

Thermal Expansion in Three States of Matter

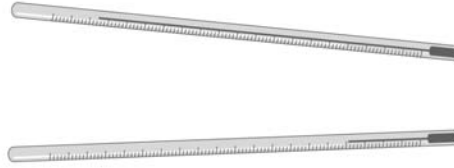
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Solids



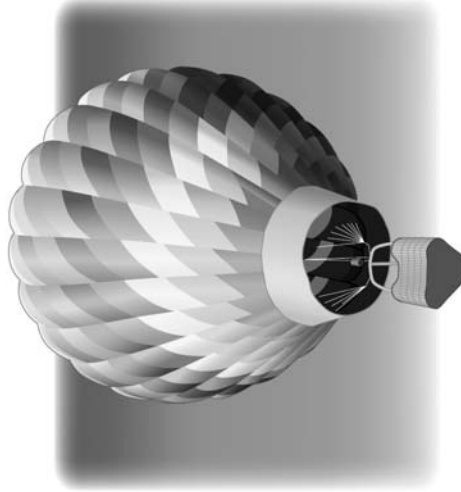
Thermal expansion joint on bridge or road—It is needed to keep metal from buckling when the solid expands.

Liquids



Thermometer—Liquid expansion makes it possible to measure temperature changes.

Gases



Hot air balloon—It floats because the gases expand when heated, causing the air in the balloon to be less dense (lighter) than the surrounding air.

13 Transparency 13-4 Worksheet

Thermal Expansion in Three States of Matter

1. What would happen to a bridge on a hot day if there were no thermal expansion joints?

2. Mercury is a common liquid used in thermometers. What must be true about the way mercury responds to heat energy to make it useful in thermometers?

3. What would happen in a thermometer if glass expanded more than mercury with each degree rise in temperature?

4. Why are propane burners used to heat the gas in a hot air balloon just before takeoff?

5. Why are weather balloons only partially filled with air when they are released from the ground?
