تم تحميل هذا الملف من موقع المناهج الإماراتية	
	

الملف الخطة الأسبوعية للأسبوع الخامس الحلقة الثانية في مدرسة أبو أيوب الأنصاري
موقع المناهج ⇦ المناهج الإماراتية ⇦ ملفات مدرسية ⇦ المدارس ⇦ الفصل الأول

روابط مواقع التواصل الاجتماعي بحسب ملفات مدرسية			
			
روابط مواد ملفات مدرسية على تلغرام			
التربية الاسلامية	اللغة العربية	اللغة الانجليزية	الرياضيات

المزيد من الملفات بحسب ملفات مدرسية والمادة المدارس في الفصل الأول	
1	توجيهات بدء الدراسة للعام الدراسي الجديد
2	امتحانات منتصف الفصل الأول للصفين الحادي عشر والثاني عشر في مدرسة الشعلة الخاصة
3	امتحانات منتصف الفصل الأول للصفين التاسع والعاشر في مدرسة الشعلة الخاصة
4	امتحانات منتصف الفصل الأول للصفوف الخامس حتى الثامن في مدرسة الشعلة الخاصة
5	امتحانات منتصف الفصل الأول للصفوف الأول حتى الرابع في مدرسة الشعلة الخاصة

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Unit 1, unit 2 Science grade 8

Types of Chemical Reactions:

1. combustion reaction
2. synthesis reaction
3. decomposition reaction
4. single-displacement reaction
5. double-displacement reaction

- **combustion reaction**

occurs when a substance reacts with oxygen to produce energy in the form of heat and light.

Example:

$C (s) + O_2 (g) \longrightarrow CO_2 (g)$

Note That 👀:

In combustion reaction we Find in

In the reactant: Oxygen(O_2)

In the product: CO_2 OR Heat OR light

- **synthesis reaction**

(composition Reaction)

two or more substances combine to form another substance.

Example:

$H_2(g) + Cl_2(g) \longrightarrow 2\ HCl(g)$

A + B —> AB

decomposition reaction

one substance breaks down into two or more substances.

Example:

$2H_2O_2 (l) \rightarrow O_2(g) + 2H_2O(l)$

AB —> A + B

single-displacement reaction

one element replaces another element in a compound.

Example:

$Cu(s) + 2AgNO_3(aq) \rightarrow Cu(NO_3)_2(aq) + Ag(s)$

A + BC —> AC + B

An activity series lets you predict whether a single-displacement reaction will occur. A metal will replace any less active metal.

double-displacement reaction

the positive ion of one compound replaces the positive ion of the other, forming two new compounds

$CuCl_2(aq) + 2NaOH(aq) \rightarrow Cu(OH)_2(s) + 2NaCl(aq)$

AB + CD —> AD + CB

Note That 👀:

- **Precipitate: an insoluble compound that comes out of solution during this type of reaction.**
  (Solid Formed in the Product)

- **Oxidation is the loss of electrons.**
  Reduction is the gain of electrons.
  Reduction and oxidation always work as a pair (in the Same time)

Lesson 3

Note That👀 :

- **All chemical reactions release or absorb energy.**
- **This energy can take many forms, including thermal energy, motion, light, sound, and electricity.**
- **In most chemical reactions, chemical bonds in the reactants are broken and new bonds are formed.**
- **The breaking of bonds requires energy. The formation of bonds releases energy**

