STRONG TOWER ACADEMY, IKORODU

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BIOLOGY

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TOPIC: THE CELL AND ITS ENVIRONMENT

Living cell interacts with its environment through the following processes:

DIFFUSION: This is the net movement of ions or molecules from a region of higher concentration to a region of lower concentration down a concentration gradient.

The difference in concentration of a substance in two regions before diffusion takes place is known as Concentration gradient. When the molecules (solute) are evenly distributed in the medium (solvent), we say a dynamic equilibrium has been reached.

PROCESS OF DIFFUSION

Diffusion takes place quite rapidly in gases because the molecules if a gas can move freely. Liquids, on the other hand, diffuse slowly while solids, with very restricted molecular movement, diffuse extremely slowly.

FACTORS THAT AFFECT DIFFUSION

The distance molecules have to travel.

The concentration gradient.

The surface area.

The temperature

The size of molecule.

IMPORTANCE OF DIFFUSION IN PLANTS AND ANIMALS

Cells gain some of the substances they need by diffusion from their surroundings. They also lose some of their waste substance to their surroundings by diffusion. These substances have to cross cell membranes that are partially permeable

as they allow the movement of small molecules such as oxygen, carbon dioxide and water to pass through easily, but not larger molecules. The movement of molecules by diffusion across cell membranes is passive movement as cells do not need to use energy to move the molecules.

OSMOSIS: This is the thermal movement of water molecules from a region of lower concentration to a region of higher concentration through a partially permeable membrane.

RELATIONSHIP BETWEEN OSMOSIS AND DIFFUSION

Osmosis is a special kind of diffusion involving water molecules. In other words, osmosis is the diffusion of water from a dilute solution into a more concentrated solution through a partially permeable membrane. They are passive processes and do not require energy. They depend only on concentration gradient.

ASSIGNMENT

Place a central of potassium per meanganate in a beaker of water and leave it to stand. Also, place a few drops of liquid bromine in a gas jar cover it and leave it to stand. Observe the two and record your observation.