AL KAMAL AZHARIAN LANGUAGE INSTITUTES

# Science

# INCLUSIVE NOTE BOOK

## FOR

# Primary Four

## First Term

## 2015 - 2016

*Name :.....*

*Class : .....*

**Date:** ..... / ..... /..... **C.W**

# Unit (1) : Matter

Lesson (1)

# Measuring Tools

***Lesson contents:***

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***Evaluation:***

1- Define

[ matter – mass – volume ]

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## H.W

### 1- Complete:-

1. A matter is anything that has …… and ……

2. The amount of matter in an object is ……

3. The space occupied by matter is called ……

4. The length of any object is measured by using …… or ……

### 2- Give reason for:-

1. The fan is a matter

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### 3- Put (√) or (×):-

1. graduated tap is used to measure the length of small objects. (  )

2. Meter = 1000 centimeters. (  )

3. The unit of measuring the length of your room is meter. (  )

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Lesson (1)

# Measuring Tools

## *Lesson contents:*

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## *Evaluation:*

**1- Mention:**

a. The mass measurements tools

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b. The volume measurements tools

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**2- Find the volume of the cuboid whose length 20cm and its width is 15cm and its height is 10cm.**

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## 1- Complete:-

1. Gram and Kilogram are the units of measuring ……

2. The mass of a gold ring is measured by …… and its unit is ……

3. One kilogram = …… grams.

4. The common balance is used to measure ……

5. Liter (L) = …….. milliliter (ml).

## 2- Put (√) or (×):-

1. Equal Volumes of different materials have equal masses. (  )

2. graduated ruler is used to determine the volume of irregular small stone. (  )

3. The sensitive balance is used to measure the mass of jewels. (  )

## 3- Problems:-

1. Find the volume of box whose length = 4cm width = 3cm and height = 2cm

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2. Calculate the volume of a stone, which is put in a jar containing 30cm$^3$ of water, water level rises in the jar up to 60 cm$^3$

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Lesson (1)

# Measuring Tools

***Lesson contents:***

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# H.W

| Matter | Mass | Volume |
|---|---|---|
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |

| Length | Common balance |
|---|---|
| ---------- | ---------- |
| ---------- | ---------- |
| ---------- | ---------- |
| ---------- | ---------- |

| Sensitive balance | Graduated cylinder |
|---|---|
| ---------- | ---------- |
| ---------- | ---------- |
| ---------- | ---------- |
| ---------- | ---------- |

| Measuring ruler | Graduated tape |
|---|---|
| ---------- | ---------- |
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Lesson (2)

# Matter States

## *Lesson contents:*

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## *Evaluation:*

Compare between solids , liquids , gases

| | Solid states | Liquid states | Gaseous state |
|---|---|---|---|
| Shape | ---------- | ---------- | ---------- |
| Volume | ---------- | ---------- | ---------- |
| Examples | ---------- | ---------- | ---------- |
| The distance between its molecules | ---------- | ---------- | ---------- |

## 1- Complete:-

1. Matter exists in …… states.
2. The states of matter are ……, …… and ……
3. The …… substance has definite shapes and volumes.
4. The ……. takes the shape of its containers but its volumes does not change
5. matter can be pressed in case of …… state.

## 2- Put (√) or (×):-

1. At ordinary temperature, matter exists in two states. (  )
2. Liquid matter has definite shapes and volumes. (  )
3. Oxygen is an example of gaseous state. (  )

## 3- Correct the underlined words:-

1. Oil is a <u>solid</u> matter. ( …… )
2. <u>Gaseous</u> state has definite shape. ( …… )
3. Matter exists in <u>two</u> states. ( …… )

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Lesson (2)

