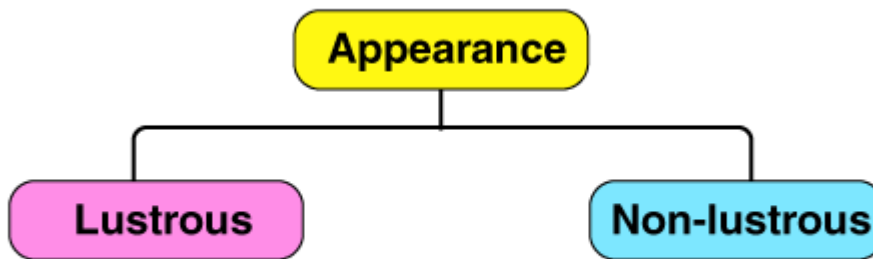


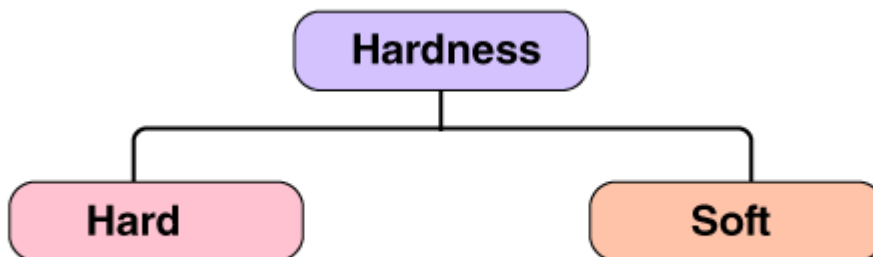
**Classification:** The process of sorting and grouping things according to some basis is called classification.

**Basis of grouping:** We can group materials on the basis of the similarities and differences in their properties.

**Classification based on appearance**



**Classification based on the hardness**

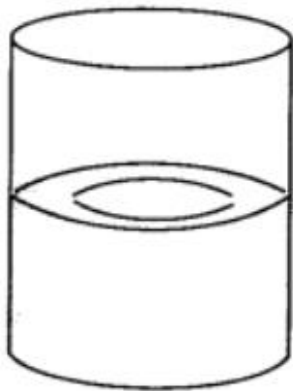


- Materials that can be compressed or deformed easily are referred to as soft substances.
- Whereas, materials that are difficult to bend or compress and are termed as hard substances.

## Solubility

**Soluble substances:** Substances that get dissolved in water are called soluble substances.

- **Insoluble substances:** Substances which do not dissolve in water are called insoluble substances.
- **Miscible:** Those liquids which mix well with water are said to be miscible.
- **Immiscible:** Substances which do not mix well with water are called immiscible.
- **Solubility of gases:** Solubility of gases in water is very less.
- Oxygen gas which is dissolved in water, is very important for the survival of aquatic plants and animals.



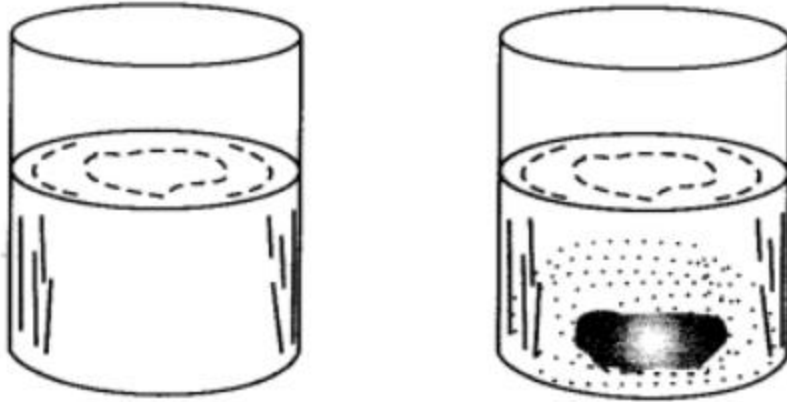
(a)



(b)

(a) Some liquids mix well with water while (b) some others do not

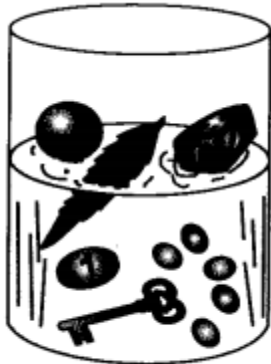
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What disappears, what doesn't?

• **Buoyancy:** Some materials float in water while others sink:

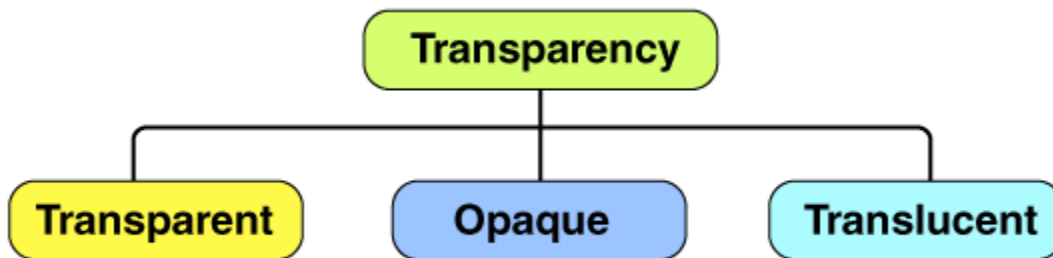
- Materials like sand, sugar and salt sink in water.
- Materials like wax, oil and wood float on water.



Some objects float on water while others sink in it

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## Classification based on transparency



- **Opaque:** Materials through which we are not able to see are called opaque. For example, wood, iron, gold.
- **Translucent:** Materials through which things are only partially visible are called translucent. For example, butter paper, old glass door.
- **Transparent:** Materials through which things can be seen are called transparent. For example, glass, water, air, test tube.

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