



TREEPEOPLE

# Homemade Thermometer

Learn more about what happens when water heats up or cools down. This homemade thermometer isn't actually measuring temperature, but showing temperature change. When water heats up, it expands and becomes less dense — rising up the straw. When it cools down, it contracts, becoming more dense — going down the straw.



## What you will need:

- Plastic water bottle with lid
- Nail
- Hammer
- Pencil
- Clear plastic straw
- Modeling clay
- Water with food coloring
- Marker
- Hot water/Ice cubes
- 2 Bowls

## Procedure:

- Carefully, bore a hole into the middle of the water bottle lid. You can do this using a nail and hammer to create a starter hole, and then pushing through a pencil, to make the hole large enough for the straw.
- Push the straw a few inches through the hole and seal it with molding clay to make sure it is airtight.
- Fill the water bottle with warm water all the way to the top.
- Add a few drops of food coloring.
- Place the straw/lid onto the bottle and seal tightly.
- Gently blow into the straw to increase the pressure. If everything is airtight, the colored water should push up into the straw once you stop blowing.
- Mark the water level on the straw with a marker.

## Observe and mark temperature change:

- Place your thermometer in a bowl.
- Pour hot water into the bowl surrounding your thermometer.
- Wait and watch what happens as the water inside your thermometer gets warmer.
- Mark the water level on the straw with a marker.
- Place your thermometer in another bowl filled with ice water.
- Wait and watch what happens as the water inside your thermometer gets colder.
- Mark the water level on the straw with a marker.

What happened? Why?

Feel free to take your thermometer outside and test it in different locations.

**We want to share your thermometer!**

*Post to your social media and tag us at treepeople.org #greenquarantine*

*This lesson is made possible through the generosity of Subaru of Sherman Oaks*