



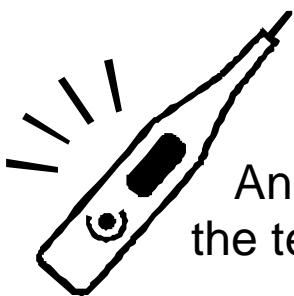
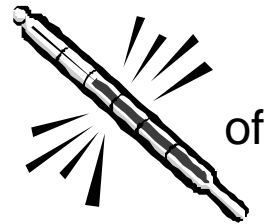
PIP 5th Grade Market Math Mania Thermometry at Home Activity

When we measure temperature, what are we measuring?

The “hotness” of something. Some things feel hot, some things feel cold. We use thermometers to measure the temperature and scales (Fahrenheit and Celsius) to give the temperature a number.

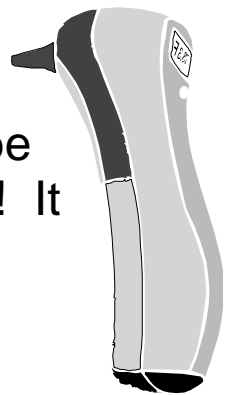
What do we use to measure temperature?

A “liquid in glass” thermometer is a common type of thermometer. It works because as a liquid gets hotter it takes up more space. The liquid in the thermometer moves up the tube as it gets warmer. To find the temperature, you read the number off of the scale on the side of the tube.



Another type of thermometer is electronic. These show the temperature on a small display.

Both of these thermometers take a couple of minutes to get the temperature. There is a thermometer in many houses that can get the temperature very quickly. It can be put into your ear and find your temperature in one second! It can “see” your temperature.



Acton **PIP** Parent Involvement Project

Increasing Parent Involvement in Mathematics, Science, and Technology

PIP 5th Grade Market Math Mania “At Home” Activity Temperature Change Experiment

When you use a liquid in a tube thermometer, it takes time for the liquid to stop moving in the tube. To see how long it takes, let's do an experiment. Make sure that you do this with a parent (for safety and they can help too).

You will need the following materials:

- One liquid in tube thermometer (with scale to 0° C)
- 2000 ml (2 quart) mixing bowl or cooking pot
- Tap water at room temperature
- Ice cubes
- A clock with a second hand

Half fill the mixing bowl with water. Place the thermometer in the bowl of water when the second hand is on the twelve. Every minute, when the second hand passes the twelve write down the temperature on the table provided.

