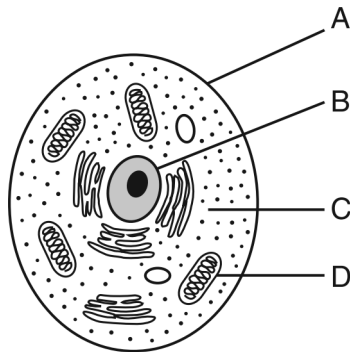


1. Base your answer(s) to the following question(s) on the diagram below and on your knowledge of biology. The diagram represents a cell and its changes as a result of two laboratory procedures, A and B.



Describe procedure A and explain why it would cause the change shown.

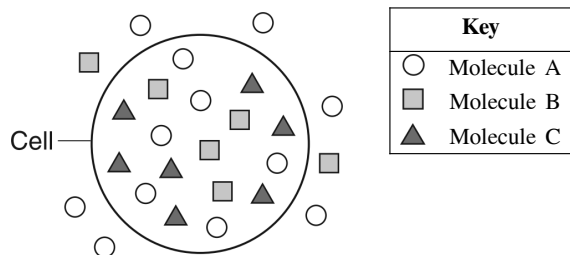
2. Explain why procedure B has the opposite effect of procedure A.
3. The letters in the diagram below indicate some parts of a cell.



The function of which cell part is most similar to that of the human excretory system?

- A. A B. B C. C D. D

4. The diagram below represents a cell and several molecules. The number of molecules shown represents the relative concentration of the molecules inside and outside of the cell.



Molecule B could enter the cell as a direct result of

- A. digestion B. diffusion
C. active transport D. enzyme production

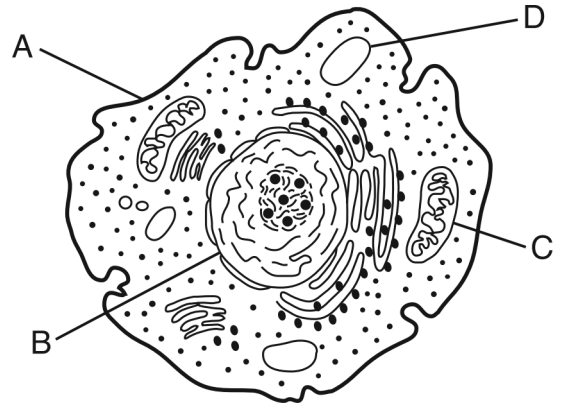
5. Which substance is an inorganic molecule?

- A. starch B. DNA C. water D. fat

6. The ability of estrogen to affect certain cells depends directly on

- A. amino acids B. receptor molecules
C. gametes D. nerve cells

7. The diagram below represents a cell.



Which statement concerning ATP and activity within the cell is correct?

- A. The absorption of ATP occurs at structure A.
B. The synthesis of ATP occurs within structure B.
C. ATP is produced most efficiently by structure C.
D. The template for ATP is found in structure D.

8. As a human red blood cell matures, it loses its nucleus. As a result of this loss, a mature red blood cell lacks the ability to

- A. take in material from the blood
B. release hormones to the blood
C. pass through artery walls
D. carry out cell division

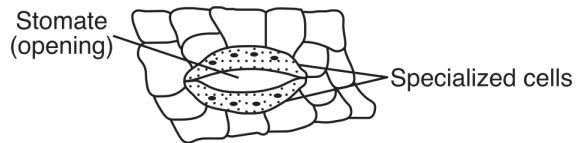
9. Describe how *two* of the cell structures listed below interact to help maintain a balanced internal environment in a cell.

mitochondrion
ribosome
cell membrane
nucleus
vacuole

In your answer be sure to:

- select *two* of these structures, write their names, and state one function of each
- describe how each structure you selected contributes to the functioning of the other

