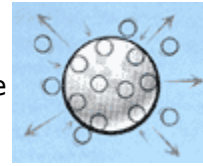


What's Going On?

Marshmallows are mostly sugar and water wrapped around a bunch of air bubbles. When you cook marshmallows in your microwave oven, several things happen at once. The microwave makes the water molecules vibrate very quickly—which makes the water heat up. The hot water warms the sugar, which softens a little. The hot water also warms the air bubbles.



When you warm air in a closed container, the gas molecules move around faster and push harder against the walls of the container. As the air in the bubbles warms up, the air molecules bounce around faster and faster and push harder against the bubble walls. Since the sugar walls are warm and soft, the bubbles expand, and the marshmallow puffs up. If it puffs up too much, some air bubbles burst, and the marshmallow deflates like a popped balloon.

When you take the marshmallow out of the microwave and it cools off, the bubbles shrink and the sugar hardens again. When the microwave marshmallow cools, it's dry and crunchy. We think that's because some of the water in the marshmallow evaporates when the marshmallow is hot.