# Matter States

***Lesson contents:***

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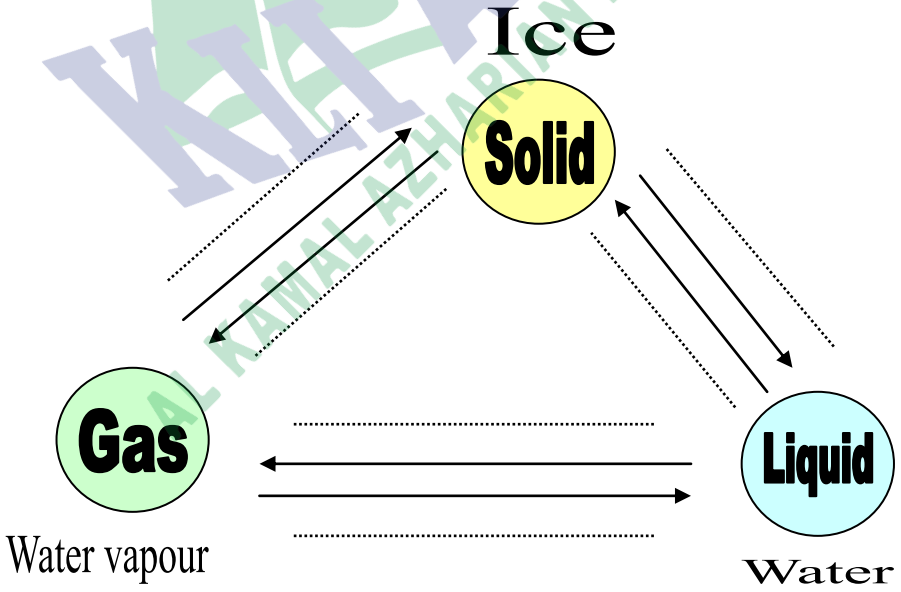
***Evaluation:***

Complete the diagram following:



## 1- Complete:-

1. The changing of ice into water is considered …….. process.
2. Increasing the temperature of water to the boiling point changes water into …….
3. Evaporation is the change of matter from …… state to …….. state.
4. Ice changes to …… by heating.

## 2- Choose the correct answers:-

1. In golden industries , gold needs ……. process.
   **a. melting** **b. condensation** **c. evaporation**
2. The change of matter from liquid state into gaseous state is called ……..
   **a. freezing** **b. condensation** **c. evaporation**
3. The decrease in temperature is accompanied by ……. Process.
   **a. melting** **b. condensation** **c. evaporation** **d. a and b**

## 3- Put (√) or (×):-

1. Water changes to water vapour by cooling. ( )
2. Freezing is the change of matter from solid state to the liquid states. ( )
3. Solids melt by heating. ( )
4. When you heat water, it evaporates. ( )

## 4- Give reason for:-

1. on patting a mixture of gavels and water in are finery with minute holes, water passes while gravels remain in the refinery

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2. Air is considered a gaseous matter

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3. A piece of copper has a definite shape when you carry it from a vessel to another.

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Lesson (2)

# Matter States

***Lesson contents:***

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# H.W

## 1- *Write this words several times:-*

| Definite | Indefinite | Melting |
|---|---|---|
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |

| Evaporation | Condensation | Freezing |
|---|---|---|
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |

| Solid state | Liquid state | Gaseous state |
|---|---|---|
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |
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| ---------- | ---------- | ---------- |

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Lesson (3)

# Element around us

## *Lesson contents:*

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## *Evaluation:*

| | Metals | Non - metals |
|---|---|---|
| Luster | ---------- | ---------- |
| Malleability | ---------- | ---------- |
| Conductivity of heat | ---------- | ---------- |
| Conductivity of electricity | ---------- | ---------- |
| Examples | ---------- | ---------- |

# H.W

## 1- Choose the correct answers:-

1. The …….. is an example of non- metals.

**a. Copper** **b. Carbon** **c. Aluminium** **d. Iron**

2. The foil paper that is used in wrapping up chocolate shows the ……..

**a. electrical conductivity** **b. ability of metals for melting**

**c. malleability or ductility** **d. heat conductivity of metal**

3. Gold and silver are used in the manufacturing ……

**a. bridges** **b. planes** **c. jewels** **d. cooking**

4. Cooking pots are made up of ……

**a. graphite** **b. wood** **c. Aluminum** **d. sulphur**

## 2- Put (√) or (×):-

1. Metals are the simplest form that the matter found in it. ( )
2. Carbon and sulphur have no luster. ( )
3. Electric wires are made up of iron. ( )
4. Mercury is a liquid metal. ( )

## 3- Write the scientific term:-

1. It is the simplest form of matter that can't be decomposed into two substances. ( …… )
2. Elements that have metallic luster and have the ability to conduct electricity. ( …… )

## 4- Give reason for:-

1. copper is used in the manufacture of electric wires.

