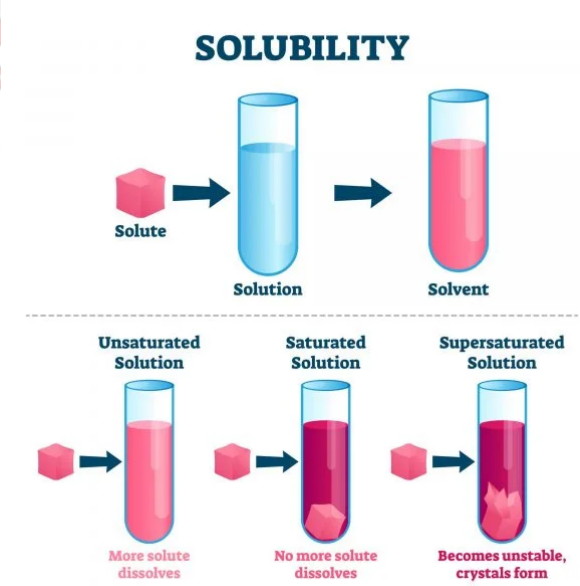
## B. What Dissolves & Doesn't?

### The Magic of Solubility

Water is a remarkable substance that has the ability to dissolve many different materials. When something dissolves in water, it means that its particles break down and spread out evenly throughout the water. This process is called solubility. Let's dive into the world of solubility and explore what dissolves in water!




**Solubility: The Key to Dissolving**

Solubility is the measure of how well a substance can dissolve in a solvent, such as water. Some substances dissolve easily in water, while others do not dissolve at all or only dissolve in very small amounts.

**Substances That Dissolve in Water**

1. **Salt**
   Salt is a common substance that dissolves easily in water. When you mix salt in water, it disappears, and you get a salty solution.
2. **Sugar**
   Like salt, sugar dissolves effortlessly in water, creating a sweet solution.
3. **Instant Coffee or Tea**
   Instant coffee or tea granules dissolve quickly in hot water, giving you a delicious beverage.
4. **Kool-Aid or Lemonade Powder**
   When you mix Kool-Aid or lemonade powder in water, it dissolves to create a tasty drink.
5. **Baking Soda**
   Baking soda is another substance that dissolves well in water, and it's commonly used in baking recipes.
6. **Vinegar**
   Vinegar is a liquid that dissolves in water to create a slightly acidic solution.

**Substances That Do Not Dissolve in Water**

1. **Oil**
   Oil and water don't mix well because oil is not soluble in water. Instead, oil forms separate droplets in water.

2. **Sand**
   Sand does not dissolve in water; it only gets suspended in the water and eventually settles down.

3. **Metal**
   Metal objects do not dissolve in water; they remain solid.

4. **Plastic**
   Like metal, plastic does not dissolve in water and remains unchanged.

**Why Some Substances Dissolve in Water**

Substances dissolve in water when their particles are attracted to the particles of water. Water molecules have a slight electric charge, which allows them to attract and surround the particles of certain substances, causing them to dissolve.

**In Conclusion**

Water is a magical solvent that can dissolve many different materials. From salt and sugar to instant coffee and lemonade powder, water has the power to create delicious solutions. However, not everything dissolves in water; substances like oil and plastic remain separate. Understanding solubility helps us appreciate the wonders of water and its role in creating the world of solutions.

1. What does solubility measure?
   A) How much water can evaporate
   B) How well a substance can dissolve in a solvent
   C) How much water can be frozen
   D) How well a substance can solidify

2. Which of the following substances dissolves easily in water?
   A) Oil
   B) Salt
   C) Sand
   D) Plastic

3. When something dissolves in water, what happens to its particles?
   A) They disappear
   B) They become bigger
   C) They remain unchanged
   D) They become heavier

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4. What substance can dissolve in water to create a slightly acidic solution?
    A) Baking soda
    B) Sugar
    C) Vinegar
    D) Salt

5. Which of the following substances does NOT dissolve in water?
    A) Oil
    B) Sugar
    C) Salt
    D) Instant coffee
6. Which of the following substances dissolves quickly in hot water to create a delicious beverage?
    A) Sand
    B) Salt
    C) Plastic
    D) Metal

7. What happens to substances that do not dissolve in water?
    A) They disappear
    B) They spread out evenly
    C) They remain unchanged or form separate droplets
    D) They turn into gas

8. Why does salt dissolve in water?
    A) Because water particles have a slight electric charge that attracts salt molecules.
    B) Because salt particles are heavy and sink in water.
    C) Because salt particles evaporate in water.
    D) Because salt particles freeze in water.

9. Which of the following substances does NOT dissolve in water?
    A) Sugar
    B) Salt
    C) Metal
    D) Baking soda

10. What is a solution?
    A) A substance that does not dissolve in water.
    B) A mixture of two or more substances that are evenly distributed in water.
    C) A substance that evaporates in water.
    D) A substance that solidifies in water.

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## ANSWERS & EXPLANATIONS

1. B) How well a substance can dissolve in a solvent.
    - Solubility is the measure of how well a substance can dissolve in a solvent, such as water.

2. B) Salt.
    - Salt dissolves easily in water to create a salty solution.

3. A) They disappear.
    - When something dissolves in water, its particles break down and spread out evenly throughout the water.

4. C) Vinegar.
    - Vinegar dissolves in water to create a slightly acidic solution.

5. A) Oil.
    - Oil does not dissolve in water; instead, it forms separate droplets in the water.
6. B) Salt
    - Salt dissolves easily in hot water, creating a salty solution that can be used in cooking or seasoning.

7. C) They remain unchanged or form separate droplets.
    - Substances that do not dissolve in water either remain unchanged or form separate droplets that do not mix with the water.

8. A) Because water particles have a slight electric charge that attracts salt molecules.
    - Water molecules have a slight electric charge, allowing them to attract and surround the particles of salt, causing it to dissolve.

9. C) Metal
    - Metal does not dissolve in water; it remains in its solid state and does not mix with the water.

10. B) A mixture of two or more substances that are evenly distributed in water.
    - A solution is a mixture of two or more substances that are evenly distributed throughout the water, resulting in a homogenous mixture.

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