

TEA BAG DIFFUSION

Tea bags are used to demonstrate the importance of heat in the movement of molecules through a cell membrane.

MATERIALS:

Tea bags

Paper towels

Water

Container to water

Measuring tape

PROCEDURE:

1. Heat 2 cups of water to a boil.
2. Fold a paper towel into fourths.
3. Place the tea bag into the hot water for 15 seconds. Remove tea bag from the water and place it onto the center of a paper towel for 15 sec.
4. Remove tea bag and record the diameter of the water stain remaining on the paper towel.
5. Use room temperature water and ice cold water for experimentation.

EXPLANATION:

Diffusion is defined as the movement of a substance from an area of higher concentration to an area of lower concentration. Temperature affects the rate of diffusion through a cell membrane the same way it does through a tea bag. The size of the water stain should be noticeably greater with the warmer water. The addition of heat to the tea bag causes its molecules to move much faster than at room temperature. This energy is more readily released in a shorter period of time than a tea bag filled with room temperature or cold water.