

# Cool it and Pool it! 1 OF 2

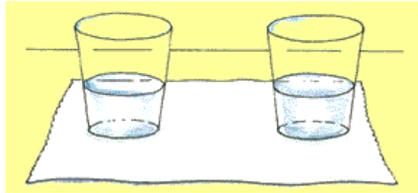
The air around us is made up of different types of gases. One of the gases in air is called water vapor. In this activity, you'll see if making water vapor colder can change its state from a gas to a liquid.

Materials:

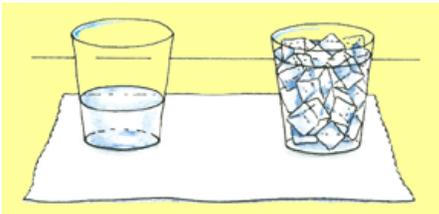
- Ice
- 2 clear plastic cups
- Water
- Paper towels

Procedures:

1. Place a paper towel on your work surface and put the cups on the paper towel. Pour cup of water into each cup.



2. Put lots of ice in one cup. Do not add any ice to the other cup.



3. Watch the cups for two or three minutes. Do you notice anything forming on the outside of either cup? What does it look like?



4. Touch the outside of the cups with your fingers. Is there any difference between the way they feel? If either cup feels wet, where do you think the liquid came from?



Think about this ...

If you are wondering whether the liquid came from the air around the cup or from somewhere else, you can do a quick experiment to find out. Place 1/2 cup of water into each of two clear plastic cups. Put lots of ice in each cup. Place one cup in a zip-closing plastic storage bag. Squeeze as much air out of the bag as you can and then seal it. Do not put the other cup in a bag. Watch the two cups for a few minutes. Is there any liquid on the outside of either cup? What

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does this tell you about where the liquid might be coming from?



Where's the Chemistry?

Although the outside of both cups were dry to begin with, the outside of the cup with ice in it should have gotten wet. The reason it gets wet has to do with two things. First, air has water in it. The water in air is called water vapor. Second, as water vapor cools, it changes its state to liquid water. The air near the cup of ice water is cooler than the air near the other cup of water without ice. The water vapor in the cooler air changes its state to liquid water which ends up sticking to the outside of the cup.