

# Year 5 Properties and Change of Materials

Solubility



## **AIM**

To explore how some materials will dissolve in water and others will not.

## **Success Criteria**

I can explain how the process of dissolving happens, using the words 'solute', 'solvent' and 'solution'.

I can explain the difference between dissolving and melting.

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# Remember It

**Solid, Liquid or Gas**

**We are going to play a game where you need to decide whether the material on each slide is in a solid state, a liquid state or a gaseous state.**

# Remember It

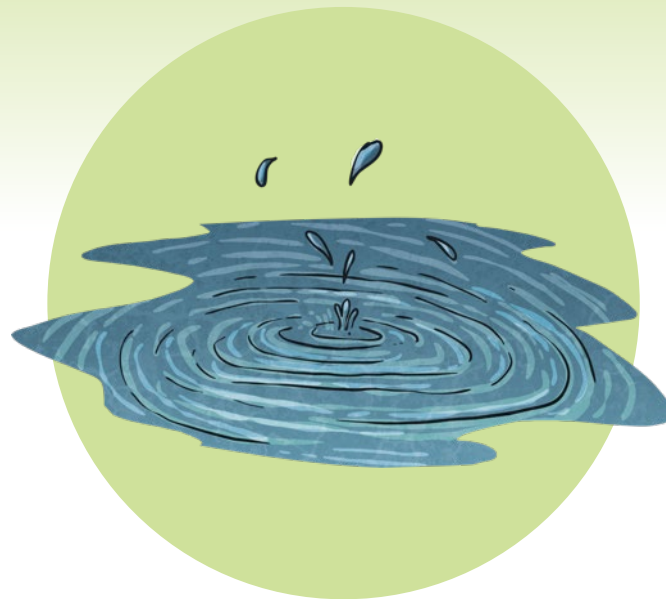
**air**



**gas**

# Remember It

**water**



**liquid**

# Remember It

**ice**



**solid**

# Remember It

**rice**



**solid**

# Remember It

**water  
vapour**



