

Describing the States of Matter

Why Was Mercury Used in Thermometers?

Until recently, mercury thermometers were used in homes and schools. Because mercury is a toxic substance that can harm humans and other organisms, schools no longer use mercury thermometers, and people are encouraged to replace their fever thermometers.

Why did people continue to use mercury thermometers long after they knew the dangers of mercury?

Look at the data table. It lists some densities over a temperature range from 0°C to 150°C. The temperatures are given at 30-degree intervals.

Density of Mercury		
Temperature (°C)	Density (g/mL)	Volume of One Gram (mL)
0	13.6	0.07356
30	13.52	0.07396
60	13.45	0.07436
90	13.38	0.07476
120	13.30	0.07558
150	13.23	0.07558

- Using Tables** How does the density of mercury change as the temperature increases?
- Relating Cause and Effect** How does a change in density affect the volume of a mercury sample?
- Calculating** If a thermometer contained a gram of mercury, how much would the volume of the mercury change when the temperature rose from 0°C to 30°C? From 30°C to 60°C? From 60°C to 90°C? From 90°C to 120°C?
- Drawing Conclusions** Why was mercury a better choice than water for the liquid in a thermometer? (*Hint:* Between 0°C and 30°C, the volume of a gram of water changes by 0.0042 mL. Between 30°C and 60°C, the volume changes by 0.0127 mL. Between 60°C and 90°C, the volume changes by 0.0188 mL.)
- Inferring** Why is the mercury in a thermometer stored in a narrow tube?