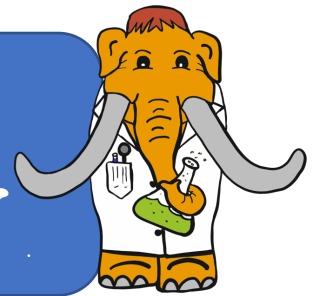


# Science Saturday @ Home

## Making Your Own Thermometer



### Gathering Supplies:

Clear Glass Bottle with Narrow Mouth  
Water  
Food Coloring  
Clear Straw  
Modeling Clay

Compare the temperature in different rooms in your house or out in your yard with your own thermometer!

### How To Steps:

1. Fill your bottle half way with water and add a few drops of food coloring.
2. Take a ball of modeling clay about the size of a golf ball and roll it into a tube shape that can fit around the straw. Carefully warp the clay around the straw, about half way down the straw.
3. Put the straw into the bottle. Make sure that the bottom of the straw is NOT touching the bottom of the glass.
4. Press the clay around the mouth of the bottle and the straw. Make sure you make an air tight seal.
5. Optional step: If you have a dropper or pipette you can add more colored water down the straw, so that the water level in the straw is higher than the bottle. This allows for seeing temperatures colder than the room you are currently in.
6. Find a sunny windowsill or a warm bathroom and leave your bottle for a few minutes. How does the water level in the straw change? Can you get the level to change by just holding the bottom of the bottle between your hands for 5 minutes? Why do you think the water level in the straw goes up when the temperature increases?

# Exploring Temperatures with Max



## Did You Know?

Thermometers help to tell us what the temperature is. How hot it is outside or how cold your refrigerator is. Thermometers are made up of a long narrow tube with a reservoir at the bottom that holds a liquid. Marks along the side of the thermometer help to record what the temperature is.

When the temperature of the air around the thermometer gets warmer, it warms up the liquid. This is called heat transfer. When a liquid becomes warmer the molecules that make it up move more, causing the liquid to expand. This is called thermal expansion. Since the thermometer (or your bottle thermometer) is sealed and is air tight the liquid only has one place to expand into. This means that as the liquid expands it moves up the narrow tube, the higher the liquid in the tube, the higher the temperature. As the liquid cools the level in the tube goes back down.

