

Grade 9 General Term 3 Revision Booklet



تم تحميل هذا الملف من موقع المناهج الإماراتية

موقع المناهج ⇨ المناهج الإماراتية ⇨ الصف التاسع المتقدم ⇨ علوم ⇨ الفصل الثالث ⇨ ملفات متنوعة ⇨ الملف

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ملفات اكتب للمعلم اكتب للطالب | اختبارات الكترونية | اختبارات | حلول | عروض بوربوينت | أوراق عمل
منهج انجليزي | ملخصات وتقارير | مذكرات وبنوك | الامتحان النهائي | للمدرس

المزيد من مادة
علوم:

إعداد: Abdelhamid Nehal

التواصل الاجتماعي بحسب الصف التاسع المتقدم



صفحة المناهج
الإماراتية على
فيسبوك

الرياضيات

اللغة الانجليزية

اللغة العربية

التربية الاسلامية

المواد على تلغرام

المزيد من الملفات بحسب الصف التاسع المتقدم والمادة علوم في الفصل الثالث

Grade 9 General Term 3 Revision Booklet

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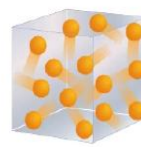
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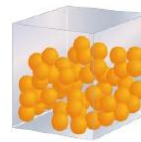
**Grade 9 General Term 3 Revision Booklet
2025- 2026
Al Shawamekh School**

**Done By:
Nehal Abdelhamid**

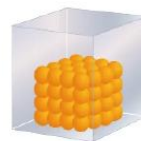
	Solid	Liquid	Gas
volume	Fixed	Fixed	not fixed
Shape	Fixed	not fixed	not fixed
Particles motion	Vibrate	Slide past to each other	Move freely in all direction
Attractive Force	high	Less than solid	low
Kinetic Energy	low	more than solid	high



Gas



Liquid



Solid

1.Which state of matter has a definite shape and a definite volume?

- A. Gas B. Liquid
C. Solid D. Plasma

2.Which state of matter takes the shape of its container but keeps a definite volume?

- A. Gas B. Liquid C. Solid D. Crystal

3.Which state of matter has neither a definite shape nor a definite volume?

- A. Solid B. Liquid C. Gas D. Ice

4.In which state are particles the farthest apart and move fast?

- A. Solid B. Liquid C. Gas D. Crystal

5.In which state are particles packed most closely together?

- A. Gas B. Liquid C. Solid D. Vapor

6.Which state has the weakest intermolecular forces between particles?

- A. Solid B. Liquid C. Gas D. Ice

7.Which state has stronger intermolecular forces than gases but weaker than solids?

- A. Plasma B. Liquid C. Gas D. Vapor

8. Why do liquids have a definite volume?

- A. Their particles stop moving completely.
B. Their particles are tightly locked in place.
C. Attractive forces keep particles close together.
D. Their particles are very far apart.

9. Why do gases spread out to fill any container?

- A. Their particles are fixed in place.**
- B. Their particles have high kinetic energy and weak attractions.**
- C. Their particles are closely packed together.**
- D. Their particles cannot move freely.**

10. Which statement correctly compares solids, liquids, and gases?

- A. Solids have the weakest intermolecular forces.**
- B. Gases have the smallest distances between particles.**
- C. Liquids have definite volume but no definite shape.**
- D. Gases have definite shape and volume.**

11. Which state of matter has particles that can slide past one another?

- A. Solid**
- B. Liquid**
- C. Gas**
- D. Crystal**

12. Compare the distances between particles in solids, liquids, and gases. Which is correct?

- A. Gas < Liquid < Solid**
- B. Solid < Liquid < Gas**
- C. Liquid < Gas < Solid**
- D. Solid = Liquid = Gas**

13. Which state has particles with the least kinetic energy?

- A. Gas**
- B. Liquid**
- C. Solid**
- D. Vapor**

14. Which property best explains why solids keep their own shape?

- A. Weak intermolecular forces**
- B. Large spaces between particles**
- C. Strong attractive forces between closely packed particles**
- D. Rapid particle motion**

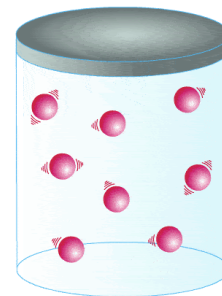
15. Which table correctly compares the three states of matter?

State	Shape	Volume	Particle Distance
A. Solid	Definite	Definite	Very close
B. Liquid	Definite	Indefinite	Far apart
C. Gas	Definite	Indefinite	Very close
D. Gas	Indefinite	Definite	Close together

The kinetic theory is an explanation of how the particles in gases behave.

Explanation of kinetic theory:

- 1- All matter is composed of tiny particles (atoms, molecules, and ions).**
- 2- These particles are in constant, random motion.**
- 3- The particles collide with each other and with the walls of any container in which they are held.**
- 4- The amount of energy that the particles lose from these collisions is negligible.**



1. According to the kinetic theory, all matter is made up of:

- A. Large crystals
- B. Tiny particles
- C. Only liquids
- D. Energy waves

4. Which statement best describes gas particles?

- A. They move in a regular pattern
- B. They stop moving when cooled
- C. They are in constant random motion
- D. They only move upward

2. Gas particles collide with:

- A. Only each other
- B. Only the container walls
- C. Each other and the container walls
- D. Nothing

5. The kinetic theory is mainly used to explain:

- A. Plant growth
- B. Behavior of particles in gases
- C. Earthquakes
- D. Sound waves only

3. Why do gases not have a fixed shape?

- A. Their particles are tightly packed
- B. Their particles are fixed in place
- C. Their particles spread out to fill the container
- D. Their particles are very heavy

6. ___ is the energy an object has due to its motion.

