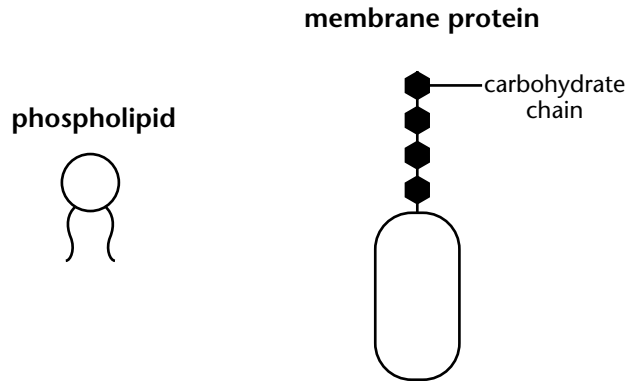


## Cell Membranes

The cell membrane controls what enters and leaves the cell. Most cell membranes are made up of a phospholipid bilayer. This bilayer usually contains membrane proteins embedded in it.

*Draw a diagram of a portion of a cell membrane. Label the cytoplasm and the area outside the cell. A sample phospholipid and membrane protein have been diagrammed for you.*



*Answer the question.*

1. What do the carbohydrate chains on some membrane proteins do?

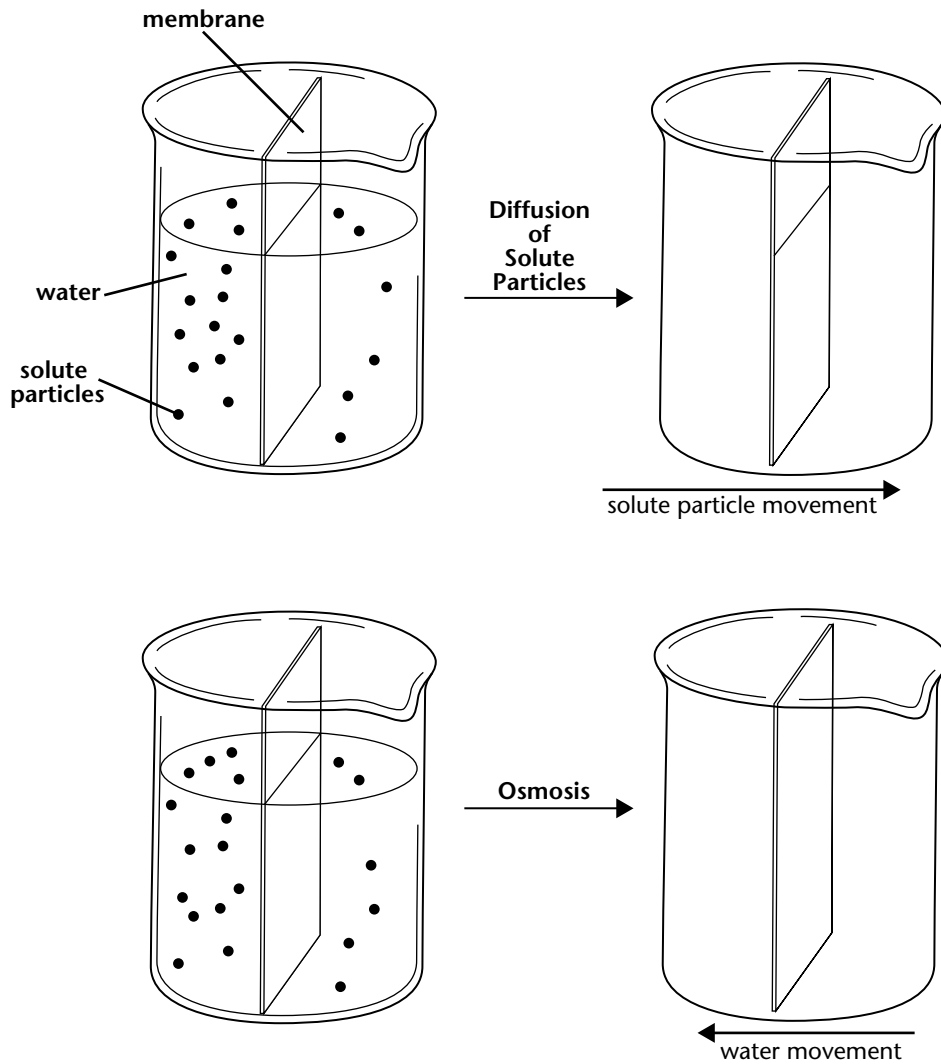
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### Diffusion and Osmosis

Diffusion is the movement of particles from an area of high concentration to an area of low concentration. Osmosis is the diffusion of water through a selectively permeable membrane.

