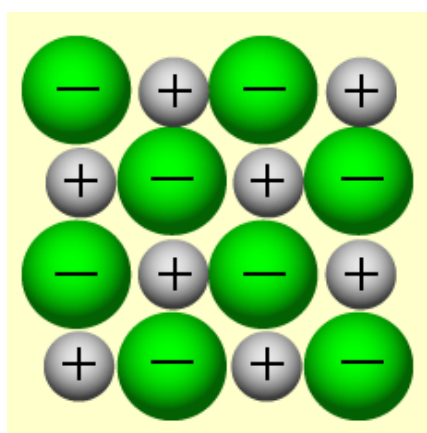


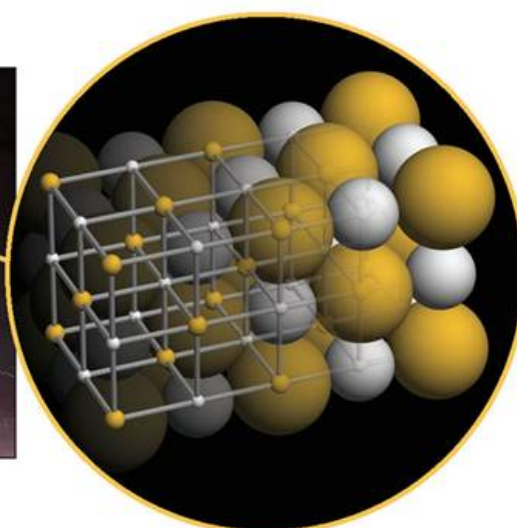
<b>Topic:</b>	<b>PROPERTIES OF IONIC COMPOUNDS</b>
<b>Objective:</b>	<b>FK_03_02</b>
<p><b>Given</b> an ionic compound  <b>the student must be capable of doing the following:</b></p> <ul style="list-style-type: none"> <li>• describe the properties of the compound <ul style="list-style-type: none"> <li>○ physical state</li> <li>○ melting and boiling points</li> <li>○ solubility in water</li> <li>○ mechanical properties</li> <li>○ electrical properties</li> </ul> </li> </ul>	

### Physical state. Melting and boiling points

The oppositely-charged ions are arranged in a regular way to form giant ionic lattices (solids). Ionic compounds often form crystals as a result.



[http://www.bbc.co.uk/schools/gcsebit/size/img/gcsechem\\_51.gif](http://www.bbc.co.uk/schools/gcsebit/size/img/gcsechem_51.gif)

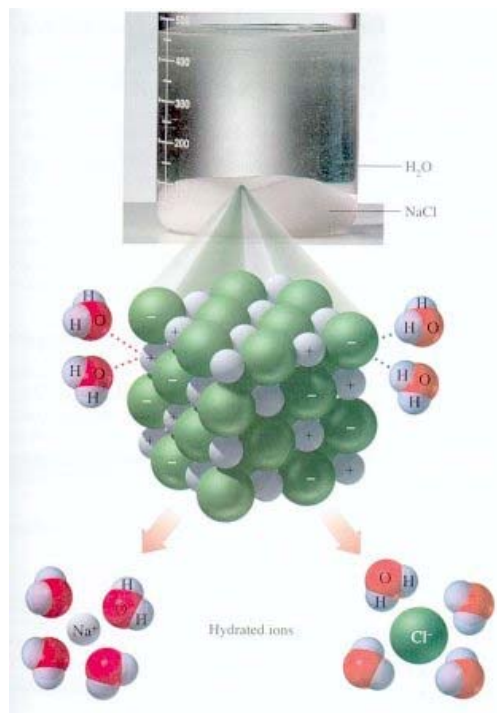


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### High melting and boiling points

Ionic bonds are very strong and a lot of energy is needed to break them, so ionic compounds have high melting points and boiling points.

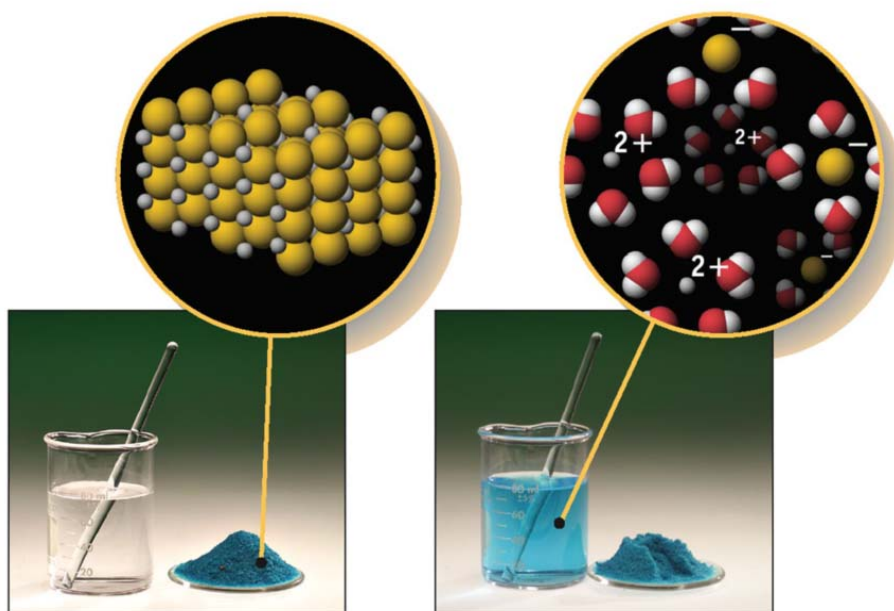
## Solubility in water



<http://universe-review.ca/I12-20-salt.jpg>

Ionic compounds tend to dissolve (not always) in water.

