# Gummy Bear Osmosis

**Information about Gummy Bears and Osmosis**
Most sugary candy dissolves in water. Gummy bears are an exception**.** This is because they're made with gelatin**.** When gummy bears are made, gelatin and water are heated and mixed. As the mixture cools, *water leaves the candy* and the candy hardens and becomes gummy/chewy. When you put a gummy bear in water, it is a solute**,** and the water molecules are a solvent. Since the gummy bear does not contain water, water now moves into the bear by the process of osmosis**.**

Osmosis is the process whereby water moves from a greater concentration of water to a lower concentration of water (from a container of water to the candy bear). Gummy bears have a semi-permeable membrane – their surface has holes in it and these holes allow small, non-charged particles like water in, but don't let larger particles (like sugar) out.

**Materials You Need for the Gummy Bear Osmosis Experiment**
Suggested liquids to try are tap water, distilled water, salt water, sugar water, baking soda water, vinegar, soda, oil or other liquids that you have on hand.

- Gummy Bears
- A glass container for each liquid/solution
- One tablespoon of salt
- A tablespoon of sugar
- One tablespoon of baking soda
- Various liquids
- Measuring cup
- Ruler
- Calculator
- Kitchen scale
- Paper towels
- Clock or timer
- Gummy Bear Scientific Data Table

## Gummy Bear Scientific Data Table

| Liquid | Initial Weight | Weight After 12 hours | Weight After 24 hours | Initial Length | Length After 12 hours | Length After 24 hours |
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**DO NOT EAT THE GUMMY BEARS YOU USE FOR THE EXPERIMENTS**

**Hypothesis**

A hypothesis is an educated guess, idea or explanation of what you think might happen that you then test through study and experimentation. What do you think will happen to the gummy bears in each of the different liquids you chose? Will they get bigger? Will they shrink? Will they dissolve? Write down your hypothesis below:

**Instructions for the Gummy Bear Osmosis Experiment**

1. Label each glass with its contents: water, salt water, sugar water, etc.
2. Fill the glass labeled water with one-half cup plain water.
3. Fill the glass labeled salt water with one-half cup water. Thoroughly mix in one tablespoon of salt (make sure all the salt is dissolved).
4. Fill the glass labeled sugar water with one-half cup water. Thoroughly mix in one tablespoon of sugar (again, make sure all the sugar is dissolved).
5. Fill the glass labeled baking soda water with one-half cup water and thoroughly mix in one tablespoon of baking soda.
6. Fill the other containers with one-half cup of their respective liquids.
7. Select a gummy bear for each glass.
8. Measure the length, height and width of each gummy bear, weigh each gummy bear and write this info on the Gummy Bear Scientific Data Table. If your scale isn't able to weigh just one gummy bear you can *still* do this experiment. Visually, your kids will be able to see the difference in the bears pre- and post-experiment.
9. Check – and write down the time.
10. Now, add a gummy bear to each glass.
11. Wait 12 hours.
12. Remove the gummy bears from their respective glasses.
13. Measure and if you can, weigh each bear. Use the Gummy Bear Scientific Data Table to write down your results.
14. Put the gummy bears back in their solutions.
15. Check back after 24 hours and again measure and weigh each gummy bear and record the results.

**DO NOT EAT THE GUMMY BEARS YOU USE FOR THE EXPERIMENTS**

**Conclusion**

After conducting your experiment, write down your results and explain what happened. Was your hypothesis correct? What did you learn from your experiment?