


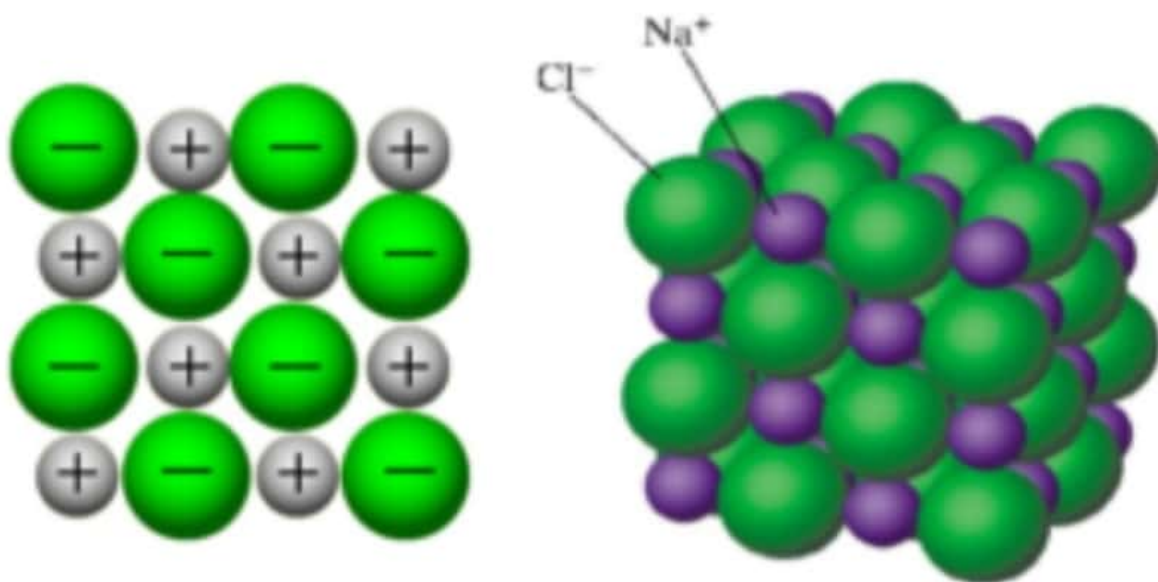
3. IONIC SOLIDS

Definition

- Ionic solids are made up of oppositely charged ions held together by electrostatic attraction (a.k.a. ionic bonds).
- Electrostatic attraction just describes the attractive force between a positive charge and a negative charge.
- The strength of an ionic solid can be described by **Coulomb's Law** ($Q = k(Q_1Q_2/r^2)$)
 - Essentially, high charge + small ions = high electrostatic force
- The ions form a crystal lattice structure seen in NaCl below: 



- The ions form a crystal lattice structure, seen in NaCl below:



[Source: Redefining Knowledge](#)

Properties

- They're hard and brittle.
- They have high melting points because ionic bonds require a lot of energy to break.
- In solid form, ionic compounds are poor conductors.
- When melted or dissolved in water, they will conduct electricity because they dissociate into individual ions that are free to move around.
- Not all ionic compounds are soluble, though, so keep those [solubility rules](#) in mind!
- **Key properties to know: High melting points, conduct when dissolved BUT NOT AS SOLIDS!**