

# CANDY EXPERIMENTS 2



## CAN SUGAR WATER BEND LIGHT?



How can you bend a straw without touching it?

### What you need:

Clear glass of water

Sugar

Straw, pen, licorice, or something else tall and straight

### What to do:

- 1 Add a few spoonfuls of sugar to the glass of water. Wait a few minutes. Do not stir!
- 2 Put the straw in the glass. What does the bottom end of the straw look like?

### What's happening:

When you add sugar to water, you change the way that the water bends light (the index of refraction). The more sugar you add, the bigger the change. If the sugar water remains at the bottom of the glass, the straw appears to bend where it enters the denser sugar solution.

Remember that the sugar water isn't the only thing making the straw look bent. Your round glass also bends light. Try turning the glass and looking at it from different angles to see if you can tell whether it's the sugar water or the glass itself that changes the way the straw looks.

At home, bending light with sugar water is just a fun trick. But in many businesses, measuring the index of refraction is a useful tool. Sellers of soda, wine, or honey often measure refractive index to calculate how much sugar a substance contains, which they use to predict how sweet it will be.



## MARSHMALLOW BOTTLE LAUNCHER



How far can you shoot a marshmallow?

### What you need:

Large marshmallow

Clean, empty plastic drink bottle, such as a 2-liter soda bottle

### What to do:

- 1 Push the marshmallow into the opening of the bottle so that it's sticking out. You might need to use your fingers to gently shove the edges of the marshmallow all the way into the opening.
- 2 Squeeze or stomp on the bottle. Does the marshmallow pop out?

### What's happening:

When you squeeze the soda bottle, you compress the air trapped inside. The air pushes against the marshmallow, shooting it out.