Activation Energy : energy required to start a chemical reaction

1- **exergonic reactions:** Chemical reactions that release energy

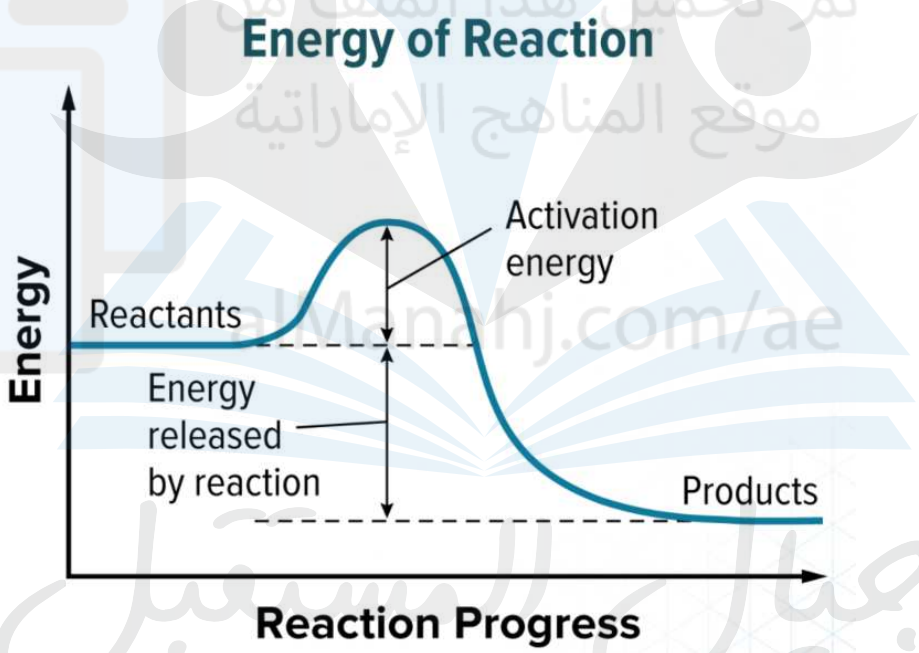
Example:

The glowing abdomen of a firefly is due to light given off(released) by exergonic reactions.

exothermic reaction : When the energy of an exergonic reaction is given off mostly in the form of **thermal energy**

(release Of thermal Energy (heat) with the product)

the temperature of the products is higher than the temperature of the reactants.



Energy of reactant is more than energy of product

endergonic reactions : Chemical reactions that absorb energy

Example:

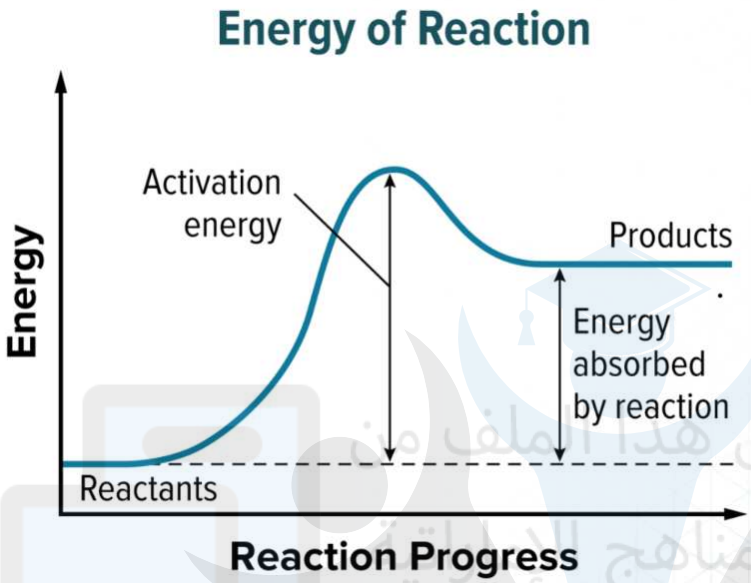
When an electrical current is passed through water, the water will decompose.

$H_2O \longrightarrow H_2 + O_2$

This is an example of an **endergonic reaction.**

endothermic reaction : When the energy needed to keep an endergonic reaction going is in the form of thermal energy,

(**Absorb Of Thermal Energy**)



Energy of product is more than energy of reactant

Note That 👀:

The law of conservation of energy states that the energy released or absorbed is equal to the difference between the chemical energy of the reactants and products.

Lesson 4

- The **reaction rate:**
  - ✓ is the rate at which reactants change into products.
  - ✓ the rate at which a product is produced
  - ✓ the rate at which a reactant is used up.

- **Note That 👀: The collision model states that atoms, ions, and molecules must collide in order to react.**

- **Factors affecting the rate of the reaction:**
  1. **Temperature**
  2. **Concentration**
  3. **Pressure**
  4. **Surface area**

1- Temperature:

- ✓ **Temperature generally <u>increases</u> reaction rates.**
- ✓ **At higher temperatures, particles have more energy and move faster. As a result, they collide more frequently. They also collide with greater energy, increasing the percentage of collisions resulting in a reaction.**

2-Concentration

- ✓ **Increasing the concentration of a reactant in a solution <u>increases</u> the rate of a reaction.**
- ✓ The more reactant particles per unit volume, the greater the chance that a reaction will occur.