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Lesson (3)

# Element around us

***Lesson contents:***

## 1- *Please write these word several times:-*

| Element | Molecules | Atoms |
|---|---|---|
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |

| Metal | Non - Metal | Malleable |
|---|---|---|
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |

| Metallic luster | Ductile |
|---|---|
| ---------- | ---------- |
| ---------- | ---------- |
| ---------- | ---------- |
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Lesson (4)

# Physical and chemical changes

## *Lesson contents:*

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## *Evaluation:*

**Put (√) below the correct type of change:**

| Changes | Physical change | Chemical change |
|---|---|---|
| Burning sugar | ---------- | ---------- |
| Iron rust | ---------- | ---------- |
| Dissolving salt in water | ---------- | ---------- |
| Grinding sugar | ---------- | ---------- |
| Burning paper | ---------- | ---------- |
| Melting wax | ---------- | ---------- |
| Freezing water | ---------- | ---------- |
| Melting ice | ---------- | ---------- |
| Producing yoghurt | ---------- | ---------- |
| Fruit fermentation | ---------- | ---------- |

## H.W

### 1- Complete:-

1. Melting of ice is considered a …….…. change.

2. Boling of water and its vapor release is considered as a …….. change.

3. Dissolving of sugar in water is a …….. change while iron rust is a …… change.

4. Ductility of copper into wires is considered as a …… change.

### 2- Write the scientific term:-

1. A change in the appearance of matter without any change in the structure.

( …… )

2. The change that happens when a piece of sugar is burned. ( …… )

### 3- Give reason for:-

1. melting ice is a physical change.

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2. the taste of sugar changes after burning.

---

3. the white paper changes to black after burning.

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Lesson (4)

# Physical and chemical changes

***Lesson contents:***

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# H.W

## 1- *Please write these words several times:-*

| Physical change | Grinding | Iron rust |
|---|---|---|
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |

| Chemical change | Burning |
|---|---|
| ---------- | ---------- |
| ---------- | ---------- |
| ---------- | ---------- |
| ---------- | ---------- |

| Fermentation | Dissolving |
|---|---|
| ---------- | ---------- |
| ---------- | ---------- |
| ---------- | ---------- |
| ---------- | ---------- |

| Paper recycling | Charring of bread |
|---|---|
| ---------- | ---------- |
| ---------- | ---------- |
| ---------- | ---------- |
| ---------- | ---------- |

# General revision on Unit one

Lesson (1)

