2 Melting

When a solid changes to a liquid, it MELTS. Every solid has its own MELTING POINT.

A solid is made of particles locked in a fixed shape. A liquid contains the same particles but they are able to slide over one another.

Why solids melt

When a solid is heated, the particles get warm and begin to shake about. You can't see this because the particles are so tiny, but the jostling particles take up more space. As a result, as solids warm up, they swell, or expand. The more a solid is heated, the more it expands.

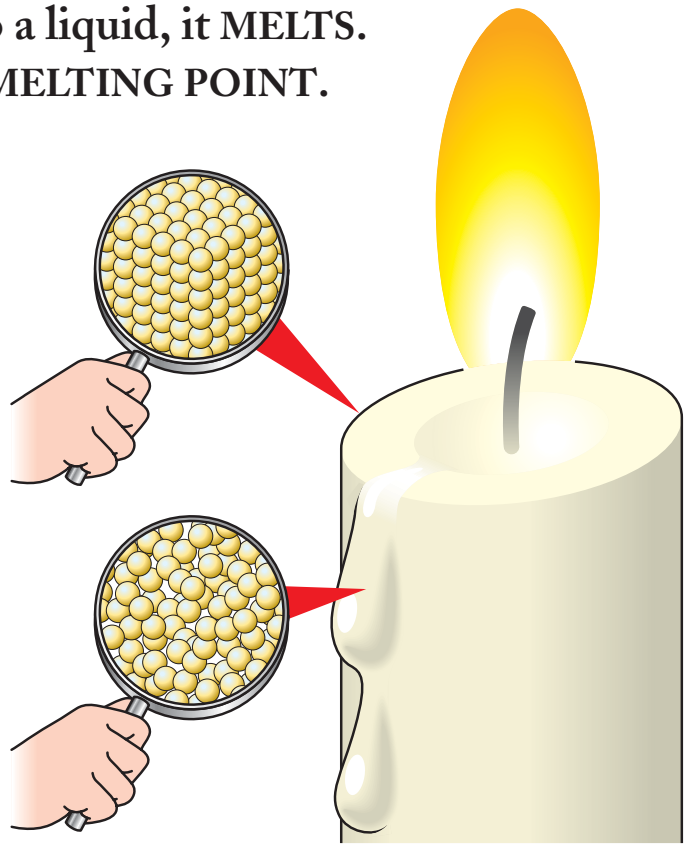
At a certain temperature, the amount of heat added allows the particles to shake loose from each other enough to slide about. That is when melting occurs (Picture 1).

The melting point

The temperature at which melting occurs is called the melting point. Ice (solid water) becomes liquid water at 0°C. The melting point of water is therefore 0°C.

Finding melting points

Many substances around us melt easily and this affects how we use them. If you put a bar of chocolate in a pan on a hot radiator for a few minutes it would almost certainly melt. So chocolate has a melting point that



▲ **(Picture 1) This candle is melting, but only at the very high temperatures produced by a flame. The melting point of wax is far higher than the melting point of water.**

◀ **(Picture 2) Wax only melts at the temperature of a flame.**

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is higher than room temperature (21°C) but lower than the temperature of the radiator (about 60°C). In fact, the melting point of chocolate is about 33°C.

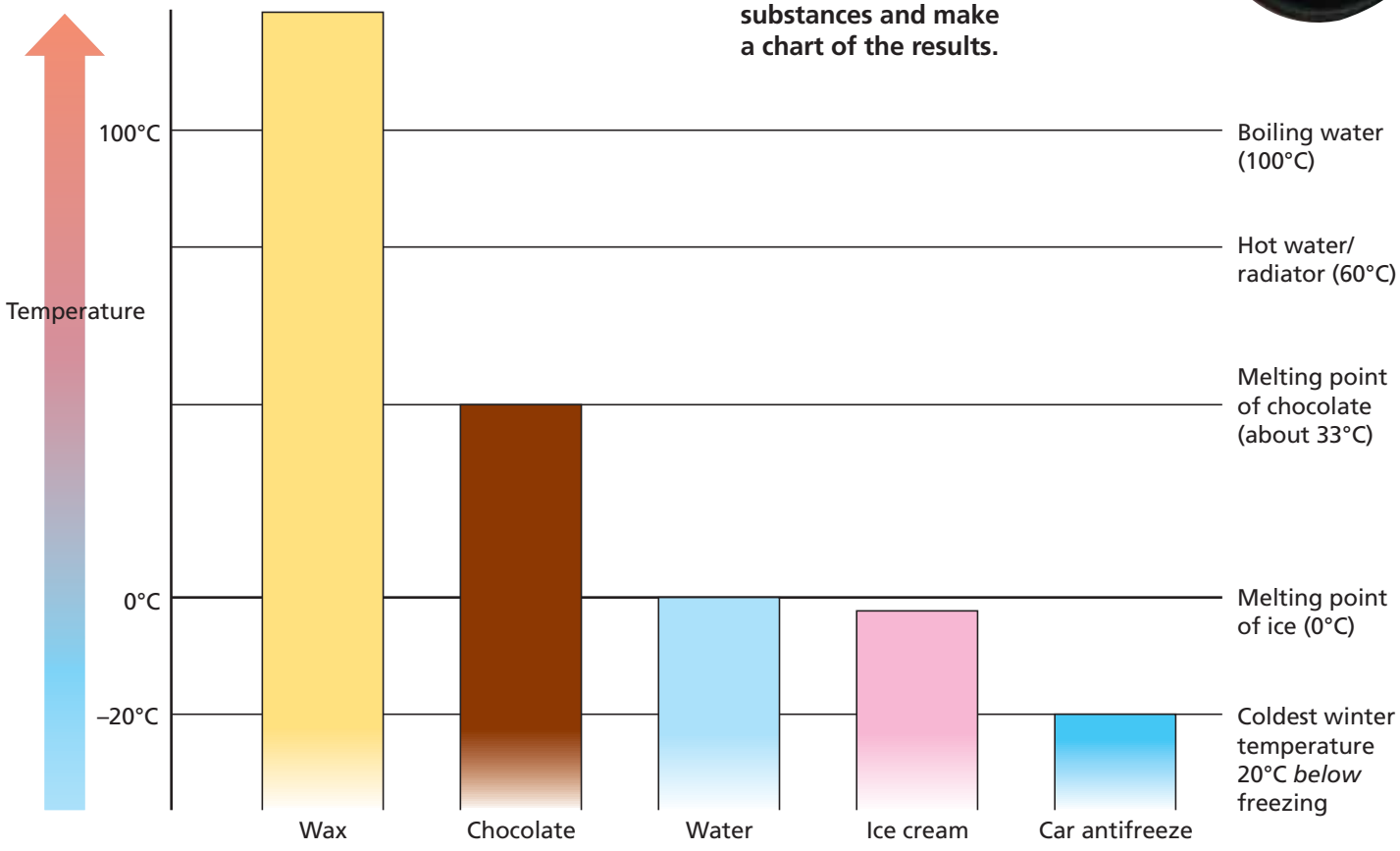
If you put a wax candle in a pan on a hot radiator, nothing would happen, which tells us that the melting point of wax must be much higher than the temperature of the radiator (Picture 2). Butter is another substance that melts at a low temperature (Picture 3).

Using results like this you can make up a chart of melting points (Picture 4).

(Picture 3) The melting point of butter is less than hot water. This is why it melts easily when heated in a frying pan.

Summary

- **Solids melt and become liquids.**
- **Every solid has its own unique melting point.**



(Picture 4) You can compare melting points of some common substances and make a chart of the results.

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