10. The diagram below represents specialized cells in the surface of the leaf of a green plant.

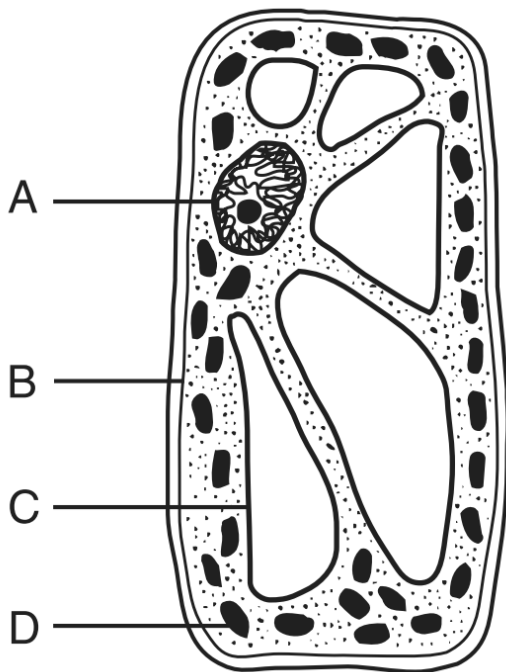


The main function of these cells is to

- change the size of the stomate to regulate water loss
 - close the stomate to keep dust and dirt out of the leaf
 - directly provide leaf cells with the water involved in photosynthesis
 - allow newly formed glucose to be released from the leaf
11. Plant cells can synthesize energy-rich organic molecules, and later break them down to extract that energy for performing life processes. These activities require direct interaction between the

- chloroplasts and vacuoles
- cell walls and ribosomes
- chloroplasts and mitochondria
- ribosomes and mitochondria

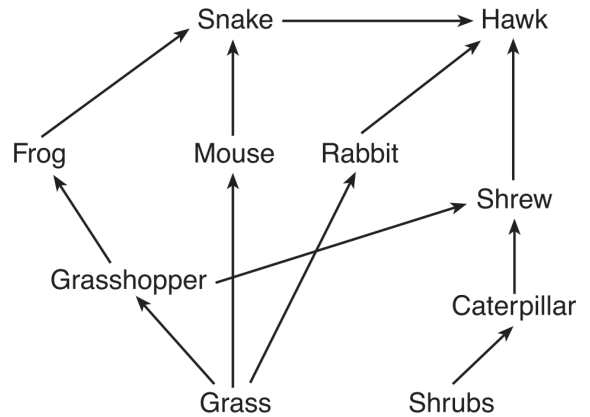
12. The diagram below represents a cell of a green plant.



Solar energy is used to produce energy-rich compounds in structure

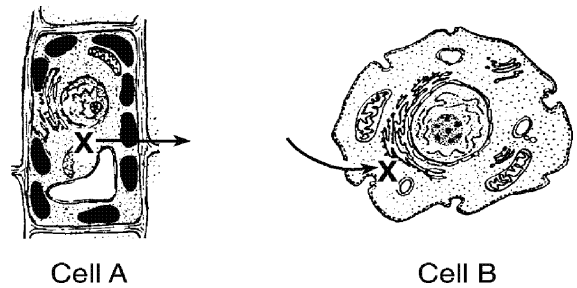
- A
- B
- C
- D

13. Base your answer(s) to the following question(s) on the diagram below that shows some interactions between several organisms located in a meadow environment and on your knowledge of biology.



Identify *one* cell structure found in a producer in this meadow ecosystem that is not found in the carnivores.

14. Base your answer(s) to the following question(s) on the two different cells shown below. Only cell A produces substance X. Both cells A and B use substance X.

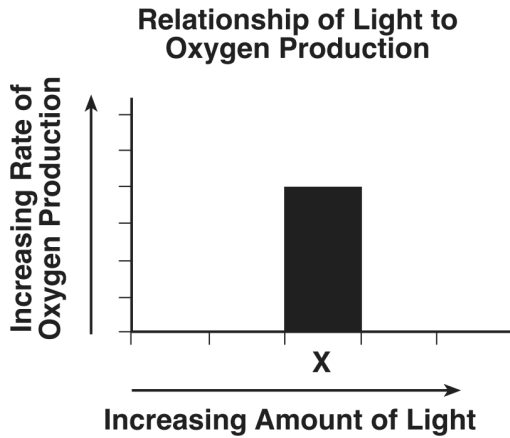


Identify the type of organelle found in both cell A and cell B that uses substance X.

- Identify the type of organelle in cell A that produces substance X.
- Identify substance X.

17. Base your answer(s) to the following question(s) on the information and graph below and on your knowledge of biology.

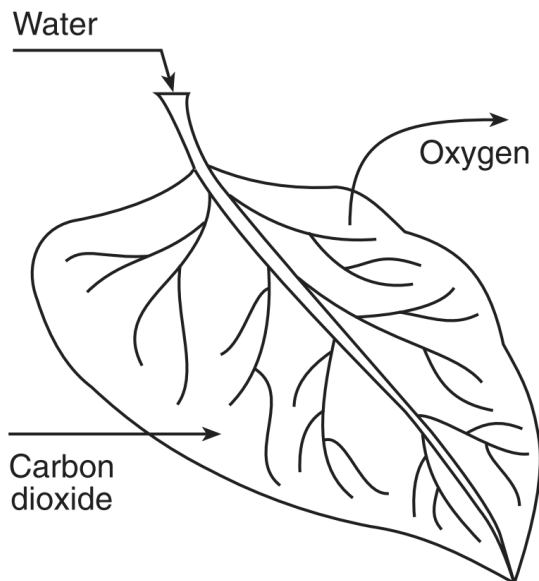
A student conducts an experiment to determine how the amount of light affects the rate of oxygen production in a plant. The graph represents the rate of oxygen produced for one trial, X, in the experiment. By the end of the experiment, the plant had not reached maximum oxygen production.