# Measuring Tools

## 1- Matter:

Any thing that has mass and volume

2- Things are different from matter to another in

1- Length  2- Mass  3- Volume

### Measuring length

**Short lengths**

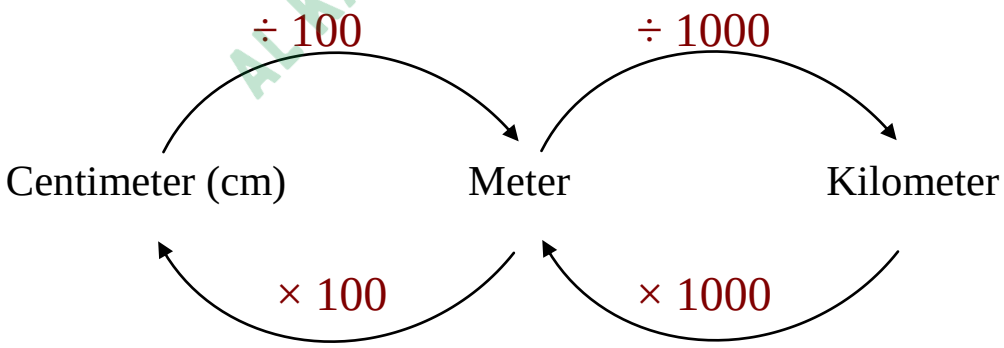
1- We can use
# graduated ruler

2- Measuring unit
# cm = centimeter

**Long lengths**

1- Measuring tool
#graduated tap

2- Measuring unit
# Meter = m
# Kilometer = km



## 2- Mass:

Is the amount of matter in an object

### Measuring mass

**Small masses**

1- Measuring tool
# Sensitive balance
Ex # Jewels – chemicals

2- Measuring unit
# g = gram

**Large masses**

1- Measuring tool
# common balance (two – pan)
Ex # Fruit and vegetables

2- Measuring unit
# g # large masses
# Ton # very large masses

## 3- Volume:

Is the space occupied by on object

### Measuring volume

**Liquid matter**

1- Measuring tool
# graduated cylinder

2- Measuring unit
# liter or milliliter
or cubic centimeters

**Solid matter**

1- Regular solid
# v = length
x height
x width

irregular solid
# by using
graduated cylinder
$v = v_2 - v_1$

2- Measuring unit
# $cm^3$ or $m^3$

Lesson (2)

# Matter States

**States of matter**

1- Solid  2- Liquid  3- Gas

| Points of comparison | Solids | Liquids | gases |
|---|---|---|---|
| 1- Examples | Wood – Rock – glass | Water – oil – tea | Air |
| 2- Shape | Definite | Indefinite | Indefinite |
| 3- Volume | Definite | Definite | Indefinite |
| 4- Distance between molecules | Very small | Large | Very large |

## Change of matter

1- **Melting**:

Is the change of matter from the solid state into liquid state by heating

2- **Evaporation:**

Is the change of matter from liquid state into the gaseous state by heating

3- **Freezing:**

Is the change of matter from the liquid state into solid state by cooling

**4- Condensation:**

Is the change of matter from the gaseous state into the liquid state by cooling

## Do not forget that:

- Matter has 3 states which are solids , liquid and gas
- At room temperature the matter has only one state
- Matter can change from state to another by cooling or heating

| Melting | Freezing | Evaporation | Condensation |
|---|---|---|---|
| By heating | By cooling | By heating | By cooling |
| Solid → Liquid | Liquid → Solid | Liquid → Gas | Gas → Liquid |
| Ex # melting ice | Ex # freezing water | Ex # Boiling water | Ex # Rains |

Lesson (3)

# Element around us

## The Element:

It is the simplest form of matter that cannot be decomposed into two substtrance

**Elements divided into**

Metal

Non – Metal

| Points of comparison | Metals | Non- Metals |
|---|---|---|
| 1- Luster | Have luster | Have not luster |
| 2- Heat conduction | Good conductors | Bad conductors |
| 3- Electrical conduction | Good conductors | Bad conductors except carbon (coal) |
| 4- Melting point | High | Low |
| 5- Malleable and ductile | Malleable and ductile | Not malleable and ductile |
| 6- State of matter | Solid except (mercury) | Solid – gases – one liquid (Bromine) |
| 7- Examples | Iron – gold – Silver – Copper – Mercury | Carbon – sulphur |

## Life applications of some metals and non – metals

1- Iron # car frames , bridges , doors

2- Aluminum # cooking pots and foil paper

3- Copper # statues , coins and electric wires

4- Gold # Jewels

5- Carbon (graphite) # positive poles of dry cells (batteries)

## Very important points:

1- Copper is a good conductor of electricity so , cables of electricity are made up of it.

2- All metals are solid except mercury which is a liquid and used in thermometers manufacture.

3- From our Arabic scientists "Jober Ibn Hyan" who was the first one discovered acids and alkalis.

4- From the foreign scientists "Berzelius" who was discovered rubber tubes and tools of laboratory.

5- Gold is a flexible element so that copper is added to it in order to reshape it into jewelry and it can be added to silver and platinum as well.

6- Slivery paper can be hammered and bent.

