

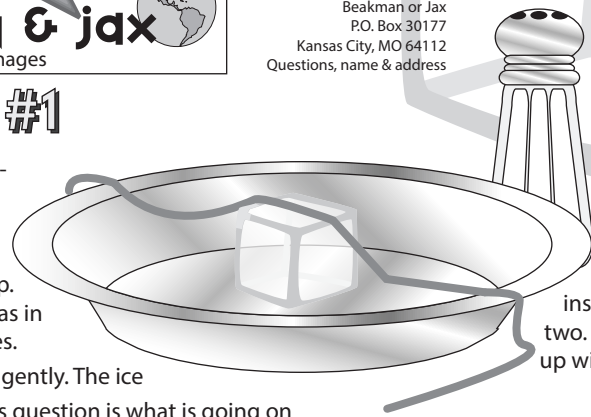
Beakman or Jax  
P.O. Box 30177  
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Questions, name & address

## Experiment #1

WHAT YOU NEED: Ice cube - plate - string - salt - clock

WHAT TO DO:  
Put the ice cube on the plate and sprinkle a few shakes of salt on top. Lay the string across the ice cube as in the drawing and wait for 2 minutes.

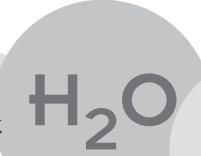
Lift the the two ends of the string gently. The ice cube should lift off the plate. Kim's question is what is going on



Dear Kim,  
Ice happens when water molecules are arranged into structures. Salt snips these patterns apart. A molecule (MOL-ah-kyul) of water is the smallest chunk of water you can have, and have it still be water. It's called H<sub>2</sub>O because water is 2 hydrogen atoms bonded to 1 oxygen atom. With less, heat H<sub>2</sub>O's hook onto each other and we get ice. Salt snips the parts that hook up the H<sub>2</sub>O's, but it does not make things any warmer.

*Beakman*  
Beakman Place

with that? What's happening?  
WHAT IS GOING ON:  
Well, first of all let me put in a plug here for doing this at school. Everyone can do this using paper cups instead of plates, and you can pass around a salt shaker or two. Busy teachers usually love it when someone else comes up with something to do in class.



## What Is Going On:

OK, back to stuff about the thing. Water molecules hook up into this shape. It's a crystal of ice. The hydrogen atoms kind of glue it together.

If the H<sub>2</sub>O's weren't attached to each other, it would be liquid water and not ice.

One way to make liquid happen is to add energy - heat. Another way is to create a chemical reaction with salt.

Salt behaves like these scissors, snipping apart the hydrogen bonds. The water molecules separate, and that makes them a liquid again. But they are still very cold. Remember, you didn't add heat.

Liquid water soaks into the string, but most of the dissolved salt does not soak in with it. The water in the string freezes to the ice cube because it's still below 32°F, the temperature at which H<sub>2</sub>O's hook up into ice.