- A. Heat of fusion
- B. Heat of vaporization
- C. Kinetic energy
- D. Diffusion

7. What does the kinetic theory explain?

- A. How plants grow
- B. How particles in gases behave
- C. How solids melt
- D. How light travels

8. According to kinetic theory, particles in matter are always:

- A. At rest
- B. Moving in a constant, random motion
- C. Moving in straight lines only
- D. Sticking together permanently

9. Why can liquids flow and take the shape of their container?

- A. Their particles are fixed tightly in place
- B. Their particles can slide past each other
- C. Their particles do not move
- D. Their particles are extremely far apart

10. Which statement correctly compares particle movement in solids, liquids, and gases?

- A. Particles in solids move faster than in gases
- B. Particles in liquids do not move
- C. Particles in gases move more freely than in liquids and solids
- D. Particles in all states move at the same speed

11. Which statement about particle motion is TRUE?

- A. Only gas particles move
- B. Only liquid particles move
- C. Particles in all states of matter are in motion
- D. Solid particles are completely motionless

12. Why do solids keep their shape?

- A. Their particles move freely everywhere
- B. Their particles are closely packed and cannot overcome attractions
- C. Their particles are very far apart
- D. Their particles have very high kinetic energy

13. Which state of matter has particles with the least kinetic energy?

- A. Gas
- B. Liquid
- C. Solid
- D. Plasma

14. What is the most common state of matter in the universe?

- A. Gas
- B. Liquid
- C. Solid
- D. Plasma

3- Use the kinetic molecular theory to explain the behavior of particles in the different state of matter

- ✓ When thermal energy is added to the ice, its particles vibrate faster
- ✓ As the ice's particles gain enough kinetic energy to overcome the forces holding them in place, the ice melts at its melting point.
- ✓ Liquid particles lose kinetic energy and become cooler.

The melting point: is the temperature at which a solid becomes a liquid.

Heat of fusion: is the energy required to change a substance from solid to liquid at its melting point.



Figure 4 When ice is placed in water, energy from the particles of the liquid water is transferred to the particles of solid ice, melting the ice and cooling the water.

1. According to the kinetic molecular theory, why does ice melt?

- A. The particles in the ice stop vibrating
- B. Particles gain enough kinetic energy to overcome the attractive forces holding them in a solid state
- C. The liquid water freezes first
- D. The particles lose energy and slow down

2. What happens to the liquid water particles after they collide with the ice?

- A. They gain kinetic energy and heat up
- B. They stop moving completely
- C. They lose kinetic energy and move more slowly, causing the water to cool
- D. They turn into gas immediately

3. Which statement best describes freezing according to the kinetic molecular theory?

- A. Particles speed up until they form a solid
- B. Particles lose kinetic energy and become fixed in place as attractive forces pull them into a solid state
- C. Particles gain enough energy to break free from the solid
- D. Particles stop interacting with each other

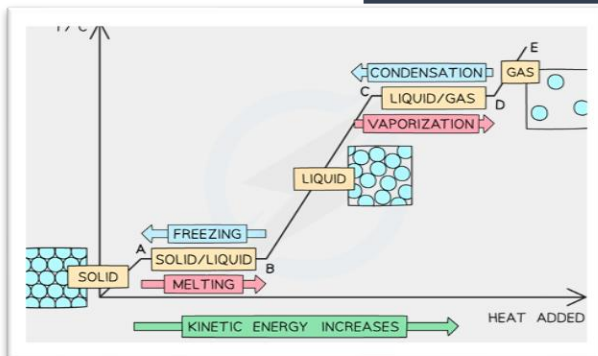
4. What is the amount of energy needed to change a solid to a liquid at its melting point?

- A. heat of fusion
- B. temperature
- C. heat of vaporization
- D. absolute zero

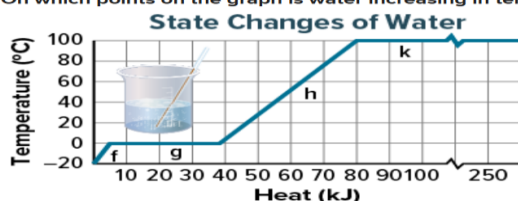
5. What is the temperature at which a solid becomes a liquid?

- A. heat of fusion
- B. temperature
- C. melting point
- D. boiling point

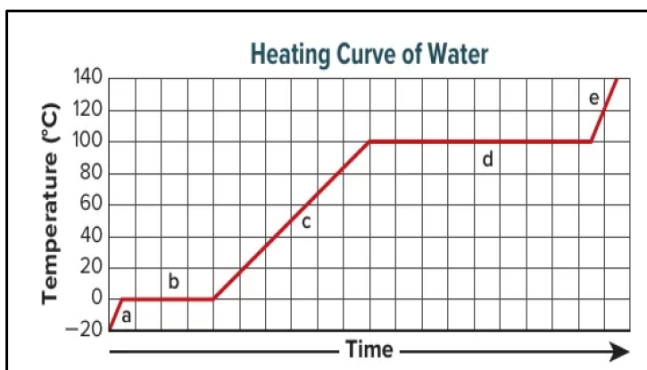
- a) From -20°C to 0°C the ice is solid (ice)
 b) At 0°C there is a melting point where the ice is melting (ice + liquid)
 c) From 0°C to 100°C the water is liquid while temperature is increasing
 d) At 100°C there is boiling point the water is turning into gas (liquid + gas)
 e) From 100°C and above the water is gas



