

Classification of solids on the basis of nature of order present in the arrangement of their constituent particles

### i) Crystalline Solids :

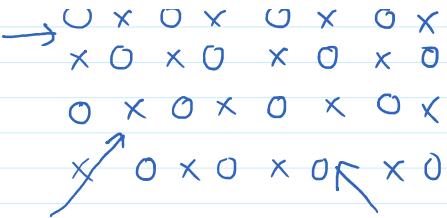
The arrangement of constituent particles (atoms, molecules or ions) is ordered. It has long range order which means that there is a regular pattern of arrangement of particles which repeats itself periodically over the entire crystal.

### ii) Amorphous solid:

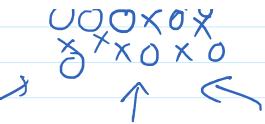
An amorphous solid consists of particles of irregular shape. The arrangement of constituent particles has short range order, a regular and periodically repeating pattern is observed over short distances only.

Property	Crystalline	Amorphous
1. Shape	Definite characteristic geometrical shape	Irregular shape
2. Melting point	Melt at a sharp and characteristic temperature	Gradually soften over a range of temperature.
	<p>A graph with 'Temp' on the vertical axis and 'Time' on the horizontal axis. A curve starts at a point labeled 'liq', drops sharply to a horizontal line labeled 'solid', and then continues as 'solid'.</p>	<p>A graph with 'Temp' on the vertical axis and 'time' on the horizontal axis. A curve starts at a point labeled 'liq', gradually slopes down, and levels off as 'solid'.</p>
3. Heat of fusion	They have a definite and characteristic heat of fusion	They do not have definite heat of fusion
4. Anisotropy	<p>A diagram showing a regular grid of alternating 'O' and 'X' symbols, representing a crystalline lattice structure.</p>	<p>A diagram showing a disordered arrangement of 'O' and 'X' symbols, representing an amorphous lattice structure.</p>

#### 4. Anisotropy



Anisotropic in nature



Isotropic in nature

#### 5. Order in arrangement of constituent particles

Long range order

Short range order

#### 6. Examples

NaCl, Quartz

Rubber, plastic, glass,  
amorphous silica