Temperature measurement (also known as **thermometry**) describes the process of measuring a current local temperature for immediate or later evaluation. Datasets consisting of repeated standardized measurements can be used to assess temperature trends.

Some of the principles of thermometry were known to Greek philosophers of two thousand years ago. As Henry Carrington Bolton (1900) noted, the thermometer's "development from a crude toy to an instrument of precision occupied more than a century, and its early history is encumbered with erroneous statements that have been reiterated with such dogmatism that they have received the false stamp of authority."[1] In the first decades of the 18th century in the Dutch Republic, Daniel Gabriel Fahrenheit[2] made two revolutionary breakthroughs in the history of thermometry. He invented the mercury-in-glass thermometer (first widely used, accurate, practical thermometer)[1] and Fahrenheit scale (first standardized temperature scale to be widely used).[1]

Many methods have been developed for measuring temperature. Most of these rely on measuring some physical property of a working material that varies with temperature. One of the most common devices for measuring temperature is the glass thermometer. This consists of a glass tube filled with mercury or some other liquid, which acts as the working fluid. Temperature increase causes the fluid to expand, so the temperature can be determined by measuring the volume of the fluid. Such thermometers are usually calibrated so that one can read the temperature simply by observing the level of the fluid in the thermometer. Another type of thermometer that is not really used much in practice, but is important from a theoretical standpoint, is the gas thermometer.

Other important devices for measuring temperature include:

- Thermocouples
- Thermistors
- Resistance temperature detector (RTD)
- Pyrometer
- Langmuir probes (for electron temperature of a plasma)
- Infrared thermometer
- Other thermometers

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