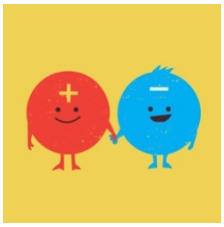
You need to know the content of this sheet. 100%

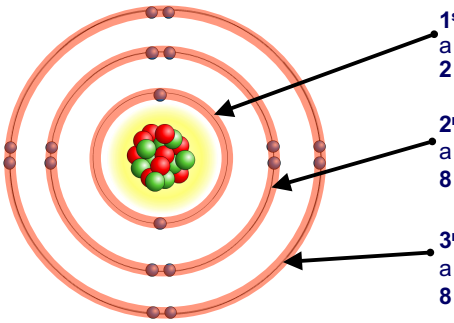
100% Sheet
IONIC BONDING



Matter
All material in the Universe is made of very small particles.

How many electrons per shell?

Each shell has a maximum number of electrons that it can hold. Electrons will fill the shells nearest the nucleus first.

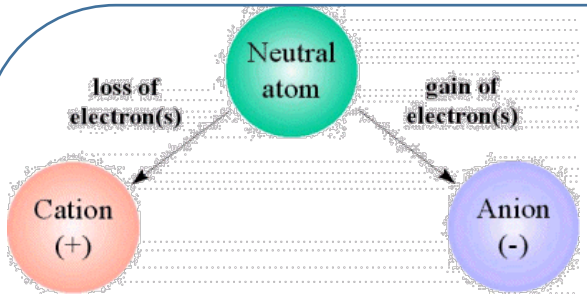


1st shell holds a maximum of **2 electrons**

2nd shell holds a maximum of **8 electrons**

3rd shell holds a maximum of **8 electrons**

This **electron arrangement** is written as **2,8,8.**

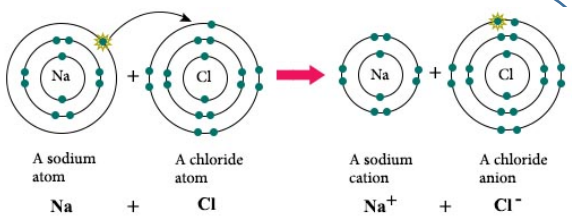


All atoms are neutral. They equal numbers of positive protons in the nucleus and negative electrons in the shells

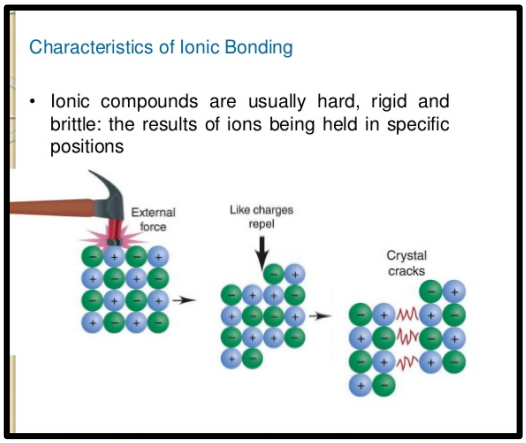
Ions are atoms that have lost or gained electrons in order to gain a full outer shell of electrons. They DO NOT have equal numbers of protons and electrons and so have a charge.

METALS lose electrons and become positive ions – CATIONS

NON-METALS gain electrons and become negative - ANIONS

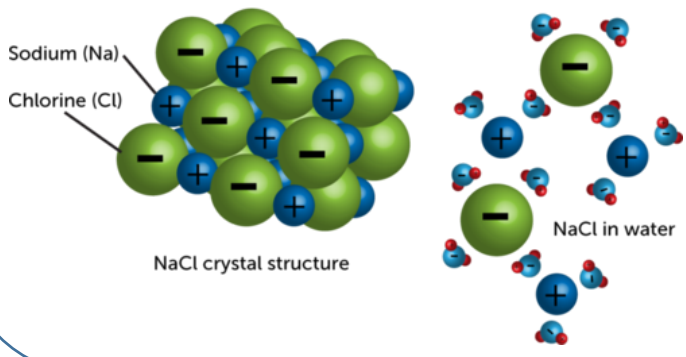


Bonds form between ions due to the ELECTROSTATIC attraction between positive and negative ions. This attraction is strong and requires lots of energy to break apart due to the strength of the bond and high number of bonds in the lattice– Ionic compounds have high meting points



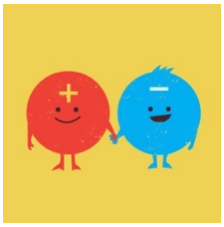
The GIANT IONIC LATTICE can be broken down by melting (Liquid, l) by applying lots of heat energy or by dissolving in water (Aqueous, Aq). Ionic compounds ONLY conduct electricity in the (l) or (Aq) state as it is only this state that contains CHARGE that can MOVE – the requirement of electrical conduction

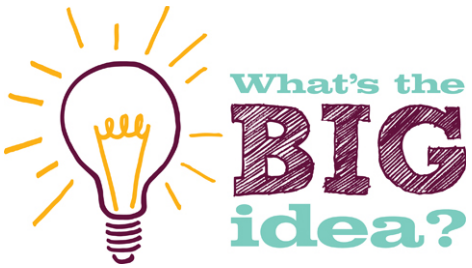
How Salt Dissolves in Water



You need to apply your knowledge

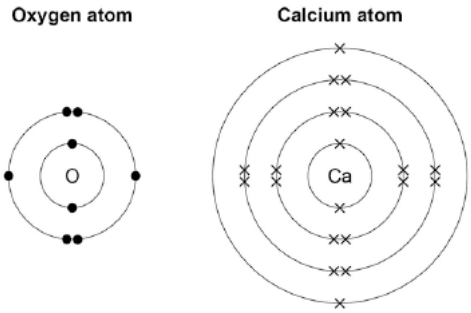
100% Sheet
IONIC BONDING





Matter

All material in the Universe is made of very small particles.



Describe how the calcium atom and the oxygen atom forms calcium oxide.

You should give the charge on each ion formed.

Explain why sodium chloride is a solid at room temperature and does not conduct electricity as a solid, but can conduct electricity when dissolved in water

Use electronic structures to help you show why the formula of sodium oxide is Na_2O