

Classroom performance

Date: / /



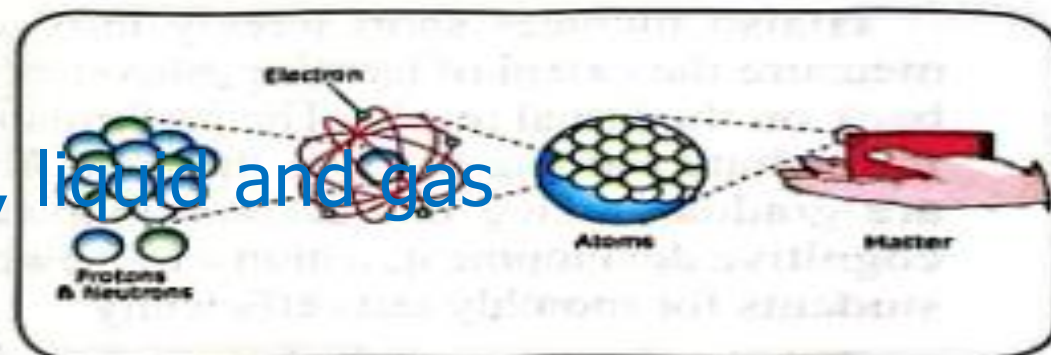
Study the corresponding image carefully and then conclude the following:

All components of the image are similar because all of them are called **matter**.....

Why ?

What are the states that they exists?

The opposite materials consist of small units called **Molecules** which is consist of smaller units called **Atoms**.....



History of atom

After studying the history of atomic structure:

- Choose the appropriate image number for each of the following cards:

1

Ancient Greek
philosophers



2

British
scientist Dalton



3

British scientist
Thomson



4

Ernest
Rutherford



5

British scientist
Chadwick



4

First Preparatory

First term

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1

Unit one : The Matter

Performances and Assessments

3

Electron discoverer

1

He believed that matter consists of small, indivisible parts called "atoms".

2

The first scientific theory about atoms was developed, explaining their indivisibility.

4

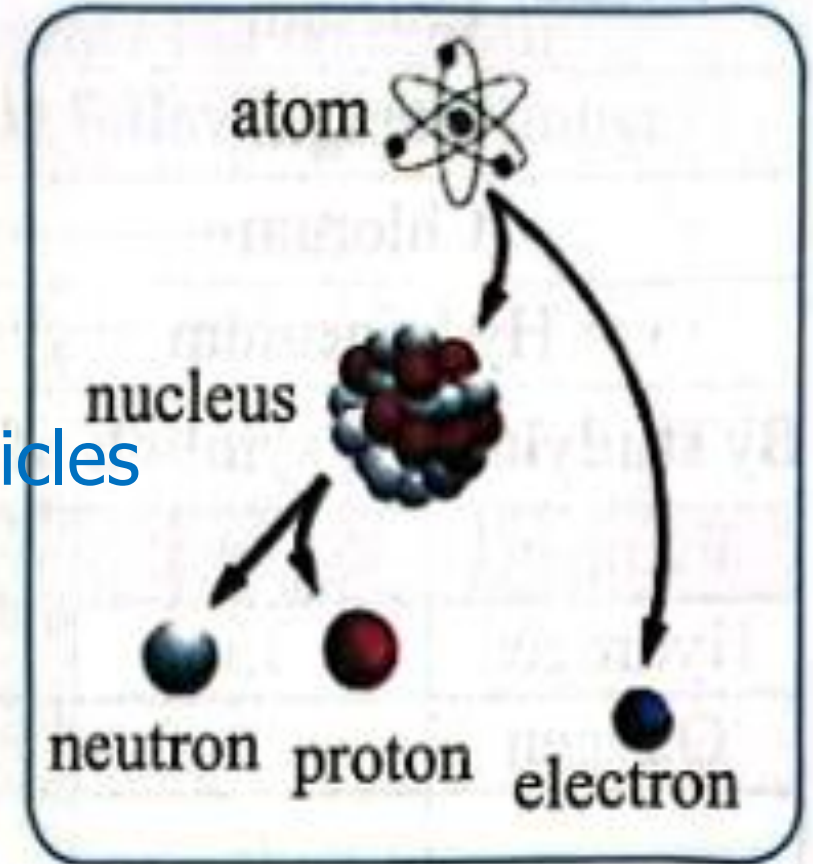
First experimental model of the atom developed; discovery of the nucleus and positive protons

5

Neutrons discoverer

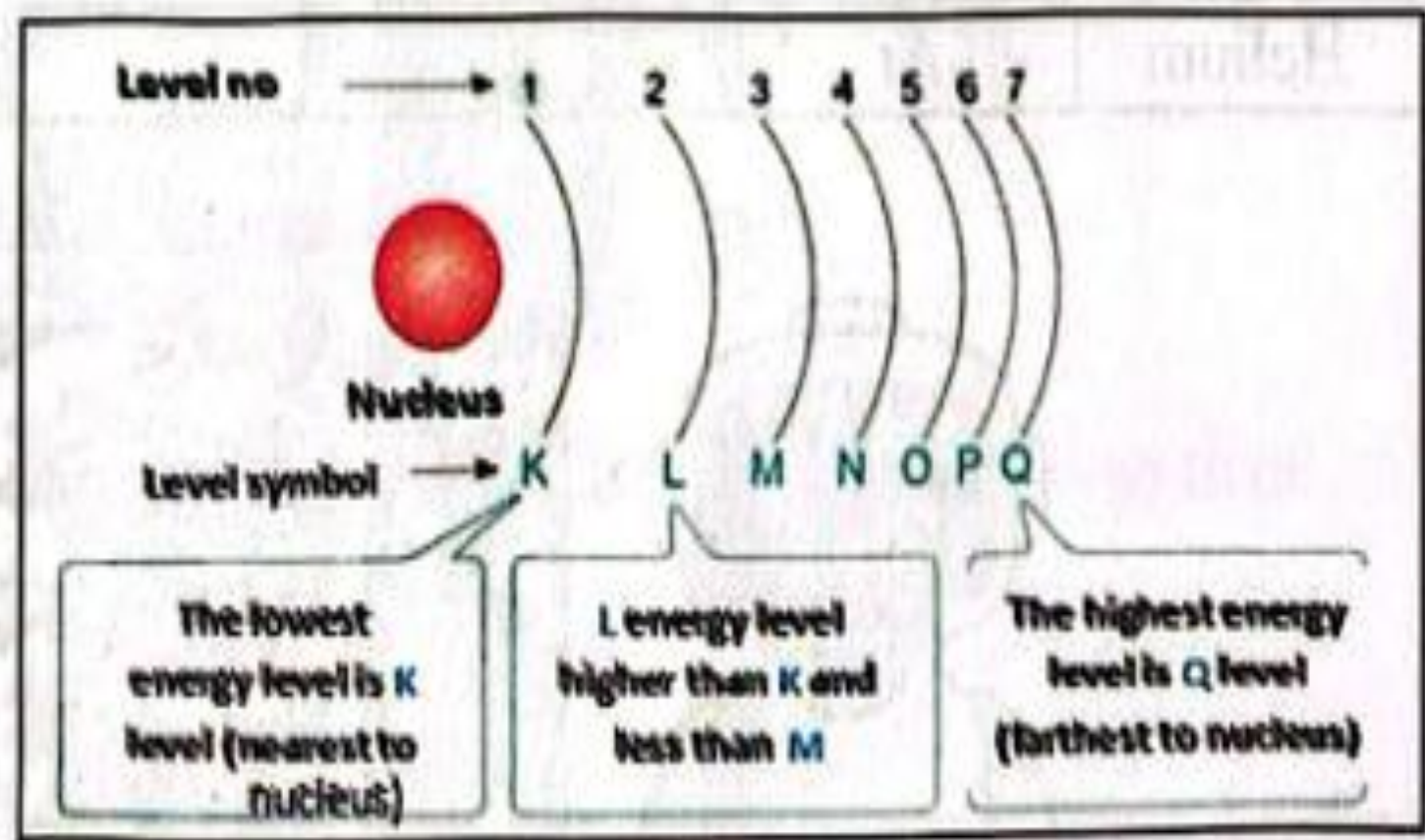
Complete :

- Atoms are composed of a very small space called **nucleus**....
- It contains two types of particles called **protons** **neutrons** and **electrons**.... They revolve around **Nucleus** at high speeds in energy levels, and they are all called **Sub atomic particles** particles.
- Proton symbol is **P**..... Its charge is **positive** and its mass = **1u**.....
- Electron symbol is **e⁻**..... Its charge is **negative** and its mass = **1/1836 u**
- Neutron symbol is **n**..... Its charge is **neutral** and its mass = **1u**.....
- The mass of **Protons** = The mass of **neutrons**
- Although **Protons** and **electrons** have the same amount of charge, but they differ in **charge** and **mass**.....



Energy levels

- The orbits in which electrons revolve around the nucleus are called **energy level** and there are **7**..... of them.
- As we move away from the nucleus energy of the level is **increase**.
- The energy of level M is greater than the energy of level **K/L**..... and less than the energy of level **N.O.P.Q**
- The number of electrons that saturate the first energy levels is **2**.....
determined by the relationship $(2n^2)$, where (n) is referred to **Number of energy level**
- Any energy level does not contains more than **8**..... electrons.



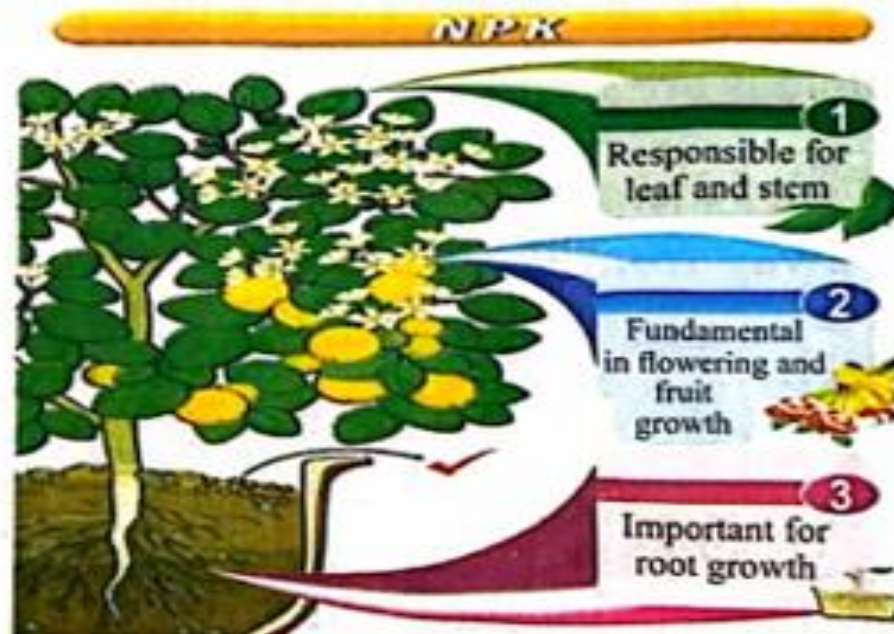
Element symbols:

- Scientists expressed elements using chemical symbols derived from the Latin name of the element.

Element name in Latin	Element name in English	Symbol
Nitrogenium	Nitrogen	N
Natrium	Sodium	Na
Kalium	Potassium	K
Carbo	Carbon	C
Calcium	Calcium	Ca
Cuprum	Copper	Cu
Chlorum	Chlorine	Cl
Hydrogenium	Hydrogen	H

By studying the symbols of the elements, complete the following table:

	Element	Symbol	Element	Symbol	Element	Symbol
H	Hydrogen	Li	Lithium	Hg	Mercury	
O	Oxygen	Na	Sodium	Ca	Calcium	O Oxygen
		K	Potassium	Mg	Magnesium	N Nitrogen
F	Fluorine	Cu	Copper	Fe	Iron	F
Cl	Chlorine	Si	Silicon	Pb	Lead	
		Au	Gold	Zn	Zinc	Br
I	Iodine	Ag	silver	S	Sulphur	Bromine
		Al	Aluminum	P	Phosphorus	C Carbon
He	Helium	Ar	Argon	Ne	Neon	He Helium



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First Preparatory

First term

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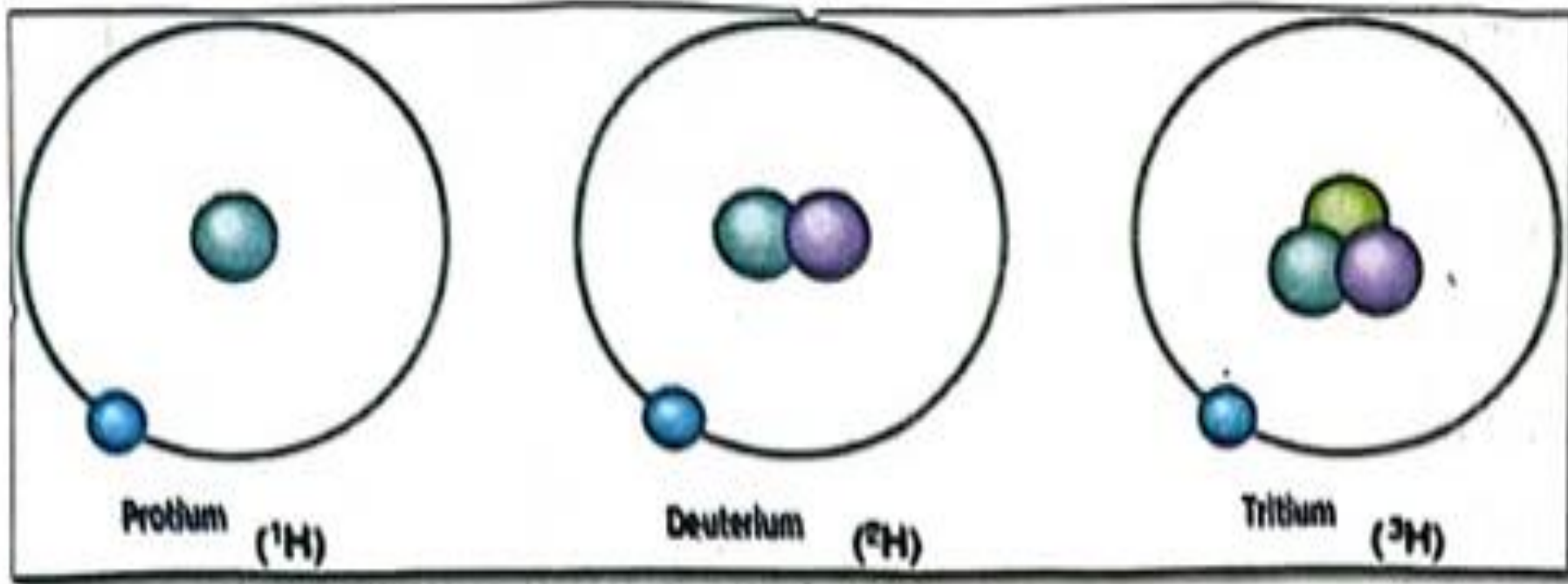
Unit one : The Matter

Performances and Assessments

Write the name and symbol of the element that is suitable for its function as a plant fertilizer.

1-.....N Nitrogen..... 2-.....K Potassium.....

3-.....P Phosphorus.....



- Study the opposite figure carefully, which represents the electronic distribution of a hydrogen atom, then answer the following questions:

- 1- What are the three figure represent? [Hydrogen isotopes](#).....
- 2- What is the differences between them? [Mass number](#) & [number of neutrons](#).....
- 3- What are the similarities between them? [Atomic number](#).....
- 4- Write the mass number for each isotope of hydrogen? [1](#)..... and [2](#)..... and [3](#)....

Using the textbook and in light of your studied, define the following :

Matter	It is anything that has mass and volume
Atom	It is the building & structure unit of any matter.
Fertilizers	chemical compounds used to improve agricultural production.
Isotopes	They are different forms of the same element that have same atomic number and different mass numbers.
Atomic number	It is the number of protons in the nucleus of the atom.
Mass number	It is the sum of the number of protons and neutrons in the nucleus of the atom.

1) Study the electronic configuration of the following elements and then answer each of the following:

Home work

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First term

First Preparatory

7

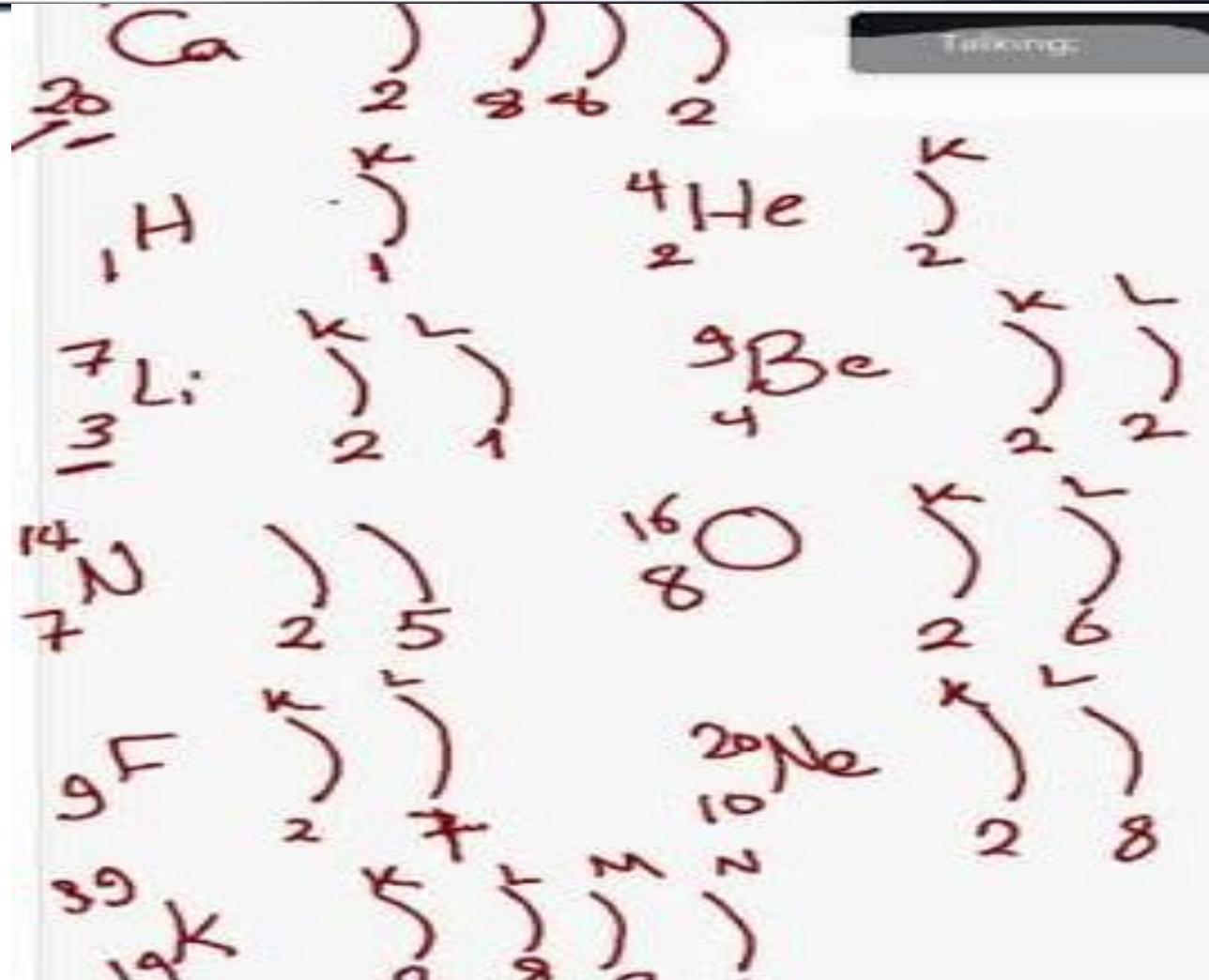
Science

Unit one : The Matter

Atomic number	7	11	19
Mass number	14	23	39
Number of protons	7	11	19
Number of electrons	7	11	19
Number of neutrons	7	12	20

2) Draw the electronic configuration of the atoms of the following elements:

$^{40}_{20}\text{Ca}$	^1_1H	^4_2He	^7_3Li	^9_4Be
$^{14}_7\text{N}$	$^{16}_8\text{O}$	$^{19}_9\text{F}$	$^{20}_{10}\text{Ne}$	$^{39}_{19}\text{K}$



3) Answer the following:

A) If you know that the atomic number of sodium is 11 and its mass number is 23

find: the number of electrons, the number of protons and the number of neutrons?

B) An element has a mass number of 35 and 18 neutrons in its nucleus

Calculate: the number of protons 17

C) An element has a mass number of 40 and 20 neutrons in its nucleus Calculate the number of protons 20

Calculate: the number of electrons. 20

What is meant by each of the following:

- 1- Element 2-Atom 3-Atomic number 4- Mass number
5-Isotopes 6-Fertilizers

1. Element	It is anything that has mass and volume
2. Atom	It is the building & structure unit of any matter.
3. Atomic number	It is the number of protons in the nucleus of the atom.
4. Mass number	It is the sum of the number of protons and neutrons in the nucleus of the atom.
5. Isotopes	They are different forms of the same element that have same atomic number and different mass numbers.
6. Fertilizers	chemical compounds used to improve agricultural production.

  **Compare between:**

1-Protons, neutrons, and electrons in terms of:

a-Type of charge b – Location c – Mass d-the electron configuration

Subatomic particles	Protons	Neutrons	Electrons
Symbol:	p	n	e^{-}
Charge and magnitude:	+1	0	-1
Mass:	1u	1u	$\frac{1}{1836}u$

Unit one : The Matter

Performances and Assessments

a – Atomic number

c – Electron configuration

e – Number of neutrons

g – Number of levels occupied by electrons

b – Mass number

d – Number of protons

f – Number of electrons

	S	Ca
A	16	20
B	32	40
C	2,8,6	2,8,8,2
D	16	20
E	16	20
F	16	20
G	3	4

3 – The three isotopes of hydrogen in terms of:

a – Name of isotope

b – Number of neutrons

c – Mass number

d – Symbol

	Protium H-1	Deuterium H-2	Tritium H-3
Symbol	${}^1_1\text{H}$	${}^2_1\text{H}$	${}^3_1\text{H}$
Subatomic particles:			
Atomic number (Z)	1	1	1
Mass number (A)	1	2	3
Number of Protons (p)	1	1	1
Number of Electrons (e ⁻)	1	1	1
Number of Neutrons (n)	0	1	2

Give reason for the following:

- 1- The nucleus of an atom is positively charged
- 2- The mass of an atom is concentrated in the nucleus
- 3- An atom is electrically neutral in its normal state
- 4- The mass number is equal to the atomic number in a hydrogen atom
- 5- The mass number is twice the atomic number in oxygen $^{16}\text{O}_8$ atom
- 6- It is recommended we must not overuse agricultural fertilizers.
- 7- The symbol for sodium is Na not S.
- 8- The mass number is greater than the atomic number.
- 9- The L level is saturated with eight electrons.
- 10- The M level is filled with electrons before the N level.

1. Because the nucleus contains positively charged protons and neutrally charged neutrons.
2. Because electrons have negligible mass compared to the mass of protons and neutrons inside the nucleus.
3. Because the number of positive protons inside its nucleus is equal to the number of the negative electrons that revolve around the nucleus.
4. Because hydrogen doesn't contain any neutrons.
5. Because the mass number is the sum of protons & neutrons while atomic number is the number of protons only.
6. because it causes water and soil pollution.
7. Because its derived from its Latin name.
8. Because the mass number equal the sum of protons and neutrons inside the atom, but the atomic number equal the number of protons only.

9. According to the rule $2n^2$.

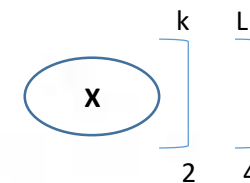
10. Because the energy level M has less energy than energy level N.

Element (X) has 13 protons and the number of its neutron is increased by one more than its proton Find:

- 1- Number of electrons **13** 2- Number of neutrons **14**
3- Number of electrons in the last energy level **3**

Element (Y) has electrons distributed in two energy levels, with its last energy level containing 4 electrons and its nucleus containing 6 neutrons.

- 1- Draw the electronic configuration of the element.
2- Find the mass number. **12**
3- Write the symbol for this element, explaining the numbers for A and Z.



