INKBIOLOGY FLASHCARDS

Membranes and transport across cells

Unit B04 · 28 cards · fronts and backs

Print double-sided, flipping on the long edge, and each answer lands behind its question. Cut along the card borders.

Definitions in mark-scheme wording, and the misconceptions that lose marks. These cards and each lesson's whole-lesson check run on the website with spaced-repetition scheduling, at inkphysics.co.uk/biology/flashcards.

DEFINITION

Define: Phospholipid.

THE FLUID MOSAIC MODEL: WHAT A MEMBRANE IS MADE OF

DEFINITION

Define: Hydrophilic.

THE FLUID MOSAIC MODEL: WHAT A MEMBRANE IS MADE OF

DEFINITION

Define: Hydrophobic.

THE FLUID MOSAIC MODEL: WHAT A MEMBRANE IS MADE OF

DEFINITION

Define: Bilayer.

THE FLUID MOSAIC MODEL: WHAT A MEMBRANE IS MADE OF

DEFINITION

Define: Intrinsic protein.

THE FLUID MOSAIC MODEL: WHAT A MEMBRANE IS MADE OF

DEFINITION

Define: Extrinsic protein.

THE FLUID MOSAIC MODEL: WHAT A MEMBRANE IS MADE OF

DEFINITION

Define: Glycoprotein.

THE FLUID MOSAIC MODEL: WHAT A MEMBRANE IS MADE OF

DEFINITION

Define: Glycolipid.

THE FLUID MOSAIC MODEL: WHAT A MEMBRANE IS MADE OF

DEFINITION

Attracted to water; polar or charged.

THE FLUID MOSAIC MODEL: WHAT A MEMBRANE IS MADE OF

DEFINITION

A lipid in which one of the three fatty acids of a triglyceride is replaced by a phosphate group, giving a hydrophilic head and two hydrophobic tails.

THE FLUID MOSAIC MODEL: WHAT A MEMBRANE IS MADE OF

DEFINITION

Two layers of phospholipid with the hydrophobic tails facing inwards and the hydrophilic heads facing the watery solutions on each side.

THE FLUID MOSAIC MODEL: WHAT A MEMBRANE IS MADE OF

DEFINITION

Repelled by water; non-polar.

THE FLUID MOSAIC MODEL: WHAT A MEMBRANE IS MADE OF

DEFINITION

A protein on one surface of the bilayer that does not enter the hydrophobic core.

THE FLUID MOSAIC MODEL: WHAT A MEMBRANE IS MADE OF

DEFINITION

A protein embedded within the bilayer, often spanning it completely.

THE FLUID MOSAIC MODEL: WHAT A MEMBRANE IS MADE OF

DEFINITION

A phospholipid with a carbohydrate chain attached, acting in cell recognition and adhesion.

THE FLUID MOSAIC MODEL: WHAT A MEMBRANE IS MADE OF

DEFINITION

A membrane protein with a carbohydrate chain attached, acting in cell recognition, adhesion or as a receptor.

THE FLUID MOSAIC MODEL: WHAT A MEMBRANE IS MADE OF

DEFINITION

Define: Permeability.

THE FLUID MOSAIC MODEL: WHAT A MEMBRANE IS MADE OF

DEFINITION

Define: Denaturation.

THE FLUID MOSAIC MODEL: WHAT A MEMBRANE IS MADE OF

SPOT THE ERROR

Say what is wrong with this claim:

Something must be holding the bilayer together: bonds between the phospholipids, or a frame of protein underneath.

THE FLUID MOSAIC MODEL: WHAT A MEMBRANE IS MADE OF

DEFINITION

Define: Diffusion.

DIFFUSION AND OSMOSIS: MOVEMENT THAT COSTS NOTHING

DEFINITION

Define: Simple diffusion.

DIFFUSION AND OSMOSIS: MOVEMENT THAT COSTS NOTHING

DEFINITION

Define: Passive.

DIFFUSION AND OSMOSIS: MOVEMENT THAT COSTS NOTHING

DEFINITION

Define: Water potential (ψ).

DIFFUSION AND OSMOSIS: MOVEMENT THAT COSTS NOTHING

DEFINITION

Define: Osmosis.

DIFFUSION AND OSMOSIS: MOVEMENT THAT COSTS NOTHING

DEFINITION

The loss of a protein's tertiary structure when hydrogen and ionic bonds break, so its shape and therefore its function is lost.

THE FLUID MOSAIC MODEL: WHAT A MEMBRANE IS MADE OF

DEFINITION

How readily a membrane allows a substance to cross it.

THE FLUID MOSAIC MODEL: WHAT A MEMBRANE IS MADE OF

DEFINITION

The net movement of particles from a region of higher concentration to a region of lower concentration, down a concentration gradient, as a result of their random motion.

DIFFUSION AND OSMOSIS: MOVEMENT THAT COSTS NOTHING

SPOT THE ERROR

No covalent bond joins one phospholipid to the next, and there is no frame underneath. Each molecule slides past its neighbours millions of times a second. The sheet holds because the hydrophobic tails have nowhere better to be than beside each other.

