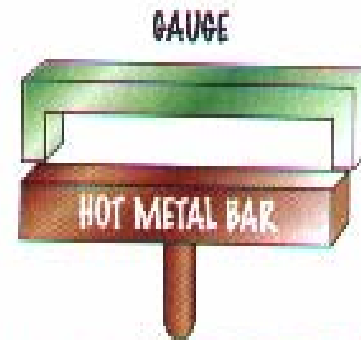


EXPANSION OF SOLIDS EXPLAINED USING PARTICLE THEORY

When a solid is heated, apart from its temperature increasing it also **EXPANDS** (its volume becomes bigger).

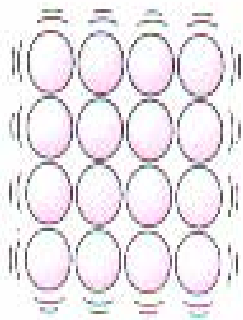


Before heating the metal bar fits in the gauge.

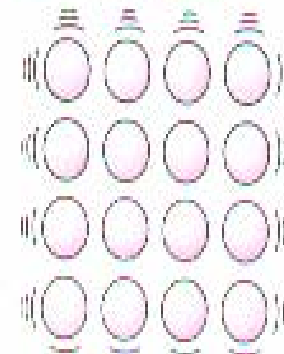


After heating the metal bar has expanded and no longer fits in the gauge.

What has actually happened to the metal bar can be explained using **PARTICLE THEORY**.



WHEN HEATED THE PARTICLES GAIN ENERGY. THEY NOW VIBRATE FASTER AND MOVE FURTHER APART. THE METAL BAR EXPANDS.



Most materials _____ when they are heated and _____ when they are cooled.

This is because their particles _____ more when hot and so move further _____.

In hot weather a metal bridge could expand and _____. To stop this from happening it is held on rollers.

Overhead wires could contract and _____ in cold weather.

To stop this from happening they are given slack when they are put up.

Mercury is a liquid metal that is used inside a _____. When it is put in a warmer place the mercury expands and moves up the _____.

Vibrate apart

snap thermometer

contract buckle expand scale

Most materials **expand** when they are heated and **contract** when they are cooled.

This is because their particles **vibrate** more when hot and so move further **apart**.

In hot weather a metal bridge could expand and **buckle**. To stop this from happening it is held on rollers.

Overhead wires could contract and **snap** in cold weather.

To stop this from happening they are given slack when they are put up. Mercury is a liquid metal that is used inside a **thermometer**. When it is put in a warmer place the mercury expands and moves up the **scale**.