Write the symbols of the following elements:

1. Zinc **Zn** 2. Potassium **K** 3. Silicon **Si** 4. Gold **Au** 5. Silver **Ag** 6. Copper **Cu**
7. Phosphorus **P** 8. Lead **Pb** 9. Mercury **Hg** 10. Chromium **Cr**

Answer the following questions:

- 1- New Zealand scientist won the Nobel Prize in Chemistry in 1908. **Rutherford**
- 2- Developed the first scientific theory about atoms **Dalton**
- 3- The building unit of matter **Atom**



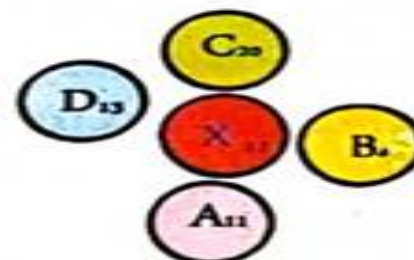
- 4- Everything that has mass and volume and occupies a space Matter
- 5- Positively charged particles found inside the nucleus Protons
- 6- Particles whose mass can be neglected but whose charge is not. electrons
- 7- Particles whose charge can be neglected but whose mass is not. Neutrons
- 8- Compounds used to improve agricultural production fertilizers
- 9- An element necessary for the greening of plant leaves Nitrogen
- 10- An element necessary for strengthening plant roots Phosphorus
- 11- An element necessary for healthy plant growth Potassium

Class performance

Date: / /

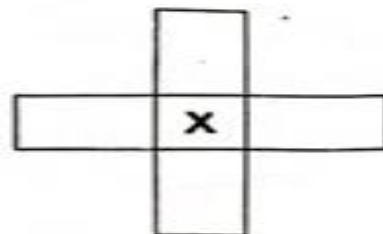


The opposite figure shows the symbols of some elements and their atomic numbers



Previous letters do not represent the true symbols of the elements

Put each element's symbol in the right place in the following table, which is part of the modern periodic table



Complete the following table:

Group number	zero.....	7A	2A.....	1A
Group name	Nobel gases	Halogens.....	Alkaline earth	Alkali metals

Through your understanding of Lewis structures, complete the following table:

The element	Ne ₁₀	O ₈	Li ₃
Electron configuration	K=2 L=8	K=2 L=6	K=2 L=1
Lewis structure	 $\ddot{\text{Ne}}$	 O	Li.....
Valency	Zero.....	Divalent.....	Monovalent



Home Work



What is meant by each of the following:

1- Period number 2- Group number 3- Noble gases 4- Valency

1. It is the number of the main energy level occupied with electrons.
2. It is the number of electrons in the outermost energy level.
3. They are inactive gases with complete outermost energy levels, so they don't participate in the chemical reactions.
4. They are the individual electrons of the outermost energy level.

What are the results of increasing the atomic number of each of the following:

1- Alkaline earth elements “in terms of chemical activity”

Chemical activity increases.

2- Halogen elements “in terms of melting and boiling points”

M.P & B.p increase.

3- Group 1 elements “in terms of atomic radius”

Atomic radius increase.

Arrange the following: (from right to left in the modern periodic table)

Transition element – semi-metal – inert gas – strong metal – non-metal

Compare between:

3

4

1

5

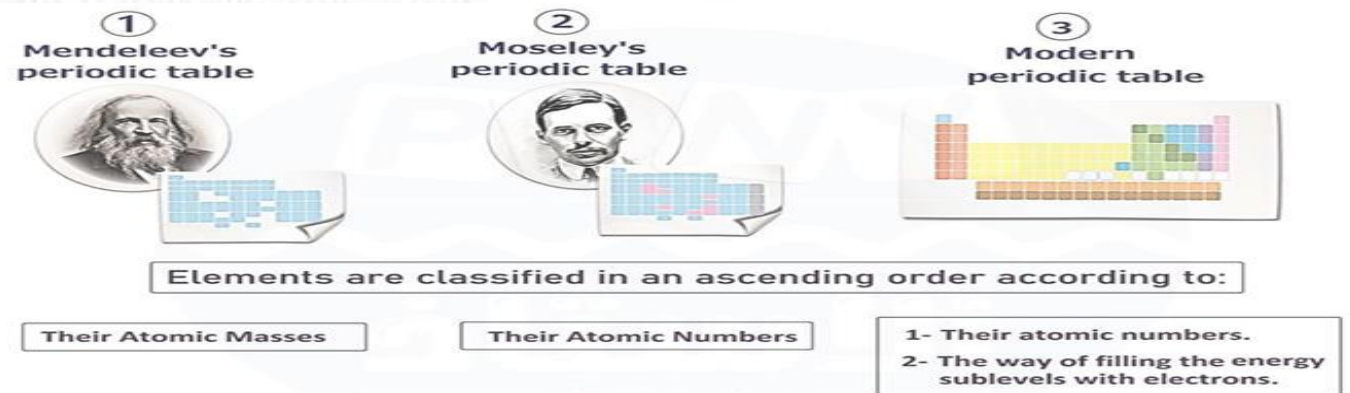
2

- Fluorine and cesium in terms of: their position in the periodic table – chemical activity.

	Fluorine	Cesium
Their position	Group 7A	Group 1A
Chemical activity	Most active non metal	Most active metal

- Mendeleev's periodic table – Moseley's periodic table – the modern periodic table in terms of: the scientific basis for classification.

Give Reason:



Both $_{13}\text{Al}$ and $_{17}\text{Cl}$ are located in the same period in the modern periodic table.

Because aluminum and chlorine have the same number of energy levels that are occupied with electrons. Electronic configuration: Al (2,8,3) Cl(2,8,7).

Identify the location of the following elements in the modern periodic table:

1- ${}^2\text{He}$

2- ${}^9\text{F}$

3- ${}^{14}\text{Si}$

1- He	Period 1, group zero
2- F	Period 2, group 7A
3- Si	Period 3, group 4A

Explain why:

- 1- Moseley rearranged the elements in ascending order according to their atomic numbers in his table.
- 2- Scientists have made an attempts to classify the elements.
- 3- Semimetals cannot be identified from their electronic distribution.
- 4- $_{12}\text{Mg}$ and $_{16}\text{S}$ are in the same period.

1. As he discovered that the periodicity of element properties is related to their atomic numbers rather than their atomic masses as Mendeleev had believed.
2. To facilitate their study and to find a relationship between the elements and their chemical and physical properties.
3. Because the number of electrons in their outermost energy levels is different.
4. Because both of them has 3 energy levels.

5- $_{20}\text{Ca}$ and $_{4}\text{Be}$ are in the same group.

6- Elements in the same group have similar chemical properties.

7- The valency of $_{11}\text{Na}$ and $_{17}\text{Cl}$ is monovalent.

8- The valency of $_{10}\text{Ne}$ = zero.

9- The melting and boiling points of sodium and potassium are higher than room temperature.

5. Because they have the same number of electrons in their outermost energy levels (2).

6. Because The chemical properties of an element depend on the number of electrons in the outermost energy level.

7. Because they have one individual electrons of the outermost energy level.

8. Because they have completed the outermost energy level, so they don't have individual electrons in Lewis structure.

9. Because they are solid materials.

- 10- The melting and boiling points of chlorine are lower than room temperature.
- 11- The valency of alkaline earth metal is divalent.
- 12- The valency of halogens is monovalent

10. Because it is gas material.

11. Because they have 2 unpaired electrons in Lewis dot structure.

12. Because they have 1 unpaired electrons in Lewis dot structure.

State the number indicating each of the following:

- 1- The number of elements in the modern periodic table 118
- 2- The number of elements in the first period 2
- 3- The number of elements in the third period 2
- 4- The number of blocks in the modern periodic table 4 blocks
- 5- The number of groups in block d 10
- 6- Number of groups in block p 6
- 7- Number of groups in the modern periodic table 18
- 8- Number of energy levels filled with electrons in a helium atom 2 1
- 9- Group number of the element sulfur 16 6A
- 10- Number of single electrons in the outer energy level of a potassium atom 1 9 1
- 11- Atomic number of an element in the third period, group 5. 15
- 12- Atomic number of an alkali metal in the third period. 11
- 13- Valency of a halogen element. 1 (monovalent)
- 14- The atomic number of a monovalent metal in second period. 3
- 15- The atomic number of a divalent nonmetal element is in the third period. 16
- 16- The atomic number of an element is at the beginning of the third period. 11
- 17- The atomic number of an element at the end of the second period 10
- 18- The atomic number of an element at the end of the p block and in the third period 18

Compare between the following:

- 1- Mendeleev's periodic table and Moseley's periodic table in terms of: the basis of classification
- 2- S-block elements and P-block elements in terms of:
 - a - Number of groups
 - b - Their location in the periodic table

Mendeleev's periodic table

Mendeleev arranged elements in an ascending order according to their atomic masses.

Moseley's periodic table

He arranged elements in an ascending order according to their atomic numbers.

S-block elements

2 groups, At left side of the periodic table

P- block elements

6 groups, It's on the right side of the periodic table

3- Metals and non-metals in terms of:

a - Physical state

b - Their location in the periodic table

c - Number of electrons in the last energy level

4- The elements $_{13}\text{Al}$ and $_{17}\text{Cl}$ in terms of:

a - location.

b - Lewis dot structure

c - Valence

d - Name of the group to which each belongs

e - Type of element

f - the block

Metals	Nonmetals
Solid & liquid.	Solid, liquid & gas.
S-block, p-block & d-block	p-block
1,2,3	5,6,7

Al

S-block



Trivalent

Metal

p-block

Cl

p-block



Monovalent

Non metal

p-block

Write the name that represents each of the following sentences:

1 - A scientist who arranged the elements in ascending order according to their atomic numbers

Moseley periodic table

12

First Preparatory

First term

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Unit one : The Matter

Performances and Assessments

2 - A scientist who arranged the elements in ascending order according to their atomic masses

Mendeleev periodic table

3 - A scientist who added the zero group to Mendeleev's table

Moseley

4- A scientist who proposed an easy way to express the number of valence electrons around the atomic symbol.

Lewis

5- An inert gas located in the first period.

Helium

6- A liquid metallic element.

Mercury

7- A liquid non-metallic element.

Bromine

8- The smallest alkali metals in terms of radius.

Lithium

9-The largest metals in terms of radius

Cesium

10-The least active elements of group 10.

Lithium

11-The most active elements of group 7

Fluorine

12-The first element in the alkaline earth group

Beryllium

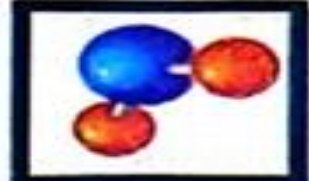
13-The halogens with the lowest melting and boiling points

Iodine

Class performance

Date: / /

Observe the following figures carefully and answer the following questions:

(1)	(2)	(3)	(4)
			
(5)	(6)	(7)	(8)
			

Complete the following sentences:

- 1- Figure No. **5**... represents a carbon dioxide molecule, while Figure No. **6**.... represents a water molecule.
- 2- Figure No. represents an oxygen atom, while Figure No. **3**..... represents a carbon atom.
- 3- Figure No. **1**..... represents a hydrogen atom, while Figure No. **4**..... represents a sulfur atom.
- 4- The shape number **7** represents a sulfur dioxide molecule, while the shape number **8**... represents a carbon monoxide molecule.

Choose from column (A) what suits column (B):

Column (A)	Column (B)
Mixture	
Atoms of element	
compound	
Molecule	

What is meant by each of the following:

1 - Pure substances. 2 - Compounds. 3 - Elements. 4 - Mixtures.

5 - Homogeneous mixtures. 6- Heterogeneous mixtures. 7 - Solutions.

1. They are substances that its components can't be separated by physical methods.
2. It is a pure substance that formed from the chemical combination of two or more elements in fixed mass ratios.
3. It is the simplest pure form of matter that can't be broken down into simpler form.
4. They are substances that composed of two or more substances that are not chemically combined, allowing them to be separated by physical methods.
5. It is a mixture in which its components can't be distinguished by the naked eye.
6. It is a mixture in which its components can be distinguished by the naked eye.
7. It is a mixture in which its components can't be distinguished by the naked eye.

8 - Molecular formula. 9 - Physical properties.

10 - Chemical properties.

8. It is a symbolic formula that expresses the type and the number of atoms that form the molecule.

9. They are properties of the substances that can be observed and measured in some cases.

10. They are properties of substances that only appear when a chemical reaction occurs, resulting in a change in both the shape and composition of the substance.

Correct the underlined words in the following sentences:

1 – Methane is considered an inorganic compound. Oxygen

2 – Oxygen is considered a mixture. Salty solution

3 – A table salt solution can be separated by filtration. Evaporation+ condensation

4 – Helium is used to fill car tires. Nitrogen

5 – Density and melting point are chemical properties of matter. Physical properties

6 – Heterogeneous mixtures cannot be separated physical means.
Homogeneous mixture

Weekly assessment for weeks (5)

Write the scientific term that refers to the following sentences:

- 1- The simplest pure form of a substance whose components cannot be separated by physical or chemical means. **Element**
- 2- A substances consisting of two or more materials that are not chemical combined. **Mixture**
- 3- Mixtures whose components can be distinguished with the naked eye.
Heterogeneous mixture

- 4- A pure substance formed as a result of the chemical combination of two or more elements in a fixed mass ratio, whose components can be separated by chemical means. **Compound**
- 5- An alloy that retains its strength at high temperatures and is used in the manufacture of military aircraft structures. **Aluminum- Titanium alloy**
- 6- A symbolic formula that expresses the type and number of atoms of the elements that make up the molecule **Chemical formula**
- 7- Properties that can be observed and some of which can be measured. **Physical properties**
- 8- Properties that only appear when a chemical reaction occurs that leads to a change in the shape and structure of the substance. **Chemical properties**

Give one example for each of the following:

- 1- Molecule of an Organic compound **Methane**
- 2- Element molecule consisting of a single atom **Carbon**
- 3- Physical property used to distinguish between materials **Melting point**
- 4- Chemical property used to distinguish between materials **Litmus paper**
- 5- Alloy made of iron with added elements ,to resist rust. **Stainless steel alloy**
- 6- An alloy used in aircraft manufacturing **Aluminum- Titanium alloy**
- 7- A low-density transparent material with 99.8% air content **Aerogel**
- 8- A compound used to color house facades, papyrus, and statues. **Egyptian blue dye**
- 9- A substance that regulates calcium and phosphorus levels in the blood. **Vitamin D**

Give one difference between the following:

- 1- A mixture of sand, iron filings, sugar, and water. In terms of separation methods.
- 2- Oxygen molecules and water molecules. In terms of molecule type.
- 3- O_3 molecules and C molecules. In terms of name – number of atoms that make up the molecule.

1. - Sand, iron filings: By magnetic separation
- Sugar mixture: By evaporation & condensation

2. Oxygen: element
Water: Compound

3. O_3 : Ozone, 3 atoms
C: Carbon, one atom

- 4- Water and honey in terms of viscosity.
- 5- Cork and iron in terms of density.
- 6- Toothpaste and lemon in terms of their effect on sunflower leaves.
- 7- Butter mold and aerogel plate. In terms of melting point.

4. Water: Less viscosity
Honey: More viscosity

5. - Cork: Less density
- Iron: More density

6. - Toothpaste: it changes into blue
- Lemon: it changes into red

7. – Butter: Less melting point
- Aerogel: More melting point

What happens in the following cases:

- 1 - Electrolysis of acidified water.
- 2 - Heating a red mercury oxide compound.
- 3 - Dipping litmus paper in lemon juice.

1. Water decomposes into its components, which are hydrogen gas and oxygen gas.

2. it decomposes into its components, which are mercury and oxygen gas.

3. Its color changes to red.

- 4 - Place a piece of wood in water.
- 5 - Manufacture of iron cooking utensils.
- 6 - Use of carbon dioxide gas to fill balloons.

4. It will float on water.

5. It will rust.

6. It cant float on air.

Give reason for :

- 1 - A hydrogen molecule is considered an element, while a sodium chloride molecule is considered a compound.
- 2- Sea water is considered a homogeneous mixture.
- 3- Wood floats on water, while iron sinks.
- 4- Iron filings can be easily separated from flour.

1. Because hydrogen gas can't be separated into a simpler form, while sodium chloride can be separated chemically.

2. Because it is a mixture in which its components can't be distinguished by the naked eye.

3. Because wood has less density than water, while iron has more density than water.

4. By using magnetic separation, as iron attracts to the magnet.

- 5 - Nitric acid is considered an inorganic compound.
- 6 - Nitrogen is now used to fill car tires instead of air.
- 7 - Helium gas is used to fill balloons.
- 8 - Stainless steel alloy is used in the manufacture of cooking utensils.

5. Due to the absence of carbon atom in its structure.

6. Because it is not affected by temperature, and it doesn't react with rubber.

7. Because it is lighter than air (Its density is lower than that of air), and it is not flammable.

8. As it resists rusting.

9- Aircraft structures are made of aluminum alloy and titanium.

10- Aerogel is used to make jackets for research scientists in Antarctica.

11 - Vitamin D is an important vitamin for the human body.

9. Because it is lighter than aluminum, and it retains strength of high temperature.

10. Because it is low-density material, It has excellent insulating properties and it is the lightest solid.

11. Because it regulates calcium and phosphorus levels in the blood to prevent osteoporosis.

First monthly training

Complete the following sentences.

- 1- The outer energy level of metals contains less than⁴ electrons, while non-metals contain more than⁴ electrons.
- 2- Element (A) has two electrons in the outer energy level (M), so its type is^{metal}
Element (B) has six electrons in outer energy level (L) so its type is^{non-metal}
- 3- All metals are solid substances except^{mercury} is liquid.
- 4- All non-metals are bad conductors of electricity except^{carbon} is a good conductor of electricity.
- 5- Non-metals are solid materials such as^{carbon} and^{sulfur}, gaseous materials such as^{oxygen} and^{nitrogen} but the only liquid is^{bromine}
- 6- The period starts with elements of group^{1A} and is end by the elements of group^{Zero}
- 7- The second period begins with the elements of group^{1A} and ends with the elements of group^{Zero}
- 8- The modern periodic table consists of⁷ periods and¹⁸ groups
- 9- The modern periodic table consists of⁴ blocks.
- 10- The elements of block S are located^{Left side} in the table and consist of² groups.
- 11- The elements of block^f are located below the periodic table and consist of^{2 periods}
- 12- The elements of the noble gases are located in the^p block, which consists of⁶ groups

- 13- The elements of block **d** are located in the middle of the periodic table and it consists of **10** groups
- 14- Boiling point of bromine **more** than the boiling point of chlorine
- 15- Elements in the same group are similar in and **Valence electron** **Properties**
- 16- The scientific basis on which Mendeleev's table was **Atomic mass**
- 17 - The scientific basis on which Moseley's table was **Atomic number**
- 18- The scientific basis on which the modern periodic table was and **Atomic number & way of filling energy sublevel with electrons**
- 19- Moseley discovered that the properties of elements are related to its **Atomic number** and not to its **Atomic mass**
- 20- The elements of block **p** begin with group **3A** and end with group **zero**
- 21- The halogens and noble gases are found in the elements of block **p**
- 22- All elements of block **s** are solid metals except **hydrogen** is a gaseous non-metals.
- 23- The number of elements in the first period is **2** elements, while the number of elements in the fourth period is **18** elements.
- 24- The transition elements begin to appear from period **4** and consist of **10** groups.
- 25- Elements of the alkali group their chemical activity **increases** as we move from top to bottom.
- 26- Elements of the halogen group their chemical activity **decreases** as we move from top to bottom.

- 27- The radius is **inversely** proportional to the atomic number of the elements in the same period.
- 28- Silicon and germanium are considered **metalloids**
- 29- The scientist **Rutherford** discovered that the nucleus of an atom contains positive protons.
- 30- **Elements** are substances whose components cannot be separated by chemical or physical means.
- 31- The components of water can be separated using a device called **Hoffman voltmeter**
- 32- Water is electrically decomposed into two elements **oxygen** and **hydrogen**
- 33- Mixtures are divided into **homogeneous** mixtures and **heterogeneous** mixtures.
- 34- **homogeneous** mixtures their components cannot be seen by naked eye.
- 35- All substances are composed of small, identical units called **atoms**
- 36- **Element** molecules are composed of atoms of the same type, while molecules of **compound** are composed of atoms of different elements.

37 - The number of atoms in a single molecule in some organic compounds may reach several thousand, as in and
Vitamin D Hemoglobin

38- A pure substance consisting of two or more elements in a fixed mass ratio.
Compound

39- Nitric acid consists of three atoms of, one atom of hydrogen, and one atom of
oxygen nitrogen

40- Methane molecules are from, while nitric acid molecules are from
Organic compound In organic compound

41- Iron and cork can be distinguished by the difference in there
density

42- Helium is used to fill while nitrogen gas is used to fill
balloons car tires

43- Carbon is considered a atom molecule while is a multi-atom molecule
monoatomic Ozone

Give reason for :

- 1- Calcium ($_{20}\text{Ca}$) is a metal, while chlorine ($_{17}\text{Cl}$) is a non-metal.
- 2- Scientists have made numerous attempts to classify elements according to their properties.
- 3- Moseley rearranged the elements according to their atomic numbers.

1. As calcium has less than four electrons in their outermost energy levels, while chlorine has more than four electrons in their outermost energy levels.
2. To facilitate their study and to find a relationship between the elements and their chemical and physical properties.
3. As he discovered that the periodicity of element properties is related to their atomic numbers rather than their atomic masses as Mendeleev had believed.

4- Sodium ($_{11}\text{Na}$) is one of the alkali metals.

5- Fluorine ($_9\text{F}$) is one of the halogens.

6- Calcium ($_{20}\text{Ca}$) is one of the alkaline earth metals.

7- The valence of inert gases is zero.

4. Because its outermost energy level has one electron.

5. Because its outermost energy level has seven electrons.

6. Because its outermost energy level has two electrons.

7. Because they have completed the outermost energy level, so they don't have individual electrons in Lewis structure.

8- It is difficult to identify semimetals from their electronic structure.

9- Some physical properties of elemental atoms differ.

10- A hydrogen molecule is considered an elemental molecule, while a sodium chloride molecule is considered a compound molecule.

8. Because the number of electrons in their outermost energy levels is different.

9. Because the physical properties of an element depend on the number of neutrons.

10. Because hydrogen gas can't be separated into a simpler form, while sodium chloride can be separated chemically.

11- Seawater is considered a homogeneous mixture.

12- Wood floats on water, while iron sinks.

13- Iron filings can be easily separated from flour.

14- A nitric acid molecule is considered an inorganic compound molecule.

11. Because it is a mixture in which its components can't be distinguished by the naked eye.

12. Because wood has less density than water, while iron has more density than water.

13. By using magnetic separation, as iron attract to the magnet.

14. Due to the absence of carbon atom in its structure.

15- Nitrogen is used to fill car tires instead of air.

16- Helium gas is used to fill balloons.

17- Stainless steel alloy is used in the manufacture of cooking utensils.

18- Aircraft structures are made of aluminum and titanium alloys.

15. Because it is not affected by temperature, and it doesn't react with rubber.

16. Because it is lighter than air (Its density is lower than that of air), and it is not flammable.

17. As it resists rusting.

18. Because it is lighter than aluminum, and it retains strength of high temperature.

19- Aerogel is used to make jackets for researchers in Antarctica.

20- Vitamin D is an important vitamin for the human body.

19. Because it is low-density material, It has excellent insulating properties and it is the lightest solid.

20. Because it regulates calcium and phosphorus levels in the blood to prevent osteoporosis.

What is meant by :

- | | |
|-------------------------------|------------------------------|
| 1- Mendeleev's periodic table | 2- Moseley's periodic table |
| 3- Modern periodic table | 4- Metals 5- Non-metals |

1. It is the first real periodic table for classifying elements, where elements arranged in an ascending order according to their atomic masses.
2. Elements is arranged in an ascending order according to their atomic numbers, where the atomic number of each element exceeds that of the preceding element in the same period by 1.
3. Scientists classified elements in ascending order according to: 1. Their atomic numbers, and the way of filling the energy sublevels with electrons.
4. They are elements which have less than four electrons in their outermost energy levels.
5. They are elements which have more than four electrons in their outermost energy levels.

6- Semi-metals
9-Melting point

7- Valence
10- Pure substances

8- Boiling point
11-Compounds.

6. They are elements that have some properties of metals and non-metals & They are located at p-block in the modern periodic table.

7. They are the individual electrons of the outermost energy level..

8. It's the temperature at which matter changes from a liquid state into a gas state.

9. It's the temperature at which matter changes from a solid state into a liquid state.

10. They are substances that its components can't be separated by physical methods.

11. It is a pure substance that formed from the chemical combination of two or more elements in fixed mass ratios.

12- Elements.