**gas**

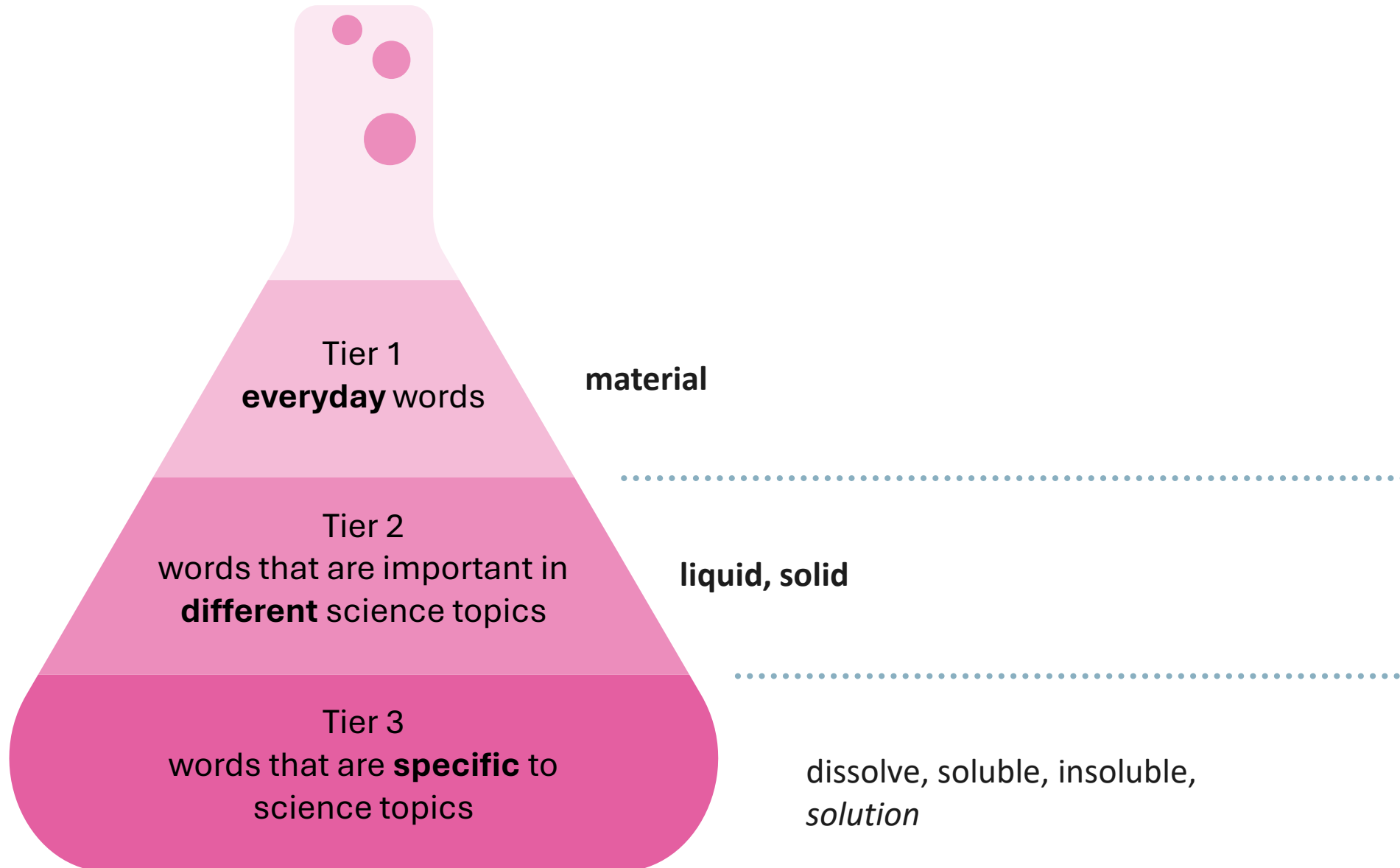
# Remember It

**juice**



**liquid**

# Tiered Vocabulary



# A sugary mystery

What happens when we add sugar to a cup of tea? Where does the sugar go?



I think it disappears. You can't see the sugar any more and the tea doesn't feel grainy like sugar does.

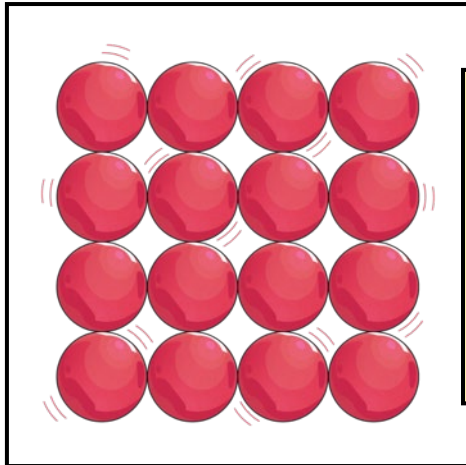
The tea tastes sweeter than it did before we added the sugar so it must still be there somehow.



What do you think happens to the sugar in the tea?

# Solubility

Solubility refers to a material's ability to dissolve. Sugar dissolves in water (and tea). But what does 'dissolve' mean, exactly?



Sugar crystals are solids. The particles in a solid are close together in a sturdy structure. They move slightly on the spot.