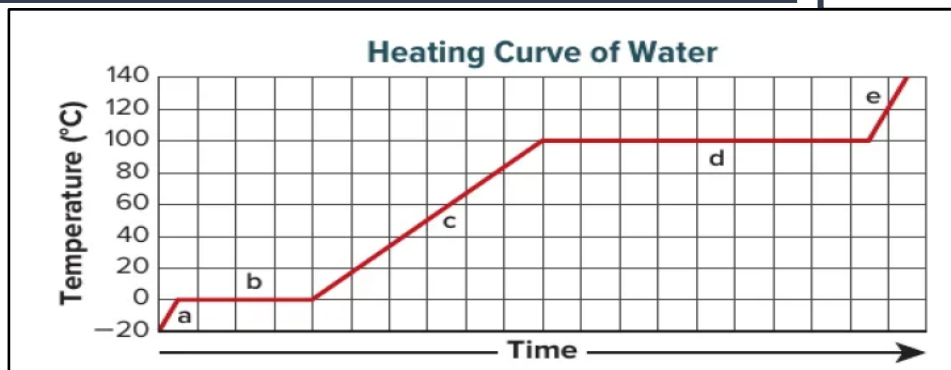
On which points on the graph is water increasing in temperature?



- ☐ F and H
☐ G and K
☐ F, G, H, and K
☐ F and G



- In section a of the heating curve, what is happening to the water?
 A. Water is boiling B. Ice is heating up C. Water vapor is cooling
 D. Liquid water is freezing
- Which phase change occurs during section b of the graph?
 A. Freezing B. Condensation C. Melting D. Evaporation
- Which section of the graph the temperature remain constant?
 A. a B. b C. c D. b and d
- During which sections are two phases present at the same time?
 A. a and c B. b and d C. c and e D. a and e
- In section c, the water is in which state?
 A. Solid only B. Gas only C. Liquid only D. Solid and liquid together
- What happens to the particles during section c?
 A. They lose kinetic energy B. They stop moving
 C. Their temperature and kinetic energy increase D. They freeze into a solid
- Which section of the graph represents boiling?
 A. a B. b C. c D. d



8. According to the graph At what temperature does water boil?

- A. 0°C B. 50°C C. 100°C D. 140°C

9. According to the graph At what temperature does water freeze?

- A. 0°C B. 50°C C. 100°C D. 140°C

10. In section e, what is happening to the substance?

- A. Ice is melting B. Liquid water is heating
C. Water vapor is heating D. Water is freezing

11. Which statement correctly compares sections b and d?

- A. Both show temperature increasing
B. Both represent phase changes at constant temperature
C. Both involve only solids
D. Both involve cooling processes

12. What happens to particle attraction during melting and boiling?

- A. Attractive forces become stronger
B. Attractive forces are overcome by added energy
C. Particles stop colliding
D. Particle motion completely stops

13. Which section shows particles moving most freely?

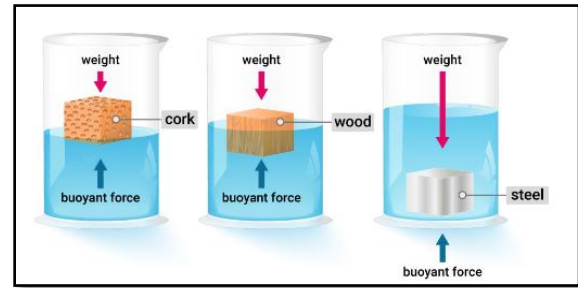
- A. a B. b C. c D. e

14. What is the main purpose of a heating curve?

- A. To show changes in mass over time
B. To show changes in temperature as thermal energy is added
C. To measure pressure changes
D. To compare density and volume

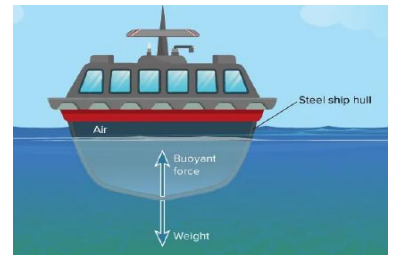
Buoyancy is the upward force exerted by a fluid on an object partially or fully submerged in it

If the buoyant force is equal to the object's weight, the object floats. If the buoyant force is less than the object's weight, the object sinks.



1. What force does the upward arrow in the diagram at right represent?

- A. pressure
- B. density
- C. buoyant force
- D. gravitational force



2. What happens if the buoyant force is equal to an object's weight?

- A. The object sinks
- B. The object floats
- C. The object disappears
- D. The object becomes heavier



3. What happens if the buoyant force is less than the object's weight?

- A. The object floats
- B. The object evaporates
- C. The object sinks
- D. The object stops moving

4. According to Archimedes' principle, the buoyant force on an object is equal to:

- A. The mass of the object
- B. The weight of the fluid displaced
- C. The density of the object
- D. The volume of the object only

___ is the ability of a fluid to exert an upward force on an object immersed in it.

- ☐ Viscosity
- ☐ Vaporization
- ☐ Buoyancy
- ☐ Thermal expansion

5. Why does the wood block float in water?

- A. Its weight is greater than the buoyant force**
- B. Its density is greater than water**
- C. The buoyant force is equal to or greater than its weight**
- D. Wood has no mass**

6. Why does the steel block sink in water?

- A. Steel has no buoyant force acting on it**
- B. The buoyant force is less than the block's weight**
- C. Water pushes it downward**
- D. Steel cannot displace water**

7. The wood block and steel block displace the same amount of water. Why does one float and the other sink?

- A. The wood block has greater weight**
- B. The steel block has less density than water**
- C. The steel block weighs much more than the wood block**
- D. The wood block displaces less water**

8. An object will float if its density is:

- A. Equal to the density of the fluid only**
- B. Greater than the density of the fluid**
- C. Less than the density of the fluid**
- D. Zero**

9. Which object has a density greater than water?

- A. Wood block**
- B. Steel block**
- C. Steel ship filled with air**
- D. Ice cube**

10. Why can a steel ship float even though steel sinks?

- A. Ships contain engines**
- B. The steel becomes lighter in water**
- C. The ship's large volume lowers its overall density**
- D. Water loses density around ships**

CALCULATE FORCE Atmospheric pressure at sea level is about 101 kPa. With how much total force does Earth's atmosphere push on an average human being at sea level? Assume that the surface area of an average human is 1.80 m^2 .

