

Gummy bear diffusion

Students will investigate the movement of water into and out of a polymer.

Materials:

- 2 Drinking glasses
- Permanent marker
- 2 Gummy Bears (different colors)
- Distilled water
- Saturated salt solution (6 oz per cup)
- Water



Activity:

1. On the side of each cup, write your name and class period using a permanent marker.
2. Label one cup "TAP WATER" and the other "DISTILLED WATER".
3. Place the bears in the cups and cover one with distilled and one with tap water.
4. Have the students complete a hypothesis:

If someone places Gummy Bears in tap water, then the size of the bears will (increase, decrease, remain the same). Circle your answer.

5. Place the cups on the counter away from direct sunlight. Let them sit overnight.
6. On the next lab day, gently pour the water out and gently place the bear on the table.
7. Place the bears back into their correct cups. Cover the bears with saturated salt solution. Let them sit overnight.
8. Have the students complete a hypothesis:

If someone places Gummy Bears in salt water, then the size of the bears will (increase, decrease, remain the same). Circle your answer.

Explanation:

Gummy Bears are made of gelatin and sugar. Gelatin is a polymer that forms large three-dimensional matrices which give structural support to jellies and jams, and lots of other things that you use every day.

The bears will grow to several times their original size when placed in distilled water for twenty-four hours. They will also shrink back to their original size if they are placed in saturated salt solution. This is because the high concentration of distilled water will diffuse through the gelatin of the bears since there is a low concentration of water naturally in them. When these water-soaked bears are placed into a container of saturated salt water solution, there is a higher concentration of water inside the bear than in the surrounding water. Therefore, the high concentration of water inside the bear will diffuse outward!