



Tactile Demonstration Thermometer



**Nemeth
Version**

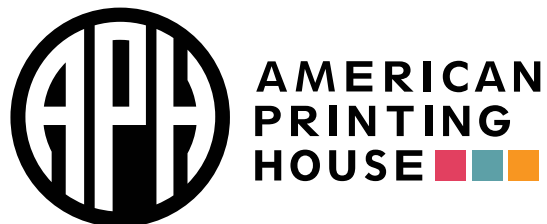
Tactile Demonstration Thermometer

Tactile Demonstration Thermometer (Nemeth Version)

Catalog No. 1-03032-00

Designed by Karen J. Poppe

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Tactile Demonstration Thermometer

The Tactile Demonstration Thermometer allows students who are blind or low vision, as well as their sighted peers, to independently read, set, and compare temperatures. Unique design features that make this demonstration thermometer especially useful for the intended audience include the following:

- A two-textured, two-color adjustable “mercury column” with an easy-grip indicator
- Comparable Fahrenheit and Celsius scales presented in both large print and braille against a high-contrast background
- Distinct tactile markings every 5 and 10 degrees
- Sturdy and durable design for repeated use



WARNING:

CHOKING HAZARD - Small parts. Not intended for children ages 5 and under without adult supervision.



WARNING:

STRANGULATION HAZARD - Adults should be aware of the strangulation hazards associated with cords and take precautions through supervision and instruction to ensure children do not become entangled.

Suggested Activities

The Tactile Demonstration Thermometer can be used for a variety of math and science activities that do not require a working thermometer. Some suggested activities include the following:

- Set, display, and record daily temperature as a classroom weather activity. Graph the recorded data to show changes in temperature over time.
- Maintain a weather journal and record daily observations about the weather. How did the temperature affect one's daily activities?
- Introduce terminology (e.g., degrees, mercury column, Fahrenheit, Celsius, etc.) and the workings of a thermometer.
- Read temperatures set on the demonstration thermometer.
- Set temperatures as specified in math or science textbooks.
- Compare Fahrenheit and Celsius degree scales and check conversion formulas.
- Substitute coloring activities related to thermometers encountered in textbooks with this reusable model.
- Review notable temperatures:
 - Water boils at 100 °C and 212 °F
 - Water freezes at 0 °C and 32 °F
 - Normal body temperature is 37 °C and 98.6 °F
 - Comfortable room temperature is 22 °C and 72 °F
- Discuss different types of thermometers (e.g., mercury, digital, infrared, etc.).
- Transition tactile learners from the use of the Tactile Demonstration Thermometer to embossed displays of thermometers.
- Align thermometer activities with the *Next Generation Science Standards* (NGSS).

Citation:

NGSS Lead States. 2013. *Next Generation Science Standards: For States, By States*. Washington, DC: The National Academies Press. Copyright © 2013 Achieve, Inc. All rights reserved.

Figure 1. A Tactile Demonstration Thermometer with the mercury column showing that water boils at 212 degrees Fahrenheit and 100 degrees Celsius is next to a Tactile Demonstration Thermometer with the mercury column showing that water freezes at 32 degrees Fahrenheit and 0 degrees Celsius.