- A. $1.82 \times 10^3 \text{ N}$
- B. $1.82 \times 10^4 \text{ N}$
- C. $1.82 \times 10^5 \text{ N}$
- D. $1.82 \times 10^6 \text{ N}$

8. A diver who is 10.0 m underwater experiences a pressure of 202 kPa. If the diver's surface area is 1.50 m^2 , with how much total force does the water push on the diver?

- A. $3.03 \times 10^4 \text{ N}$
- B. $3.03 \times 10^5 \text{ N}$
- C. $3.03 \times 10^6 \text{ N}$
- D. $1.35 \times 10^5 \text{ N}$

9. A car weighs 15,000 N, and its tires are inflated to a pressure of 190 kPa. How large is the area of the car's tires that are in contact with the road?

- A. 0.0079 m^2
- B. 0.079 m^2
- C. 0.79 m^2
- D. 7.9 m^2

Whether an object will sink or float in a fluid is determined by ____.

- ☐ Bernoulli's principle
- ☐ Archimedes' principle
- ☐ Pascal's principle
- ☐ Charles's law

The SI unit of pressure is ____.

A.Pascal

B.Boyle

C. Charles

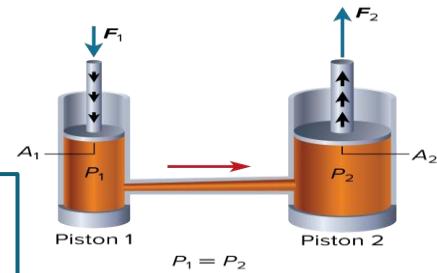
Pascal discovered that pressure applied to a fluid is transmitted throughout the fluid.

This principle can be used to calculate forces in a hydraulic lift.

input force (N)/input area (m²) = output force (N)/output area (m²)

$$\frac{F_{in}}{A_{in}} = \frac{F_{out}}{A_{out}}$$

$$\frac{F_1}{A_1} = \frac{F_2}{A_2}$$



CALCULATE FORCES A hydraulic lift is used to lift a heavy machine that is pushing down on a 2.8-m² platform with a force of 3700 N. What force must be exerted on a 0.072-m² piston to lift the heavy machine?

- A. 95 N
- B. 3700 N
- C. 5200 N
- D. 130 N

11 -A car weighing 15,000 N is on a hydraulic lift platform measuring 10 m². What is the area of the smaller piston if a force of 1,100 N is used to lift the car?

- A. 0.55 m²
- B. 0.73 m²
- C. 1.36 m²
- D. 2.20 m²

12 - A heavy crate applies a force of 1500 N on a 25-m² piston. The smaller piston is 1/30 the size of the larger one. What force is needed to lift the crate?

- A. 45 N
- B. 50 N
- C. 150 N
- D. 500 N

According to Pascal, pressure applied to a fluid ____.

- ☐ increases as it moves through the fluid
- ☐ is transmitted unchanged throughout the fluid
- ☐ decreases as it moves through the fluid
- ☐ fluctuates as it is transmitted throughout the fluid

1- Putting your thumb over the end of a hose causes the water to flow out more quickly. Of what is this an example?

- A. Archimedes' principle
- B. Bernoulli's principle
- C. Pascal's principle
- D. viscosity

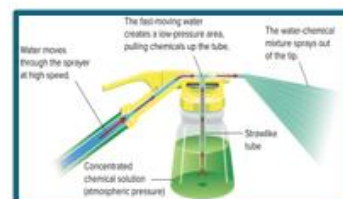


2- In the garden hose image, why does the water move faster when the nozzle opening is narrowed?

- A. The water pressure disappears
- B. The water temperature increases
- C. The same amount of water is forced through a smaller area
- D. Gravity becomes stronger

3- According to Bernoulli's principle, what happens to the pressure of a fluid when its speed increases?

- A. The pressure increases
- B. The pressure decreases
- C. The pressure stays the same
- D. The fluid stops moving



4 - Bernoulli examined the relationship between

- A. Fluid flow and its pressure
- B. Fluid temperature and its pressure
- C. Fluid pressure and its potential energy
- D. Fluid temperature and its kinetic energy

A fluid's resistance to flow is its ____.

- ☐ pressure
- ☐ buoyancy
- ☐ viscosity
- ☐ density

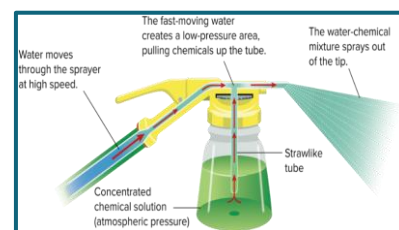
9- Describe Bernoulli's principle.

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Bernoulli's Principle

As the **velocity** of a fluid **increases**, the **pressure** exerted by that fluid **decreases**.

A hose-end sprayer uses Bernoulli's principle to pull a chemical solution up through a tube.



Which statement best describes Bernoulli's principle?

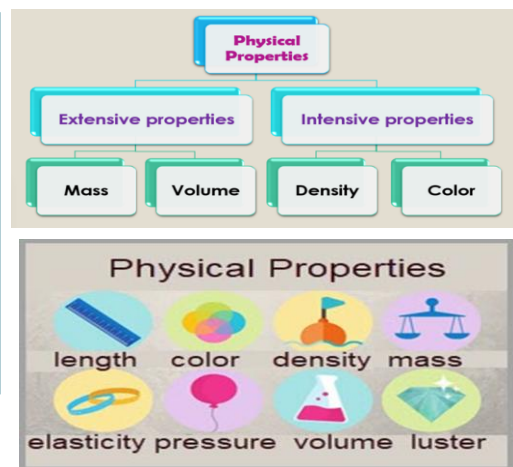
- A. Fluids always move at the same speed
- B. Faster-moving fluids exert lower pressure
- C. Pressure increases when fluid speed increases
- D. Liquids cannot flow through narrow spaces

Bernoulli's principle explains why ____.