3- Pressure and Volume

- **Increasing the pressure and decreasing the volume of a gas increases the concentration of the gas. This increases reaction rate.**

4- Surface area

✓ **<u>Surface Area:</u> Area of reactant that react with a substance**

✓ **Increased surface area results in <u>increased</u> reaction rates because more reactant particles are exposed, allowing more collisions to take place.**

A catalyst:

- ✓ **is a substance that <u>speeds up</u> a chemical reaction without being permanently changed itself.**
- ✓ **Catalysts are used in industry to speed up reactions such as polymer production.**
- ✓ **Your body uses special catalysts called <u>enzymes</u> to break down food and for other functions.**
- ✓ **Enzyme: is Biological Catalyst في جسم**

Inhibitors: substance that **<u>slow down</u>** reactions **<u>or</u>** **<u>prevent</u>** them from occurring. they themselves are not changed in the reaction.

Note That:

Catalysts and inhibitors **<u>affect only the rate of a reaction</u>**. They **<u>do not change</u>** **<u>the amount</u>** of product produced.

reversible reaction is one that can occur in both forward and reverse directions.

Equilibrium:

is a state in which forward direction and reverse reactions or processes proceed at equal rates.
A double arrow is used to indicate equilibrium.

$$\text{reactants} \rightleftharpoons \text{products}$$

An equilibrium system may be subjected to stresses that speed up or slow down one of the opposing reactions. The equilibrium becomes temporarily unbalanced. But in time, a new equilibrium is established.

Stresses include changing concentration, changing temperature, and changing volume and pressure.

Le Châtelier's principle states that if a stress is applied to a system at equilibrium, the equilibrium shifts in the direction that opposes the stress.

- **How can production of ammonia NH3 be increased, according to Le Châtelier's principle?**

$N_2(g) + 3H_2(g)$——-> $2NH_3(g)$ + energy

- ✓ **Removing ammonia causes the equilibrium to shift to the right, increasing production of $NH_3(g)$.**
- ✓ **Lowering the temperature also causes the equilibrium to shift to the right, the direction in which energy is released.**
- ✓ **Decreasing the volume (increasing the pressure) also causes the system to respond by shifting to the right. This is because there are fewer product particles than reactant particles.**

Unit 2

Lesson 1

A solution: is a **homogeneous mixture** that remains constantly and uniformly mixed and has particles so small they cannot be seen with a microscope.

A solute: is a substance being dissolved. (the smaller quantity)
A solvent: is a substance in which a solute is dissolved. (the larger quantity)

- ✓ Example: In salt water, salt is the solute and water is the solvent
- ✓ Hummingbird food is a homogeneous mixture (solution) of sugar and water.

Solutions can be;

1- **Liquid (salt in water)**
2- **Gas (Air)**
3- **Solid (Alloy)**

Alloy:

- ✓ is a mixture of elements that has metallic properties.(mix of two metals)
- ✓ Example: Sterling silver is an alloy of 92.5 percent silver (solvent) and 7.5 percent copper (solute).
- ✓ alloy of 99 percent gold (solvent) and 1 percent copper (solute)
- ✓ Alloy of 85 percent copper and 15 percent tin

Note that👀:

When gases dissolve in gases or when liquids and gases dissolve in liquids, particle movement spreads solutes throughout the mixture until eventually a homogeneous mixture forms.

Solid solutions are made by first melting the solids, then mixing them together while they are still molten.

The rate at which a solute dissolves into a solvent can be increased by:

1. **stirring**
2. **increasing the surface area of the solute**
3. **increasing the temperature of the solvent**

The concentration of a solution: is the amount of solute dissolved in a given amount of solvent.

Concentration: is percentage by volume.