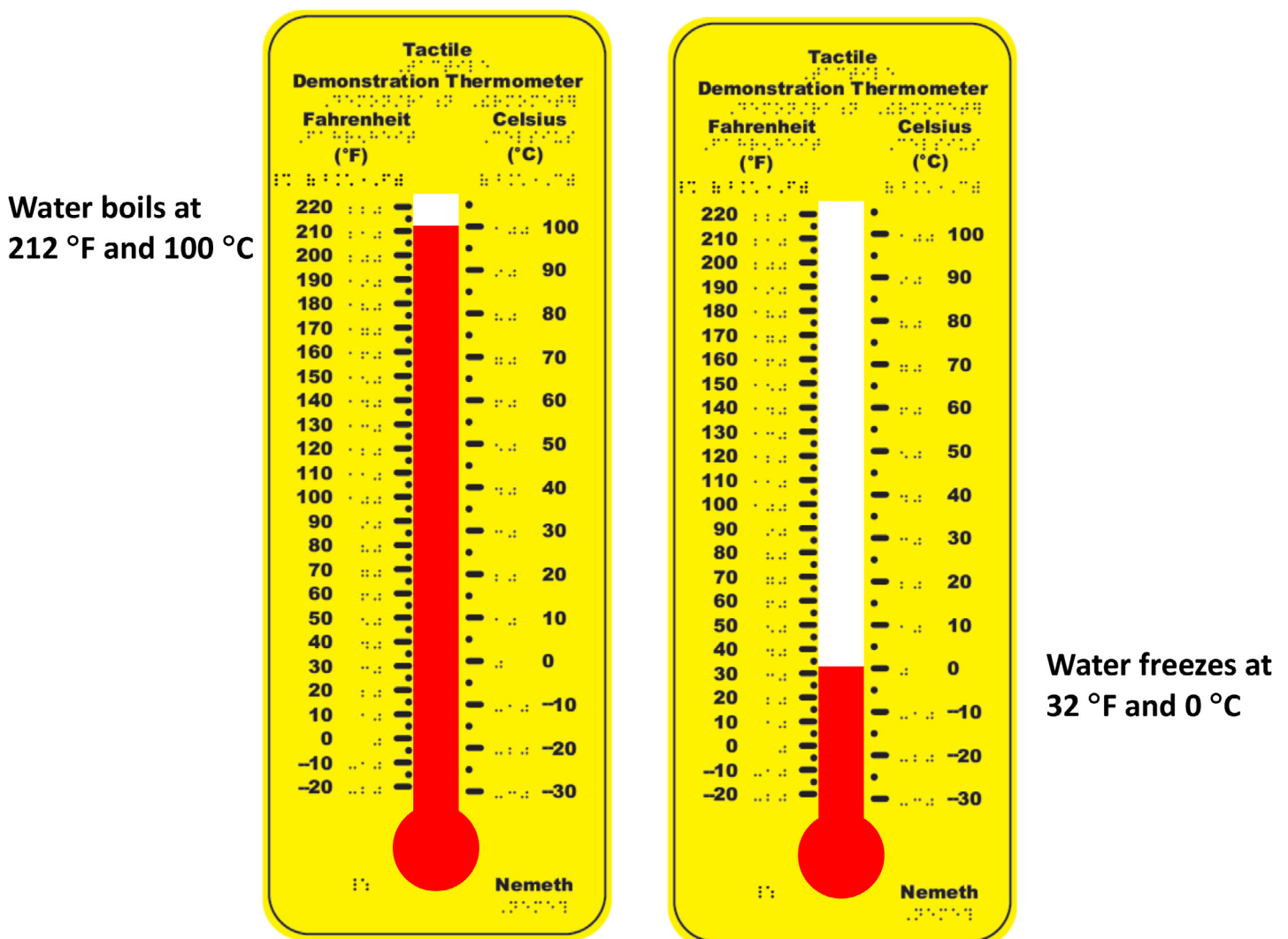
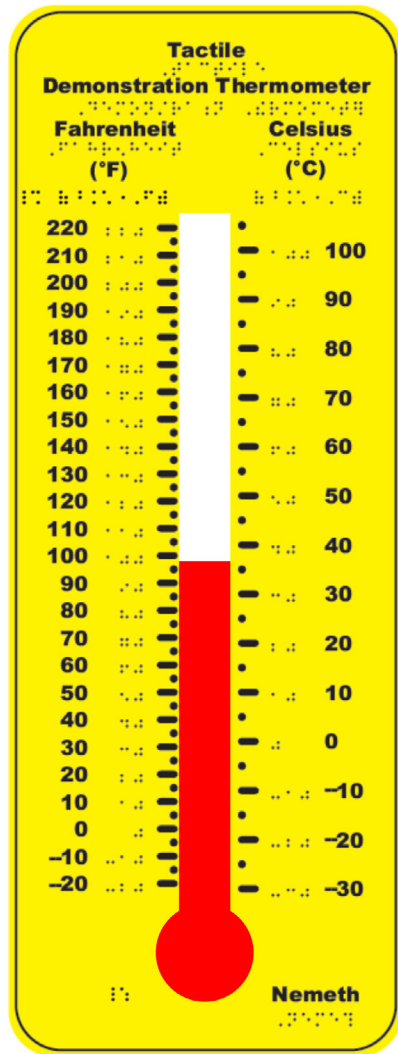
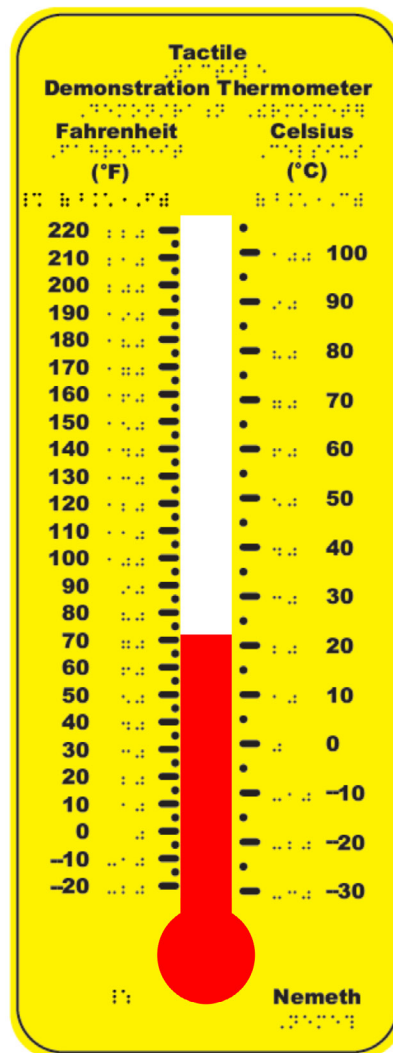