- ☐ heated objects expand
- ☐ cooled objects contract
- ☐ planes fly
- ☐ boats float

Extensive properties**Are dependent on amount of substance.****Example:****Volume – Mass – Length****Intensive properties****Are independent on amount of substance.****Example:****Density, scent, melting point, and boiling point**

Sort each property as physical or chemical. Tell whether each physical property is extensive or intensive.



Chemical Property

Chemical Property

- forms green carbonate when exposed to air
- does not react with nitrogen
- ability to combine with another substance

Intensive Physical Property

Intensive Physical Property

- Chemical formula CO
- colorless
- solid at room temperature
- melting point
- conducts electricity
- density

Extensive Physical Property

Extensive Physical Property

- mass

Chemical formula CO

forms green
carbonate when
exposed to airdoes not react with
nitrogen

colorless

solid at room
temperatureability to combine
with another
substance

melting point

mass

conducts electricity

density

Which statement correctly compares extensive and intensive properties?

- A. Extensive properties do not depend on the amount of matter
- B. Intensive properties depend on the size of the sample
- C. Mass is an intensive property
- D. Intensive properties remain the same regardless of sample size

Which of the following is an example of an extensive property?

- A. Density
- B. Boiling point
- C. Mass
- D. Color

Chemical Property: Any characteristic of a material that you can observe and produces one or more new substances.

Example:

Flammability

The tendency of a substance to burn

Iron forming rust

When Iron react with Oxygen



Table 2 Properties of Copper

Physical Properties	Chemical Properties
- reddish brown, shiny - easily shaped into sheets (malleable) and drawn into wires (ductile) - a good conductor of heat and electricity - density = 8.96 g/cm^3 - melting point = 1085°C - boiling point = 2562°C	- forms green copper carbonate compound when in contact with moist air - reacts with nitric acid and sulfuric acid, forming new substances - one type of compound forms a deep-blue solution when in contact with ammonia

1. What is a chemical property of matter?

- A. A characteristic that can be observed without changing the substance
- B. A characteristic that describes the size or shape of a substance
- C. A characteristic that produces one or more new substances
- D. A property related only to color and texture

2. Which of the following is an example of a chemical property?

- A. Copper changing shape when hammered
- B. Iron reacting with oxygen to form rust
- C. Water freezing into ice
- D. Cutting paper into smaller pieces

3. Which statement best demonstrates a chemical property of copper?

- A. Copper is shiny and reddish-brown
- B. Copper forms a green copper carbonate compound in moist air
- C. Copper can be bent into wires
- D. Copper conducts electricity well

Chemical Change : Is a process that involves one or more substances changing into new substances .

Examples

Decomposing, rusting, exploding, burning, chemical reaction and oxidizing all describe chemical changes.



1. What is a chemical change?

- A. A change that affects only the size or shape of a substance
- B. A process in which one or more substances change into new substances
- C. A change that can always be reversed easily
- D. A process that does not produce new materials

2. Which of the following is an example of a chemical change?

- A. Melting ice
- B. Tearing paper
- C. Rusting iron
- D. Dissolving sugar in water

3. Which process best describes a chemical change because a new substance is formed?

- A. Breaking glass
- B. Boiling water
- C. Burning wood
- D. Cutting cloth

4. The rusting of iron shown in the image is an example of a chemical change because: A.

The iron only changes shape

- B. The iron becomes softer but remains the same substance
- C. A new substance (rust) is formed from iron and oxygen
- D. The iron is physically broken into smaller pieces



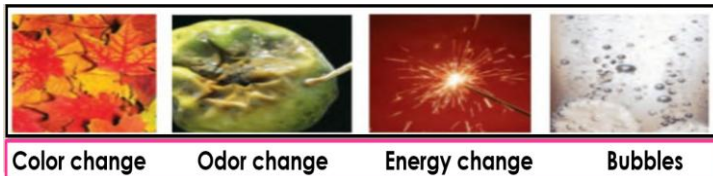
5. Food rotting, as shown in the image, is classified as a chemical change because:

- A. The fruit only loses water
- B. B. The fruit changes color but stays chemically the same
- C. C. New substances form as the fruit decomposes
- D. D. The fruit is physically squished



Signs of chemical change

- 1- change in color
- 2- change in smell
- 3- change in energy
- 4- bubbles formation
- 5- formation of new matter.



Color change

Odor change

Energy change

Bubbles

1. Which of the following is a sign that a chemical change has occurred?

- A. Change in shape B. Formation of bubbles
C. Change in size D. Breaking into pieces

Which of the following are indicators that a chemical reaction has probably taken place?

Multiple select question.

- ☐ change in temperature
☐ change in shape
☐ production of a new solid, liquid, or gas
☐ separation of components
☐ change in odor
☐ change in phase
☐ change in color

14- State Law of conservation of mass

Law of Conservation of Mass

States that mass is neither created nor destroyed

The Law of Conservation of Mass

$$\text{mass}_{\text{reactants}} = \text{mass}_{\text{products}}$$



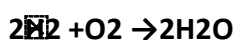
1. After two elements react to completion in a closed container, the ratio of their masses in the container will be the same as before the reaction. Which law describes this principle?