13-Mixtures.

14- Homogeneous mixtures.

15-Heterogeneous mixtures.

16-Molecular formula.

17-Physical properties of matter.

18-Chemical properties of matter.

12. It is the simplest pure form of matter that can't be broken down into simpler form.

13. They are substances that composed of two or more substances that are not chemically combined, allowing them to be separated by physical methods.

14. It is a mixture in which its components can't be distinguished by the naked eye.

15. It is a mixture in which its components can be distinguished by the naked eye.

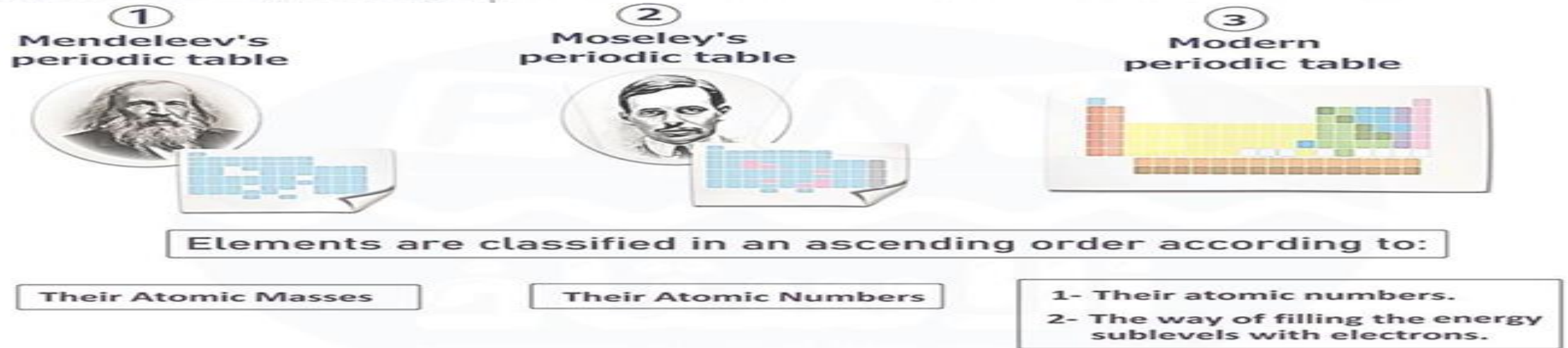
16. It is a symbolic formula that expresses the type and the number of atoms that form the molecule.

17. They are properties of the substances that can be observed and measured in some cases.

18. They are properties of substances that only appear when a chemical reaction occurs, resulting in a change in both the shape and composition of the substance.

How to distinguish between:

- 1-Mendeleev's periodic table, Moseley's periodic table, and the modern periodic table in terms of: Classification basis.
- 2-Elements of group (1A) and elements of group (7A) in terms of: Group name - the block which they belong to.
- 3- Group (2A) elements and Group (0) elements in terms of: Group name - the block which they belong to.



2. Group (1A): Alkali metal, s-block
Group (7A): Halogens, p-block

3. Group (2A): Alkaline earth metal, s-block
Group (0): Inert gas, p-block

- 4- (Sand ,iron filings)mixture , and sugar mixture in water in terms of: Separation methods.
- 5- Oxygen and water molecules in terms of: type of molecules.
- 6- O₃ and C molecules in terms of: name – number of atoms that make up the molecule.
- 7- Water and honey in terms of: viscosity.

4. - Sand, iron filings: By magnetic separation
- Sugar mixture: By evaporation & condensation

5. Oxygen: element
Water: Compound

6. O₃: Ozone, 3 atoms
C: Carbon, one atom

7. Water: Less viscosity
Honey: More viscosity

8 - Cork and iron in terms of: density.

9- Toothpaste and lemon in terms of: effect on litmus paper leaves.

10- Butter mold and aerogel in terms of: melting point.

8. - Cork: Less density
- Iron: More density

9. - Toothpaste: it changes into blue
- Lemon: it changes into red

4. - Butter: Less melting point
- Aerogel: More melting point

What happens in the following cases:

- 1- Increase the atomic number of the elements in a single group from top to bottom relative to the radius.
- 2 - Increase the atomic number of the elements in the same period from left to right relative to the radius.
- 3 - The number of electrons in the outer energy level is less than 4 electrons for the type of element.

1. Atomic radius increases by increasing the atomic number of the elements.

2. Atomic radius decreases by increasing the atomic number of the elements.

3. Element will be metal.

- 4 - The number of electrons in the outer energy level is more than 4 electrons for the type of element.
- 5 - The number of electrons in the outer energy level is filled completely with electrons for the type of element.
- 6 - Increase in radius for the boiling and melting points of alkali elements.
- 7 - Increase in radius for the boiling and melting points of halogen elements.

4. Element will be non-metal.

5. Element will be inert gas.

6. The melting point and boiling point decrease by increasing the radius.

7. The melting point and boiling point increase by increasing the radius.

8 - electrolysis of acidified water. 9 - Heating red mercury oxide.

10 - Dipping litmus paper in lemon juice.

11 - Placing a piece of wood in water.

12 - Use of iron in manufacture of cooking utensils.



8. Water decomposes into its components, which are hydrogen gas and oxygen gas.

9. it decomposes into its components, which are mercury and oxygen gas.

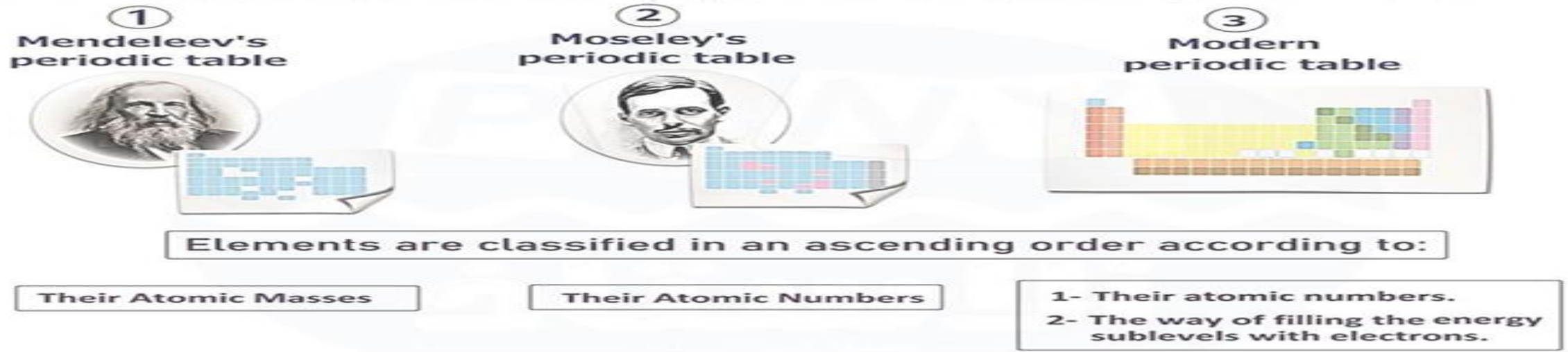
10. Its color changes to red.

11. It will float on water.

12. It will rust.

Various questions:

- 1- What are the most important attempts that have been made to classify elements?
- 2- What is the scientific basis for classifying elements in Mendeleev's periodic table?
- 3- What is the scientific basis for classifying elements in Moseley's periodic table?
- 4- What is the scientific basis for classifying elements in the modern periodic table?



2. Their atomic masses

3. Their atomic number

4. Atomic number & way of filling energy sublevel with electrons.

Opposite figure: Represents the outer electrons with Lewis notation for an atom of an element located in the third period of the modern periodic table. **Find:**

A - Atomic number of the element **13** B - Valence of the element **trivalent**

C - Type of element **metal**

D. The atomic number of the element before it in the same period. **12**

E. The atomic number of the element before it in the same group. **5**



Period 3, group 6A

Nonmetal

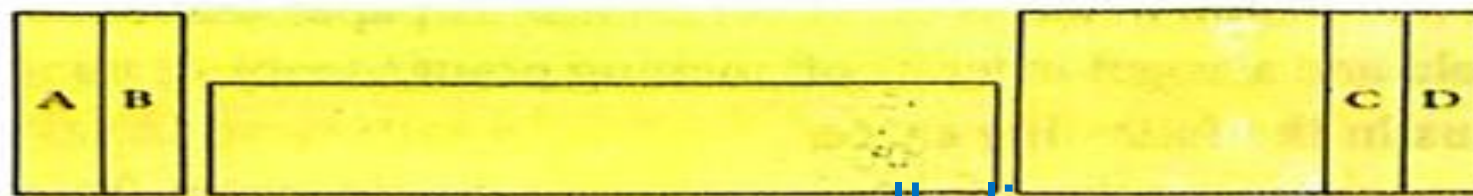
divalent

1- Atomic number. 2- Locate the element in the periodic table.

3- Type of element. 4- Equivalence of the element .divalent

The following figure shows some groups of the periodic table.

From the table shown, complete the following sentences.



alkali

noble gas

divalent

1- The elements of group (A) are known as elements, while the elements of group (D) represent elements.

2- The valency of the elements of group (B) is while the valency of group (C) is

Group no	1A	2A	3A	4A	5A	6A	7A	0
Element	Li	Be	B	C	N	O	F	Ne

The following figure illustrates the elements of the second cycle:

Find the following from the figure:

metal

1- valency of Boron . **trivalent**

2- Type of Lithium .

3- Metal element with divalent valency Be

4- Semimetal element. **B**

5- Halogen element. **F**

6- Nonmetal element with divalent valency. 0

7- Inert element. Ne

Calculate the atomic number for each of the following:

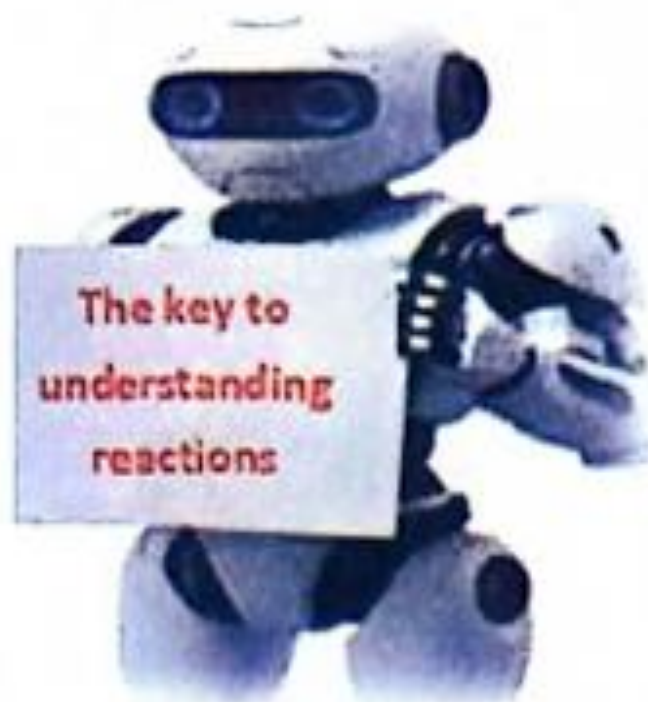
- 1- An element located in the second period and the fifth group **7**
- 2- A divalent metallic element located in the second period . **4**
- 3- A divalent non-metallic element located in the second period. **8**
- 4- An element located at the beginning of the second period. **3**
- 5- An element located at the end of the third period. **18**
- 6- An element from the alkali metals located in the fourth period. **19**
- 7- An element from the noble gases located in the first period. **2**
- 8- An element from the alkaline earth metals located in the third period. **12**
- 9- The last energy level M has the same number of electrons as level K . **12**

Give one example for each of the following:

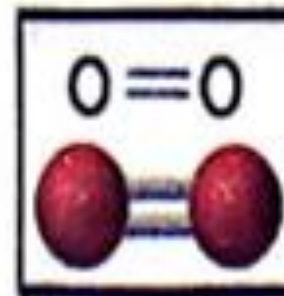
- 1- Molecule of an Organic compound **Methane**
- 2- Element molecule consisting of a single atom **Carbon**
- 3- Physical property used to distinguish between materials **Melting point**
- 4- Chemical property used to distinguish between materials **Litmus paper**
- 5- Alloy made of iron with added elements ,to resist rust. **Stainless steel alloy**
- 6- An alloy used in aircraft manufacturing **Aluminum- Titanium alloy**
- 7- A low-density transparent material with 99.8% air content **Aerogel**
- 8- A compound used to color house facades, papyrus, and statues. **Egyptian blue dye**
- 9- A substance that regulates calcium and phosphorus levels in the blood. **Vitamin D**

Class performance

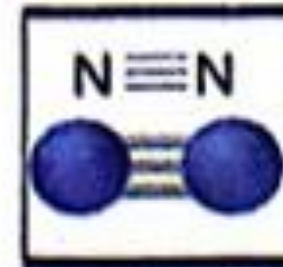
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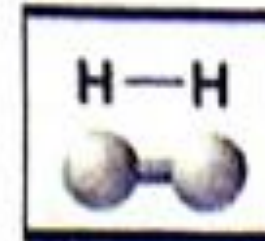
1



2



3



4

Which of the following represents:

a) Triple covalent bond 3

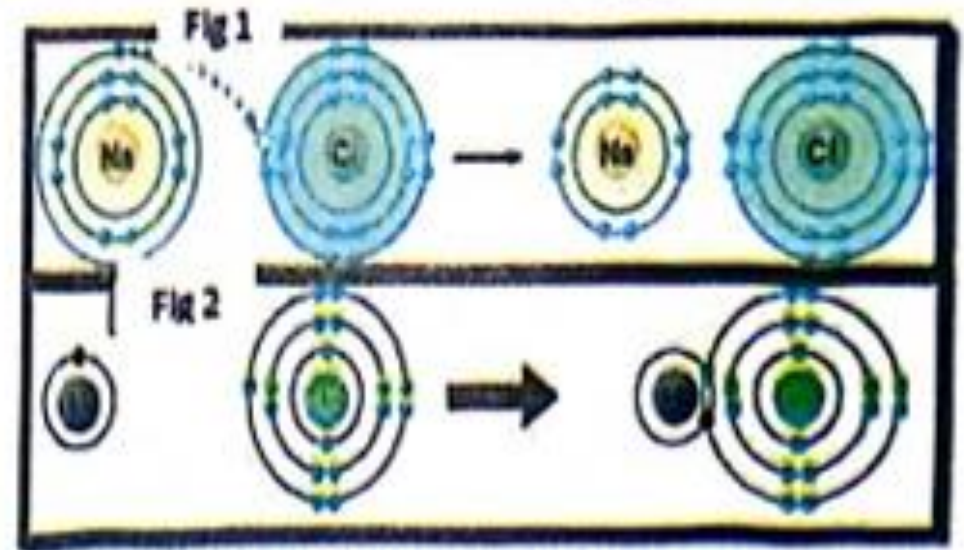
c) Single covalent bond 4

b) Double covalent bond 2

d) molecule of compound 1

Observe the following figures carefully and answer the following questions:

- 1- How many charges does the cation carry?
- 2- Identify the location of the previous elements in the periodic table.
- 3- What type of bond is shown in the first figure?
- 4- In the second figure, how many electrons are there in the two atoms after bonding?



1. +1

2. Na: Period 3, group 1A
Cl: Period 3, group 7A
H: Period 1, group 1A

3. Ionic bond

4. H: 2
Cl: 18



Home Work



Compare between:

1- Positive ions and negative ions in terms of:

- a) Definition b) Number of electrons c) Number of protons
d) Number of energy levels.

2- Ionic compounds and covalent compounds in terms of:

- A – Solubility in water B – Melting point. C – Boiling point.
D – Electrical conductivity.

Positive Ion (Cation)	Negative Ion (Anion)
A metal that has lost one or more electrons in a chemical reaction.	A nonmetal that has gained one or more electrons in a chemical reaction.
The number of electrons is less than the number of protons.	The number of electrons is more than the number of protons.
The number of energy levels in it is less than the number of energy levels in its atom.	The number of energy levels in it is equal to the number of energy levels in its atom.

Ionic compounds

- a. Most of them dissolve in water.
- b. They have high melting and boiling points.
- c. Their solutions conduct electric currents

Covalent compounds

- a. Most of them don't dissolve in water.
- b. They have low melting and boiling points.
- c. Their solutions don't conduct electric currents.

Give reason for the following:

1-The bond in the sodium chloride molecule is ionic.

2-The bond in the hydrogen chloride molecule is a single covalent bond.

3-The bond in the oxygen molecule is a double covalent bond.

4-The bond in the nitrogen molecule is a triple covalent bond.

5-When a sodium atom loses an electron, it becomes a positive ion.

1. Because ionic bonding occurs between two different atoms as a result of the electrostatic attraction between a positive ion of a metal element and a negative ion of a non-metal element.

2. Because hydrogen atom shares its single unpaired valence electron with chloride to form a pair of electrons which form a single covalent bond.

3. Because each oxygen atom shares its two unpaired valence electrons to form two pairs of electrons which form a double covalent bond.

4. Because each nitrogen atom shares its three unpaired valence electrons to form three pairs of electrons which form a triple covalent bond.

5. To reach the electronic configuration of the nearest preceding inert gas in the modern periodic table.

Class performance

Date: / /

1. Observe the following figures then answer:



22 First Preparatory

First term

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Unit two : Force Fields

Performances and Assessments

The previous figures share a common concept, which is Static electricity

2. Electrons tend to move from one place to another all the time. This means that they can move from our furniture to our clothes, and from our clothes to the body of one of our classmates when we greet them or shake their hand. Discuss with your classmates and then identify from the following figures the person who receives or passes electrons.



Second person

First person

Receive



Second person

Pass

First person

Receive

3- Look at the corresponding figure and answer the following:

A. When rubbing a wooden ruler with the child's hair, electrons are transferred from **hair** to **ruler** according to the electrostatic series.

B. The child's hair gains a **Positive** charge as a result of **Losing** electrons, while the ruler gains a **Negative** charge of as a result of **gaining** electrons

C. Paper scraps are attracted to the ruler even though they do not touch each other (reasons)

Because the charges that accumulate on the surface of objects when they lose or gain electrons.



4- If you know that humid air is a natural conductor of electricity, and that the weather in a certain place is dry with low humidity in winter, while the weather in summer is humid with high humidity.



Based on your understanding of the previous statement, in which season is static electricity more spreads, and why?

In winter, as the weather is dry and low humidity.

.....

.....

5. Based on your study of the forces of attraction and repulsion between electric charges, what happens in the following cases?



Repulsion force



Attraction force



Repulsion force

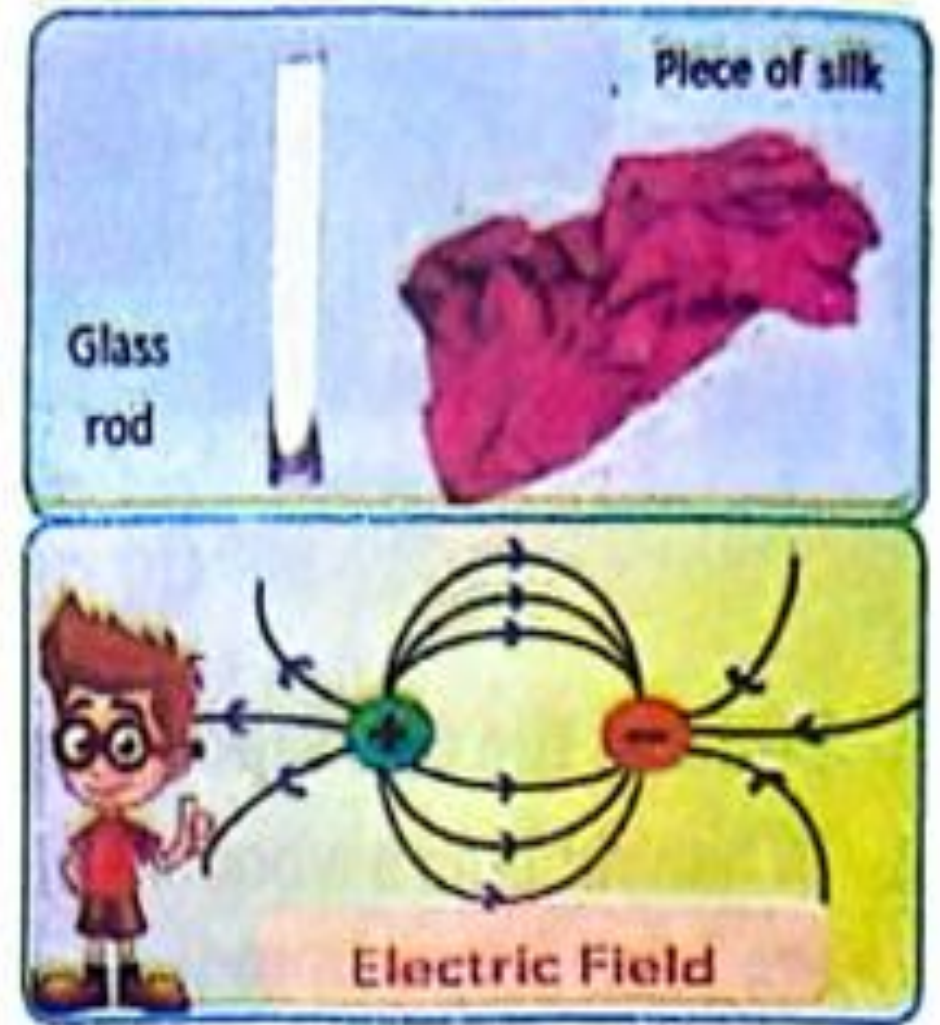
6- What type of charge is formed on a piece of silk and a glass rod when they are rubbed together with an explanation?.....
Glass: positive
Silk: negative

7- Based on your study of the diagram illustrating the characteristics of electric force lines, identify the correct and incorrect statements and correct the incorrect ones, if any:

A- Electric force lines are imaginary and intersect with each other. (In correct)

B. Electric force lines begin at the negative charge and end at the positive charge. (... In correct.)

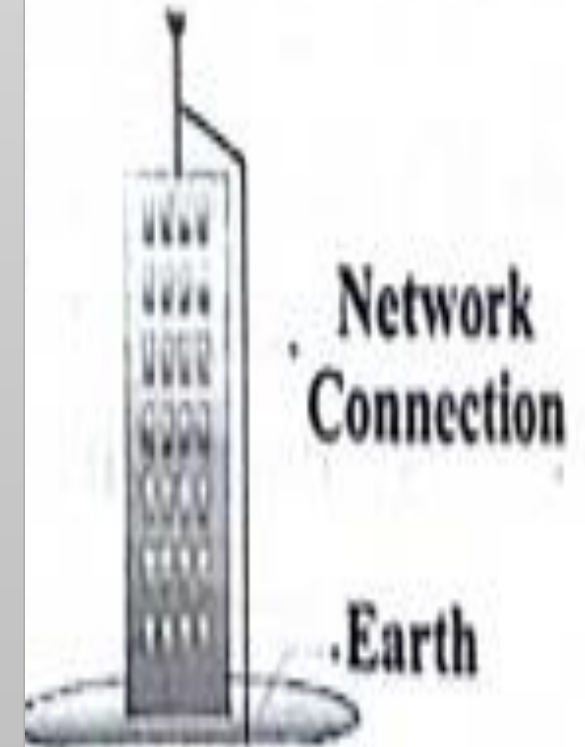
C. Electric field lines do not penetrate the surfaces of charged metal objects. (.....Correct.....)



8- Learn about the system described in this facility. Write down the name of the system and its use.

8. Lightning Rod:

Importance: It is a system that protects buildings and structures from lightning.



9- What happens to my gold foil with the electric detector when I replace the positively charged rod with another rod charged with a negative charge?

The gold leaves move closer together.



10- What happens in the following cases:

A- Rub the two ebonite rods with a piece of silk and bring them close together
The two ebonite rods repel each other.

B- Hanging a ebonite rod after rubbing it with silk and bringing a glass rod closer after rubbing it with silk

The ebonite rod & glass rod attract each other.