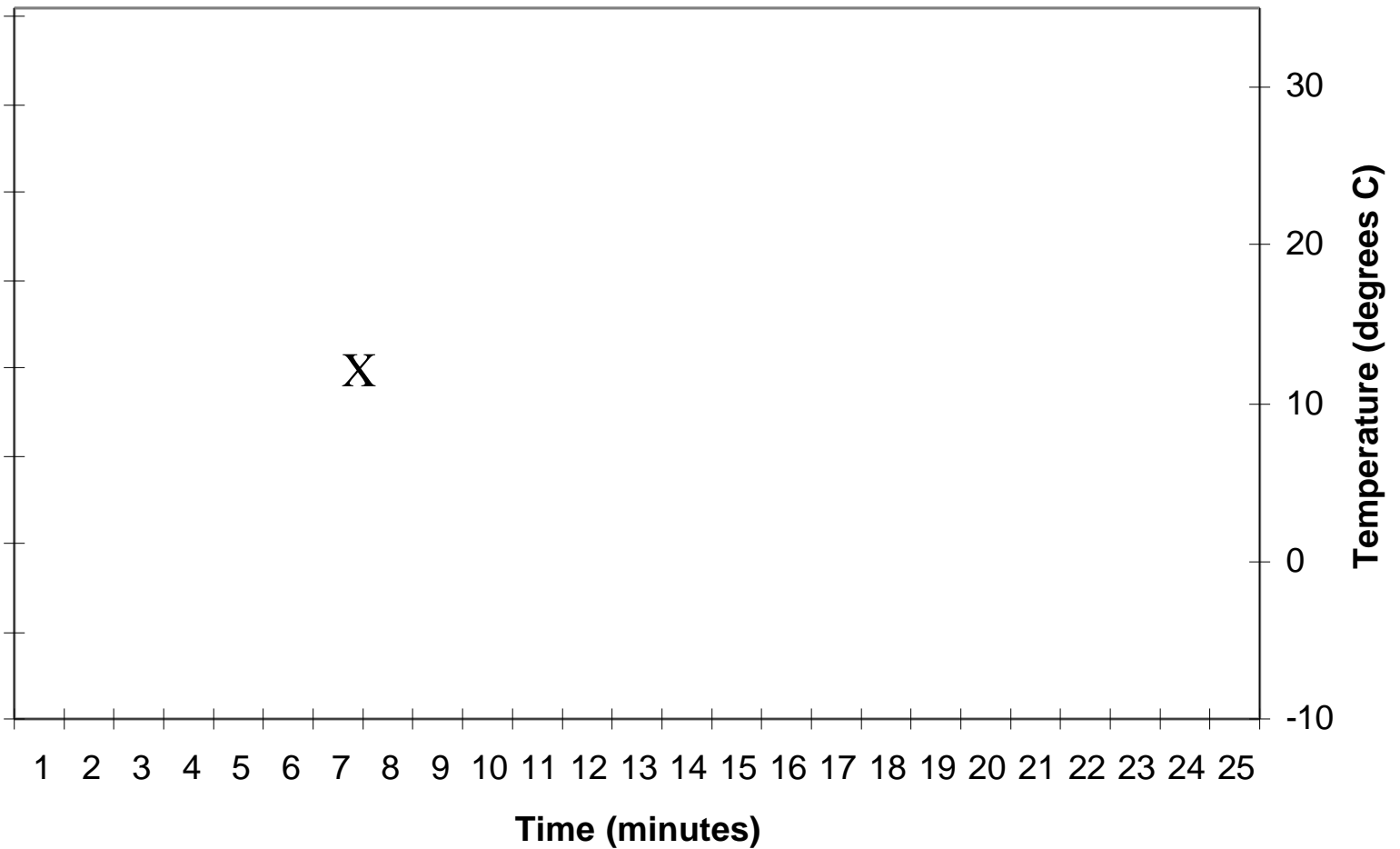
When the temperature has not changed for two minutes, fill the bowl with ice cubes. Continue taking the temperature every minute until the temperature does not change. Stir the ice-water mix to get the ice into the water.

PIP 5th Grade Market Math Mania “At Home” Activity Temperature Change Experiment

Here is a table to record your temperatures. Circle the time when you added the ice.

Time (minutes)	Temperature	Time (minutes)	Temperature
1	°F °C	14	°F °C
2	°F °C	15	°F °C
3	°F °C	16	°F °C
4	°F °C	17	°F °C
5	°F °C	18	°F °C
6	°F °C	19	°F °C
7	°F °C	20	°F °C
8	°F °C	21	°F °C
9	°F °C	22	°F °C
10	°F °C	23	°F °C
11	°F °C	24	°F °C
12	°F °C	25	°F °C
13	°F °C	26	°F °C

To better see the results of your experiment, plot the results on the graph. The time that you wrote down a temperature, put an "X" directly above that time. I have placed a "X" on the graph for example at 1 minute Celsius.



**PIP Market Math Mania “At Home” Activity
Temperature Change Experiment
Your Findings...**

How long did it take for the temperature to not change before you added the ice? _____ minutes

How long did it take for the temperature to not change after you added the ice? _____ minutes

What was the temperature of the ice-water mix at the end of the experiment? _____ °C

You can see from the results that it takes time for a thermometer to “find” the temperature of something. You can also see that the temperature changes quickly when a thermometer is put in a very different temperature and changes slowly as it “finds” the temperature of the thing that it is measuring.

Questions to think about...

Why did the thermometer in the ice-water stop going down?

What would happen to the ice water mix if the temperature went down more?