Activity

Orbeez Absorption Showdown

Activity Overview:

To compare and contrast the absorption and properties of Orbeez when exposed to water versus contact lens solution versus saltwater.

What you need:

- Orbeez water beads
- 3 clear containers or bowls
- Measuring cups
- Water
- Salt
- Contact lens solution
- Spoons or mixing tools
- Towels or protective surfaces

Instructions:

Water Experiment:
- Fill one container with two cups of water using a measuring cup.
- Add 1/4 Cup of dehydrated Orbeez to the water and observe their absorption over time.
- Stir the mixture occasionally to ensure even absorption.

Contact Lens Solution Experiment:
- Fill the second container with one cup of contact lens solution up and one cup of water.
- Add a comparable amount of dehydrated Orbeez to the contact lens solution and observe their absorption over time.
- Stir the mixture occasionally.

Salt Water Experiment:
- Fill the second container with two cups of water & dissolve 1/4 cup of salt
- Add a comparable amount of dehydrated Orbeez to the contact lens solution and observe their absorption over time.
- Stir the mixture occasionally.

Comparison Observations:
- Record and compare the time it takes for the Orbeez to reach maximum absorption in each container.
- Observe the texture, consistency, and appearance of the Orbeez in water versus contact lens solution.

Texture Exploration:
- Touch and examine the fully expanded Orbeez in each container. Note any differences in texture or size.

Explanation (Comparative Analysis):
- Water Absorption: In the water experiment, Orbeez absorbs water and expands. The process involves simple water absorption without any additional chemicals.
- Contact Lens Solution Absorption: In the contact lens solution experiment, Orbeez not only absorbs the liquid but also undergoes a chemical reaction with the boric acid in the solution. This reaction leads to cross-linking of polymer chains, resulting in a unique texture and enhanced absorption.
- Saltwater Absorption: In the saltwater experiment, Orbeez absorb water and undergo a process called osmosis. The presence of salt in the water affects the osmotic balance, influencing the absorption characteristics of the Orbeez.

Comparison:
- Compare the time, size, and texture of Orbeez in water versus contact lens solution.
- Note any differences in how the two substances affect the properties of the Orbeez.
- This experiment allows for a hands-on exploration of how different liquids impact the absorption and characteristics of Orbeez, providing insights into basic water absorption versus a more complex chemical reaction in the presence of contact lens solution.

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