24

First Preparatory

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Unit two : Force Fields

Performances and

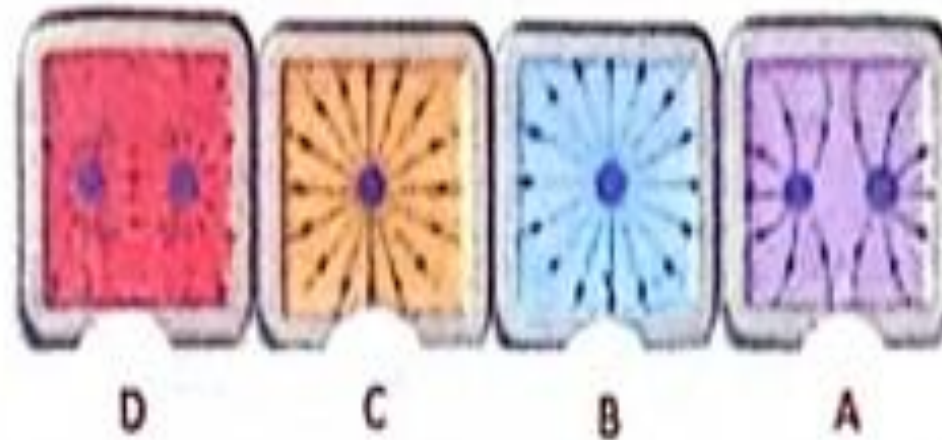
C. Hanging an ebonite rod after rubbing it with silk and bringing it close to an unrubbed glass rod

The ebonite rod attract the uncharged glass rod.

D. Touching a charged electrical torch with your hand

Discharging the Electrostatic charges occurs.

11- The following figures represent electric force lines.



After studying the previous figures, complete the following sentences:

Figure (A) represents the electric field lines of two charges **Negative**.....

Figure (b) represents the electric field lines of a charge. **Positive**.....

Figure (c) represents the electric field lines of a charge. **Negative**.....

Figure (D) represents the electric field lines of two charges **Positive & negative**..

Home Work

A. To discharge the electric charges generated by the friction of the fuel with the surface of the fuel tank to prevent fuel combustion.

1-Give reasons for the following:

A. Metal chains hang in contact with the ground from fuel tank.

B. The electrostatic plating method is preferred for metal plating.

B. To prevent paint loss

2-What kind of charge is formed on a piece of wool and a rod of ebonite when they are rubbed together with an explanation

2- wool: Positive, Ebonite: negative .

3- Identify the device shown in the figure, write its name and

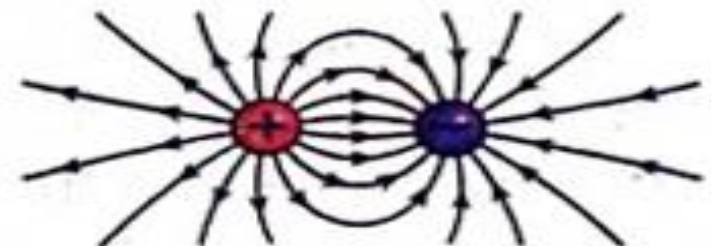
3- Coulomb meter. It is a device that is used to measure weak electric charges.

4- From your study of the figure showing the characteristics of power lines, Identify the correct and incorrect statements and correct the incorrect statements if any:

a. Power lines are real and don't cross each other. (In correct.)

b. Electric power lines begin at positive charge and end at negative charge. (correct)

c. Power lines penetrate the surfaces of charged metal objects. (In correct)



4- Identify the device shown in the figure, write the name of the device and mention its use

Electroscope (the electric detector)

Its importance:

1. It detects the electric state of an object.
2. It determines the type of charge on a charged object.
3. It compares the magnitude of charges on different charged objects.



Weekly assessment (7)



What is meant by:

1- Static electricity

2- Electrostatic series

3- Electric field

4- Power lines

1. The charges that accumulate on the surface of objects when they lose or gain electrons.
2. The arrangement of materials according to the ease of losing electrons when rubbed together.
3. It is the region of space around an electric charge in which its effect appears.
4. They are imaginary lines that show the path taken by a small free-moving positive charge that are placed in the electric field.

Explain the following:

- 1- Electrostatic electricity is called static electricity.
- 2- Small scraps of paper are attracted to the ebonite rod when rubbed with silk.
- 3- Small scraps of paper are not attracted to the copper rod when rubbed with wool.

1. Because it is the charges that accumulate on the surface of objects when they lose or gain electrons.

2. Because they have been charged with static electricity as ebonite is non-conducting material.

3. Because they aren't charged with static electricity as copper is conducting material.

- 4- Gasoline tank have metal chains hanging from them that touch the ground.
- 5- The charge of the glass rod becomes positive when rubbed with silk.
- 6- Electrostatic plating of metals is preferable to other methods.
- 7- Lightning rod is used in buildings and structures.

4. To discharge the electric charges generated by the friction of the fuel with the surface of the fuel tank to prevent fuel combustion.

5. Because this depends on the position of its rubbing materials in the electrostatic Series (glass come before silk in the series).

6. Because it makes the paint layer uniform & it reduces paint waste.

7. To protects buildings and structures from lightening.

Complete the following statements:

- 1- When an ebonite rod is rubbed with a piece of wool, the rod gains a Negative charge while the piece of wool gains a Positive charge
- 2 - Different electrical charges are attract while similar electrical charges are repel
- 3 - Electric charges accumulated on the surfaces of objects are known as Static electricity
- 4 - Objects that can be charged with an electrostatic charge can be made of non-conductive materials such as ebonite and wool
- 5- Electrostatic series is the arrangement of certain substances according to the easiness of losing electrons.
- 6- Electrostatic series substances include rubbing material as ebonite, wool and cotton .
- 7- Weak electrical charges are measured with a device Coulomb meter
- 8- When painting metals by the electrostatic painting method, the object to be painted is charged with Negative charge and the paint spray with Positive charges.
- 9- Lightning Rod is a system used to protect buildings and structures from lightning strikes.
- 10- Power lines start from the Positive charge and end at Negative charge.
- 11- Power lines are lines imaginary they do not intersect with each other.

12- Power lines end on the of the charged metal objects and do not penetrate them.

13- Electroscope is known as electric detector.

14- Electroscopes are used to infer and determine the type of charge on a charged object

Choose the correct answer:

1- A positive electric is gained when a rod of which is rubbed with a piece of silk

A – glass

B - ebonite

C - copper

D - wood

2- When a rod of ebonite is rubbed with silk, charges transfers from the silk to the ebonite

A - protons

B - electrons

C - neutrons

D - atoms

3- A rod of is charged with a static electric charge when rubbed, but it must be insulated from the hands.

A – iron

B - glass

C - ebonite

D - plastic

4- The electrostatic series is the arrangement of some substances according to how easily they are lost

A - protons

B - electrons

C – neutrons

D - molecules

5- is used to protect buildings and structures from lightning strikes

A - Coulomb meter

B - Electroscope

C - Lightning rod

D - Voltmeter

6- A device is used to detect the electric state of an object.

A - Hoffman voltmeter

B - Electroscope

C - Lightning rod

D - Voltmeter

7- is a device that measured the weak electric charge.

A - Coulomb meter

B - Electroscope

C - Lightning rod

D - Voltmeter

Write what the following statements mean:

- 1- Electric charges accumulated on the surfaces of objects when they lose or gain electrons. **Static electricity**
- 2- Arranging some materials according to the ease of losing electrons. **Electrostatic series**
- 3- The device used to measure weak electric charges. **Coulomb meter**
- 4- A system used to protect buildings and structures from lightning strikes. **Lighting rod**
- 5- The area surrounding electric charges and showing their effect without contact. **Electric field**
- 6- Imaginary lines showing the path taken by a small free-moving positive charge placed in it. **Electric field lines**
- 7- A device used to determine the type of electric charges. **Electroscope**

What happens when :

- 1- Rubbing two ebonite rods with a piece of silk and bringing them close to each other
- 2 - Hanging an ebonite rod after rubbing it with silk and bringing a glass rod close after rubbing it with silk
- 3 - Hanging an ebonite rod after rubbing it with silk and bringing a glass rod close without rubbing it.

1. They will repel each other.
2. The ebonite rod & glass rod attract each other.
3. The ebonite rod attract the uncharged glass rod.

- 4- Touching the disk of a charged electroscope by hand
- 5 - Approaching a positively charged glass rod from a negatively charged electroscope.
- 6 - Approaching a negatively charged ebonite rod from a negatively charged electroscope.

4. The gold leaves don't diverge.

Or

The electric charge will be discharged.

5. The divergence of gold leaves decreases.

6. The divergence of gold leaves increases.

Class performance

Date: / /



1- If you know that copper coins are not made of copper alone but are made of an alloy of both copper and nickel, what happens if you bring a copper coin close to a magnet?

It will attract to the magnet.

2- When the larger magnet stronger than the smaller magnet?

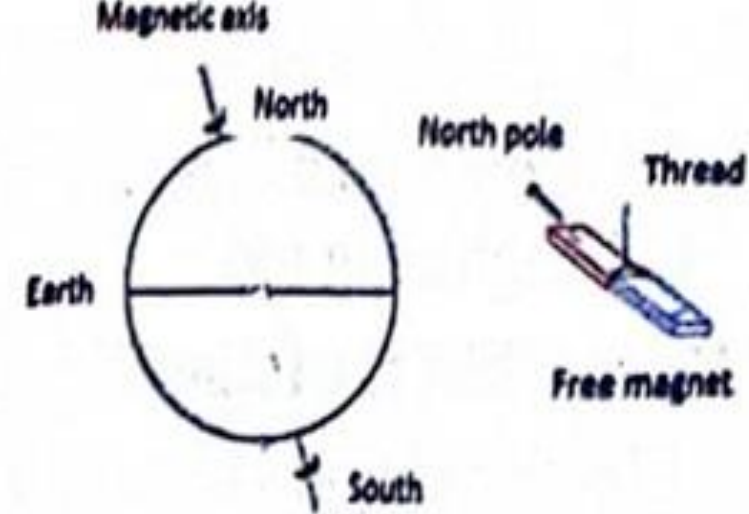
When the magnetic field increase.



3- Discuss with your classmates whether magnetic materials such as iron and nickel are magnets? Explain your answer and give reasons. Yes, because they attract to magnet.

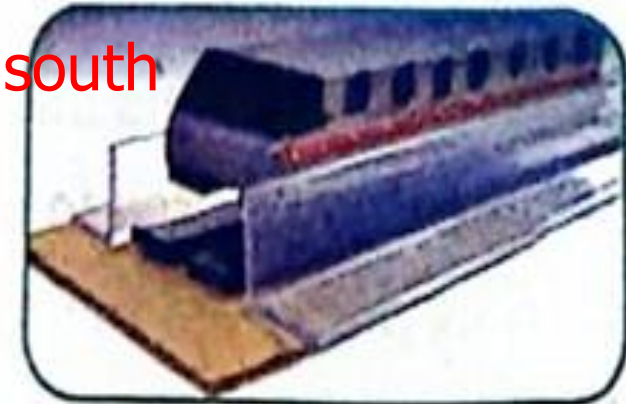
Magnetic axis

4- If you know that the north pole of a magnet points to the geographic north of the Earth, discuss with your classmates whether the south magnetic pole of the Earth corresponds to the north pole of a freely suspended magnet or not. Explain your answer and give reasons.



Yes, because it act as large magnet has 2 poles so the south pole of the earth attract north pole of magnet.

5 - a) How many mechanical engines does the magnetic Maglev train shown in the corresponding figures contain? **It don't have any mechanical engine.**



b) Does this train run on rails?

Explain why.

No, because it moves by magnetic force between the train & truck.

6. Discuss with your classmates the shapes of the magnets in front of you, then write down the name of each shape.



Magnetic ring



Disk magnet



Bar magnet



Magnetic ring



Horse shoe magnet

7- a) Identify the tool shown in the opposite drawing and write its name.

Compass

b) Write the function of that tool.

used to determine the Earth's four main geographical directions.

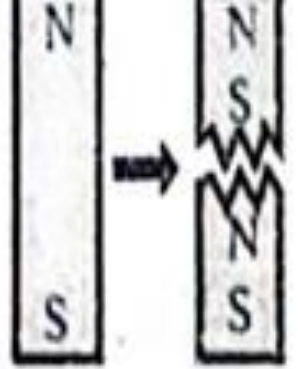
c) Explain why the freely moving magnetic needle is placed inside a case made of copper or plastic.

To prevent the attraction between the needle and the box material, which can affect its movement.



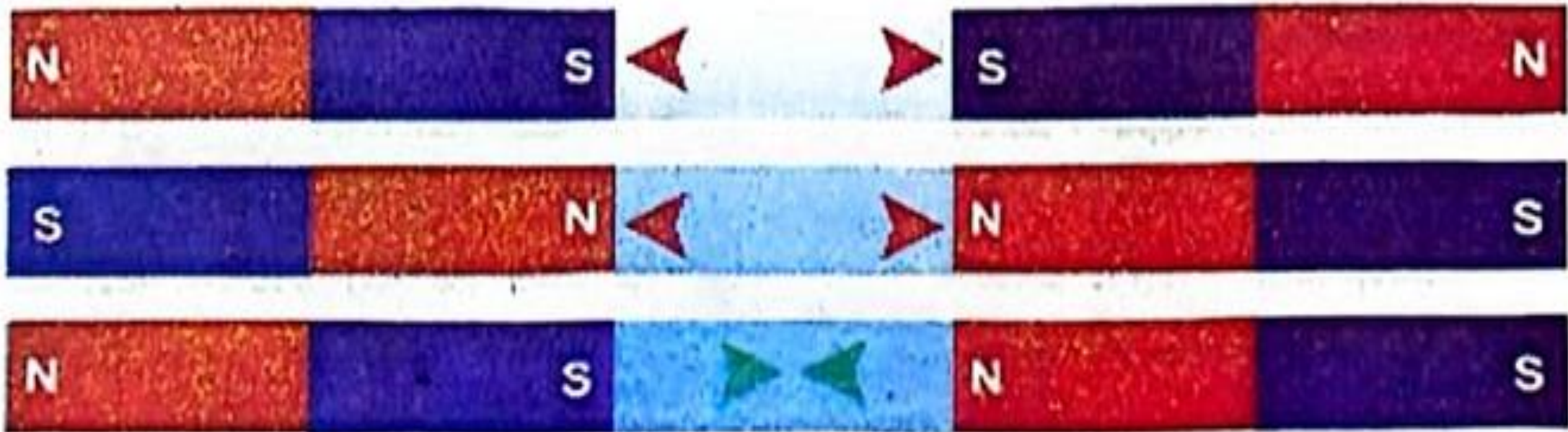
8 - Study the corresponding figure carefully, then conclude what happens when a single magnet is broken into several pieces?

Each piece becomes a new magnet with both a north and South Pole.



9- Based on your study of the pictures shown, discuss with your classmates the magnetic property that is expressed in the drawing

1. Repulsion
2. Repulsion
3. Attraction



10 - By studying the diagram showing the characteristics of magnetic lines of force, put ($\checkmark$) or (X) then correct the wrong one.

A. Magnetic lines of force are imaginary and intersect with each other. (.....)

B. Magnetic lines of force start at the North Pole and end at the South Pole. (.....)

C. Magnetic field lines condense at the poles and diverge as they move away from them. (.....)





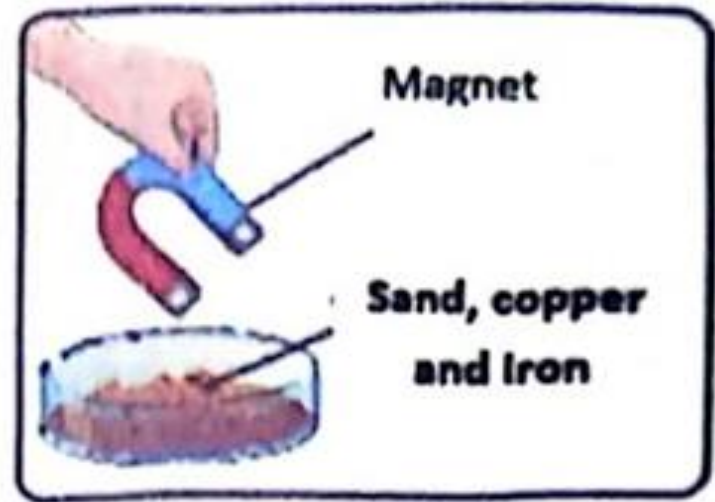
Home Work



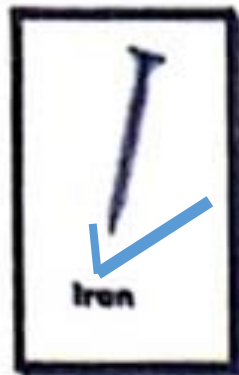
1- Study the apposite figure and answer the following questions :

a) Why was the copper coil not attracted to the magnet?
Because it is non-magnetic material.

b) Why was the iron filings attracted to the magnet?
Because it is magnetic material.



2- The figure shows some metallic materials, Classify the metallic materials shown in the figure according to their attraction to a magnet.

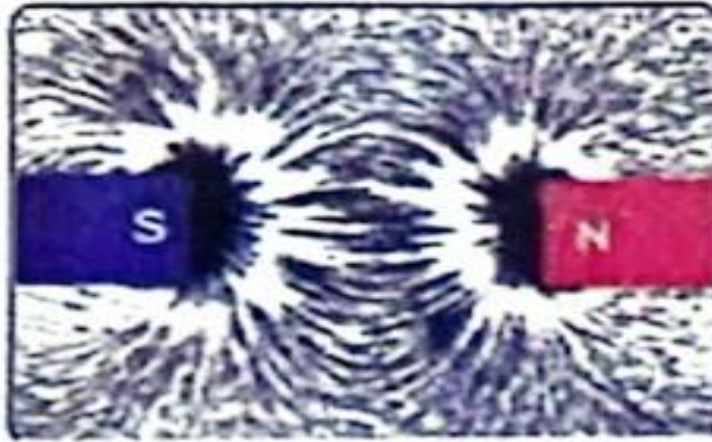


3- The following figures represent magnetic field lines. Identify which one represents:

- a) Magnetic field lines between two different magnetic poles.
- b) Magnetic field lines between two similar magnetic poles.
- c) Magnetic field lines of a magnet.



(b)



(a)



(c)

4- Write the scientific term

- A) A natural stone that has the ability to attract objects made of iron. Lodestone
- B) Materials that are not attracted to magnets. Non-magnetic materials
- C) Materials that are attracted to magnets. Magnetic materials
- D) The area surrounding a magnet where its magnetic force is appears. Magnetic field
- E) Imaginary lines representing the strength of a magnetic field. Magnetic field lines

5- What happens in each of the following cases:

- a) When a magnet is brought close to a mixture of iron filings and copper filings.
- b) When a magnet is dipped into a box containing iron filings.
- c) When a magnet is suspended freely from its center.
- d) Bringing the north pole of a magnet close to the north pole of another freely suspended magnet.
- e) Bringing the south pole of a magnet close to the north pole of another freely suspended magnet.

a. The iron fillings are attracted to the magnet, and The copper filling and sand aren't attracted to the magnet.

b. The iron fillings are attracted to the magnet.

c. It always takes a certain direction, where the North Pole (N) of magnet points to the geographical North Pole of the Earth and The South Pole (S) of magnet points to the geographical South Pole of the Earth.

d. poles of magnets repel each other.

e. poles of magnets attract each other.

Week assessment (8)

What is meant by each of the following?

1- Magnetic materials

2- Non-magnetic materials

3- The law of attraction and repulsion

4- Magnetic field

5- Magnetic field lines

1. They are materials that are attracted to the magnet.
2. They are materials that are not attracted to the magnet.
3. Unlike (Different) poles of magnets attract each other and Like (Similar) poles of magnets repel each other.
4. The region of space around a magnet where the effect of its magnetic force appears in it.
5. They are imaginary lines that represent the force of the magnetic field.

Give reason for the following:

- 1- Nickel and cobalt are magnetic materials.
- 2- Aluminum and silver are non-magnetic materials.
- 3- Compass cases are made of copper or plastic, not iron.
- 4- Iron filings gather in large quantities at each pole of the magnet.

1. Because They are materials that are attracted to the magnet.

2. Because They are materials that aren't attracted to the magnet.

3. To prevent the attraction between the needle and the box material, which can affect its movement.

4. Because the magnetic force is greater at the two poles.

Complete the following sentences:

- 1- From the types of artificial magnets are magnetic rods, Ring magnet and Magnetic needle
- 2- Magnets have two poles: North pole and South pole.
- 3- The magnetic force is strongest at Two poles and decreases at Middle
- 4- The compass case is made of Copper or Plastic
- 5- A compass consists of a Needle magnet free-moving fixed at Its pivots
- 6- When a magnet is suspended freely, it points in the direction of North pole and South pole
- 7- The north pole of a magnet is symbolized by N and the south pole by S
- 8- When a magnet is divided into several parts, each part is a new magnet
- 9- Like magnetic poles are repelled, while opposite poles are Attract
- 10- Magnetic field lines emerge from the North pole toward the South pole

Choose the correct answer

1 – All of the following are types of artificial magnets except

A – Magnetic needle

B – Magnetic rod

C – Horseshoe

D – Magnet stone

2- is a magnetic material

A – Gold

B – Silver

C – Copper

D – Cobalt

3- is a non-magnetic material

A – Iron

B – Nickel

C – Aluminum

D – Cobalt

4 – is an ancient tool used in to determine the main four directions

A – Compass

B – sand-dial

C – Sun-dials

D – Balance

5- The strength of a magnet increases at the magnet

- A – the middle **B – the poles** C – the side D – the surface

6- Magnetic field lines condensed at

- A – the north pole only B – the south pole only
C – the north and south poles D – the middle of the magnet

7- Magnetic field lines start from to

- A – The North Pole to the South Pole**
B – The South Pole to the North Pole
C – From the middle of the magnet to its end
D – From the end of the magnet to its middle

Class performance

Date: / /

1-Observe the following figures:



You and a classmate drop a piece of wood, a feather, and a ball from the same height at the same time (assuming no air resistance).

- a- Why do all objects fall downward toward the center of the Earth? Due to gravity.
- b- Which of these objects will reach the ground first? All objects will reach the ground at the same time.
- 2- Circle the shape that represents the force of gravity.



Fig (A)



Fig (B)



Fig (C)

- What are the similarities between the types of forces in the three figures?

All of them are field forces.

The hidden force between two bodies

1. Observe the following figures, which represent the mutual gravitational forces between two spherical bodies made of the same material. The arrows indicate the direction of the mutual gravitational force (F).

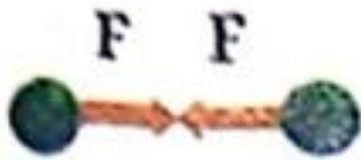


Fig (3)



Fig (2)



Fig (1)

A. Arrange the forces of attraction from smallest to largest in figures (1) and (2).

1-2

B. Arrange the forces of attraction from largest to smallest in figures (2) and (3).

2-3

C. What factors affect mutual forces of attraction?

The masses of the two objects & The distance between the centers of the two objects.