Figure 2. A Tactile Demonstration Thermometer with the mercury column showing that normal body temperature is 98.6 degrees Fahrenheit and 37 degrees Celsius is next to a Tactile Demonstration Thermometer with the mercury column showing that comfortable room temperature is 72 degrees Fahrenheit and 22 degrees Celsius.

Normal body temperature is 98.6 °F and 37 °C



Comfortable room temperature is 72 °F and 22 °C



Thermometer Tidbits

In 1593, Galileo Galilei, an Italian astronomer, invented a water thermoscope (a predecessor to the thermometer), and discovered that the density of liquid changes as the temperature varies.

In 1714, Daniel Gabriel Fahrenheit, a German physicist, invented the first reliable mercury thermometer. In 1724, he introduced a standard temperature scale; according to his scale, the freezing point of water is 32 °F and the boiling point of water is 212 °F.

In 1742, Anders Celsius, a Swedish astronomer, physicist, and mathematician, invented a thermometer scale in which 0 °C is the temperature at which water freezes and 100 °C is the temperature at which water boils. The Celsius scale, also called the Centigrade scale, is now the most widely used temperature scale in the world.

In 1848, William Thomson (Lord Kelvin), a British mathematician and physicist, introduced the “absolute temperature scale” now called the Kelvin Scale. Zero Kelvin is absolute zero—the temperature at which everything freezes solid.

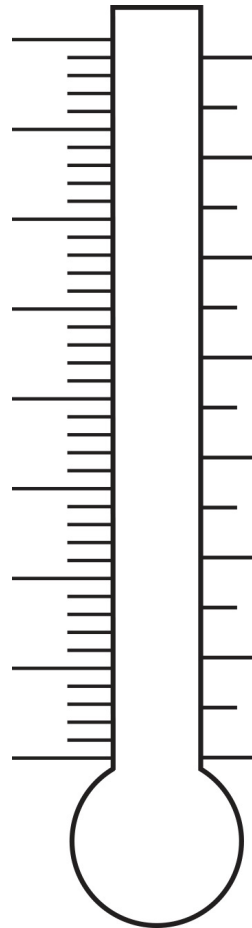
Additional Resources

Free downloadable images of thermometer templates are available on APH's Tactile Graphic Image Library:

imagedlibrary.aph.org/aphb

Customize the files to produce embossed thermometer displays and worksheets using a variety of tactile graphic methods (e.g., collage, microcapsule paper) by adding braille labels and other tactile elements.

Figure 3. Line drawing of thermometer template with degree tick marks that is available for free download on APH's Tactile Graphic Image Library.



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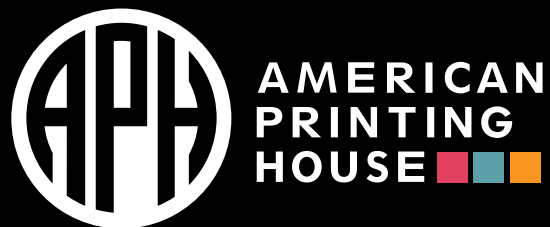
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