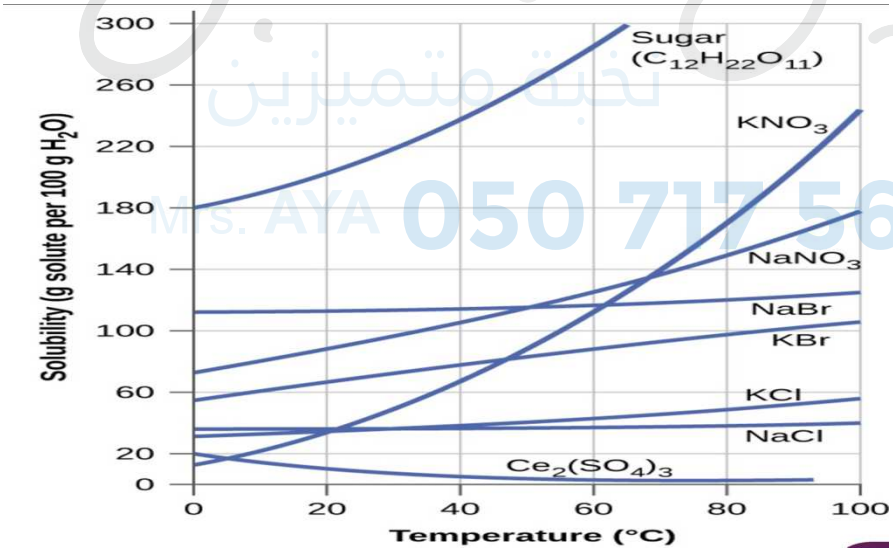
Solubility: is the maximum amount of a solute that can be dissolved in a given amount of solvent at a given temperature.

Solubility is often expressed as grams of solute per 100 g of water.

Important Note 👀:

As the temperature of a liquid solvent increases, the amount of solid solute that can dissolve into it increases (Solubility increases)

Solubility Curve : A graph that shows how much solute can be dissolved



Types of Solutions:

1. **Saturated**
2. **Unsaturated**
3. **Super saturated**

A saturated solution: is a solution that contains all of the solute that it can hold at a given temperature.

An unsaturated solution: is a solution that can dissolve more solute at a particular temperature.

A supersaturated solution: is one that contains more solute than a saturated solution at the same temperature.

Supersaturated solutions are unstable. They may form crystals or precipitate or remains of undissolved solute when a solid seed is added.

Important Note👀:

If you heat a saturated solution, it often becomes unsaturated and can dissolve more solute.

Because when we increase the temperature, the solubility increases

Solubility of Gases increases by:

1- **Increasing the pressure**
2- **Decreasing the temperature**

This is why;

- **When Opening a soft drink bottle reduces pressure at the surface, so dissolved CO_2 gas bubbles out.**
- **A warm soft drink produces more bubbles than a cold soft drink.**

Note that 👀:

ion: charged particle that has greater or fewer electrons than protons

Na^+ is an ion

Cl^- is an ion

Electrolytes: are compounds that produce solutions of ions in water.

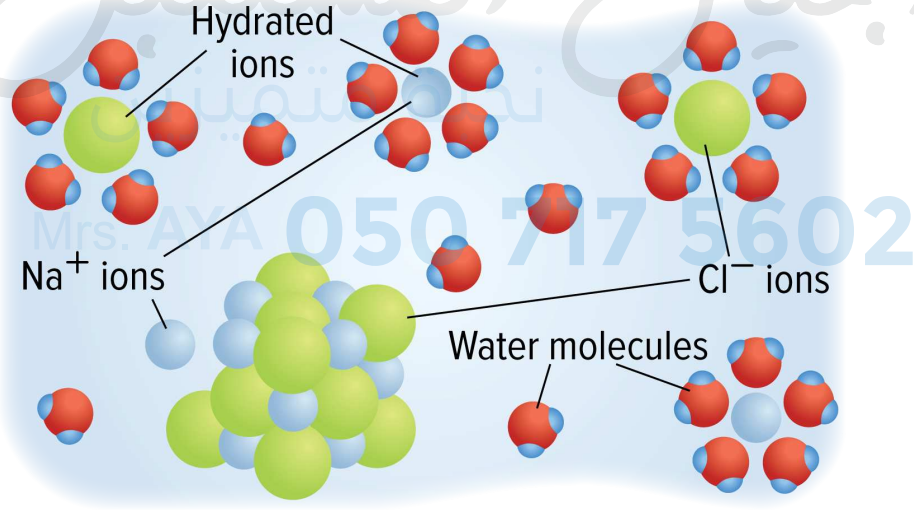
Solutions containing electrolytes conduct electricity.

