

## Winter/Christmas – Out in the Cold

“Put on your hat. It’s cold outside!” “Don’t sit in the snow!” Why do parents say these things?

### Materials:

- Three small same sized containers about the size of a soup bowl
- A pitcher of hot tap water
- Cookie sheet
- Thermometer
- Styrofoam sheet at least 2.5 cm thick
- Medicine Hat
- Newspapers



**Procedure:** (Remember to have your parent’s permission and have them watch and help you.)

- Put equal amounts of very hot tap water in both containers.
- Put the lid on one container. Leave them for about 10-15 minutes.
- Remove the lid and measure the temperature of each or feel the water with your fingers.
- Empty the containers and get some more hot tap water.
- Go outside and place the styrofoam on the side walk that you helped your parents shovel.
- Put one container on the styrofoam, one on the newspapers (use enough papers so that it’s about the same thickness as the styrofoam) and one on the sidewalk.
- Pour an equal amount of water into each container.
- Leave them for about 5 minutes and take the temperature of each.

### What's Happening:

In the lid experiment which one was warmer? Wearing a hat is like putting a lid on. It holds in heat. So, it's very important when you're going out in winter weather to wear a hat.

In the outside experiment which container was the warmest? The container on the styrofoam was the warmest. Styrofoam is called a good insulator because heat does not easily move through it.

### Extension:

Since you're not likely to have a piece of styrofoam with you when you are outside away from home try using different things that you could use to insulate you from the cold ground? How about cardboard or newspapers, leaves, evergreen branches or even sitting on a log? All of these will help keep you a little warmer. It might even save your life if you become lost in the woods in winter.

You can also build a snow shelter to keep you warm. They are actually a lot of fun to make and play in. See [http://www.ehow.com/how\\_4001\\_build-snow-shelter.html](http://www.ehow.com/how_4001_build-snow-shelter.html) for instructions.

This activity is based on our Winter/Christmas kit. The source for this lab was: <http://dnr.wi.gov/org/caer/ce/eeek/cool/ameliaexperiment.htm>. Our teaching kits (described on our website) are loaned out FREE to provide classroom teachers and parents of home schooled children an opportunity to explore Science in interesting ways. Please consider volunteering as a classroom guest speaker or allow your business as a field trip location.

Lorne Cooper, Regional Executive Director

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