Lesson (4)

# Physical and chemical changes

| Physical change | Chemical change |
|---|---|
| Is the change in the appearance (shape) of the matter without any change in its structure. | Is the change in the structure of the substance (matter) producing (giving) a new substance with different properties. |
| **Example**:<br>1- Freezing of matter<br>2- Evaporation of matter<br>3- Condensation of matter<br>4- Melting of matter<br>5- Dissolving of salt or sugar in water<br>6- Malleability or ductile of matter | **Example**:<br>1- Rusting of iron<br>2- Fermentation of (Fruit – Sugar)<br>3- Addition of yeast to pastry<br>4- Production of yoghurt from milk<br>5- Digestion of food |

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# Final Revision

## *Q1. Complete:-*

1. All metals are …….. conductors of heat & electricity.
2. Burning of sugar is considered as …….. change.
3. The matter is anything that has …… and ……..
4. Meter is the unit of measuring ……..
5. Burning of wood is …… change, while melting of ice is …… change.
6. …… is the liquid metal, while …… is the liquid non metal.
7. The substance that can not be decomposed into substances or more is known as ……

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## *Q2. Put (√) or (×):-*

1. Aluminum and sulphur have melting points. ( )
2. Gases have definite shapes and volume. ( )
3. We can determine the volume of irregular shaped solid object by using graduated cylinder. ( )
4. Copper is used in making electric wires. ( )
5. The transfer of water into ice by cooling called freezing. ( )
6. The kilogram is the unit of measuring the volume. ( )

## *Q3. Give reason for:-*

1. Milk is a liquid.

---

2. Melting of wax is considered a physical change.

---

3. Electric wires are made of copper.

---

4. Burning of apiece of bread is a chemical change.

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## *Q4. Write the scientific term:-*

1. The amount of matter in an object. ( …… )

2. Change of matter from the solid state to the liquid state. ( …… )

3. They have definite shapes and volumes. ( …… )

4. Change of matter from gas state to liquid state. ( …… )

5. A liquid non metal. ( …… )

6. An element used in making statues and metallic coins. ( …… )

## *Q5. <u>What happens when</u>:-*

1. Rising the temperature of a piece of ice.

---

2. We expose a cold glass sheet to water vapour.

---

3. We burn a piece of paper.

---

4. Adding yeast to dough's, then baking, why?

---

5. Putting a piece of dry iron wire in a jar filled with dry oxygen. Why?

---

6. We heat a piece of sugar strongly.

---

7. A bright shiny iron mail is moistened (wetted) and Exposed to air.

---

8. You bend an iron sheet. Why?

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## *Q6. Which of the following is a chemical change and which is a physical change and give reasons:-*

1. Burning a piece of wood.

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2. Making a chair from wood.

---

3. Turning a piece of iron into nails.

---

4. Rusting of iron.

---

5. Burning of sugar.

---

6. Grinding a sugar cube.

---

7. Dissolving sugar in water.

---

8. Cutting a piece of paper.

---

9. Fermentation of fruits.

---

10. Melting of wax.

---

11. Melting of a chocolate bar.

---

12. Paper recycling.

---

13. Production of yoghurt from milk.

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## *Q7. Compare between:-*

1. The chemical change and the physical change. Mention examples.

2. Liquid , solid and gaseous states of matter.

3. Melting process and evaporation process.

4. Condensation process and freezing process.

5. Metal and non metal.

---

## *Q8. Problems:-*

The graduated cylinder contains 70$cm^3$ of water when an irregular stone was put in, it the level of water became 80 $cm^3$. Find the volume of the stone.

# Unit (2) : Universe

Lesson (1)

# Stars and planets

***Lesson contents:***

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***Evaluation:***

**1- Define**

a. The stars.

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b. give reason for sun is a star.

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## 1- Complete:-

1. …….. are lighting bodies emit heat and light.