2. Observe the following shapes of an object in three different places:

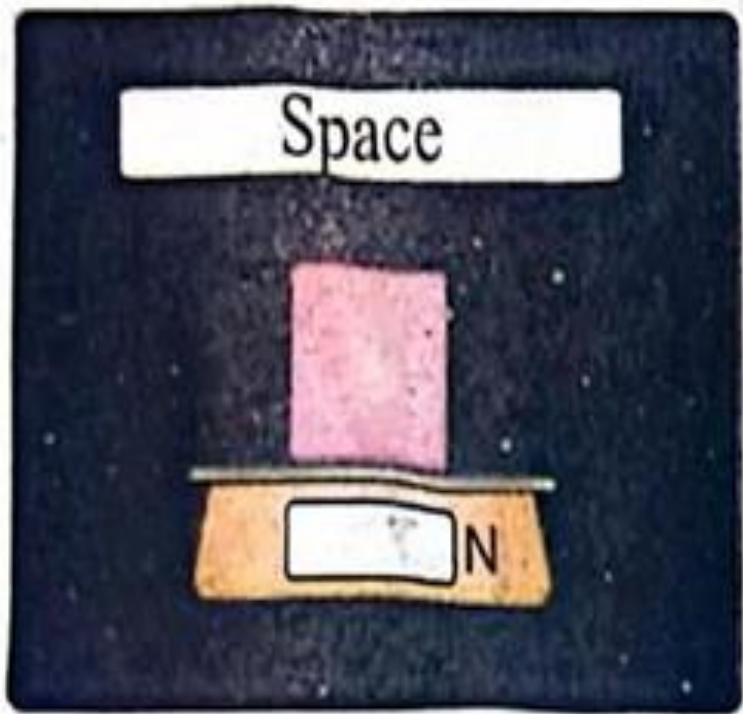


Figure (1)

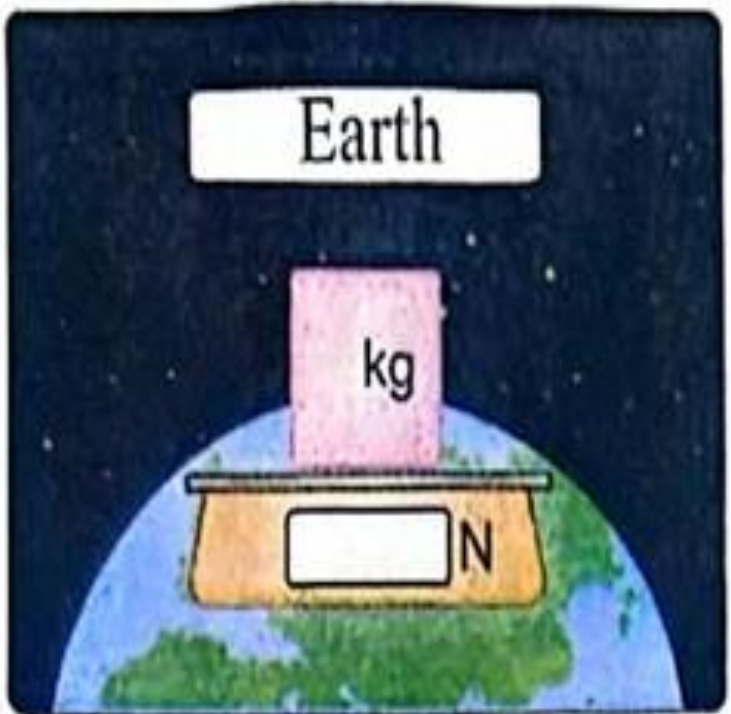


Figure (2)



Figure (3)

- 1- What physical quantity is measured in kilograms (kg)? **Mass**.....
- 2- What physical quantity is measured in newtons (N)? **Weight**.....
- 3- Which of the two physical quantities is constant for an object in all places? **Mass**.....

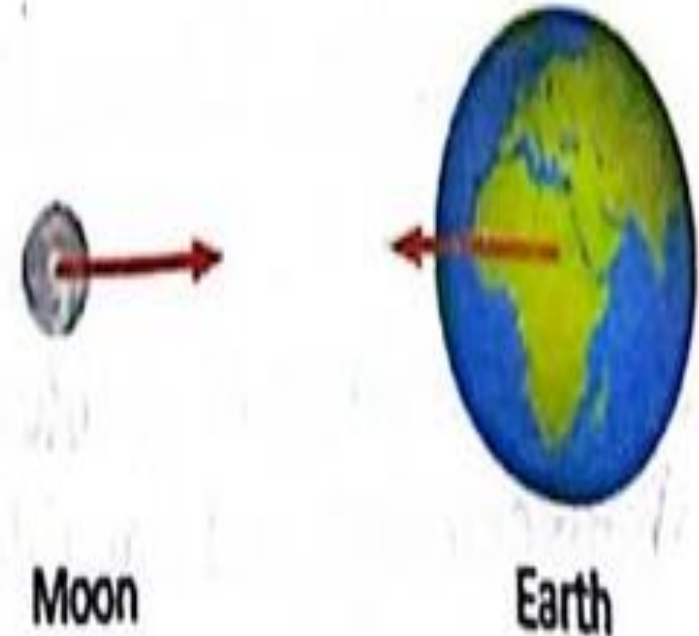
4-What is the relationship between the two quantities? **Weight (w) = (m) x (g)**

Explain the relationship between the attraction force of the Earth to the Moon and the attraction force of the Moon to the Earth.

Complete: The gravitational force of the Earth to the Moon is **more** than the attraction force of the Moon to the Earth.

(Explain your answer) :

The Earth has more mass so it has more
gravitational force.





Home Work



1- Compare between:

A. Mass and weight.

B. Gravity on Earth and gravity on the Moon.

Mass

It is the amount of matter an object contains.

Weight

It is the gravitational force that earth exerts on the object.

Gravity on Earth

The gravity of Earth is more than the gravity of moon by 6 times.

Gravity on the moon

The gravity of moon is less than the gravity of moon by 6 times.

2-Give reason:

- A. The weight of a body at the Earth's surface is always greater than its mass.
- B. The weight of a body different from one planet to another.

3- What is meant by:

- A. Contact forces
- B. Field forces
- C. Orbital motion

- a. Because the Weight $(w) = (m) \times (g)$, so its value is bigger.
- b. Because the weight changes due to the difference in the gravitational field intensity.

- a. It is the force that acts on certain objects when they touch each other.
- b. It is the force that acts on objects over a certain distance without touching.
- c. The rotation of any object in space around another central body in a curved path due to the gravitational attraction force between them.

What is meant by each of the following:

- | | |
|-------------------------|------------------------|
| 1- Gravitational forces | 2- Contact forces |
| 3- Field forces | 4- Orbital motion |
| 5- Mass of an object | 6- Weight of an object |

1. It is the force that pulls (attracts) all objects downward towards Earth's center.

2. It is the force that acts on certain objects when they touch each other.

3. It is the force that acts on objects over a certain distance without touching.

4. The rotation of any object in space around another central body in a curved path due to the gravitational attraction force between them.

5. It is the amount of matter an object contains.

6. It is the gravitational force that earth exerts on the object.

Explain why:

- 1- All objects fall downward toward the center of the Earth.
- 2- There is a field in the magnetic forces , but there is no field in the collision forces.
- 3- The force of attraction between two objects increases by there masses increase.
- 4- The weight of an object on the Earth surface is greater than its weight on the moon surface.
- 5- The weight of an object different from one planet to another.
- 6- An object has no weight in outer space.

1. Due to the gravity.

2. Because magnetic forces is the force that acts on objects over a certain distance without touching , while collision is the force that acts on certain objects when they touch each other..

3. Because when the masses of two objects increases, the mutual gravitational force increases.

4. Because the weight changes due to the difference in the gravitational field intensity , Earth has more gravitational force than the earth.

5. Because the gravitational field intensity changes from one planet to another.

6. Because there is no gravity in outer space.

Complete the following sentences:

- 1- The force that causes an apple to fall to the ground is the force of **gravity**.
- 2- The forces that affect objects when they come into contact with each other are **Collision** forces, **Friction** forces, and **Elasticity** forces.
- 3- The force of gravity is represented by **Earth's Gravitational Field** lines.
- 4- By increasing the mass of two objects, the force of attraction between them **Increases**.
- 5- By increasing distance between two objects, the force of attraction between them **decreases**.
- 6- The phenomenon of tides occurs in Fundy Bay in Canada, and the difference between high and low tide reaches **19** meters.

- 7- The phenomenon of tides is used to clean impurities. water bodies from
- 8- The phenomenon of tides can be used in as a source of renewable energy. generate electricity
- 9- Black holes are formed when collapses at the end of its life. massive star
- 10- Black holes are characterized by a force. so cannot escape from it. immense gravity Light
- 11- is the force of attraction between any object orbiting in space in a curved path around another central object. The Orbital Motion
- 12- The movement of the moon around the Earth is a movement but the example of orbital motion is The motion of the Earth around the Sun. Orbital
- 13- The rotation of electrons around the nucleus of an atom is an example of motion. Orbital
- 14- The gravitational field on the Earth's surface is as we move away from its center. Decreasing

- 15- The weight of an object differs..... from one planet to another
- 16- A Spring balance is used to measure the weight of an object
- 17- The weight measuring unit is Newton while the mass measuring unit is Kg
- 18- Weight = (m) × (g)
- 19- An object with a mass of (500 g) its weight is 5 newtons.
(Note that the gravitational field intensity) is (N/Kg 10)
- 20- An object weighing 50 newtons its mass is 5 kg.
(Note that the gravitational field intensity) is (N/ Kg 10)

Second Month exercise

Write the scientific term:

- 1- An atom of a metallic element that lost one electron or more. Positive ion
- 2- An atom of a non-metallic element that gained one electron or more. Negative ion
- 3- A bond formed as a result of an electrostatic attraction between a positive and a negative ion. Ionic bond

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First Preparatory

First term

Unit three : Living Organisms, Their Structure and Processes

Performances and Assessments

- 4- Compounds that dissolved in water and conduct the electric current. Ionic compounds
- 5- Compounds that do not conduct electric current. Covalent compounds
- 6- A bond formed between two atoms of two different nonmetallic elements or between two atoms of one nonmetallic element. Covalent bond
- 7- A bond formed when each atom shares by one electron. Single covalent bond
- 8- A bond formed when each atom shares by two electrons. Double covalent bond
- 9- A bond formed when each atom shares by three electrons. Triple covalent bond
- 10- The simplest molecule of an organic compound in which a carbon atom is bonded to four hydrogen atoms. Methane

- 11- Electric charges accumulated on the surfaces of objects when they lose or gain electrons. **Electrostatic electricity**
- 12- Arranging some substances according to how easily they lose electrons. **Electrostatic series**
- 13- The device used to measure weak electrical charges. **Coulomb meter**
- 14- A system used to protect buildings and structures from lightning strikes. **Lightning rod**
- 15- The area surrounding the electric charges and its effect appears in it. **Electric field**
- 16- Imaginary lines showing the path taken by a small free-moving positive charge placed in it. **Electric field lines**
- 17- A device used to determine the type of electric charge. **Electroscope**
- 18 - A natural stone that has the ability to attract objects made of iron. **Lodestone**
- 19- Substances that are not attracted to a magnet. **Non-magnetic materials**
- 20- Materials that are attracted to magnets. **Magnetic materials**
- 21- An ancient tool used to determine the four geographical directions. **Compass**
- 22- Similar magnetic poles repel and different magnetic poles attract. **Law of attraction & repulsion**
- 23- The area that surround the magnet where the effects of its magnetic force are appears. **Magnetic field**

- 24- Imaginary lines representing the power of the magnetic field **Magnetic field lines**
- 25- The building unit of the living organism.
- 26- A group of similar cells that work together and perform a specific function.
- 27 - A group of different tissues that work together and perform a specific function.
- 28- A group of different organs that work together.
- 29- Organisms are arranged in groups according to their similarities and differences for easy study.
- 30- Undifferentiated cells have the ability to transform into all the differentiated cells of the body.
- 31 - Simple organisms whose body consists of a single unspecialized cell.
- 32 - Complex living organisms consists of many cells that are distinguished and specialized in their work.

Compare each of the following:

1- The positive ion and the negative ion in terms of:

A - definition B - number of electrons C - number of protons D - number of energy levels.

2- Ionic and covalent compounds in terms of:

A - solubility in water. B - melting point. C - boiling point. D - conducting electricity.

Positive Ion (Cation)	Negative Ion (Anion)
A metal that has lost one or more electrons in a chemical reaction.	A nonmetal that has gained one or more electrons in a chemical reaction.
The number of electrons is less than the number of protons.	The number of electrons is more than the number of protons.
The number of energy levels in it is less than the number of energy levels in its atom.	The number of energy levels in it is equal to the number of energy levels in its atom.

Ionic compounds

a. Most of them dissolve in water.

b,c . They have high melting and boiling points.

d. Their solutions conduct electric currents

Covalent compounds

a. Most of them don't dissolve in water.

b,c. They have low melting and boiling points.

d. Their solutions don't conduct electric currents.

3- Prokaryotes and eukaryotes in terms of : Definition - characteristics

4- Animal cell, plant cell and bacterial cell in terms of :

- Cell wall - plasma membrane - centrosome
- Chloroplasts - Golgi apparatus – vacuoles

Give reason:

- 1- The bond in the sodium chloride molecule is ionic.
- 2- The bond in the hydrogen chloride molecule is single covalent
- 3- The bond in the water molecule is single covalent
- 4- The bond in the oxygen molecule is double covalent
- 5- The bond in the nitrogen molecule is triple covalent

1. Because ionic bonding occurs between two different atoms as a result of the electrostatic attraction between a positive ion of a metal element and a negative ion of a non-metal element.

2. Because hydrogen atom shares its valence electron with chloride to form a pair of electrons which form a single covalent bond.

3. Because hydrogen atom shares its valence electron with oxygen to form a pair of electrons which form a single covalent bond.

4. Because each oxygen atom shares its two unpaired valence electrons to form two pairs of electrons which form a double covalent bond.

5. Because each nitrogen atom shares its three unpaired valence electrons to form three pairs of electrons which form a triple covalent bond.

- 6- When the metallic ion loses an electron, it turns into a positive ion
- 7- When the halogen gains an electron, it turns into a negative ion
- 8- there is a bond between two chlorine atoms, but there is can't formed between two sodium atoms
- 9- Ionic compounds are neutral charge.

6. To reach the electronic configuration of the nearest preceding inert gas in the modern periodic table, and because the number of positive proton is more than the number of negative electron.

7. To reach the electronic configuration of the nearest following inert gas in the modern periodic table, and the number of negative electrons is more than the number of positive protons.

8. Because the covalent bond can formed between two nonmetal (chlorine atoms), while there is no bond can formed between two same metal (sodium) .

9. Because the number of positive charges is equal to the number of negative charges in the ionic compound.

What happens when:

- 1- Rubbing two ebonite rod with a piece of silk and bringing them close together.
- 2 - Suspend a rod of ebonite after rubbing it with silk and bring a rod of glass close to it after-rubbing it with silk.
- 3- Hanging a rod of ebonite after rubbing it with silk and approaching a rod of glass that has not been rubbed with silk.
- 4- Touching a charged the metal disk of the electroscope with hand.

1. The two ebonite rods repel each other.
2. The ebonite rod & glass rod attract each other.
3. The ebonite rod & glass rod not attract each other.
4. The electric charge will be discharged.

- 5- Approaching a positively charged glass stem from a negatively charged the metal disk of the electroscope.
- 6- Approaching a negatively charged leg of ebonite from a negatively charged the metal disk of the electroscope.
- 7- Approaching a magnet to a mixture of iron filings and silver filings.
- 8- Dipping a magnet into a box containing iron filings.
- 9- When a magnet is suspended freely from its center.

- 5. The divergence of gold leaves decreases.
- 6. the divergence of gold leaves increases.
- 7. Magnet will attract the iron filling.
- 8. Magnet will attract the iron filling.
- 9. The North Pole (N) of magnet points to the geographical North Pole of the Earth, The South Pole (S) of magnet points to the geographical South Pole of the Earth.

- 10- When splitting a single magnet into several parts.
- 11- The south pole of the magnet is brought close to the south pole of a freely suspended magnet
- 12- The south pole of the magnet is brought close to the north pole of a freely suspended magnet
- 13- The absence of gravity.
- 14- Increasing the mass of an object relative to the gravity between them.
- 15- The distance between the two objects decreases relative to gravity between them.

10. each piece becomes a new magnet with both a north and South Pole.

11. They will repel each other.

12. They will attract each other.

13. Every thing will float off into the space.

14. The gravity will increase.

15. The gravity will increase.

What is meant by:

1- Positive ion

2- Negative ion

3- Ionic bond

4- Covalent bond

5- Single covalent bond

6- ~~Prokaryotes~~

1. It is a metal atom that has lost one or more electrons in a chemical reaction.
2. It is a non-metal atom that has gained one or more electrons in a chemical reaction.
3. It is the electrostatic attraction between a positive ion (cation) and a negative ion (anion).
4. It occurs between two atoms of the same non-metal element or between two atoms of different non-metals elements by sharing electrons.
5. It is a bond formed when each atom shares its single unpaired valence electron to form a pair of electrons.

7- Eukaryotes

8- Classification

9- Cell

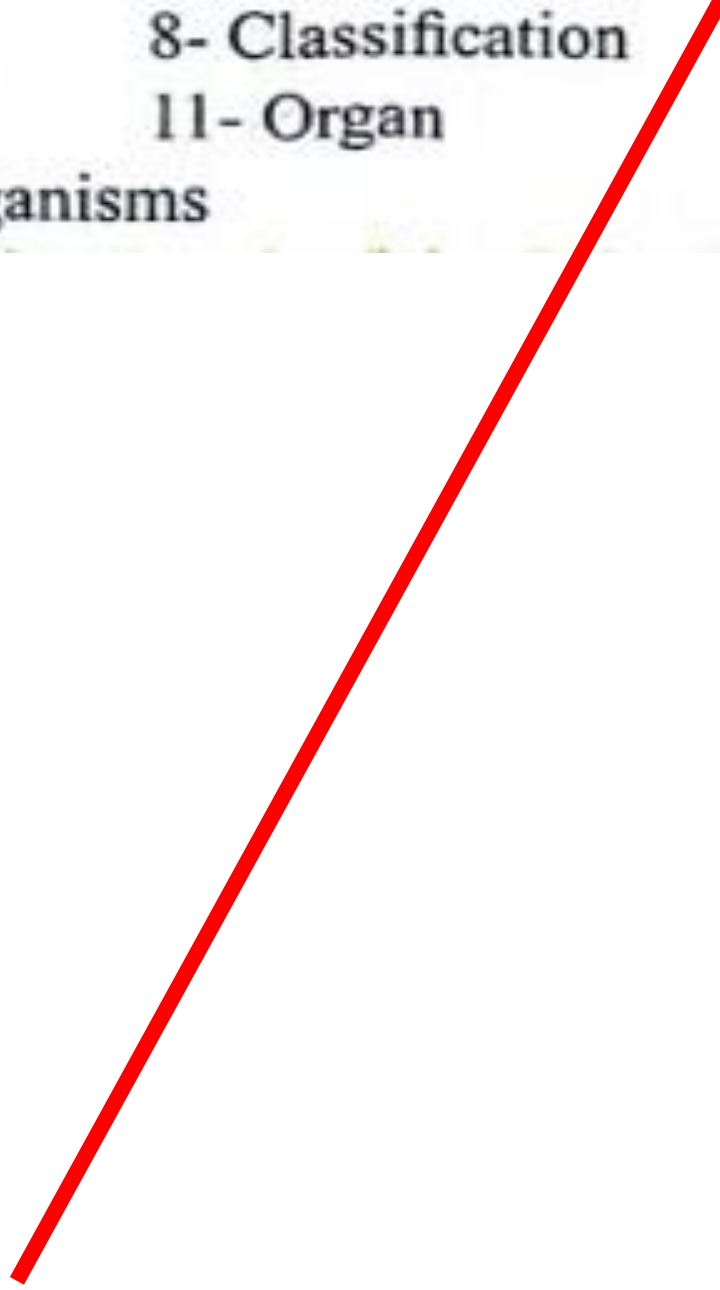
10- Stem cells

11- Organ

12- Unicellular organisms

13- Multicellular organisms

14- Tissue



Mention one example of each of the following:

- 1- The simplest molecule of an organic compound **Methane**
- 2- A molecule containing a single covalent bond **Hydrogen molecule**
- 3- A molecule containing a double covalent bond **Oxygen molecule**
- 4- A molecule containing a triple covalent bond. **Nitrogen molecule**
- 5- A molecule containing an ionic bond. **Sodium chloride**

Observe the diagram and then answer the following questions:

1- What is the name of rod (1)?

Ebonite

2- What is the type of charge of rod (1)?

Negative charge

3- What is the name of rod (2)?

Glass

4- What is the type of charge of rod (2)?

Positive charge

5- What happens when the two rods are brought closer together? They will attract each other.

6- What happens when the second rod is replaced by another rod of the same type as the first rod and with the same charge? They will repel each other.

7- What happens when the second rod is replaced by another rod of the same type as the first rod and is not charged? They will not attract each other.



The figure opposite represents a device:

Answer the following questions:

1- What is the name of the device? **Electroscope**

2- What is it used for? **It detects the electric state of an object.**

3- Complete the label on the drawing? **& It determines the type of charge on a charged object.**



The following figures represent magnetic field lines, which one represents

1- Magnetic field lines between the poles of two different magnets. **Figure B**

2- Magnetic field lines between the poles of two similar magnets. **Figure C**

3- Magnetic field lines of a magnet. **Figure A**



Figure (C)

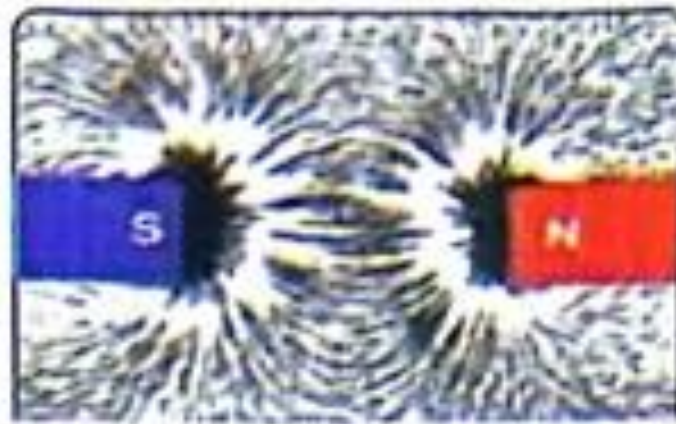


Figure (B)



Figure (A)

The opposite figure represents a living organism:

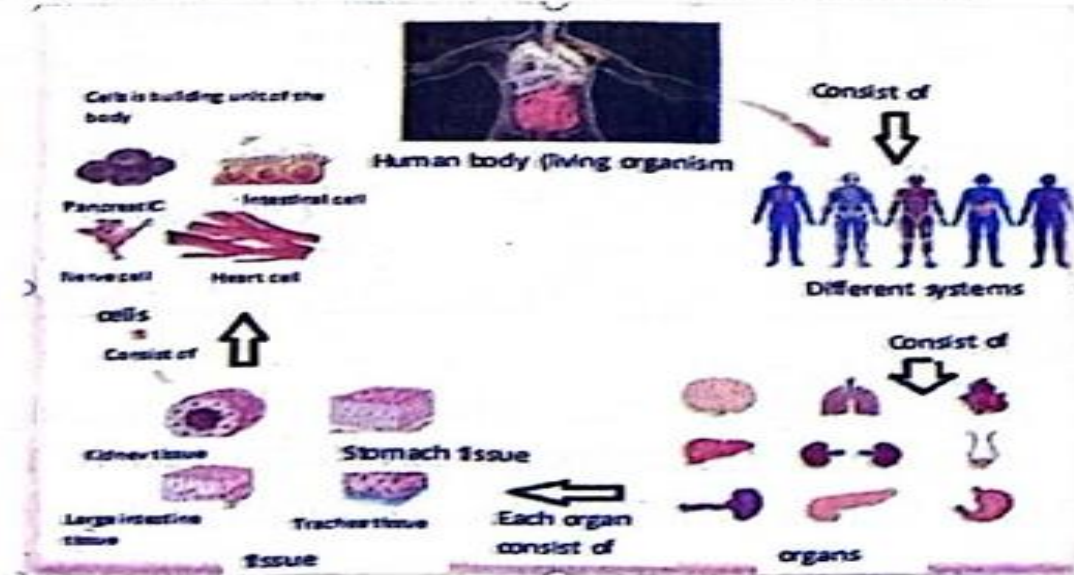
- 1- What is the name of this organism?
- 2- What is the classification of this organism?
- 3- What are the differences between this organism and bacteria?
- 4- What are the similarities and differences between this organism and yeast fungus?