- A. Multiple choice question. B. law of chemical equilibrium
C. law of definite proportions D. law of conservation of mass

2. Which statement best explains the Law of Conservation of Mass during a chemical reaction?

- A. New mass is formed during the reaction
 B. Some mass disappears after the reaction
 C. The total mass before and after the reaction remains the same
 D. Mass changes into energy completely

3. In the chemical reaction shown below, how do you classify hydrogen and oxygen?



- A. Products B. reactants C. physical changes D. chemical properties

CONSERVATION OF MASS In an experiment, 10.00 g of red mercury(II) oxide powder is placed in an open flask and heated until it is converted to liquid mercury and oxygen gas. The liquid mercury has a mass of 9.26 g. What is the mass of oxygen formed in the reaction?

$$\text{mass}_{\text{reactants}} = \text{mass}_{\text{products}}$$

- A. 0.26 g B. 0.74 g
C. 1.26 g D. 19.26 g

6- From a laboratory process designed to separate water into hydrogen and oxygen gas, a student collected 10.0 g of hydrogen and 79.4 g of oxygen. How much water was originally involved in the process?

- A. 69.4 g B. 79.4 g
C. 89.4 g D. 90.4 g

7- A student carefully placed 15.6 g of sodium in a reactor supplied with an excess quantity of chlorine gas. When the reaction was complete, the student obtained 39.7 g of sodium chloride. Calculate how many grams of chlorine gas reacted. How many grams of sodium reacted?

- A. 15.6 g B. 24.1 g
C. 39.7 g D. 55.3 g

7- A 10.0-g sample of magnesium reacts with oxygen to form 16.6 g of magnesium oxide. How many grams of oxygen reacted?

- A. 6.0 g B. 6.6 g
C. 10.0 g D. 16.6 g

A heterogeneous mixture : is a type of mixture in which the components of the mixture are not evenly mixed

A homogeneous mixture : is a type of mixture in which the components of the mixture are evenly mixed

Solution : is a type of homogeneous mixture

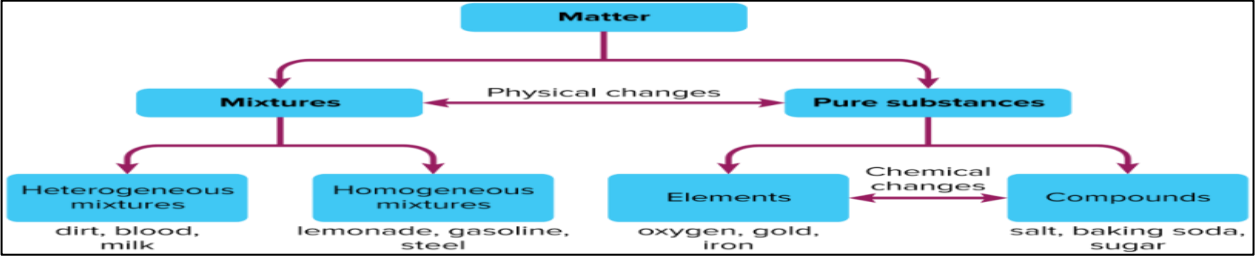


Table 5 Types of Solution Systems	
System	Example
Gas-gas	Air in a scuba tank is primarily a mixture of nitrogen, oxygen, and argon gases.
Gas-liquid	Oxygen and carbon dioxide are dissolved in seawater.
Liquid-gas	Moist air exhaled by the scuba diver contains water droplets.
Liquid-liquid	When it is raining, fresh water mixes with seawater.
Solid-liquid	Solid salts are dissolved in seawater.
Solid-solid	The air tank is made of an alloy—a mixture of two metals.

1. Based on the diagram, which statement is correct?

A. Elements can be separated into compounds by physical changes

B. B. Mixtures can be separated into pure substances by physical changes

C. C. Compounds can be separated into elements by physical changes

D. D. Homogeneous mixtures contain visibly different parts

2. A particulate diagram shows particles evenly spaced and identical throughout the sample. What type of mixture does this represent?

A. Heterogeneous mixture B. Homogeneous mixture

C. Compound D. Element

3. Which of the following is an example of a *homogeneous mixture*?

A. Dirt B. Blood C. Lemonade D. Iron

4. Which of the following is a *heterogeneous mixture*?

A. Saltwater B. Air C. Oil and water D. Steel

5. An alloy is which of the following?

A. solid-solid solution B. heterogeneous mixture C. compound

D. homogeneous mixture but not a solution

6. Which of the following is not a solution?

A. Gasoline B. steel C. baking soda D. lemonade

Element: Is a pure substance that cannot be separated into simpler substances **Example:**
Compound: Is two or more elements chemically bonded in fixed ratio and can be separated and broken down into elements

1. Which of the following is a compound?

- A. Neon B. mud C. crude oil D. water

Which of the following substances are elements? Select all that apply.

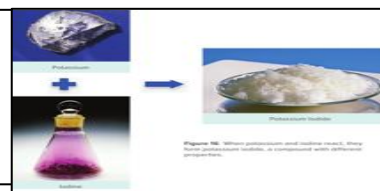
- ☐ phosphorus
☐ sodium chloride
☐ francium
☐ carbon dioxide
☐ nickel
☐ silicon
☐ sugar
☐ ice
☐ iron

2. Which of the following best describes an *element*?

- A. A substance made of two or more types of atoms chemically combined
B. A substance that can be separated into simpler substances by physical means
C. A substance made of only one type of atom
D. A mixture with uniform composition

3. Based on the reaction shown, what classification does *potassium iodide* fall under?

- A. Element B. Compound
C. Homogeneous mixture D. Heterogeneous mixture



4. According to the diagram, which statement correctly distinguishes elements from compounds?

- A. Elements can be separated into simpler substances by physical changes
B. B. Compounds contain only one type of atom
C. C. Compounds can be broken down into elements by chemical changes
D. D. Elements are always found as mixtures in nature