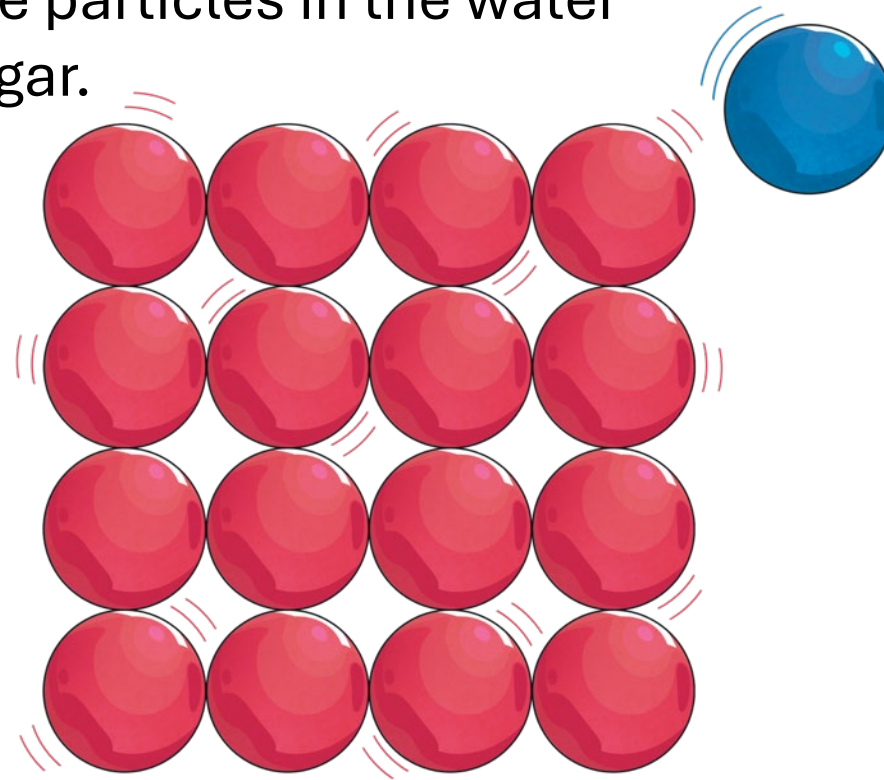
Water (and tea) are liquids. The particles in a liquid are quite close together but can move around each other easily.



# Solubility

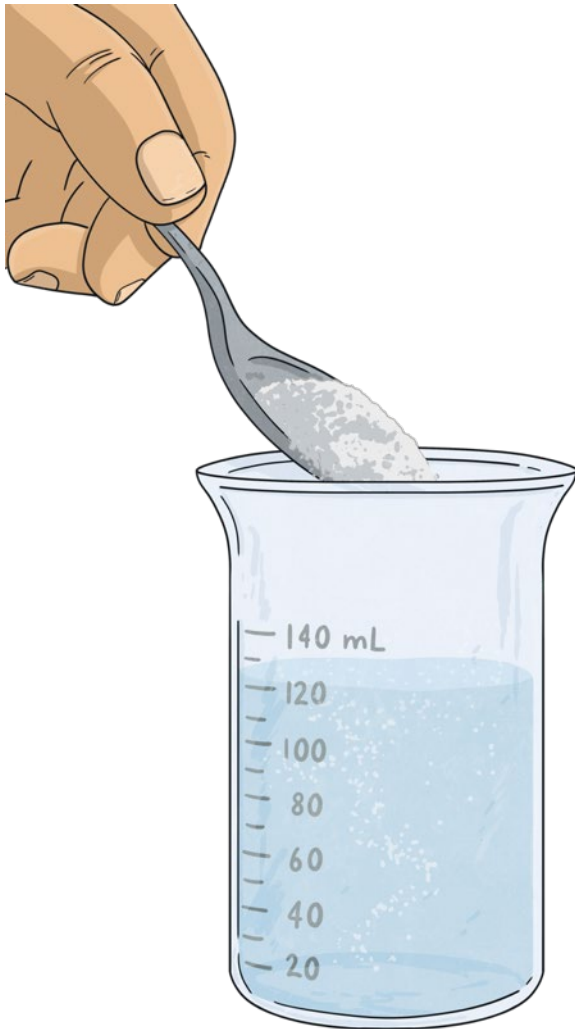
When sugar is added to water, the particles in the water knock into the particles in the sugar.

When this happens, the bonds that are holding the sugar particles together are broken and new bonds are made between the sugar particles and the water particles.



At this point, we cannot see the sugar any more. It has become part of the water. When this happens, the mixture of sugar and water is called a **solution**.

# Solubility



We call the material that will be dissolved the **solute**. An example of a solute is sugar.


Materials that can dissolve are **soluble**.

Materials that cannot dissolve are **insoluble**.


We call the material that the solute will dissolve in the **solvent**. An example of a solvent is water.

The mixture of a solute and a solvent is called a **solution**. An example of a solution is salt water.

# Dissolving or Melting




So, solubility is when a material becomes a liquid? Isn't that the same as melting?



No, not exactly.

# Dissolving or Melting

What is the difference between dissolving and melting?



Melting is a solid changing to a liquid because of an increase in its temperature. It is still the same material. Dissolving takes place when a solute is added to a solvent. Together, they form a solution.

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Can you explain the difference between dissolving and melting?