Class performance

Date: / /

The image in front of you shows the organisation in humans:



First term

First Preparatory

35

Science

Unit three : Living Organisms, Their Structure and Processes

- The smallest structural unite is **cell**
- The largest structural unit of the body of the living organism **system**
- A group of similar cells is called **tissues**
- The group of different tissues that work together is called **organs**
- The group of different organs that work together is called **systems**

Complete the following diagram:



Classify the organisms in the table according to the number of cells that build the body of the organism and the structure of the nucleus, as in the first example:

Classification	Living organism	Classification	Living organism
Organism name: Classification: Bacteria Living organisms Multicellular Prokaryotes		Organism name: Rabbit Classification: living organism Multicellular Eukaryotes Animal	
Organism name: Classification: Paramecium Living organisms Unicellular Eukaryotes		Organism name: Classification: Mushroom fungus Living organisms Multicellular Eukaryotes	
Organism name: Classification: Yeast fungi Living organisms Unicellular Eukaryotes		Organism name: Classification: Bread mold fungus Living organisms Multicellular Eukaryotes	
Organism name: Classification: Plants Living organisms Multicellular Eukaryotes		Organism name: Classification: Euglena Living organisms Multicellular Eukaryotes	

Solve the puzzle

Use the following ingredient cards to complete the data for plant and animal cells as eukaryotes and bacterial cells as prokaryotes in the appropriate places on the diagrams below:

Unit three - Living Organisms, Their Structure and Processes

Performances and Assessments

1 vacuoles

2 Endoplasmic reticulum

3 Golgi apparatus

4 Cell wall

5 Cell membrane

6 nucleus

7 cytoplasm

8 mitochondria

9 chloroplasts



1

2

8



4

5

7

9

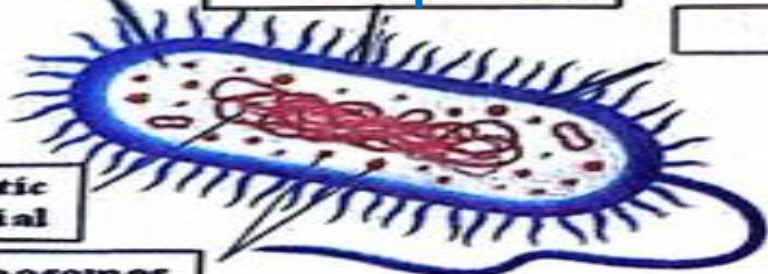
7

4

5

Genetic material

Ribosomes



From the previous figures, explain:

- 1- Structures (organelles) common to animal cells, plant cells, and bacterial cells.
Plasma membrane, Cytoplasm and Ribosomes
- 2- The common organelles in the plant cell and the bacterial cell.
Cell wall, plasma membrane, cytoplasm and Ribosomes
- 3- A structure that is absent in the bacterial cell and the plant cell and found in the animal cell only. Centrosomes
- 4- A structure that is absent in the bacterial cell and the animal cell and is found in the plant cell only. Chloroplast

The following figure shows some organisms:

- A - Names each slide.
- b. What are the type of each one?
Living organism unicellular eukarotes
- C - Why we must use a microscope to examine these organisms?
Because they are microscopic living organisms.
- D - Which of them are considered as protozoa?
Amoeba, paramecium





Home Work



1- Write what the following statements means

- A - the building unit of the living organism. **Cell**
- B - the arrangement of living organisms into groups based on their similarities and difference to facilitate their study. **Classification**
- C - Undifferentiated cells that have the ability to be transformed and differentiated into all differentiated body cells. **Stem cell**

2- Choose the odd word and then mention the relation between the rest:

- A) **Bacteria** - Euglena - Paramecium - Amoeba. **Eukaryotes**
- b) Cell wall - chloroplast - **centrosome** - Golgi apparatus. **Organelles in plant cell**

3- Give reason for: Prokaryotes cannot be as stem cells.

Because their cell is unspecialized.

4 - Complete the following statements:

- A - The human body consists of a group of **System**
- B - Living Organisms are classified into **Prokaryotes** and **Eukaryotes** depend on their nucleus.
- C - Stem cells are characterized by several characteristics, including their ability to **renew themselves** through division and their ability to produce **More stem cells**

Class performance

Date: / /

Think?

Have you ever thought about the similarities and differences between humans and plants?



42 First Preparatory

First term

Scanned with CamScanner

Unit two / Living organisms

Performances and Assessments

- Compare between the general characteristics between plants and humans:

comparison	Human	plant
Nutrition	Consumer	producers
Respiration	Respiratory system	stomata
transportation	Circulatory system	Plant transport system
Excretion	excretory system	stomata
Movement	Musculoskeletal system	Not transitional motion

- Compare between photosynthesis and respiration in plants.

photosynthesis	respiration
Chloroplast	Mitochondria
Water + Carbon dioxide	Glucose + Oxygen
Glucose + Oxygen	Water + Carbon dioxide



Home Work



1- Write the scientific term of:

- Organisms that can make their own food by itself. Autotrophic organisms
- A vital process by which a plant makes its own food. Photosynthesis
- A vital process of get oxygen and get rid of carbon dioxide. Respiration
- An organelle in eukaryotes responsible for cellular respiration. Mitochondria
- An organ that transports digested food and oxygen through the blood. blood
- A tissue that transports water and salts from the roots to all parts of the plant. Xylem
- The process of get rid of excess waste from the human body. Excretion

2- Write the equations of photosynthesis and respiration and explain the relationship between them.



Respiration



3) Give reason:

- Prokaryotes are different from eukaryotes.
 - Respiration is different in humans than in fish and insects.
 - The process of cellular respiration plays an important role for plants.
 - In plants, the role of phloem tissue is the opposite of the role of Xylem tissue.
- Prokaryotes genetic material in the cell is found in the cytoplasm and not surrounded by a nuclear membrane, while eukaryotes genetic material in the cell is surrounded by a nuclear membrane, separating it from the cytoplasm.
- Human has lungs, while fish has gills and insect has tracheal tube.
- As it is a process of breaking down organic nutrients, especially glucose, in the presence of oxygen to release energy.
- Because Xylem Tissue transports water and mineral salts from the roots to the leaves, while Phloem Tissue transports the food from the leaves to the rest of the plant.

4- What happens when:

- The plant doesn't expose to enough sunlight.
- Mitochondria disappear from eukaryotic cells.
- Plant can't make its own food (photosynthesis) without sunlight.
- They can't make cellular respiration so they can't get energy.

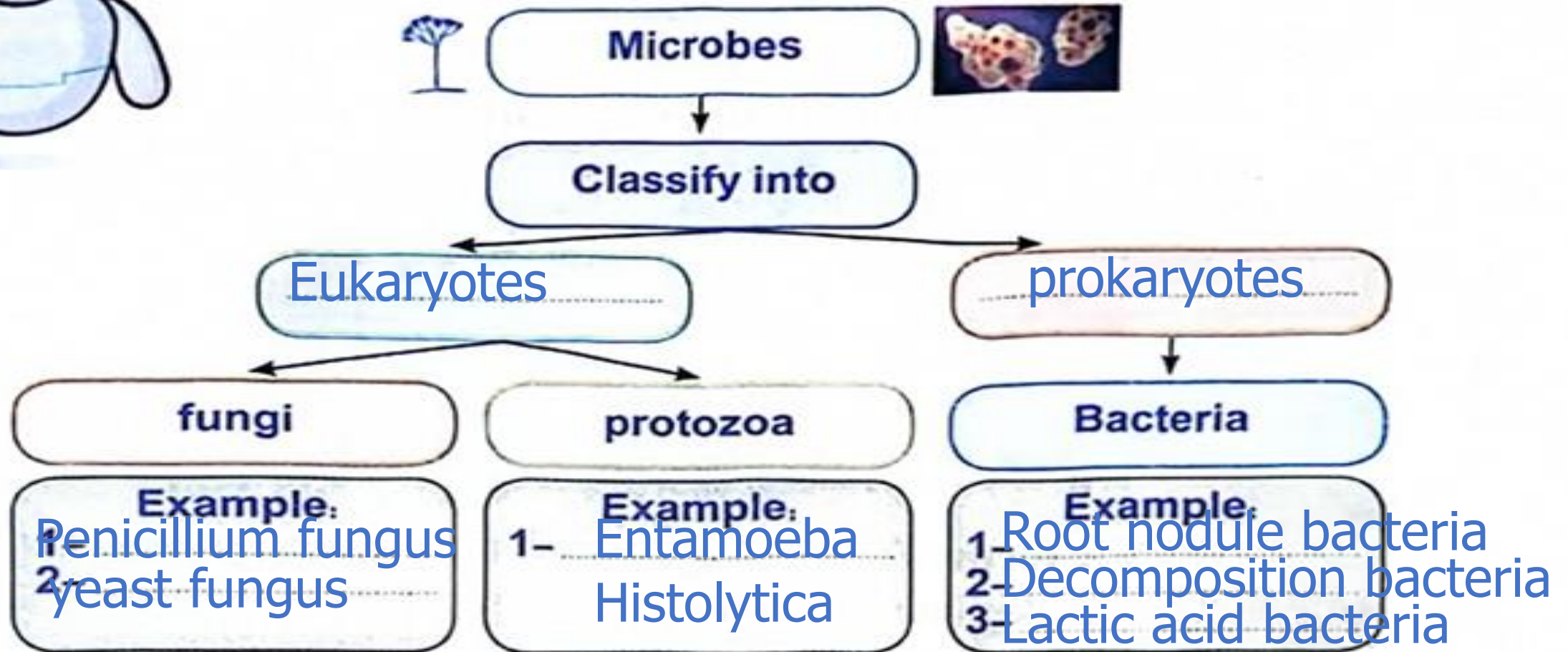
Class performance

Date: / /



Your classmate have a high fever after eating a meal from a street vendor, What happened? He suffers from typhoid fever.

Complete the chart in front of you



BACTERIA BUT BENEFICIAL

- leguminous plants and Bacteria

The figure in front of you represents

Living on

Their function

Explain how the soil can benefit from them.

It increase the soil fertility

Give another example of a beneficial bacterium.

- Cheese and Fungi

(A) - The Name of the fungi in front of you is

Is this fungi beneficial or harmful?.....

(B) - The Name of the fungi in front of you is.....

Discovered by the scientist

A substance that extracted from it is.....

Give another example of another a beneficial fungus

Root nodule bacteria

Nodules on the roots of leguminous plant

supply the plant with nitrogen in the form of nitrogenous compounds



Decomposition bacteria

Penicillium Roqueforti Fungus

Beneficial



Penicillium Notatum Fngus

Alexander Fleming

penicillin



Penicillium Roqueforti Fungus

Contaminated food

A) The figure in front of you represents *Entamoeba Histolytica*

It lives in large intestine of the patient

It is transmitted through Eating food contaminated with this microbe.

It causes Dysentery disease

From Its symptoms is Stomach pain, Loss of appetite & Weight loss

It is treated using Using antiprotozoal drugs.



B) The figure in front of you represents *Salmonella Typhi*

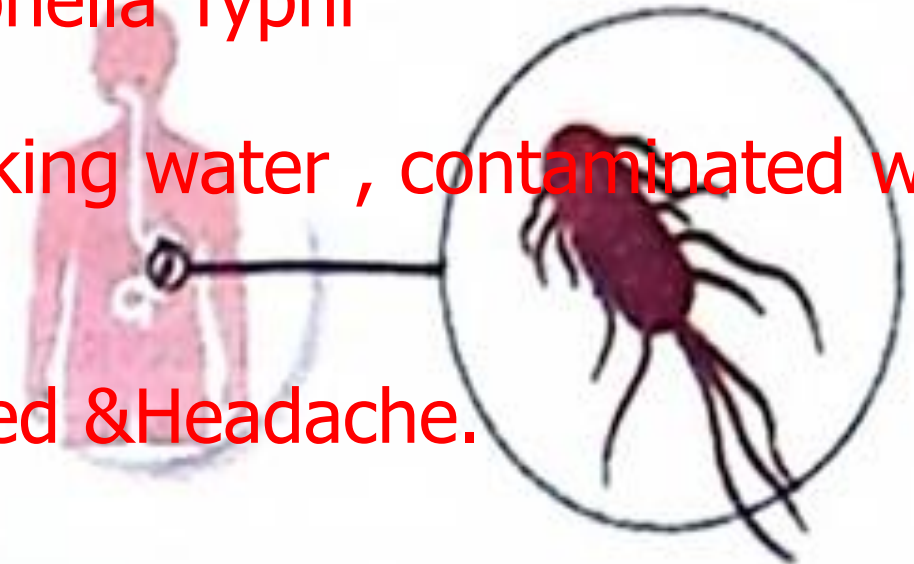
It infects The patient's digestive canal

It is transmitted through Eating food or drinking water , contaminated with this microbe

It causes Typhoid fever disease

Its symptoms include High fever, Feeling tired & Headache.

It is treated by Using antibiotics





Home Work



Write the scientific term:

- Microorganisms, most of which can't be seen by naked eyes. **Microscopic living organism**
- Beneficial bacteria that live on the roots of leguminous plants. **Root nodule bacteria**
- Bacteria that increase soil fertility. **Root nodule bacteria**
- A type of bacteria that converts lactose sugar into lactic acid. **Lactic acid bacteria**
- A type of fungus used in making cheese. **Penicillium Roqueforti Fungus**
- A type of fungus used in the manufacture of antibiotics. **Penicillium Notatum Fungus**
- A scientist who extracted penicillin. **Alexander Fleming**
- A type of fungus involved in the manufacture of ethyl alcohol. **Yeast fungus**

2- Compare dysentery and typhoid disease in terms of causes and symptoms.

1. Dysentery (Amoebic dysentery)	2. Typhoid fever
The microbe that causes the disease	
A unicellular protozoan Entamoeba Histolytica 	A bacteria called Salmonella Typhi 
Type of disease	
Protozoal disease.	Bacterial disease.
Way of microbe transmission	
Eating food contaminated with this microbe.	Eating food or drinking water contaminated with this microbe
Habitat of the microbe	
The large intestine of the patient.	The patient's digestive canal.
Symptoms of the disease	
Frequent bloody diarrhea. Stomach pain. Loss of appetite. Weight loss. Continuous fatigue.	High fever (the temperature of the patient may reach 40°C). Feeling tired. Headache. Flatulence and pain in the stomach and muscles.

3- GIVE REASON

- We put a little sugar to the salt solution when making pickled olive.
 - *Penicillium notatum* has an important role in the field of medicine.
 - Yeast fungi are used in many industries.
 - The presence of a green color on Roquefort cheese.
-
- To reduce the bitterness of the olives and to improve the taste, as sugar acts as a food source for beneficial bacteria, which converts the sugar into lactic acid.
 - It is used to kill bacteria that cause some diseases, such as diphtheria and tonsillitis.
 - Because It is used in the manufacture of bread and ethyl alcohol, it is a source of vitamin (B) complex and it is rich in antioxidants.
 - Because *Penicillium Roqueforti* Fungus is used in the production of Roquefort cheese

4- What happens when :

- Humans eat ingested food.
- Harvesting leguminous plants and leaving their roots in the soil
- Human will be affected by some diseases such as:
Dysentery (Amoebic dysentery) & Typhoid fever
- The roots decompose by decomposition bacteria into nitrogenous compounds that are soluble in water, which increases the soil fertility.

What is meant by:

1- Prokaryotes

2- Eukaryotes

3- Classification

4- Cell

5- Tissue

6- Organ

7- Unicellular organisms

8- Multicellular organisms

9- Stem cells

1. Living organisms their genetic material is found in the cytoplasm and not surrounded by a nuclear membrane.
2. Living organisms their genetic material is surrounded by a nuclear membrane, separating it from the cytoplasm
3. It is the arrangement of living organisms into groups according to the similarities and differences between them.
4. It is the basic building unit of structure and function in all living organisms.
5. A group of similar cells that share common origin and perform the same function.
6. A group of tissues involved in performing a particular function.
7. Living organisms that their body consist of a single cell.
8. Living organisms that their body consist of many cells.
9. They are undifferentiated cells that have the ability to be transformed and differentiated into all the differentiated cells to perform a specialized function.

Give reason:

- 1- Classifying living organisms according to similarities and differences.
- 2- Paramecium and Euglena are considered unicellular organisms.
- 3- Bacteria are considered protozoa.
- 4- Bacteria are different from Euglena even though they are unicellular organisms
- 5- The lion is considered a multicellular organism.

1. to facilitate their study.
2. Because their bodies consist of a single cell.
3. Because their genetic material in the cell is found in the cytoplasm and not surrounded by a nuclear membrane.
4. Because bacteria is from prokaryotes, while euglena is from eukaryotes.
5. Because their bodies consist of many cell.

Compare between:

1 - Prokaryotes and eukaryotes in terms of: Definition - Characteristics.

Prokaryotes	Eukaryotes
Living organisms their genetic material is found in the cytoplasm and not surrounded by a nuclear membrane.	Living organisms their genetic material is surrounded by a nuclear membrane, separating it from the cytoplasm
Body Structure: They are unicellular. Body Complexity: They are simple in structure. Size: They are relatively small in size.	Body Structure: They may be unicellular or multicellular. Body Complexity: They are complex in structure. Size: They are relatively large in

2- Animal cell, plant cell and bacterial cell in terms of :

- Cell wall - plasma membrane - central body
- Chloroplasts - Golgi apparatus – vacuoles

	Eukaryote		Prokaryote
	Animal Cell	Plant Cell	Bacterial cell
① Cell wall	X	✓	✓
② Plasma membrane	✓	✓	✓
③ Nucleus	✓	✓	X
④ Cytoplasm	✓	✓	✓
⑤ Golgi apparatus	✓	✓	X
⑥ Ribosomes	✓	✓	✓
⑦ Endoplasmic reticulum	✓	✓	X
⑧ Centrosome	✓	X	X
⑨ Mitochondria	✓	✓	X
⑩ Chloroplasts	X	✓	X
⑪ Vacuoles	Small	Large	X

Absent X Present ✓

Write the scientific term:

- 1- A group of similar cells that work together and perform a specific function. **Tissues**
- 2- A group of different tissues that work together and perform a specific function. **Organs**
- 3- A group of different organs that work together. **System**
- 4 - Simple organisms whose body consists of a single non-specialized cell **Unicellular organisms**
- 5- Complex organisms consisting of many cells to distinguish and specialize in their work **Multicellular organisms**

The figure opposite represents a living organism:

1- name the opposite living organism? **Bread mold fungus**

2- classify this organism? **Multicellular Eukaryotes**

3- What are the differences between this organism and bacteria?

4- What are the similarities and differences between it and the yeast fungus?

It is Multicellular Eukaryotes , while bacteria is unicellular prokaryotes
It is Multicellular organisms, while yeast fungus is unicellular



The opposite figure represents the structure of a plant cell:

1- Complete the label of the diagram.

2- Which of them are found in rabbit skin tissue cells?

3- Which of them are found in proteolytic cells?

chloroplast

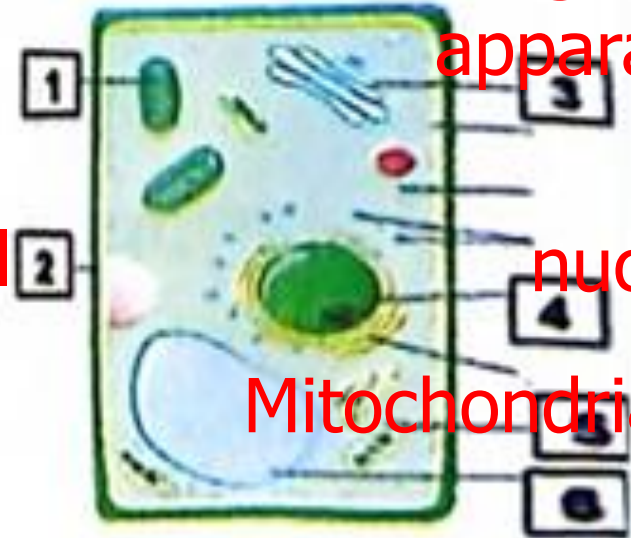
Cell wall

Golgi apparatus

nucleus

Mitochondria

vacuole



What is meant by each of the following:

1-Autotrophic

2- Heterotrophic organisms

3- Cellular respiration

4- Movement

1. They are organisms that can make their own food through photosynthesis.

2. They are organisms that depend directly or indirectly on other producers to obtain their food.

3. It is a vital process of breaking down organic nutrients, especially glucose, in the presence of oxygen to release energy.

4. It is the process that enables the living organisms to move from one place to another.

5- Microbes

6- Streptococcus bacteria

7- Root nodules

5. Microbes are microscopic living organisms most of which cannot to be seen with the naked eye, they spread everywhere around us and inside our bodies, they can be beneficial or harmful..

6.

7. Special structures found on the roots of leguminous plants that contain nodule bacteria that supply the plant with nitrogen in the form of nitrogenous compounds

Give Reasons:

- 1- Green algae are considered producers.
- 2- Rabbits are considered consumers.
- 3- The food pathway in the digestive system is not considered a closed pathway.
- 4- Adding a small amount of pre-prepared yogurt to milk when making yogurt.

1. Because it can make their own food through photosynthesis.
2. Because it depend directly or indirectly on other producers to obtain their food.
3. Because food enters through the mouth and wasted eliminated through the anus.
4. Because yogurt contains lactic acid bacteria

Compare between:

- 1- Producers and consumers in terms of: Definition - Examples
- 2- Humans, fish, and insects in terms of: Respiratory organ – medium used to obtain oxygen

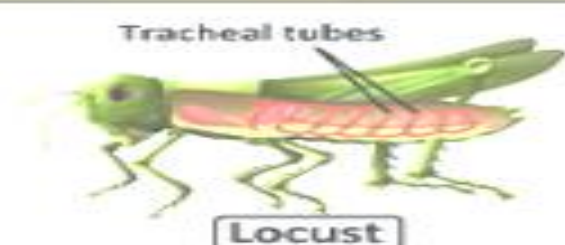
1.

Autotrophic Organisms
(Autotrophs = Producers)
They are organisms that can make their own food through photosynthesis.

Heterotrophic Organisms
(Heterotrophs = Consumers)
They are organisms that depend directly or indirectly on other producers to obtain their food.

Nutrition in Prokaryotes	Nutrition in Eukaryotes
Example: Bacteria They may be: 1. Autotrophs 2. Heterotrophs	They may be: 1. Autotrophs Example: Plants – Green algae 2. Heterotrophs Example: Humans – Animals

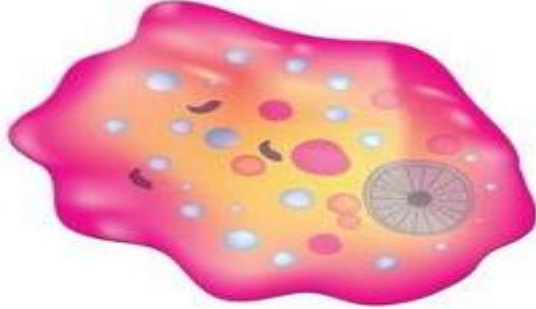
2.

	Mammals	Fishes	insects
Figure	 Human	 Fish	 Locust
Respiratory Organs	Lungs	Gills	Tracheal tubes
Environment	Atmospheric air	Water	Atmospheric air

3- Amoeba and paramecium in terms of: Type of movement

Living Organism	Amoeba	Paramecium
Way of Movement	Pseudopodia (False feet)	Cilia
Figure	 Pseudopodia	 Cilia

4 - Dysentery and typhoid disease .

1. Dysentery (Amoebic dysentery)	2. Typhoid fever
The microbe that causes the disease	
A unicellular protozoan Entamoeba Histolytica 	A bacteria called Salmonella Typhi 
Type of disease	
Protozoal disease.	Bacterial disease.
Way of microbe transmission	
Eating food contaminated with this microbe.	Eating food or drinking water contaminated with this microbe
Habitat of the microbe	
The large intestine of the patient.	The patient's digestive canal.
Symptoms of the disease	
Frequent bloody diarrhea. Stomach pain. Loss of appetite. Weight loss. Continuous fatigue.	High fever (the temperature of the patient may reach 40°C). Feeling tired. Headache. Flatulence and pain in the stomach and muscles.
Treatment	
Using antiprotozoal drugs.	Using antibiotics.

Mention the function of each of the following:

- | | | | |
|----------------------|---------------------|----------------------|-------------|
| 1- chloroplast | 2- xylem vessel | 3- phloem | 4- Arteries |
| 5- Veins | 6- dialysis machine | 7- Stomata in plants | |
| 8- Kidneys in humans | | 9- Lungs in humans | |

1. It contains Chlorophyll that absorbs light energy from the Sun.
2. It transports water and mineral salts from the roots to the leaves.
3. It transports the food from the leaves to the rest of the plant.
4. It carry the blood rich in oxygen and glucose from the heart to all body cells and organs.
5. It return the blood rich in carbon dioxide and waste products back to the heart and lungs.
6. It purify the blood from the toxins when the kidneys stop working properly.
7. It allow gas exchange.
8. It get rid of harmful waste products resulting from vital processes.
9. It is the respiratory organ.

10- Guard cells in plants

12- Bronchioles

14- Yeast fungus

11- Muscular system in humans

13- lactic acid bacteria

10. specialized cells that control the opening and closing of stomata.

11. It is responsible for the movement of the human body.

12.

13. used in making yogurt.

14. It is used in the manufacture of bread and ethyl alcohol, it is a source of vitamin (B) complex and it is rich in antioxidants.