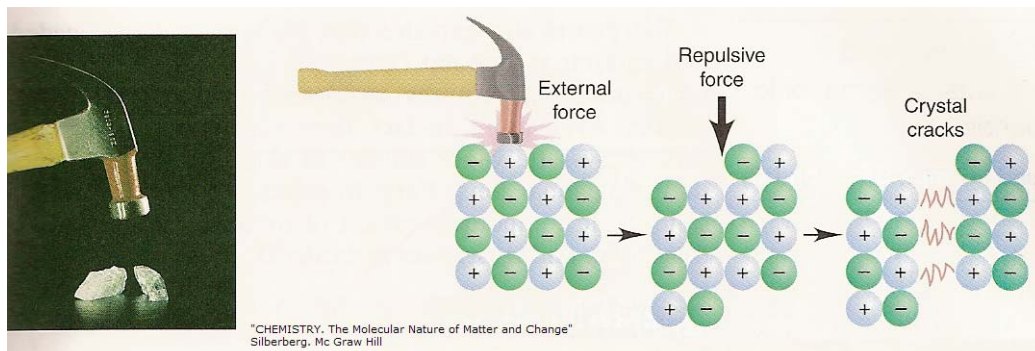
In this process of dissolving (also called **dissolution**), water molecules extract ions from the lattice. As a result, ions are wrapped (**solvated**) with water molecules.



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## Mechanical properties

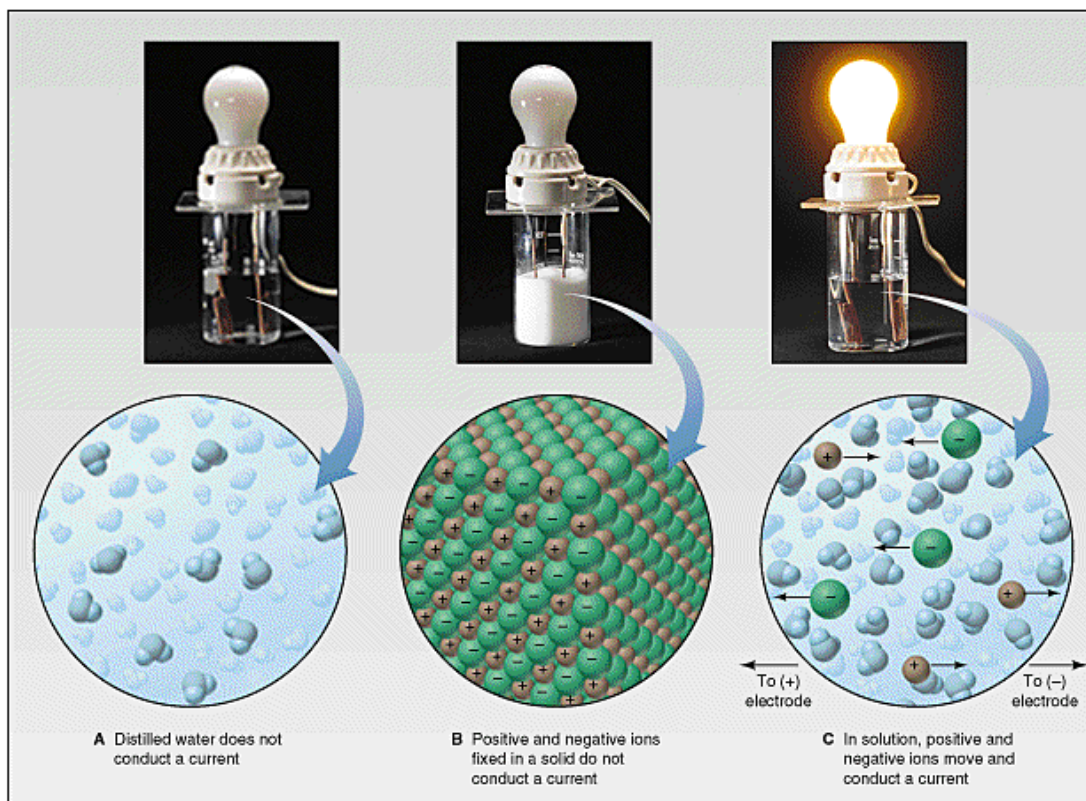
Ionic compounds are brittle (crack without deforming). This property is due to the powerful attractive forces that hold the ions in specific positions throughout the crystal. Moving the ions out of the position, ions of like charges are brought next to each other and the repulsions crack the sample suddenly.



## Electrical properties

### Conductive when liquid

Ions are charged particles, but ionic compounds can only conduct electricity if their ions are free to move. So ionic compounds do not conduct electricity when they are solid, but they do conduct electricity when they are **dissolved in water** or when they are **melted**.



[http://itl.chem.ufl.edu/2051\\_s97/week\\_1/c4f8.gif](http://itl.chem.ufl.edu/2051_s97/week_1/c4f8.gif)

**EXERCISES (VOCABULARY in CONTEXT)**

Fill in the missing words

The oppositely-charged ions are arranged in a regular way to form giant ionic .....

Ionic compounds have high ..... points and ..... points.

Ionic compounds are ..... (crack without deforming).

Ionic compounds can only conduct electricity if their ions are ..... to .....

they do conduct electricity when they are ..... in water or when they are .....