

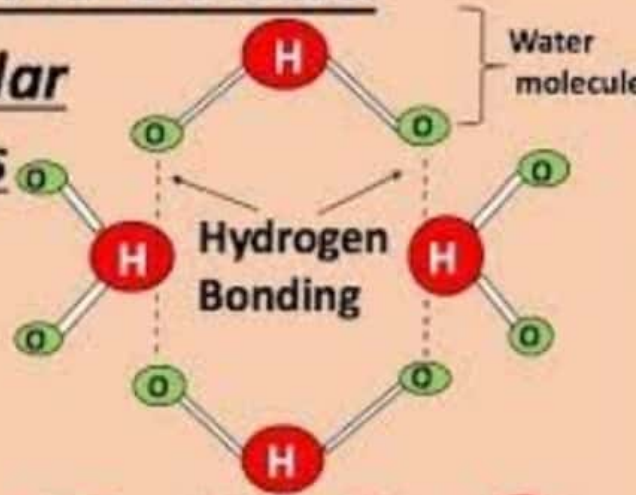
Types of Crystalline Solids

Ionic crystals

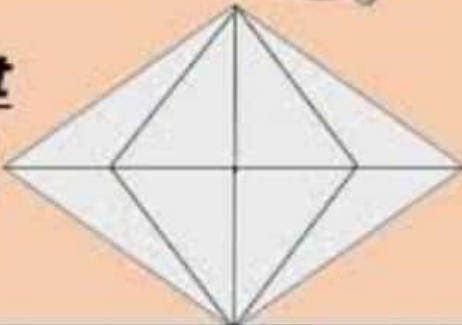
NaCl



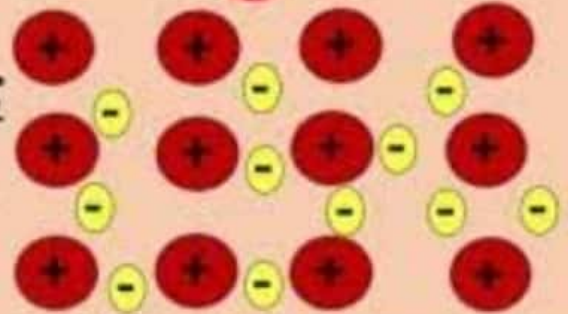
Molecular crystals



covalent crystals



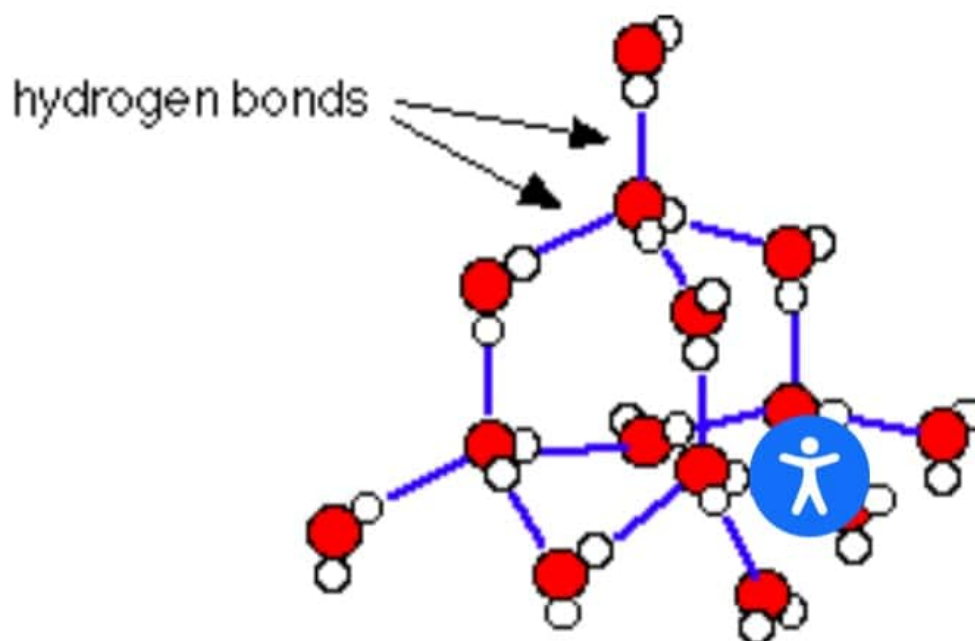
Metallic crystals



1. Molecular Solids

Definition

- Molecular solids are made of molecules or atoms held together by intermolecular forces, not covalent bonds.
- Take ice, for example.
- Sure, each *individual* molecule is held together by covalent bonds, but the actual solid is created by hydrogen bonds connecting the molecules to each other.



Properties

- Intermolecular forces are weaker than ionic or covalent bonds, so molecular solids are relatively soft and flexible.
- This also means they tend to have low melting points.
- They do not conduct electricity because electrons are localized within individual molecules.
- Polar molecular solids, like sugar, will be soluble in water.
- Keep in mind that the individual molecules don't break apart, only the intermolecular forces do!
- **Key properties to know: low melting point, do not conduct electricity**