Write the scientific term;

- 1- The process by which living organisms obtain the materials used to build their bodies and energy. **Cellular respiration** **Glucose**
- 2- The substance produced by plants to obtain energy from it. **Cellular respiration & photosynthesis**
- 3- Two opposing processes that can be transformed into each other. **Photosynthesis**
- 4- The process by which plants convert light energy into chemical energy in the presence of water and carbon dioxide. **Photosynthesis**
- 5- The process by which living organisms get rid of harmful waste and excess materials. **Excretion**
- 6- Cells specialized in opening and closing the stomata in plant leaves. **Guard cell**
- 7- Plants that open their leaves during the day and close them at night. **Gazania**
- 8- Plants that follow the movement of the sun as it arises and sets. **Sun flower**

First term

First Preparatory

47

Science

Unit four : The (Earth-SUN-MOON) System

- 9- living organisms that respire through their skin and lungs. **Frog**
- 10- The organ that get rid of excess water, salts, and urea in the form of urine. **Kidney**

Complete the following statements:

- 1- All living organisms have general characteristics such as nutrition, and excretion and
Sensation Respiration growth
- 2- The inorganic substances used in photosynthesis are water and Carbon dioxide
- 3- The two substances produced by photosynthesis are oxygen and glucose
- 4- Light energy is converted into chemical energy which stored in the glucose material .
- 5- Carbon dioxide + water $\xrightarrow{\text{sunlight}}$ Oxygen + glucose
- 6- Oxygen + glucose $\longrightarrow$ carbon dioxide + water + energy
- 7- Arteries transport oxygen and digested food from the heart to the rest of the body
- ~~8- Veins transport oxygen and digested food from to~~
- ~~9- The process of transportation in the plant corresponds to the process of in the plant.~~
- 10 - The plant's transportation system consists of Xylem and phloem
- 11- Humans get rid of Carbon dioxide and water vapor through the exhaled air.
- 12- Humans get rid of water, excess salts and urea through Excretion process.
- 13- Plants get rid of excess water and carbon dioxide from stomata
14. Guard cell controls The opening and closing of the stomata.

What happens when :

- 1- The plant does not get nitrogen.
- 2- Not keeping yogurt in the refrigerator.
- 3- Eating food and water contaminated with Salmonella typhi

1. It can't form proteins which is used in the growth of their cells and tissues.
2. The activity of lactic acid bacteria will continue which increases the yogurt acidity and spoils its taste.
3. Person will suffer from Typhoid fever.

Class performance

Date: / /

What do you imagine outside the planet we live on?

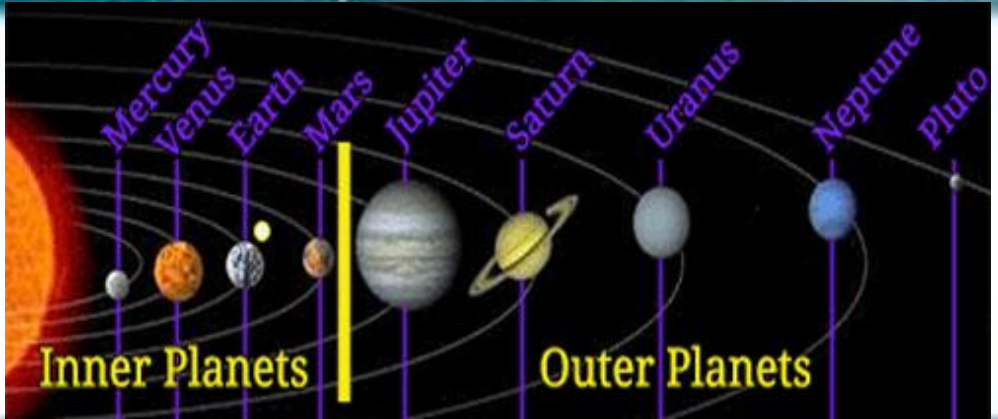


Observe

the opposite picture and then answer:

- 1- The solar system is made up of 1..... star, and 8..... planets revolving around it in different orbits.
- 2- The planets of the solar system are divided into inner planets and outer planets.
- 3- The inner planets are the Closest..... planets from the sun, while the outer planets are the furthest..... planets from the Sun.

• Complete the following table:

	Inner planets	outer planets
Names of the planets (starting with the closest to the Sun)	 The diagram illustrates the solar system with the Sun at the center. Planets are shown in their relative positions from the Sun: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, and Pluto. A vertical yellow line is placed between Mars and Jupiter to distinguish between the inner and outer planets. Labels for each planet are written above them, and the groups are labeled 'Inner Planets' and 'Outer Planets' below the line.	
Description	They are the four planets closest to the Sun.	They are the four furthest planets from the Sun.

Observe the opposite image and then answer:

- Is the Earth's axis straight or tilted?

.....
tilted

- The Earth's axis extends from

.....
extends from the North Pole to the South Pole

- The tilt of the Earth's axis leads to different

.....
The variation of the angle at which sunlight falls on the different areas of the earth's surface.

.....
The rotation of earth around its axes in front of the sun cause and
The succession of night and day Apparent motion of the Sun

Falls on different areas of earth's surface that leads to difference in intensity of
The tilt of earth axis and its orbit around the sun cause sunlight
the light falling on a unit area.

The result of the revolution of earth around the sun each $365 \frac{1}{4}$ day it leads to
the cycle of the seasons

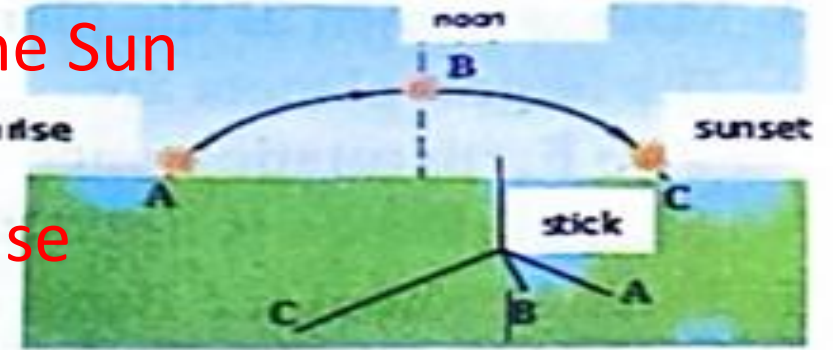


Observe the opposite figure and then continue:

- The length of the shadow formed by objects during the day varies due to **Apparent motion of the Sun**
- The length of an object's shadow is greatest at **sunrise** and **sunset**.

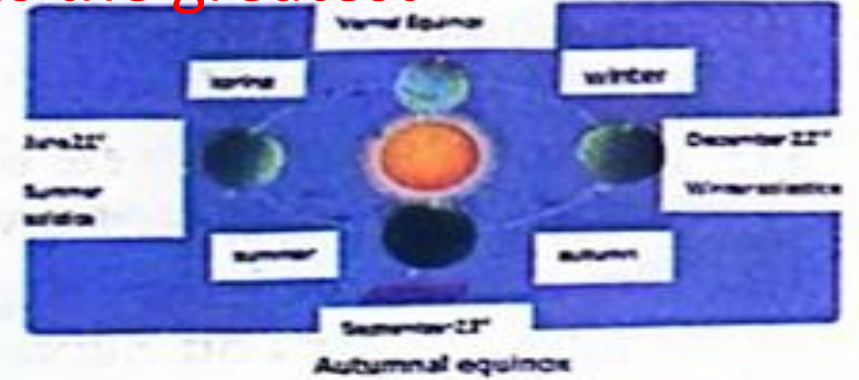
This is because **Apparent height of the Sun decrease**

- The length of an object's shadow is smallest at **Noon**. This is because **Apparent height of the Sun is the greatest**



Observe the opposite figure and then answer:

- The north end of the Earth's axis is tilted away from the sun in the **winter** season
- The north pole of the earth's axis is tilted toward the sun in the season of **summer**



temperature, and the length of nighttime and daytime.

- The planting and harvesting seasons of agricultural crops in Egypt vary according to

- From summer crops are **Watermelon** and **Cucumber** but **Orange**, **Lettuce** and **Wheat** are classified as of winter crops.



Home Work

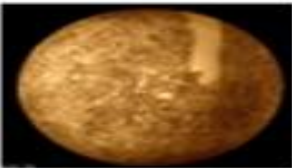
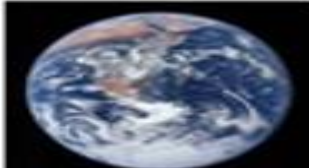
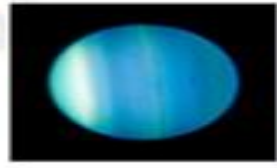


- What are the components of the solar system?

- Describe the atmosphere and volcanic activity of the following planets:

Mercury, Earth, Jupiter, Uranus

Classification of planets:

	Mercury	Venus	Earth (The planets of human life)	Mars	Jupiter	Saturn	Uranus (Greenish Blue planets)	Neptune (Blue planets)
Figure:								
Composition:	It has a very thin crust filled with craters caused by meteor impacts.	It has a thick crust compared to mercury.	It has a thicker crust than Venus.	It has a thick crust similar to Earth's crust.	They composed of gases only. They have no crust.		They composed of gases & ice only. They have no crust.	
Atmosphere:	It is very thin and composed of hydrogen gas & helium gas.	It is very dense, composed mainly of carbon dioxide gas.	It is composed mainly of nitrogen, oxygen gases.	It composed mainly of carbon dioxide gas.	They are composed of hydrogen gas & helium gas.		They are composed of hydrogen gas & helium gas in addition to methane gas.	
Volcanic activity:	No active volcanoes	Many active volcanoes		There are indications of volcanoes, but no current volcanic activity	No volcanoes			

Give reason: * The planets of the solar system do not collide with each other as they move around the sun.

- The length of the shadow formed at noon is very short.

What happens when... * Earth rotates on its axis. * Earth's rotation around the Sun.

- Because they orbit the Sun in elliptical orbits, at different distances from the Sun
 - Because the apparent height of the Sun is the greatest at this time.
-
-
-
-
-
-
-
-
-
-
- The succession of night and day, Apparent motion of the Sun.
 - The succession (alternation) of the four seasons (the cycle of the seasons).

Complete the following statements:

- 1- The solar system consists of as a star, It is orbited by
Planets revolve around It.
- 2- The preceding planet of earth closest to the Sun is followed by
- 3- The crust of the planet Full of craters caused by meteors impacts.
- 4- The crust of the planet Thicker than the crust of Venus
- 5- The planets Jupiter and are similar in that they have the same components of the atmosphere in that they have the same components of the atmosphere and do not have
- 6- Mars is known as the planet While Neptune is known as the planet
- 7- The largest planets are And the Earth is in the order in its size.
The Earth rotation once around its axis in each hours.
- 8- The Earth's axis is tilted at an angle of 23.5 from the line on the plane.
- 9- The rotation of the Earth on its axis in front of the Sun results in a sequence of and and motion of the sun
Day night
- 10- The apparent motion of the Sun is the change of from east to west as a result of the rotation of
Its position
- 11- The number of planets that have a crust While the number of planets that do not have active volcanoes
- 12- The winter solstice begins on While the autumn
solstice begins on September 23

- 13- The north pole of the Earth's axis is tilted ~~.....~~ towards ~~.....~~ The sun in summer ~~.....~~ spring
- 14- The length of the day and night are almost equal in the ~~summer~~ season. and ~~.....~~ Autumn
- 15- Ancient Egyptians used ~~.....~~ Sundial to determine the time based on the length and direction of the shadow
- 16- From the summer crops ~~.....~~ Onion ~~.....~~ and ~~.....~~ cucumber ~~.....~~ and watermelons, while oranges and lettuce are crops ~~.....~~ in winter

Give reason:

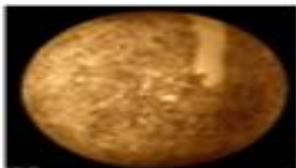
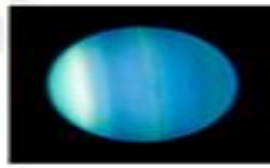
- 1- The planets of the solar system do not collide with each other as they revolve around the sun.
- 2- The surface of the planet Mercury is full of craters.
- 3- The atmosphere of the planet Uranus appears in a greenish-blue color
- 4- There are no volcanoes on the surface of the planet Saturn
- 5- The different angle of incidence of the sun's rays on different areas of the earth's surface

1. Because they orbit the Sun in elliptical orbits, at different distances from the Sun
2. As it formed by meteorites impacts.
3. As it composed of hydrogen gas & helium gas in addition to methane gas.
4. As it composed of gases only.
5. Due to the tilt of Earth's axis and Earth's orbiting the Sun.

Compare between:

1- Venus and Saturn in terms of: crust – atmosphere. Volcanic activity

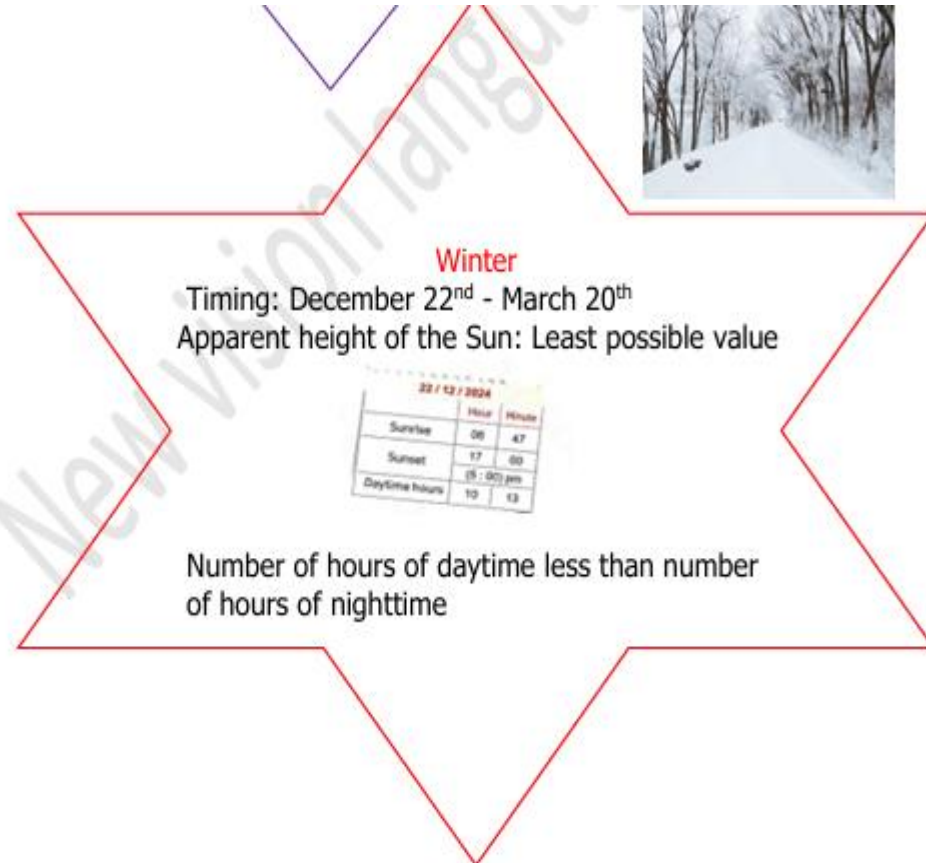
Classification of planets:

	Mercury	Venus	Earth (The planets of human life)	Mars	Jupiter	Saturn	Uranus (Greenish Blue planets)	Neptune (Blue planets)
Figure:								
Composition:	It has a very thin crust filled with craters caused by meteor impacts.	It has a thick crust compared to Mercury.	It has a thicker crust than Venus.	It has a thick crust similar to Earth's crust.	They are composed of gases only. They have no crust.		They are composed of gases & ice only. They have no crust.	
Atmosphere:	It is very thin and composed of hydrogen gas & helium gas.	It is very dense, composed mainly of carbon dioxide gas.	It is composed mainly of nitrogen, oxygen gases.	It is composed mainly of carbon dioxide gas.	They are composed of hydrogen gas & helium gas.		They are composed of hydrogen gas & helium gas in addition to methane gas.	
Volcanic activity:	No active volcanoes	Many active volcanoes		There are indications of volcanoes, but no current volcanic activity	No volcanoes			

- 2- The Earth's rotation around the Sun and its rotation around its axis in terms of the result of rotation
- 3- Winter and summer in terms of: number of hours of daylight and nighttime – and the closets to the Sun

2. Rotation around sun: Cycle of 4 seasons occurs

Rotation on its axis: Cycle of day & night occurs

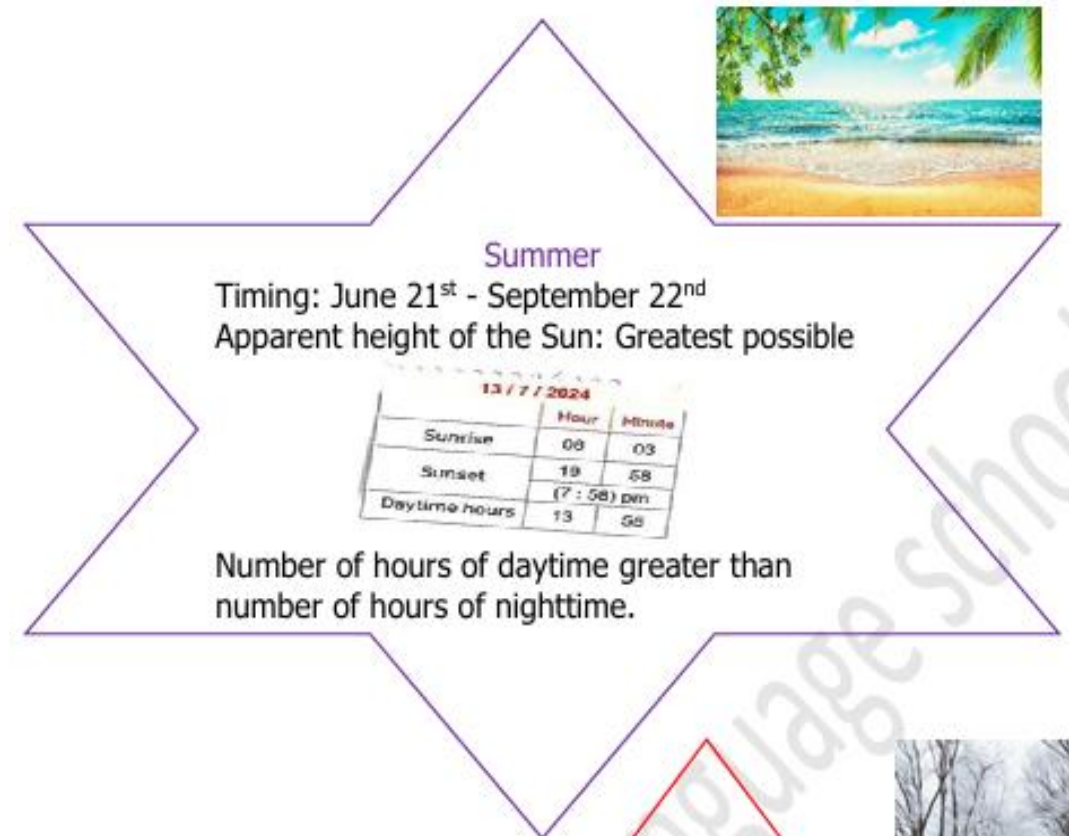


Winter

Timing: December 22nd - March 20th
Apparent height of the Sun: Least possible value

22 / 12 / 2024		
	Hour	Minute
Sunrise	06	47
Sunset	17	00
(10 : 53) pm		
Daytime hours	10	13

Number of hours of daytime less than number of hours of nighttime



Summer

Timing: June 21st - September 22nd
Apparent height of the Sun: Greatest possible

13 / 7 / 2024		
	Hour	Minute
Sunrise	06	03
Sunset	19	58
(7 : 55) pm		
Daytime hours	13	55

Number of hours of daytime greater than number of hours of nighttime.

Write the scientific term:

- 1- The season in which the number of daylight hours is more than in any other season of the year **Summer**
- 2- The season in which the number of night hours is more than the number of daylight hours **Winter**
- 3- The planet that has a thin crust full of craters **Mercury**
- 4- A planet composed mainly of oxygen and nitrogen gases . **Earth**

Correct the mistake in the following sentences :

- 1- The four planets closest to the sun have thick crusts, except Venus. Mercury
- 2- Jupiter is similar to Mercury and Uranus in terms of atmospheric composition. Saturn
- 3- We can depend on the length of a shadow to determine the time. Direction & length
- 4- The Earth revolves around its axis every 365.5 days. The sun
- 5- The Earth revolves around its horizontal axis every 24 hours. Rotate- tilted
- 6- The length of the shadow formed at sunset is the greatest one.
- 7- Spring begins after the winter solstice.
- 8- The apparent height of the Sun is lowest in winter. At sunset

First term

First Preparatory

51

With CamScanner

Science

Unit four : The (Earth-SUN-MOON) System

Temperature & day length

- 9- The alternation of four seasons leads to changes in temperature.
- 10- The apparent position of the sun in the sky changes from east to west as a result of the Earth's rotation around its axis.
- 11 - Crop planting seasons vary according to the seasons of the year. Climate & season of the year

What happen if:

- 1- The Earth contains oxygen and nitrogen gases
- 2- The Earth rotates one complete rotation around the Sun.
- 3- The Earth rotates one complete rotation around its axis.
- 4- The presence of methane gas among the components of the atmosphere of the planet Uranus
- 5- The tilt of the Earth's axis towards the Sun once and away from the Sun again
- 6- The number of hours of day and night is equal

1. Earth is the planet of human life.
2. The cycle of 4 seasons occurs.
3. The cycle of day & night occur.
4. It gives it its color (Greenish blue color).
5. When the Earth's axis tilted toward the sun summer- solstice occurs, While when the Earth's axis is tilted away from the Sun Winter-solstice occurs
6. It may be spring or autumn.

Choose the odd word :

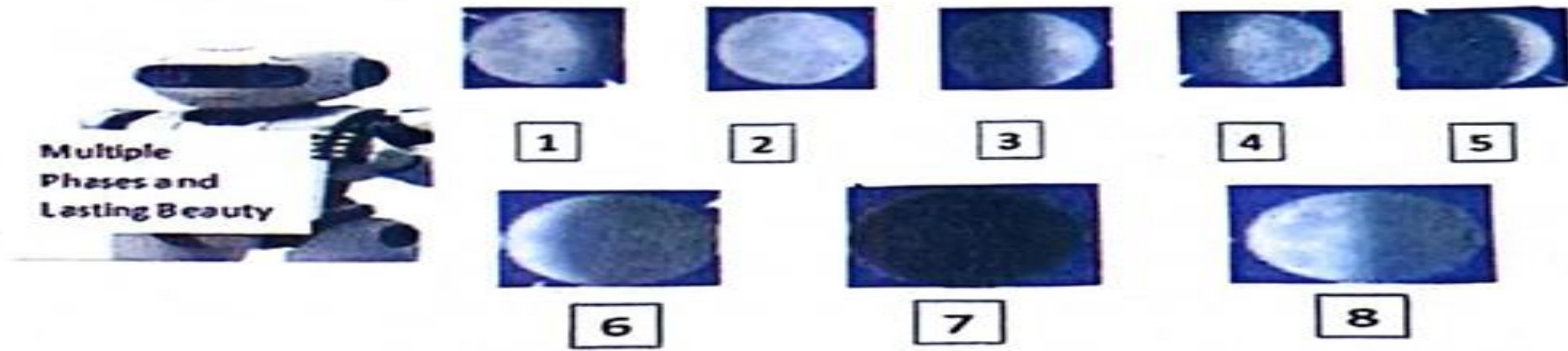
1- Mercury - Mars - Earth - Saturn .

2- A gaseous planet - large in size - no volcanoes - its atmosphere consists of He, H₂.

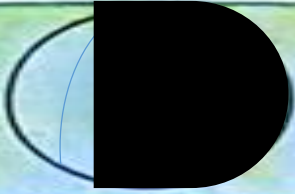
3- Watermelon - cucumber - zucchini - lettuce.

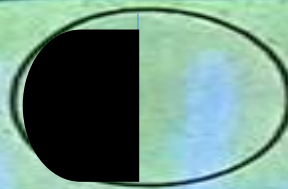
4- The number of daylight hours is 13 hours - the temperature is high - the axis of rotation tilts towards the sun - the number of night hours is 12 hours

Observe the following moon phases and then answer:



- The figure showing the full moon is ².....
- The figure showing the full moon is ².....
- The figure showing the moon after 7 days is ³.....
- The figure showing the moon after 17 days is ¹.....
- The figure that shows that the moon has traveled three-quarters of its orbit around the Earth is ⁸.....
- The figure showing the moon at the beginning of the Arabic month is ⁵.....
- The figure that shows that the moon is in the second crescent phase is ⁶.....
- The figure that shows that the moon is in the waxing gibbous phase is ⁴.....
- The figure showing the moon in the middle of the Arabic month is ².....
- The figure that shows that the moon is located between the earth and the sun is ⁷.....
- The figure that shows the moon after 26 days is ⁶.....

comparison	Day 11	Day 27
phase Name		
(Shade the face of the moon in front Phase of the moon of you to represent the day)		
Percentage of the Moon's orbit around the Earth		

comparison	Eighth day	Day 22
Name the phase		
Phase of the moon (Shade the face of the moon in front of you to represent the day)		
Percentage of the Moon's orbit around the Earth		

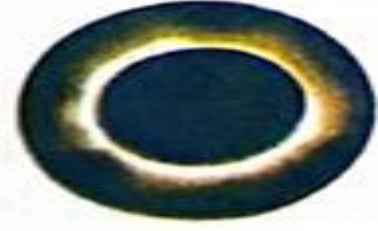
Observe the following moon phases and then write under each shape what it represents and where the moon is located in each shape:



When the whole moon is located completely within the penumbra of earth.