Identify the biochemical process occurring in this cell that produces the oxygen.

Process:

18. The arrows in the diagram below represent the movement of materials.

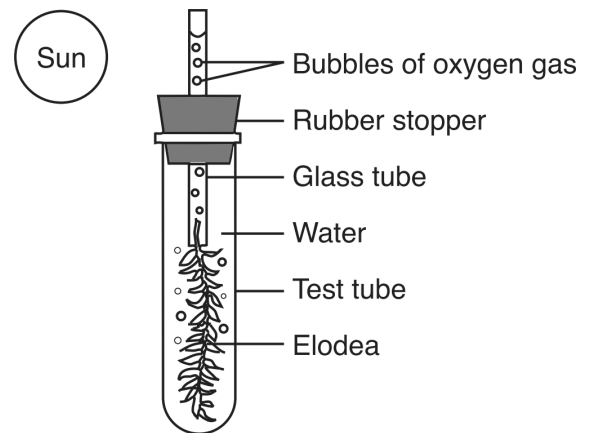


This movement of materials indicated by the arrows is most directly involved in the processes of

- A. respiration and replication
- B. photosynthesis and excretion
- C. digestion and recycling
- D. circulation and coordination

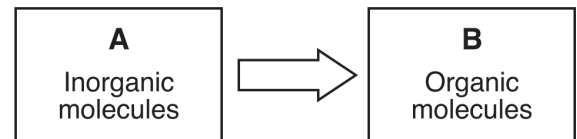
19. Base your answer(s) to the following question(s) on the information and diagram below and on your knowledge of biology.

A small water plant (elodea) was placed in bright sunlight for five hours as indicated below. Bubbles of oxygen gas were observed being released from the plant.



Since oxygen gas is being released, it can be inferred that the plant is

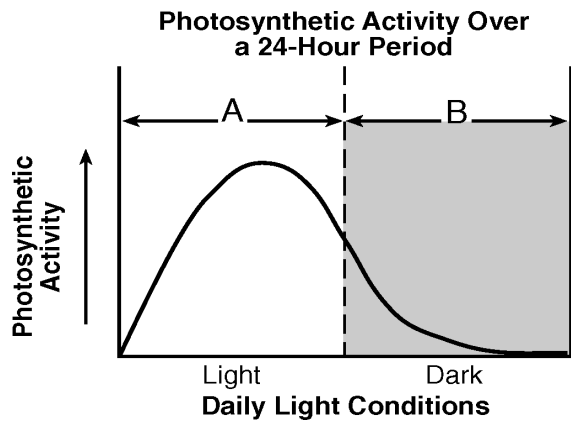
- A. producing glucose
 - B. releasing energy from water
 - C. making protein
 - D. carrying on active transport
20. The diagram below represents a biological process.



Which set of molecules is best represented by letters A and B?

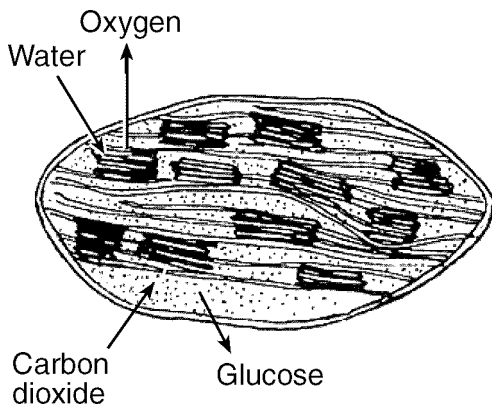
- A. A: oxygen and water
B: glucose
- B. A: glucose
B: carbon dioxide and water
- C. A: carbon dioxide and water
B: glucose
- D. A: glucose
B: oxygen and water

21. The graph below shows photosynthetic activity in an ecosystem over a 24-hour period.



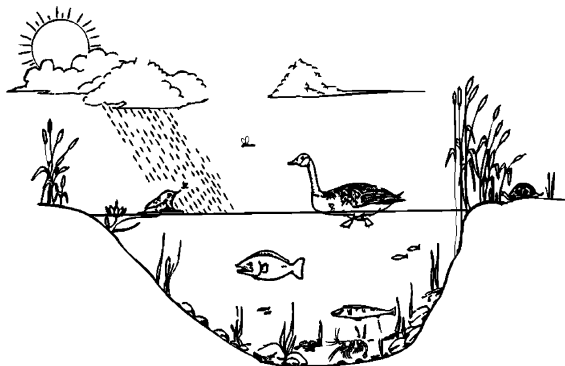
Data for a study on respiration in this ecosystem should be collected during

- interval A, from only the producers in the ecosystem
 - intervals A and B, from only the consumers in the ecosystem
 - intervals A and B, from both the producers and consumers in the ecosystem
 - interval A only, from abiotic but not biotic components of the ecosystem
22. The diagram below illustrates the movement of materials involved in a process that is vital for the energy needs of organisms.



