

Gummy Diffusion

Science of Cocktails version

When you drop a gummy bear in alcohol, it increases in size after a day or two. How much alcohol can a gummy bear drink?

Things You Will Need:

- 9-10 gummy bears
- small containers
- vodka
- ruler
- measuring cup
- paper

To Do and Notice

- 1) Measure the height and width of the gummy bears and record the measurements on a piece of paper.
- 2) Drop the measured gummy bears into the cup and fill with vodka so that it reaches approximately 2 inches above the bears.
- 3) Wait 2-3 days.
- 4) Remove bears from vodka and measure height and width of the bears. Compare the before and after measurements.
- 5) Fill the measuring cup with water. Drop a dry bear in the water and note the change in water level – this is the bear's volume.
- 6) Remove the bear and refill the container to the same level as before. Now drop a "drunk" bear into the water and record the change in water level. How much did the water level increase with the drunk bear versus the dry bear?
- 7) Feel free to eat the drunk bear. Does it taste more like a gummy bear or more like vodka?

What's Going On?

As you increase the size of an object, volume grows much faster than length or surface area. In most land animals, volume and weight are roughly proportional, so an animal twice the size of another weighs roughly eight times more.