

# How does an ice cube melt?

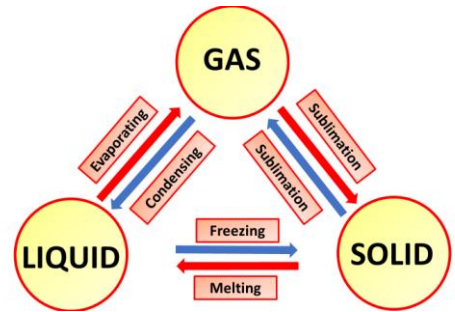
## Highlight key points below

In a solid all the particles are closely compact, however they do vibrate, but they do keep a fixed shape. They do not have enough energy to move for themselves so they stay together in columns or rows usually. Liquid particles are touching but further apart than solids. They also don't have a regular shape. They move by sliding past each other. The ice cube which was solid has turned into the liquid water because the air temperature is warmer than the freezers. Which means the ice particles gather heat energy from the warmer air. Therefore the ice particles have enough energy to break apart (melt) into smaller particle arrangements. Which means the particles can move more freely. Also the surface area of a solid is considerably smaller than a liquid because in a solid the particles are more compact than in a liquid; where the particles are more spread out, therefore they take up much more space. Gas particles hate being around each other. They are randomly arranged and free to move. They also move in all directions. The liquid water has turned into water vapour (gas), because the water has evaporated. Evaporation happens when the liquid gets to its boiling point, for example the boiling point of water is 100 C. When the water gets to 100 C it cannot get any higher so the water evaporates. Which means that the liquid water has enough heat energy to leave its other particles. Therefore the particles break up so small the naked eye can't see them. Now they can move around freely. However now the surface area is huge because the particle arrangement in a liquid were small but now they are a gas so the particles are on their own which means they take up more surface area.

### Task:

Some students were watching an ice cube in a beaker as it slowly melted. They were wondering why it melts.

Task: Draw a poster that explains why an ice cube melts when left out of the freezer. Use the Big Idea of Particles to explain why the ice cube melts.



Write up a brief plan of how you are going to complete this, noting key things you need to remember

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Questions that you should ask yourself while completing this

What should I do first?

Is something confusing me?

Could I explain this to someone else?

Where can I look for help?

How can I do it better?

Done	Thing to include
	<ul style="list-style-type: none"><li>Used most of the key words accurately.</li><li>Drawn a simple particle diagram for each state.</li><li>Explained or shown that substances are made up of particles.</li><li>Described some differences between particle behaviour of each state.</li></ul>
	<ul style="list-style-type: none"><li>Used all the key words accurately.</li><li>Drawn particle arrangements clearly using diagrams.</li><li>Explained, in detail, the particle behaviour in each state.</li><li>Shown or described how mass is conserved during changes of state.</li><li>Explained evaporation using particle theory.</li></ul>
	<ul style="list-style-type: none"><li>Used a detailed scientific knowledge of particle theory.</li><li>Used energy and forces to explain the differences in behaviour of the particles in each state.</li><li>Explained the changes of state using particle theory.</li><li>Concept of energy and or forces should be incorporated into explanations.</li></ul>