A part of the Moon's body is located within the shadow of Earth, while the other part is in the penumbra of Earth.



The whole Moon is located completely within the shadow of Earth.



Home Work



- Explain what is meant by each of the following:

- Total eclipse.
- moon Phases
- semi-shadow.

- It is a natural phenomenon that occurs when Earth, during its revolution around the Sun, is located on the line between the Sun and the Moon and sunlight is completely blocked from the Moon.

- They are the different phases that the Moon passes through during its revolution around Earth as a result of its different position according to the Sun and Earth.

- It is a partially illuminated area that receives some of the light rays, which surrounds the shadow created by the presence of an opaque object in the path of light rays

2- Arrange the following phases according to their appearance from the beginning of the Arabic month



1
(.....)



2
(.....)



4
(.....)



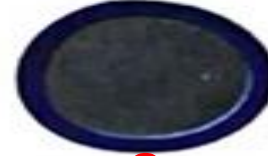
5
(.....)



3
(.....)



6
(.....)



8
(.....)



7
(.....)

Give reason

- 1- The moon appears full in the middle of the lunar month.
- 2- The moon appears as an opaque disk during a total eclipse.
- 4- The moon goes through a quadrature phase twice during the lunar month.

1. Because Earth is located between the moon & the sun.
2. Because the whole Moon is located completely within the shadow of Earth so sunlight is the absence.
4. Because during its revolution around the earth it reaches a position where it makes an angle = 90° with the sun.

What is meant by:

1- Moon

4- Semi-shadow

6- Opaque objects

9- Partial lunar eclipse

2- Phases of the moon

5- Transparent objects

7- Lunar eclipse

3- Shadow

8- Total lunar eclipse

1. It is a dark (opaque) object that orbits Earth, Its revolution around Earth takes 29.5 days.
2. They are the different phases that the Moon passes through during its revolution around Earth as a result of its different position according to the Sun and Earth.
3. It is the dark area that does not receive light as a result of the presence of an opaque object in the path of light rays.
- 4- It is a partially illuminated area that receives some of the light rays, which surrounds the shadow created by the presence of an opaque object in the path of light rays
5. They are objects that allow light to pass through them, so no shadow is formed.
6. They are object that do not allow light to pass through them, so shadow is formed.

Week assessment (15)

What is meant by:

1- Moon

4- Semi-shadow

6- Opaque objects

9- Partial lunar eclipse

2- Phases of the moon

5- Transparent objects

7- Lunar eclipse

3- Shadow

8- Total lunar eclipse

7. It is a natural phenomenon that occurs when Earth, during its revolution around the Sun, is located on the line between the Sun and the Moon and sunlight is partially or completely blocked from the Moon.

8. The whole Moon is located completely within the shadow of Earth, so the Moon appears as a dark disc due to the absence of sunlight.

9. part of the Moon's body is located within the shadow of Earth, while the other part is in the penumbra of Earth, so The Moon appears partially dark.

Give reason:

- 1- The moon appears illuminated although it is an opaque object
- 2- The observer on the surface of the earth sees one face of the moon
- 3- The moon on the 14th day of the lunar month is called a full moon

1. As the result of the reflection of sunlight on it.
2. Because the time of the Moon's revolution around Earth is the same as the time of its rotation on its axis.
3. As Earth is located between the Moon and the Sun.

4-The shadow of a book is formed when placed in front of a lighted light bulb

5-The shadow of a sheet of glass is not formed when placed in front of a lighted light bulb

6- A partial lunar eclipse occurs

7- A total lunar eclipse occurs

4. Because book is opaque object that doesn't allow light to pass through.

5. Because sheet of glass is transparent object that allow light to pass through it.

6. As a part of the Moon's body is located within the shadow of Earth, while the other part is in the penumbra of Earth.

7. As the whole Moon is located completely within the shadow of Earth.

Choose the correct answer

1- The number of phases of the moon during the Arabic month as it revolves around the earth

A - 5

B - 6

C - 7

D - 8

2- The moon is a waning gibbous after it completes of its cycle.

A - $\frac{1}{4}$

B - $\frac{1}{2}$

C - $\frac{3}{4}$

5/8

D - 1

3- The phase in which the moon appears as an opaque disk is at

A - the beginning of the Arabic month

B - the middle of the Arabic month

C - the end of the Arabic month

D - the 14th day of the Arabic month

4- The moon appears in different phases due to

A - the rotation of the Earth around the moon

B - changing the area of the illuminated part of the moon

C - the moon falls in the Earth's shadow area
Earth's semi-shadow area.

D - the moon falls in the

5 - The time of the moon's rotation around the Earth is The time of its rotation around its axis

A - greater than

B - less than

C - equal to

D - half

6 - If the month of Ramadan is on March 11, the moon will become first quarter at March

A - 18

B - 22

C - 25

D - 28

7- When the light side of the moon is facing the sun and the dark side is facing the earth in the phase of

- A –waxing Gibbous B – new moon C – full moon D – first quarter

8-The phenomenon of a lunar eclipse occurs in Arabic month

- A – beginning B -end C - middle D - 21st day

9 -is considered the closest celestial body to the Earth

- A – Venus B - Mars C - Moon D - Sun

10- Objects that allow light to pass through them are called objects

- A - transparent B – opaque C - luminous D - black

11 - When the moon enters the area of It doesn't considered an eclipse

- A - Moon's shadow B - Earth's penumbra
C - Earth's penumbra D - Moon's penumbra

Arrange the phases of the moon in ascending order according to the area of the dark part of the moon's face:

(first crescent - the full moon - waxing gibbous - wanning gibbous - new moon)

4

1

2

3

5

Third Month exercise

Correct the underlined words in the following statements:

- 1- Photosynthesis produces carbon dioxide and glucose. **Oxygen**
- 2- Adult frogs breathe through bronchioles and gills. **Skin & lungs**
- 3- Humans get rid of excess water and salts through exhaled air. **Skin**
- 4- Veins transport blood rich in oxygen and nutrients from the heart to the rest of the body. **Arteries**
- 5- Oxygen gas is released during cellular respiration. **Photosynthesis**
- 6- The paramecium is moved by pseudopods. **Cilia**
- 7- Root-nodular bacteria belong to eukaryotes. **Penicillium fungi**
- 8- Planets revolve around the sun in circular orbits. **elliptical**
- 9- The Earth has a thin crust full of craters caused by falling meteorites. **Mercury**
- 10- The Earth's rotation on its axis in front of the Sun leads to the alternation of seasons. **Leads to alternation of day & night**
- 11- The lowest apparent height of the sun is in the summer. **sunset**
- 12- Neptune is known as the red planet. **Mars**
- 13- The moon appears at the beginning of the Arabic month in the form of a full moon. **First crescent phase**
- 14- The moon rotates around the Earth from north to south. **East to west**

Write what the following statements indicate:

- 1- Tissues in the plant that transport water and salts from the roots to the top of the plant. **Xylem**
- 2- Openings in the leaves of the plant to get rid of excess water and carbon dioxide. **Stomata**
- 3- Organisms that cannot be seen with the naked eye. **Microscopic organisms**
- 4- A vital process that enables an organism to move from one place to another. **Movement**
- 5- A fungus used in making bread and ethyl alcohol. **Yeast fungi**
- 6- An imaginary line that passes through the earth from the north pole to the south pole passing through the center of the earth. **Earth's axis**
- 7- A season of the year in which the day is longer than the night. **Summer**
- 8- A gaseous planet revolve around the sun and is known as the blue planet. **Neptune**
- 9- The phase of the moon in which it appears as a completely opaque disk at the end of the Arabic month **New moon**

Compare each of the following:

- 1- Producing organisms and consuming organisms (in terms of definition - examples)

Autotrophic Organisms
(Autotrophs = Producers)
They are organisms that can make their own food through photosynthesis.

Heterotrophic Organisms
(Heterotrophs = Consumers)
They are organisms that depend directly or indirectly on other producers to obtain their food.

Nutrition in Prokaryotes	Nutrition in Eukaryotes
Example: Bacteria They may be: 1. Autotrophs 2. Heterotrophs	They may be: 1. Autotrophs Example: Plants – Green algae 2. Heterotrophs Example: Humans – Animals

- 2- Humans, fish and insects. (In terms of the respiratory organ - the medium for obtaining oxygen)
- 3- Photosynthesis and cellular respiration. (In terms of products - the part responsible for each of them)

	Mammals	Fishes	insects
Figure	 Human	 Fish	 Locust
Respiratory Organs	Lungs	Gills	Tracheal tubes
Environment	Atmospheric air	Water	Atmospheric air

P.O.C	Photosynthesis	Cellular respiration
Organelle	Chloroplast	Mitochondria
Needed Materials	Water + Carbon dioxide	Glucose + Oxygen
Products	Glucose + Oxygen	Water + Carbon dioxide

4- Arteries and veins.

5- Euglena and amoeba. (in terms of the means of movement)

Arteries	Veins
Arteries carry the blood rich in oxygen and glucose from the heart to all body cells and organs.	Veins return the blood rich in carbon dioxide and waste products back to the heart and lungs.

Living Organism	Amoeba	Euglena
Way of Movement	Pseudopodia (False feet)	Flagellum
Figure	 Pseudopodia	 Flagellum

- 6- Dysentery and typhoid disease (in terms of the microbe causing the disease)
- 7- Planet Mercury and planet Earth (in terms of atmospheric components - volcanic activity)

1. Dysentery (Amoebic dysentery)	2. Typhoid fever
The microbe that causes the disease	
A unicellular protozoan Entamoeba Histolytica	A bacteria called Salmonella Typhi

	Mercury	Venus	Earth (The planets of human life)
Atmosphere:	It is very thin and composed of hydrogen gas & helium gas.	It is very dense, composed mainly of carbon dioxide gas.	It is composed mainly of nitrogen, oxygen gases.
Volcanic activity:	No active volcanoes	Many active volcanoes	

8- Total eclipse and partial eclipse

Total lunar eclipse	Partial lunar eclipse
Location of the Moon: The whole Moon is located completely within the shadow of Earth.	Location of the Moon: A part of the Moon's body is located within the shadow of Earth, while the other part is in the penumbra of Earth.
Appearance of the moon: The Moon appears as a dark disc due to the absence of sunlight.	Appearance of the moon: The Moon appears partially dark.

Give Reasons for the following:

- 1- Rabbits are consumers.
- 2- Green algae are producers.
- 3- The pathway of ~~food in the digestive~~ ^{Circulatory} system is a closed pathway.
- 4- Plants and green algae perform photosynthesis.
- 5- Green plants need nitrogen to grow.

1. Because rabbit depend directly or indirectly on other producers to obtain their food.
2. Because it can make their own food through photosynthesis.
3. because the heart and blood vessels are connected in a continuous cycle.
4. To make their own food.
5. To form protein, which helps in tissues growth.

- 6- The planets of the solar system do not collide with each other as they orbit the sun.
- 7- The length of an object's shadow is the shortest at the noon.
- 8- The atmosphere of Uranus appears greenish-blue in color.
- 9- The moon appears illuminated even though it is an opaque object.
- 10- The appearance of moon phase during the lunar month.

6. Because they orbit the Sun in elliptical orbits, at different distances from the Sun.

7. Because the apparent height of the Sun is the greatest at this time.

8. Because its atmosphere composed of hydrogen and helium gases, in addition to methane gas.

9. As it reflects the sunlight.

10. AS a result of its different position according to the sun and the earth.

What happens when:

- 1- Plant leaves do not contain chlorophyll.
- 2- Leaving the roots of leguminous plants in the soil after harvesting them.
- 3- Not keeping yogurt in the refrigerator.
- 4- Adding a spoonful of sugar to the brine used to make pickled olives.
- 5- The moon falls completely in the shadow of the earth.
- 6- The moon falls completely in the penumbra of the earth.

1. It can't make photosynthesis process.

2. Leads to increasing soil fertility & Preservation of the cycle of elements in nature.

3. The activity of lactic acid bacteria will continue which increases the yogurt acidity and spoils its taste.

4. It reduces the bitterness of the olives & improves the taste, as sugar acts as a food source for beneficial bacteria, which converts the sugar into lactic acid. .

5. Total lunar eclipse occurs.

6. It appears as a dimly lit red disk.

What is meant by?

1- Cellular respiration.

2- Microbes.

3- Inner planets.

4- outer planets.

5- Sundial.

6- Lunar eclipse.

7- Penumbra.

1. It is a vital process of breaking down organic nutrients, especially glucose, in the presence of oxygen to release energy.

2. Microbes are microscopic living organisms; most of them cannot be seen by the naked eye.

3. They are the four planets closest to the Sun.

4. They are the four farthest planets from the Sun.

5. An ancient solar clock used to determine time based on the length and direction of the shadow resulting from the apparent motion of the Sun.

6. It is a natural phenomenon that occurs when Earth, during its revolution around the Sun, is located on the line between the Sun and the Moon and sunlight is partially or completely blocked from the Moon..

7. It is the partially illuminated area that receives some of the light rays which surrounds the shadow created by the presence of an opaque object in the path of light rays.

What is the importance of each of:

1- Guard cells in the plant leaves.

2- Chloroplasts in the plant.

3- Xylem and phloem in the plant.

4- Kidney dialysis machine.

1. It control the opening and closing of stomata.

2. It absorbs light energy from the sun, so photosynthesis process occurs.

3. Xylem Tissue: It transports water and mineral salts from the roots to the leaves.

Phloem Tissue: It transports the food from the leaves to the rest of the plant.

4. Dialysis machines purify the blood from the toxins when the kidneys stop working properly.

5- decomposition bacteria.

7- Yeast fungus.

6- lactic acid bacteria.

8- Penicillium notatum.

5. Decomposition bacteria are beneficial prokaryotes that decompose the roots of leguminous plants into water-soluble nitrogenous compounds.

6. Lactic Acid Bacteria is beneficial prokaryotes used in making yogurt.

7. It is a source of vitamin (B) complex and is rich in antioxidants.
It is used in making bread and ethyl alcohol (ethanol) production.

8. It is used to kill bacteria that cause some diseases, such as diphtheria and tonsillitis.

Answer the following questions:

- 1- What are the substances that the plants use it in the photosynthesis process?
- 2-What are the structure of the plant transport system?
- 3-What are the health habits that should be followed to protect ourselves against diseases?

1. Carbon dioxide, water & sunlight.

2. Xylem & Phloem vessels.

3.

1. Washing your hands before and after eating.

2. Washing vegetables and fruits before eating.

3. Not leaving the food uncovered.

4. Brushing your teeth with a personal toothbrush.

5. Drinking at least 3 liters of water daily. .

4-What is the difference between the components of the atmosphere of Saturn and Uranus?

5- Arrange the following planets of the solar system in ascending order from the sun:
(Mars - Uranus - Mercury - Jupiter - Venus)

6- What is the location of the moon when it is appears as full moon (in relation to the sun and the earth)?

4. Saturn: composed of hydrogen gas & helium gas.

Uranus: composed of hydrogen gas & helium gas in addition to methane gas.

6. Earth is located between the moon & the sun.

Model (A)

Answer the following questions

Question 1

a - Choose the correct answer:

1 - Element ($^{23}_{11}\text{Na}$) is located in of the periodic table

A - first period and third group

B - third period and first group

C - second period and third group

D - second period and fourth group

2 - is considered Pure substance that cannot be analyzed into simpler substances **A - element** B - mixture C - solution D - compound

B - Give reasons for the following:

1- The bond in the oxygen molecule is double covalent

As each oxygen atom shares its two unpaired valence electrons to form two pairs of electrons which form a double covalent bond.

2- The nucleus of the atom is positively charged

Because the nucleus contains positively charged protons and neutrally charged neutrons.

3- Body weight changes from planet to another.

Because the gravitational field intensity changes from one planet to another.

4- Ricfort cheese is characterized by its green color and distinctive taste.

Due to presence of Penicillium Roqueforti Fungus that is used in the production of Roquefort cheese

Question 2

A- Complete the following statements:

1- **Similar** Magnetic poles are repel while the different magnetic poles are
..... **attract**each other.

2- Night and day alternate due to the Earth's rotation around **its axis**....., while the seasons alternate due to the Earth's rotation around **The sun**.....

B - Mention the importance of each :

1- Helium gas: **It is used to fill balloons.**.....

2- Vitamin D: **It regulates calcium and phosphorus levels in the blood to prevent osteoporosis.**.....

3- Tides: **It is used to generate electricity as a renewable source of energy & it is used to cleanse water bodies from impurities.**.....

4- Gills: **It is the respiratory organ in fishes.**.....

Question 3 :

A. Correct the underlined items:

- 1- Element (X) has a nucleus containing 39 nucleons and the number of neutral particles is (20), so it has an atomic number of 20. (~~-----~~ ¹⁹)
- 2- The melting point of ionic compounds is low. (~~-----~~ ^{high})

B. What happen if:

- 1- A charged object touches the disk of a electroscope.

• The divergence of gold leaves increases or decreases

- 2- Adding a spoonful of sugar to the brine used to make pickles

It reduce the bitterness of the olives and improve the taste, as sugar acts as a food source for beneficial bacteria, which converts the sugar into lactic acid.

3- Absence of stomata in plant leaves.

Plant can't make gas exchange.

4- The moon is completely in the Earth's penumbra.

it appears as a dimly lit red disc, and this is not considered an eclipse.

Fourth question :

A – Choose the odd word then write what relation between the rest words:

1- Magnetic needle - horseshoe magnet - **magnetic stone** - magnetic bar (.....)

2- Fluorine - Chlorine - **Copper** - Bromine (.....)

Artificial Magnet

Elements in group 7A

B - Compare between:

Point of comparison	paramecium	Bacteria
Similarity	Unicellular organism	Unicellular organism
Difference	Eukaryotes	Prokaryotes

Point of comparison	Earth planet	Neptune planet
Crust	It has thick crust	It has no crust
Volcanic activity	Many active volcanoes	No volcanoes

Model (B)

Answer the following questions

Question 1:

A= Choose the correct answer:

1 - Elements of alkali metal are

A - monovalent

B - divalent

C - trivalent D - quaternary

2 - The bond in the sodium chloride molecule is

A - mono-covalent

B - di-covalent

C - tri-covalent

D - ionic

B = Give reason for the following:

1- The atom is electrically neutral in its normal state.

Because the number of positive protons inside its nucleus is equal to the number of the negative electrons that revolve around the nucleus.

2- Party balloons and blimps are filled with helium gas.

Because its density is lower than that of air.

3- The mass of a body does not change from place to another.

Because the mass is the amount of matter it contains.

4- Bean plants are autotrophs.

As it can make their own food through photosynthesis.

Question 3 :

A - Complete the following statements:

- 1- Magnetic field lines start from the North..... pole of the magnet
and end at the South..... pole
- 2- The nearest inner planets to the sun are Mercury..... and venus.....
Earth.....

B- What are the importance of each of :

1- Nitrogen gas: -----, It is used to fill car tires.

Voltammeter Hoffman, -----, It decomposes water into its components, which are hydrogen gas and oxygen gas

Coulomb Meter : -----, It is used to measure weak electric charges.

Penicillium notatum fungus: -----, It is used to kill bacteria that cause some diseases, such as diphtheria and tonsillitis

Question 3 :

A- Correct the underlined words:

- 1- The element potassium is symbolized by the symbol P. (-----Phosphorus-----).
- 2- The valence of an element can be known from the number of protons in the outer energy level.(electrons-----)

B - What is the result of:

1- There are gravitational forces between the Earth and the Moon.

It keeps the stability of the objects on Earth, It is responsible for rainfall & It is responsible for falling objects towards Earth.

2- Positively charged rod of glass are brought close to freely suspended rod of ebonite.

With a negatively charged

Two rods attract each other.

3- The genetic material in the paramecium surrounded by a nuclear membrane that separates it from the cytoplasm.

It is from eukaryotes.

4- Part of the moon is located in penumbra the Earth.

Partial lunar eclipse occurs

Question 4 :

A- Choose the odd word and then write what relation between the rest of the words:

1- Elastic forces - Collision forces - **Gravitational forces** - Frictional forces.

Contact forces

2- Iron - **Copper** - Nickel - Cobalt

Magnetic material

Point of comparison	Human	Fishes
Respiratory organ	Lungs	Gills
The media of oxygen-getting from	Atmospheric air	Water

B. Compare between:

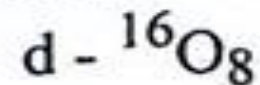
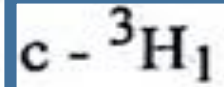
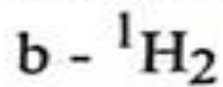
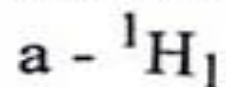
Point of comparison	Venus planet	Uranus planet
Atmosphere	Composed mainly of carbon dioxide	Composed of hydrogen & helium gases in addition to methane gas
Volcanic activity	Many active volcanoes	No volcanoes

Answer the following questions

Question 1:

A- Choose the correct answer:

1 - An atom in which the number of protons is half the number of neutrons.



2 - The two groups (1A and 2A) are from the elements found in block.

A - s

B - p

C - d

D - f

B - give reason for the following:

1- Organic compounds are known as carbon compounds.

Due to the presence of carbon as the main component in their molecules.

2- The bond in the hydrogen molecule is single covalent.

Because each hydrogen atom shares its single valence electron to form a pair of electrons which form a single covalent bond.

3- The weight of an object on the surface of the moon is less than its weight on the surface of the earth.

Because the gravitational field of the moon is $\frac{1}{6}$ the Earth's gravitational field.

4- Paramecium is considered a eukaryote.

Because its genetic material in the cell is surrounded by a nuclear membrane, separating it from the cytoplasm.

Question 2

A- Complete the following statements:

- 1- Iron is a magnetic material while **Plastic** and **rubber** are non-magnetic materials
- 2- ... **Neptune** is called the blue planet while Mars is called the **red** planet

B - Mention the importance of each of :

- 1- Egyptian blue dye: ----- **used to color papyrus and statues and it is still used today to color the facades of houses in Nubian villages which are**
- 2- Stainless steel alloy: ----- **It is used in making cooking utensils.**
- 3- Lightning rod ...: ----- **It is a system that protects buildings and structures from lightning.**
- 4- Bronchioles: ----- **Help in respiration process**

Question 3 :

A- Correct the underlined words:

1- Moseley's periodic table are arranged element in descending order according to their atomic numbers. **Ascending**

2- A positive ion is an atom of an element that has gained one electrons or more . **lose**

B- What are the result of:

1- Bringing the scraps of paper closer to a glass stem that has been rubbed with silk.

Glass will attract scrapes of paper

2- Plant leaves do not contain chloroplasts.

It can't make photosynthesis process

3- Not keeping yogurt in the refrigerator.

The activity of lactic acid bacteria will continue which increases the yogurt acidity and spoils its taste.

4- The moon falls completely in the Earth penumbra

it appears as a dimly lit red disc, and this is not considered an eclipse.

Question 4:

A – Choose the odd word and then write what the relation between the rest of the words:

1- Lines starting from the North Pole - imaginary lines that do not intersect - has more density at the two poles - lines starting from the South Pole.

Properties of magnetic field lines

2- Mass - volume - weight - gravitational field.

$$\text{Weight (w)} = \text{mass(m)} \times \text{gravitational field(g)}$$

B – Compare between

Point of comparison	Dysentery disease	Typhoid disease
Causes microbe	Entamoeba Histolytica	Salmonella Typhi
Where the microbe is located	The large intestine of the patient	The patient's digestive canal.

Point of comparison	Mars	Jupiter
Crust	It has a thick crust	It has no crust
Atmosphere	It composed mainly of Carbon dioxide gas.	They are composed of hydrogen gas &helium gas.