GUMMY BEAR OSMOSIS

The materials you will need are:

- 1 or 2 gummy bears
- Ruler
- Small container of water
- salt

1. Use a ruler to measure the width and height of your gummy bear
2. Note the color of the gummy bear or take a picture of it
3. Place the gummy bear in water and leave it overnight.
4. Observe the gummy bear in the water. How has it changed?
5. Remove the gummy bear from the water and measure it. Is there a big difference?
6. Replace the water with clean water and dissolve some salt into it
7. Place the gummy bear into the salt water and leave for the rest of the day or overnight.
8. Repeat steps 4 and 5 above. Were you surprised?

Explanation: Gummy bears are made from sugar, water, and gelatin. The amount of water in a gummy bear is very small compared to the amount of sugar. In water, there are lots of water molecules and no sugar, so when we place the gummy bear in water, the water molecules move into the gummy bear through tiny holes in the gelatin to even things out. Water moving into the gummy bear makes it expand and take up more space – it gets bigger.

The gelatin has tiny holes that allow water molecules to pass through, but bigger molecules like sugar can't get out. This is called a semi-permeable or selectively permeable membrane, and the water moves through it in a process called osmosis.

Osmosis is all about concentration – how many water molecules there are compared to other molecules like sugar or salt. When we started, there were very few water molecules compared to the number of sugar molecules – the concentration of water was low. Water moved into the gummy bear and increased the number of water molecules, increasing the concentration. Adding salt to the water lowered the concentration of water molecules outside the gummy bear by increasing the number of salt molecules, so water moved back out of the gummy bear to even things out.