2. Stars seem very small because they are very ……..

3. The sun emits ……. and …….

4. The …… is located in the center of the solar system and there are …… revolving around it in definite orbits.

## 2- Put (√) or (×):-

1. The sun is a planet and it emits light. (  )

2. The biggest body in the solar system is earth. (  )

## 3- Write the scientific term for each of the following sentences:-

1. Shiny bodies radiating light and heat. ( …… )

2. A dark body revolves around the sun and we live on it. ( …… )

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Lesson (1)

# Stars and planets

## *Lesson contents:*

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## *Evaluation:*

| Stars | Planets | Moons |
|---|---|---|
| ---------- bodies | ---------- bodies | ---------- bodies |
| ---------- Light and heat | ---------- sunlight | ---------- Sunlight that falls on it |
| Have ---------- sizes | Have ---------- sizes | ---------- sizes |
| Ex: ---------- | Ex: ---------- | Ex: ---------- |

## 1- Choose:-

1. The central body of the solar system is……...

**a. Earth** **b. the sun** **c. the moon** **d. mars**

2. …….. is a dark body that revolves around Earth.

**a. The moon** **b. Jupiter** **c. The sun**

3. The nearest planet to the sun in the solar system is ……

**a. mercury** **b. Earth** **c. Neptune**

## 2- Give reason for:-

1. The sun is a star, while Earth is a planet.

---

2. The stars seem very small in size.

---

## 3- Write the scientific term:-

1. The planet that is characterized the presence of colours rings. ( …… )

2. The nearest space body to the earth. ( …… )

3. It is called the red planet in the solar system. ( …… )

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Lesson (1)

# Stars and planets

***Lesson contents:***

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***Evaluation:***

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## 1- *Write these words several times:-*

| Universe | Immense space | Meteors |
|---|---|---|
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |

| Celestial bodies | Vast vacuum | Meteoroids |
|---|---|---|
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |

| Stars | Planet | Moons |
|---|---|---|
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |

| Solar system | Comets | Asteroids |
|---|---|---|
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |

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Lesson (2)

# The rotation of the sun

## *Lesson contents:*

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## *Evaluation:*

### *Give reason for:-*

1. The sun appears larger than all other stars.

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2. The sun seems moving from east to west.

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3. The movement of the shadow.

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## 1- Complete:-

1. Day and night are nearly equal only during …….. and …… seasons.

2. In the ……. season, day is longer than night.

3. In the …….. season, day is shorter than night.

## 2- Write the scientific term:-

1. The sun seems moving from east to west. ( …… )

2. Seasons in which day equals night. ( …… )

3. The phenomenon occurs when the Earth around the sun. ( …… )

## 3- Give reason for:-

1. The movement of the shadow.

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Lesson (2)

# The rotation of the earth

## *Lesson contents:*

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## *Evaluation:*

### *Give reason for:-*

1. The sequence of day and night.

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2. The hours of day aren't equal the hours of night.

---

3. The sequence of the four seasons.

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## 1- Complete:-

1. The earth rotates around the sun once every ……., while it rotates around it axis once every …….
2. The earth axis is inclined causing the difference between …… and …….
3. The earth rotate around its axis from …… to ……

## 2- Put (√) or (×):-

1. The sun revolves around the earth. ( )
2. The earth revolves around the sun once every 24 hours. ( )
3. The day in summer season is longer than the night. ( )
4. The axis of earth is vertical. ( )

## 3- What is the natural phenomenon that happens due to:-

1. Rotation of the earth around the sun.

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2. Rotation of the earth around its axis.

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Lesson (2)

# The rotation of the sun and earth

***Lesson contents:***

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# H.W

| Apparent orbit | Sequence |
|---|---|
| ---------- | ---------- |
| ---------- | ---------- |
| ---------- | ---------- |
| ---------- | ---------- |

| Southern hemisphere | Northern hemisphere |
|---|---|
| ---------- | ---------- |
| ---------- | ---------- |
| ---------- | ---------- |
| ---------- | ---------- |

| Rotation axis | Inclined axis |
|---|---|
| ---------- | ---------- |
| ---------- | ---------- |
| ---------- | ---------- |
| ---------- | ---------- |

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Lesson (3)

# Motion of the moon

## *Lesson contents:*

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## *Evaluation:*

### *Complete:-*

1. Moon is dark body, but it seems bright because ……..

2. Rotation of the moon around the earth causes ……...

3. The rotation of the moon around the earth takes ……. days.

## 1- Complete:-

1. The moon is a …… body.

2. The moon completes its revolution around the earth in about ……. ,

   while the earth completes its revolution around the sun in about …….

