

Beakman or Jax,  
P.O. Box 30177  
Kansas City, MO  
64112

Dear Luke,  
That sounds like a shivering-beside-the-swimming-pool, where's-the-towel, teeth-chattering question. It sends a chill up my spine just to think about it. (You might get one in a couple of seconds.)

The water on your skin needs heat energy to dry. That energy is going to come from you, from your body heat.

You feel colder because heat moves from you to the water on your skin, which makes it possible for the water to turn into a gas and float away. When it does float away, it takes that heat along for the ride.

## experiment #1 turning a liquid into gases

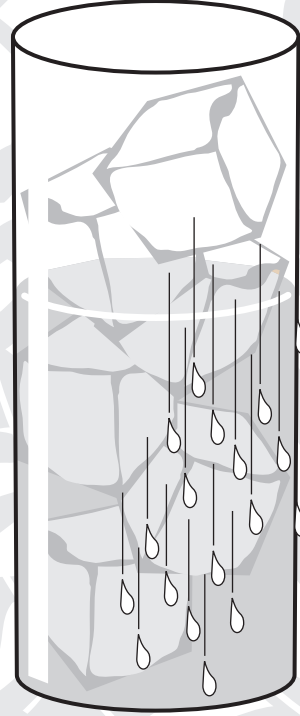
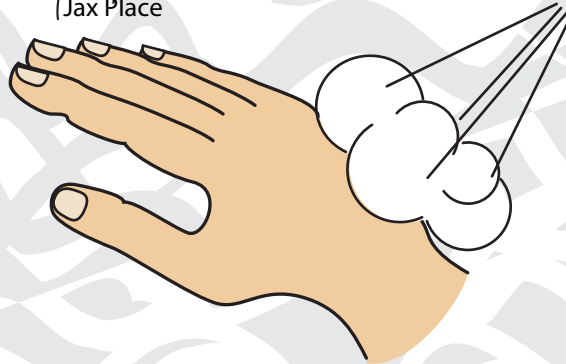
WHAT YOU NEED: A grown-up – rubbing alcohol – tissue

WHAT TO DO: Rubbing alcohol can be very dangerous stuff, so get a grown-up to help. Grown-ups like to think they are teaching you something. They enjoy that and will lend a hand. Ask for help working with the alcohol.

Rub an alcohol-soaked tissue onto the back of your hand.

Gently blow. Watch the wet spots as you blow, and feel the temperature of your hand.

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## experiment #2 turning a gas into liquid

WHAT YOU NEED:

Warm tea – 2 glasses – ice

WHAT TO DO:

Do this outside on a muggy day. Pour warm tea into 1 of the glasses until it's  $\frac{1}{3}$  full. Feel the outside of the glass. Next, fill the glass with enough ice to make iced tea. When it's really cold, look at the outside of the glass.

Use the second glass to make a nice glass of iced tea for a friend.

SO WHAT:

This is the opposite of Experiment #1. The warm glass was dry. When you added ice, the cold glass absorbed heat from the air. This chilled the air next to the glass, and cold air cannot hold very much water vapor, a gas. The water vapor had to turn back into a liquid, which formed all those wet drips on the outside of the glass.

SO WHAT:

Your hand felt like ice, and evaporation is the reason why. Evaporation is when a liquid turns into a gas. That's what happens when something dries. Cold alcohol will not evaporate (ee-VAP-or-ate). The heat it needed came from your hand. As the alcohol drifted away, it took the heat from your hand with it. Water does the same thing, only slower. Both make you cold.

Hospitals used to use alcohol to cool down people with fevers. It was rubbed on patients' skin, which is why it's called rubbing alcohol.