take sunlight and *(8)* _____ carbon dioxide (CO_2) and water (H_2O). They create *(9)* _____ ($C_6H_{12}O_6$) and oxygen gas (O_2). By this *(10)* _____ , plants change energy from the sun into glucose.

The *(11)* _____ of this process is cellular respiration. The sugars made from photosynthesis are broken down with oxygen to release energy. The waste products are carbon dioxide and water.

The equation for this is: $C_6H_{12}O_6 + O_2$--> Usable Energy (ATP) + $CO_2 + H_2O$.

Cells then use that energy to power the functions of the cell. The energy has been stored in a compound called *(12)* _____ triphosphate (ATP). ATP is the *(13)* _____ used by cells to *(14)* _____ the secondary *(15)* _____ that keep them alive.

Some other organisms such as algae, which are not classified as plants or animals, also make their own food by photosynthesis. Most algae live in water. The amazing thing is that eighty percent of the oxygen on Earth is made by algae living in oceans. Plants living on land replace the remaining twenty percent of the oxygen used by animals. This is a vital *(16)* _____ we must protect our oceans from pollutants. The algae living in our oceans are crucial to *(17)* _____ on Earth.

Name _____ Date _____

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Name _____ Date _____
(Key 1 - Answer ID # 0392508)

Find each of the following words.

LIFE	ADENOSINE	REASON	CREATE
LAND	REACTION	SECONDARY	COMBINE
DIOXIDE	PROCESS	LIVING	REPLACE
SUCH	EQUATION	INDIVIDUAL	ADENOSINE

L I N D I V I D A U L Y E O O A E E D I O X I D E D
Y I F I L S H E N N Q G N I V I I L A U E E N N A N
D A S F V L O N D S U C H R N C T A E N N C N Q L E
P C L L S D N A L I E E M O N E I F T O I E I D O E
E N I B C E O S L S I S S P E D O S I E S E E E E E
I H V A L O C I E A S A I N U I N I D N O L I O L R
E D I X I O D O D C E E I A R N A R S O N S T I I A
R Q N D F U E E N R A S C I A E P E F D E R A R C U
E E G E I I N E E D O N E O D U E P E C D L E E E D
S D A E S A D I L N A L D C R N T L O L A L R A I D
G A O T S O A P E O P R V A V P A A L S D I C S N L
H O D I I R L D E R D R Y N R E E C I Y I L I A I D
N U N E C O A D E D E O N S N Y R E D A X M D N A N
Y E S H I O N A A N E O O G U A C I V L N U E D S S
R A N U O O C N E O N N I I E C O A I P O C E S S A
U V N C A T E I D N L E S N F R O O I A T I N S N E
D G A A I O N I O I N D I V I D U A L E N A S N S I
O N E O N O I T A U Q E E R L N A A O R I M E I R N
C L N R I I S E N I S A N E D A U R Q C A A R O A N
A S A C O M B I N E Q A U T I O N N C O M I N E R L
A C T D N C E L A F P T C A P R E I E A O E I O E L

Respiration - Answer Key

1 (D) Plants make their own food.
2 (C) Both a and b
3 Most algae live in water.
4 The amount of oxygen in the air would decrease.
5 (B) True
6 (A) False
7 (A) False
8 (B) True

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Answer Key

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Answers to Reading Comprehension Questions

1 (B) Plants make their own food.
2 (C) Both a and b
3 Most algae live in water.
4 The amount of oxygen in the air would decrease.
5 (B) True
6 (A) False
7 (A) False
8 (B) True

Answer Key 0392508
Key # 1

LIFE	LAND	DIOXIDE	SUCH
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REASON	SECONDARY	LIVING	INDIVIDUAL
CREATE	COMBINE	REPLACE	ADENOSINE