5. What happens to water when an electric current passes through it?

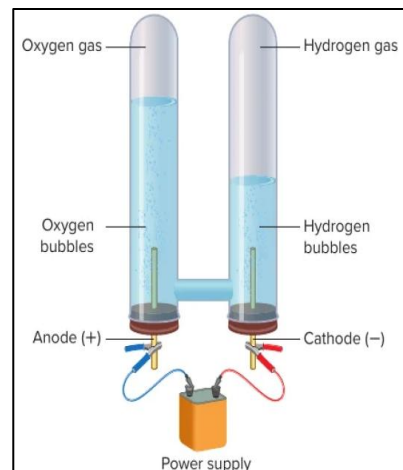
- A. It freezes into ice B. It turns into steam
C. It breaks down into hydrogen and oxygen gases D. It becomes saltwater

6. During electrolysis, which gas is produced in a greater amount?

- A. Oxygen B. Nitrogen
C. Carbon dioxide D. Hydrogen

7. What is the ratio of hydrogen to oxygen released during the electrolysis of water?

- A. 1:1 B. 2:1 C. 3:1 D. 4:1



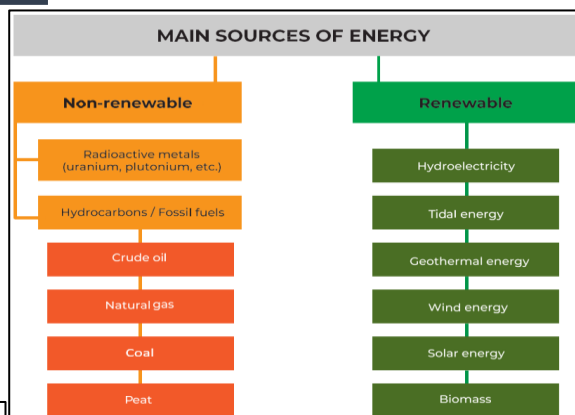
Non-renewable resources: are resources that cannot be replaced by natural processes as quickly as they are used.

Such as Petroleum, Natural gas and coal

1- Petroleum: is a thick, flammable liquid formed by decayed organisms.

2- Natural gas: is a fossil fuel made mostly of Methane.

3- Coal: is a solid fossil fuel.

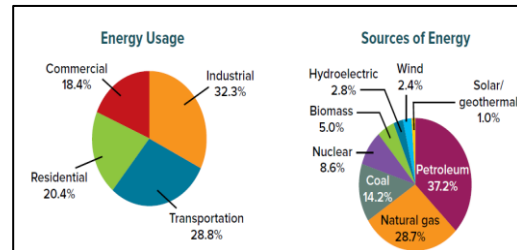


1. Which of the following is an energy resource commonly used in daily life?

- A. Sand B. Petroleum C. Plastic D. Glass

2. According to the image, which energy resource provides the *largest* share of energy used in daily life?

- A. Coal B. Nuclear C. Petroleum D. Wind



4. All of these are considered renewable sources of energy except

- A. hydroelectric dams. B. solar cells. C. wind turbines. D. nuclear power plants.

5. ___ is a thick, flammable liquid formed by decayed organisms.

- A. Petroleum B. Coal C. Kerosene D. Natural gas

6. Based on the image, which sector uses the most energy and therefore depends heavily on multiple energy resources?

- A. Residential B. Commercial C. Industrial D. Transportation

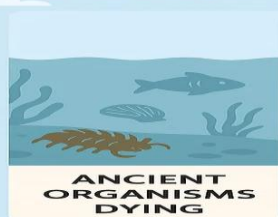
7. Based on the image, how much the solid fossil fuel represent?

- A. 28.7 B. 14.2 C. 37.2 D. 5.0

8. Why are fossil fuels considered to be nonrenewable resources?

- A. They are being produced as fast as they are being used.
 B. They contain hydrocarbons.
 C. They are no longer being produced.
 D. They are not being produced as fast as they are being used.

FORMATION STAGES OF FOSSIL FUELS



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1. According to the image, which sequence correctly describes how fossil fuels form?

- A. Heat → Burial → Organisms die → Collection
- B. Organisms die → Burial under sediment → Heat and pressure → Collection in reservoirs
- C. Burial under sediment → Organisms die → Collection → Heat and pressure
- D. Collection → Heat and pressure → Burial → Organisms die

2. Which of the following correctly describes the process of petroleum and natural gas formation?

- A. Oil forms when rocks melt and cool near the ocean floor
- B. Dead plants and animals pile up, get buried by sediment, and transform under heat and pressure
- C. Ocean water evaporates, leaving behind oil and gas
- D. Sediment turns directly into petroleum without organic matter

20-Identify renewable and non-renewable resources, explaining the reason for the need to maintain the sustainability of these resources such as water, coal, natural gas, wind, sun, oil, etc.

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208-209**

Non-renewable resources: are resources that cannot be replaced such as **Petroleum, Natural gas and coal** **Renewable resources:** are resources that can be replaced within a human lifetime. **such as Water – Wind – Sun – Biomass - Geothermal energy**

Why is it important to use non-renewable resources like oil and natural gas carefully?

- A. They can be replaced quickly by natural processes
- B. They will eventually run out if overused
- C. They are cleaner than renewable resources
- D. They are unlimited in supply

2. Even though water is renewable, why must it still be used sustainably?

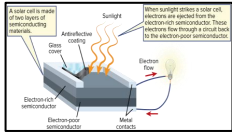
- A. Water cannot be recycled naturally
- B. Water supplies can become limited through pollution and overuse
- C. Water is a non-renewable resource
- D. Water is only found in oceans

Renewable resources: are resources that can be replaced within a human lifetime.