non electrolytes: Substances that form no ions in water and do not conduct electricity

Ionization: is a process in which molecular compounds dissolve in water and separate into charged particles (ions)

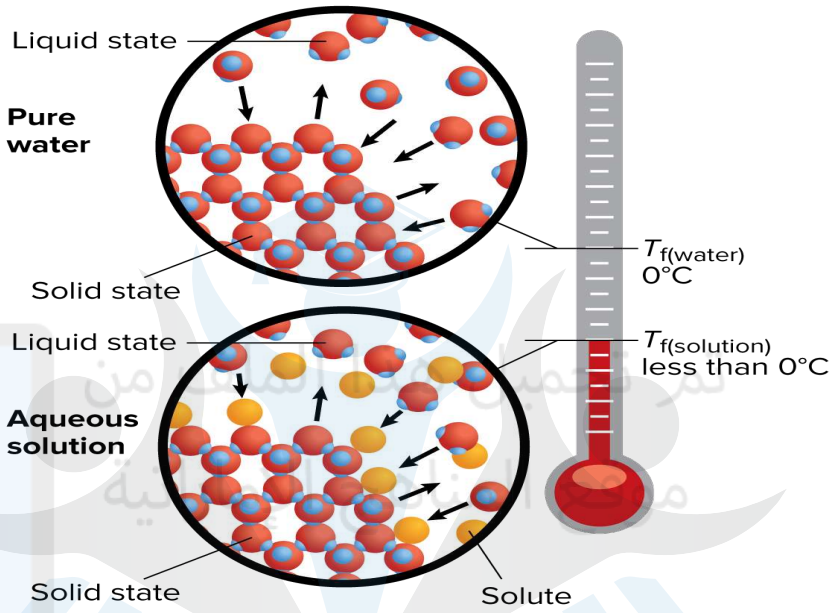
Example: H20 surrounds HCl molecules and pulls them apart to form H+ and Cl^- ions.

Dissociation: is a process in which positive and negative ions of an ionic solid mix with solvent to form a solution.

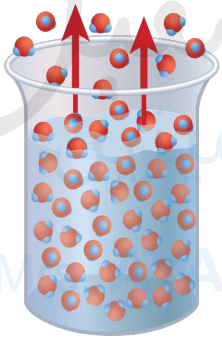


Very important Notes👀:

- **Adding a solute to a solvent lowers the freezing point.**
  The solute interferes with the arrangement of particles as the solid forms.
  Example: antifreeze



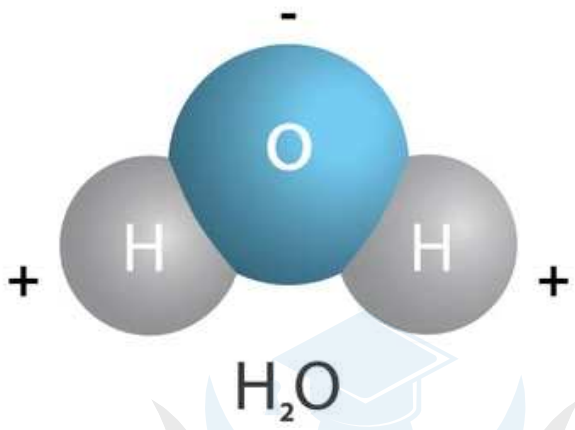
- **Adding a solute to a solvent raises the boiling point.**
  Solute particles blocks the surface



In a beaker of pure water, water molecules vaporize freely from the surface.

Solute particles block part of the surface, making it more diffcult for solvent to vaporize.

polar molecule: a molecule with a **slightly positive end and a slightly negative end** as a result of electrons being shared unequally



Water is a good solvent for polar or ionic solutes. The positive and negative parts of a water molecule attract polar or ionic solutes.