Look at the beakers on the left. In the beakers on the right, draw in any changes in water level or number of solute particles on each side of the membrane that occur as a result of the described process.



Use the diagrams to answer the question.

1. Look at the top left beaker. What would happen if the membrane did not allow water or solute particles to pass through it?

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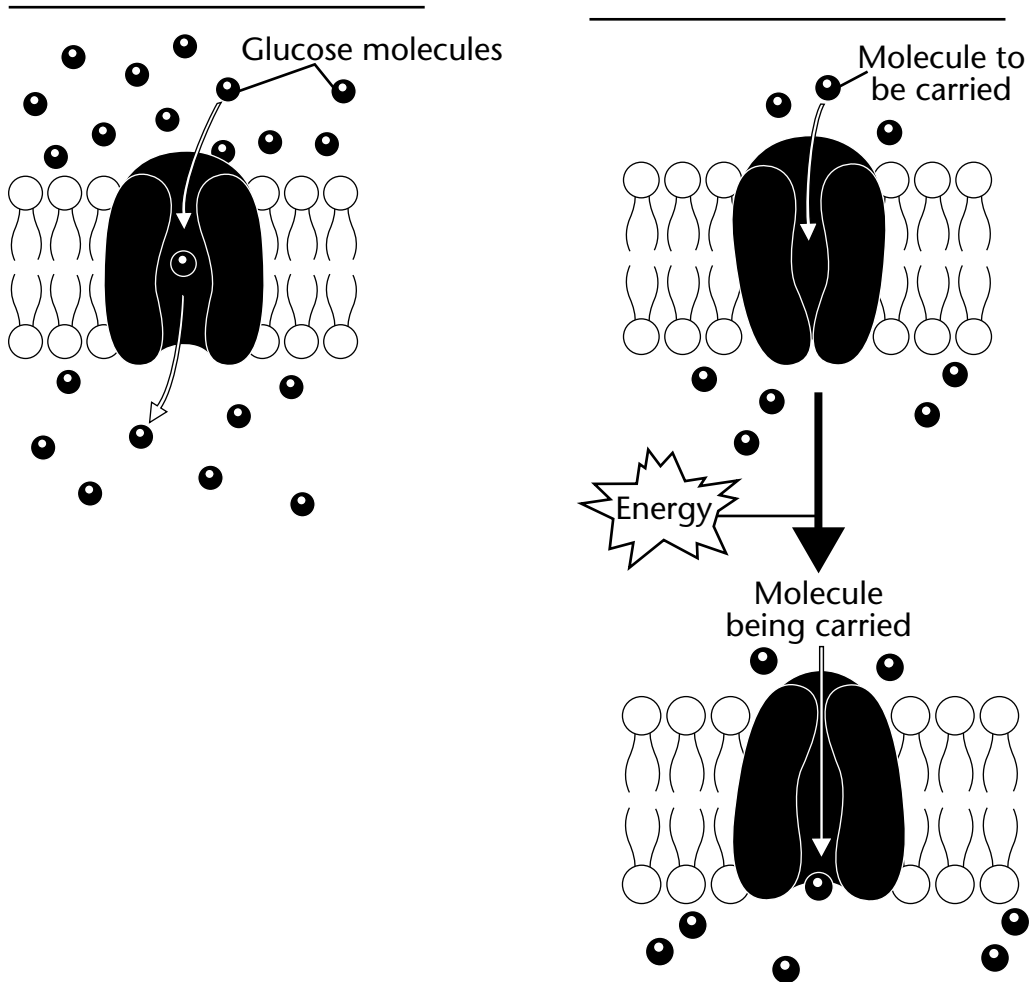


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## Facilitated Diffusion and Active Transport

Facilitated diffusion occurs when a substance diffuses across the cell membrane through a protein channel. Active transport occurs when the cell uses energy to carry a substance across the cell membrane.

Look at the diagrams. Label each as either facilitated diffusion or active transport.



Use the diagram to answer the questions.

1. Which process can move molecules from a lower concentration solution on one side of the membrane to a higher concentration solution on the other side?

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2. Which process does not require energy?

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