Such as Water – Wind – Sun - Biomass

Geothermal energy

Sun produce electricity through Solar energy



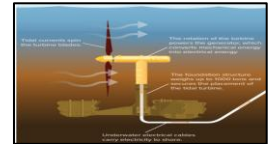
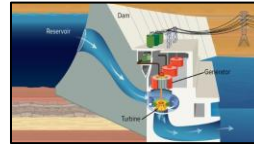
photovoltaic cell: converts radiant energy into electrical energy.

Wind produce electricity through



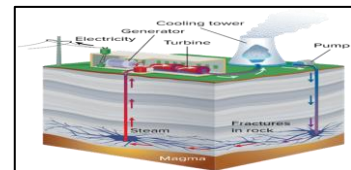
Wind turbines converts wind energy into electrical energy.

Water produce electricity through Hydroelectricity



Dam: converts potential energy into electrical energy.

Turbine: converts mechanical energy into electrical energy.



Geothermal power plant: converts thermal energy into electrical energy.

1- Renewable resources include which of the following?

- A. Coal, oil, natural gas
- B. Water, wind, sun, biomass, geothermal
- C. Uranium and plutonium
- D. Plastic and rubber

2. Which group represents natural resources that can be replaced within a human lifetime?

- A. Metals, coal, oil
- B. Wind, water, sun
- C. Plastic, gasoline, diesel
- D. Uranium, natural gas, coal

3. Which of the following is NOT a renewable energy resource?

- A. Biomass
- B. Geothermal energy
- C. Solar energy
- D. Coal

4- Electricity produced from the energy of moving water is called

- A. static electricity.
- B. charged electricity.
- C. hydroelectricity.
- D. thermoelectricity.

5. Which of the following sources of electrical power is most efficient?

- A. nuclear power plants
- B. coal power plants
- C. solar cells
- D. hydroelectric dams

3. Which form of energy comes from the presence of magma in Earth's crust?

- A. geothermal energy
- B. biomass
- C. wind energy
- D. fossil fuels

6. Burning renewable organic matter, such as sugarcane fibers, can produce electricity. Such renewable organic matter is called

- A. hydroelectric energy.
- B. biomass fuel.
- C. geothermal energy.
- D. fossil fuel.

A photovoltaic cell: converts radiant energy directly into electrical energy. Photovoltaic cells are also called solar cells.

Solar cells are made of two layers of semiconducting material between two layers of conducting metal.

1. Solar cells utilize __, which eject electrons when sunlight strikes them.

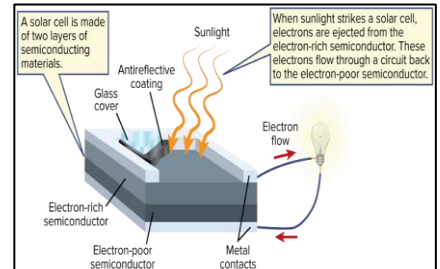
- A. Multiple choice question. B. semiconductor materials
C. Turbines D. generators**

2. Solar cells utilize __, which eject electrons when sunlight strikes them.

- A. Multiple choice question. B. semiconductor materials
C. Turbines D. generators**

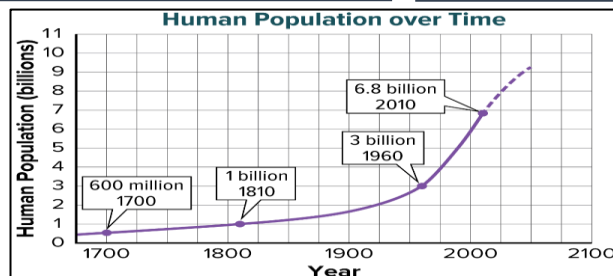
3. Which statement best describes how solar energy is converted into electricity?

- A. Solar heat boils water to spin a turbine
B. Photovoltaic cells eject electrons when struck by sunlight, creating an electric current
C. Mirrors concentrate sunlight to melt metal
D. Solar panels store sunlight as chemical energy**



How human population affects Earth's carrying capacity

As the human population increases, the demand for food, water, energy, and space also increases, the carrying capacity decrease



1- How does an increasing human population impact Earth's carrying capacity?

- A. It increases carrying capacity automatically
- B. More people use more natural resources, which can reduce the number of individuals the environment can support
- C. It has no effect on carrying capacity
- D. It makes resources

2. What happens if humans consume natural resources faster than they can be replaced?

- A. Earth's carrying capacity increases
- B. The environment becomes stronger
- C. Populations suffer because the environment can no longer support as many individuals
- D. Nothing changes

How can you help to protect and conserve Earth's natural resources?

- 1- Using these cleaner technologies.
- 2- Low-flush toilets, leak-free faucets, and water-saving dishwashers and washing machines
- 3- Driving fuel-efficient vehicles or using alternate transportation, such as a bicycle or a bus
- 4- Using these cleaner technologies.
- 5- Follow recycle program.
- 6- Plant grass, trees
- 7- Turn off electric device



1- Which action helps conserve natural resources by reducing waste?

- A. Throwing all trash into one bin
- B. Buying products with extra packaging
- C. Recycling materials such as paper and plastic so they can be reused instead of sent to landfills
- D. Using disposable items instead of reusable ones

2. Which action helps reduce pollution and conserve natural resources?

- A. Driving vehicles that use large amounts of fuel
- B. Ignoring recycling programs in your community
- C. Using fuel-efficient vehicles or choosing alternatives like biking or taking the bus
- D. Leaving lights and appliances on when not needed

3. How does recycling materials like paper and plastic help protect Earth's resources?

- A. It increases the amount of waste sent to landfills
- B. It uses more energy than producing new materials
- C. It reduces the need to conserve water
- D. It allows materials to be reused, reducing the demand for new natural resources