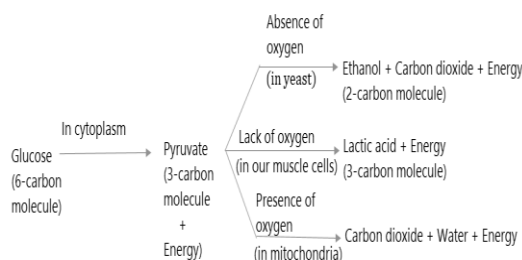


SCIENCE

Life Processes

10. What are the different ways in which glucose is oxidised to provide energy in various organisms?

Ans: In the cytoplasm, Glucose is first broken down into two 3 carbon compounds called pyruvate by the process known as Glycolysis. Further breakdown takes place in different organisms by different processes.



11. How are oxygen and carbon dioxide transported in human beings?

Ans: Oxygen and Carbon dioxide are transported in human beings via the bloodstream. Oxygen is carried to the cells, whereas carbon dioxide is carried away from the cells. The exchange of gases takes place between the alveoli of the lungs and the surrounding blood capillaries. Oxygen is absorbed by the blood capillaries from the lungs' alveoli by diffusion, while carbon dioxide is absorbed by the lungs' alveoli from the blood capillaries by diffusion.

12. How are the lungs designed in human beings to maximise the area for the exchange of gases?

Ans: The lungs are an important part of the body. The passage inside the lungs divides into smaller and smaller tubes, which finally terminate in balloon-like structures called alveoli.

The alveoli provide a surface where the exchange of gases can take place. The walls of the alveoli usually contain an extensive network of blood vessels. We know that when we breathe in, we lift our ribs, flatten our diaphragm and the chest cavity becomes larger. Because of this action, the air is sucked into the lungs and fills up the expanded alveoli.

The blood brings the essential carbon dioxide from the rest of the body and supplies it to the alveoli; the oxygen in the alveolar air is taken up by the blood in the alveolar blood vessels to be transported to all other cells of the body.

During the normal breathing cycle, when air is taken in and let out, the lungs always contain a residual volume of air so that there is sufficient time

for oxygen to be absorbed and carbon dioxide to be released.

13. What are the components of the transport system in human beings? What are the functions of these components?

Ans: The heart, blood and blood vessels are the main components of the transport system in human beings.

Functions of these components

Heart

The heart pumps oxygenated blood throughout the body. It receives deoxygenated blood from the various body parts and sends impure blood to the lungs for oxygenation.

Blood

Blood transports oxygen, nutrients, CO₂, and nitrogenous wastes.

Blood vessels

Blood vessels, arteries and veins carry blood to all parts of the body.

14. Why is it necessary to separate oxygenated and deoxygenated blood in mammals and birds?

Ans: Mammals and birds are warm-blooded animals which keep their body temperature constant irrespective of the environment they live. This process requires a lot of oxygen for more cellular respiration so that warm-blooded animals produce more energy to balance their body temperature. Hence, it is very important for warm-blooded animals to separate oxygenated and deoxygenated blood to keep their circulatory system efficient.

15. What are the components of the transport system in highly organised plants?

Ans: There are two types of conducting tissues in highly organised plants that carry out the transport system (1) Xylem (2) Phloem.

Xylem conduct water and minerals from roots to the rest of the plant parts. Similarly, Phloem transports food materials from the leaf to other parts of the plant.

16. How are water and minerals transported in plants?

Ans: Xylem parts of the tracheids and vessels of roots, stems and leaves are interconnected to form a continuous system of water-conducting channels that reaches all parts of the plant. Transpiration creates a suction pressure which forces water into the xylem cells of roots. After this, there will be a steady movement of water from the root xylem to all parts of the plant connected through conducting interconnected water-conducting channels.

17. How is food transported in plants?

Ans: Food is transported in plants by a special organ called the phloem. Phloem transports food materials from leaves to different parts of a plant.

(Contd..)