THE FLUID MOSAIC MODEL: WHAT A MEMBRANE IS MADE OF

DEFINITION

Requiring no energy from ATP; driven by the kinetic energy of the particles themselves.

DIFFUSION AND OSMOSIS: MOVEMENT THAT COSTS NOTHING

DEFINITION

Diffusion directly through the phospholipid bilayer, available to small non-polar molecules such as oxygen and carbon dioxide.

DIFFUSION AND OSMOSIS: MOVEMENT THAT COSTS NOTHING

DEFINITION

The net movement of water molecules from a solution of higher water potential to a solution of lower water potential, through a partially permeable membrane.

DIFFUSION AND OSMOSIS: MOVEMENT THAT COSTS NOTHING

DEFINITION

The tendency of water molecules to move out of a solution, measured in kPa. Pure water at atmospheric pressure has a water potential of 0 kPa; adding any solute makes it negative.

DIFFUSION AND OSMOSIS: MOVEMENT THAT COSTS NOTHING

DEFINITION

Define: Turgid.

DIFFUSION AND OSMOSIS: MOVEMENT THAT COSTS NOTHING

DEFINITION

Define: Incipient plasmolysis.

DIFFUSION AND OSMOSIS: MOVEMENT THAT COSTS NOTHING

DEFINITION

Define: Plasmolysis.

DIFFUSION AND OSMOSIS: MOVEMENT THAT COSTS NOTHING

DEFINITION

Define: Haemolysis.

DIFFUSION AND OSMOSIS: MOVEMENT THAT COSTS NOTHING

DEFINITION

Define: Crenation.

DIFFUSION AND OSMOSIS: MOVEMENT THAT COSTS NOTHING

SPOT THE ERROR

Say what is wrong with this claim:

Osmosis is the movement of water from a region of high concentration to a region of low concentration.

DIFFUSION AND OSMOSIS: MOVEMENT THAT COSTS NOTHING

DEFINITION

Define: Active transport.

ACTIVE TRANSPORT, CO-TRANSPORT AND MOVING THINGS IN BULK

DEFINITION

Define: Carrier protein.

ACTIVE TRANSPORT, CO-TRANSPORT AND MOVING THINGS IN BULK

DEFINITION

The point at which the pressure potential of a plant cell has just fallen to zero, so its water potential equals its solute potential.

DIFFUSION AND OSMOSIS: MOVEMENT THAT COSTS NOTHING

DEFINITION

A plant cell whose contents press against the wall, giving a positive pressure potential.

DIFFUSION AND OSMOSIS: MOVEMENT THAT COSTS NOTHING

DEFINITION

The bursting of a red blood cell when water enters it by osmosis.

DIFFUSION AND OSMOSIS: MOVEMENT THAT COSTS NOTHING

DEFINITION

The pulling away of the cell surface membrane from the cell wall as water leaves a plant cell.

DIFFUSION AND OSMOSIS: MOVEMENT THAT COSTS NOTHING

SPOT THE ERROR

Concentration of what? Of solute, and then the sentence runs backwards. Osmosis is the movement of water from a higher water potential to a lower one through a partially permeable membrane, and water potential exists because concentration of water does not survive a question about pressure.

DIFFUSION AND OSMOSIS: MOVEMENT THAT COSTS NOTHING

DEFINITION

The shrinking and puckering of an animal cell when water leaves it by osmosis.

DIFFUSION AND OSMOSIS: MOVEMENT THAT COSTS NOTHING

DEFINITION

An intrinsic protein with a binding site specific to one substance, which changes shape to move it across the membrane.

ACTIVE TRANSPORT, CO-TRANSPORT AND MOVING THINGS IN BULK

DEFINITION

The movement of a substance across a membrane against its concentration gradient, using a carrier protein and energy from the hydrolysis of ATP.

ACTIVE TRANSPORT, CO-TRANSPORT AND MOVING THINGS IN BULK

DEFINITION

Define: Co-transport.

DEFINITION

Define: Endocytosis.

DEFINITION

Define: Exocytosis.

SPOT THE ERROR

Say what is wrong with this claim:

A carrier protein is involved, so this must need energy.

DEFINITION

The bulk transport of material into a cell by invagination of the cell surface membrane to form a vesicle; requires ATP.

ACTIVE TRANSPORT, CO-TRANSPORT AND MOVING THINGS IN BULK

DEFINITION

The transport of two substances across a membrane by the same carrier protein at the same time, in which one moves down its concentration gradient and provides the means for the other to move against its own.

ACTIVE TRANSPORT, CO-TRANSPORT AND MOVING THINGS IN BULK

SPOT THE ERROR

The carrier protein is not what costs ATP: facilitated diffusion uses carriers and needs none. What costs energy is the direction, moving a substance from where there is less of it to where there is more.

ACTIVE TRANSPORT, CO-TRANSPORT AND MOVING THINGS IN BULK

DEFINITION

The bulk transport of material out of a cell by fusion of a vesicle with the cell surface membrane; requires ATP.

ACTIVE TRANSPORT, CO-TRANSPORT AND MOVING THINGS IN BULK