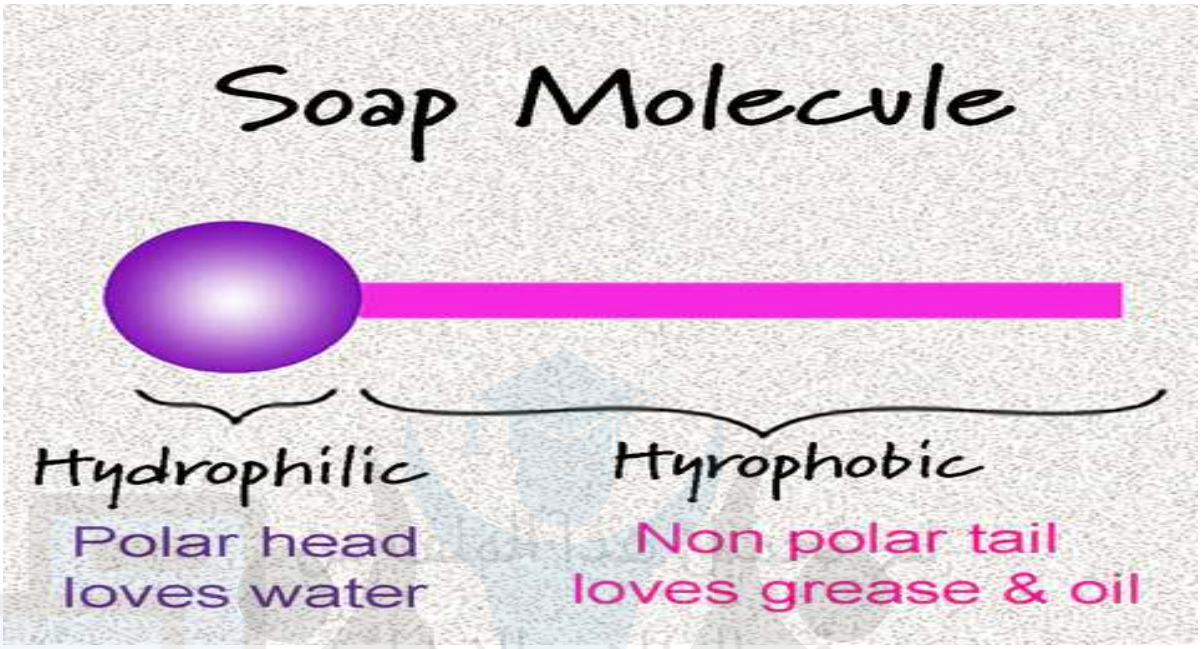
Polar molecules can dissolve polar or ionic solutes.

Non-polar molecules do not dissolve in water or dissolve only a small amount.

Non polar solvents can be used to dissolve non-polar solutes.

Example: Water cannot be mixed with oil paint. Instead, you can use turpentine to thin or remove oil-based paints.

Some substances—such as soap and ethanol—have a polar end and a non-polar end.



- ✓ **The non-polar end of soap dissolves in oily dirt,**
- ✓ **while the charged, ionic end of soap dissolves in water.**
- ✓ **This allows you to wash away the oil and dirt.**

Some vitamins, such as vitamin A, are non polar.

- ➢ **They dissolve in fat, which is also non polar.**
- ➢ **They can accumulate to toxic levels in your body if you take too many.**

Other vitamins, such as vitamins B and C, are polar molecules,

so they dissolve in water.

They do not accumulate in tissue because excess vitamin is washed away by water in the body.

Important definitions:

- **Saturated:** A solution that has dissolved the Maximum amount of solute.
- **Super Saturated**: A solution that has more solute than the solvent can dissolve.
- **Unsaturated**: A solution that can dissolve MORE solute.
- **Solution**: A homogenous mixture
- **Solute:** The substance being dissolved in a solution
- **Solvent:** The substance that dissolves the solute
- **Solubility:** Maximum amount of solute that can be dissolved at a given temperature.
- **Insoluble:** A substance that does not dissolve.
- **Solubility Curve:** A graph that shows how much solute can be dissolved
- **Concentration:** The amount of solute dissolved in a given amount of solvent.
- **Electrolytes:** Compounds that produce solutions of Ions (charged particles)
- **Non-Electrolytes:** Form no ions in water.
- **Ionization:** Process in which molecular compounds dissolve and make ions.
- **Alloy:** A mixture of elements that has metallic properties.