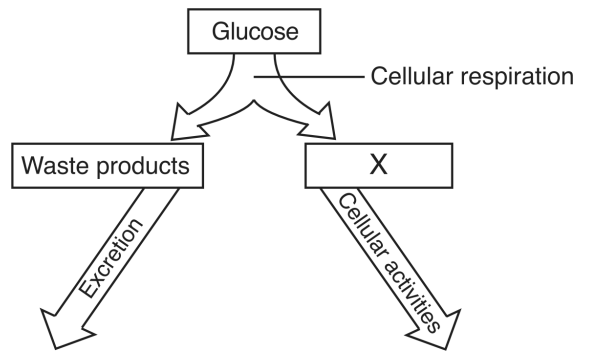
The process illustrated occurs within

- chloroplasts
 - mitochondria
 - ribosomes
 - vacuoles
23. Base your answer(s) to the following question(s) on the lake ecosystem represented below and on your knowledge of biology.



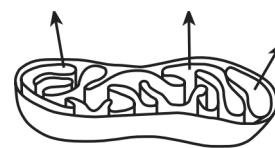
State one piece of evidence from the diagram that indicates that light penetrates to the bottom of the lake.

24. The diagram below represents a biochemical process.



Which molecule is represented by X?

- DNA
 - starch
 - protein
 - ATP
25. In what way are photosynthesis and cellular respiration similar?
- They both occur in chloroplasts.
 - They both require sunlight.
 - They both involve organic and inorganic molecules.
 - They both require oxygen and produce carbon dioxide.
26. Energy from organic molecules can be stored in ATP molecules as a direct result of the process of
- cellular respiration
 - cellular reproduction
 - diffusion
 - digestion
27. The diagram below represents a structure involved in cellular respiration. The release of which substance is represented by the arrows?



Mitochondrion

- glucose
- oxygen
- carbon dioxide
- DNA

Cells: 2 Star 05/27/2014

- | | |
|---|--|
| <p>1.
Answer: – In procedure A, salt water is added to the cell. The reduced water concentration outside results in water leaving the cell and its cytoplasm shrinks away from the cell wall.</p> <p> – Put the cell in salt solution. Water moves out of the cell and the cell contents shrink.</p> <p>2.
Answer: – In procedure B, distilled water is added to the cell. The distilled water goes into the cell and restores the cytoplasm to the normal size.</p> <p> – Process B is to add distilled water to dilute the salt water. Water will move into the cell and fill it back up.</p> <p> – Process B adds a new substance that causes water to reenter the cell.</p> <p>3.
Answer: A</p> <p>4.
Answer: C</p> <p>5.
Answer: C</p> <p>6.
Answer: B</p> <p>7.
Answer: C</p> <p>8.
Answer: D</p> <p>9.
Answer: <ul style="list-style-type: none">• mitochondrion—release of energy from nutrients, ribosome—protein synthesis, cell membrane—regulates movement of materials into and out of the cell, nucleus—regulates cell functions or carries the genetic code, or vacuole—storage• The nucleus contains the code for the enzymes that function in the mitochondrion. The mitochondrion provides energy that is needed by the nucleus.</p> <p>10.
Answer: A</p> <p>11.
Answer: C</p> <p>12.
Answer: D</p> <p>13.
Answer: chloroplast or cell wall</p> <p>14.
Answer: mitochondrion</p> <p>15.
Answer: chloroplast</p> <p>16.
Answer: oxygen or glucose or sugar</p> | <p>17.
Answer: – photosynthesis
 – autotrophic nutrition
 – photosynthesis</p> <p>18.
Answer: B</p> <p>19.
Answer: A</p> <p>20.
Answer: C</p> <p>21.
Answer: C</p> <p>22.
Answer: A</p> <p>23.
Answer: There are plants growing on the lake bottom. OR Plants are living in the deepest part of the lake.</p> <p>24.
Answer: D</p> <p>25.
Answer: C</p> <p>26.
Answer: A</p> <p>27.
Answer: C</p> |
|---|--|