3. The moon appears in …… phase.

4. The moon rotates around the earth every ……..

## 2- Correct the underlined words:-

1. The moon radiates light. ( …… )

2. The moon rotates around the sun every 28 days. ( …… )

3. The moon appears in crescent in the middle of the lunar month.

   ( …… )

## 3- Give reason for:-

1. The moon is a dark object, but we see it shining at night.

   ---

2. The occurrence of the moon phases.

   ---

3. We see the moon shining in the middle of the lunar month.

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Lesson (3)

# Tide and Ebb

## *Lesson contents:*

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## *Evaluation:*

**The difference between earth and moon**

| Points of comparison | The moon | The earth |
|---|---|---|
| Size | ---------- the size of earth | ---------- than the moon |
| Mass | Has ---------- mass | Has ---------- mass |
| Gravity | Has ---------- gravity | Has ---------- gravity |
| Water and air | ---------- | ---------- |

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## 1- Complete:-

1. The return back of water to its normal level after the tide is called ……

2. …….. and …… are benefits of tide and ebb.

3. The attraction between the earth and the moon causes …… and ……

4. Tide and ebb generate ……...

## 2- Put (√) or (×):-

1. Tide and ebb phenomenon benefit is getting petroleum. (  )

2. The maximum tide occurs in the new moon phase. (  )

3. Water represents 78% of the earth surface. (  )

## 3- What happens if:-

1. The sunlight falls on the moon.

---

2. There is no attraction force between the earth and the moon.

---

3. The moon revolves around the earth in affixed orbit.

---

**Date:** ..... / ..... /..... **C.W**

Lesson (3)

# Motion of the moon

## *Lesson contents:*

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## *Evaluation:*

# H.W

| Lunar month | Gibbous | New moon |
|---|---|---|
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |

| Crescent | Full moon | quadrature |
|---|---|---|
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |

| Attraction force | Tide | Ebb |
|---|---|---|
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |

| Generating | Electricity |
|---|---|
| ---------- | ---------- |
| ---------- | ---------- |
| ---------- | ---------- |
| ---------- | ---------- |

**Date:** ..... / ..... /..... **C.W**

Lesson (4)

# The atmosphere and the weather

## *Lesson contents:*

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## *Evaluation:*

**Components of the atmosphere**

| The gas | Percentage in the atmosphere |
|---|---|
| Nitrogen | |
| Oxygen | |
| Carbon dioxide | |
| Other gases | |
| Water vapour | |

## 1- Complete:-

1. Green plants use …….. gas in photosynthesis process.

2. Nitrogen gas is used in ……. and ……. industries.

3. The lighted candle will put out in the absence of …….

4. Clear limewater turns to milky in the presence of …….

5. Oxygen is produced from …….. and consumed in ……..

## 2- Give reason for:-

1. Carbon dioxide is used in making fire extinguishers.

---

2. Oxygen is very important for living organisms.

---

## 3- Correct the underlined words:-

1. The percentage of Nitrogen in air is 21%. ( ……. )

2. Oxygen is used in fire extinguishing. ( ……. )

3. Nitrogen is used in making soda water. ( ……. )

4. Carbon dioxide cause the humidity of air. ( ……. )

**Date:** ..... / ..... /..... **C.W**

Lesson (4)

# The atmosphere and the weather

## *Lesson contents:*

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## *Evaluation:*

### *Complete:-*

1. Maximum temperature is

……..

2. Minimum temperature is

……...

3. The winds is

……...

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## 1- Complete:-

1. Atmospheric pressure is measured by ……., while wind speed is measured by …….

2. …….. is used to determine the direction of the wind.

3. Sun rays evaporate the water into ……..

4. Winds is the movement of ……...

## 2- Put (√) or (×):-

1. Barometer is used in measuring wind speed. (  )

2. Anemometer is used to measure wind direction. (  )

3. The minimum temperature is the expected temperature during night. (  )

# General revision on Unit two

Lesson (1)

# Stars and planents

**Celestial bodies**

1- Stars | 2- The sun | 3- The planets | 4- Moons

**1- <u>Stars:</u>**

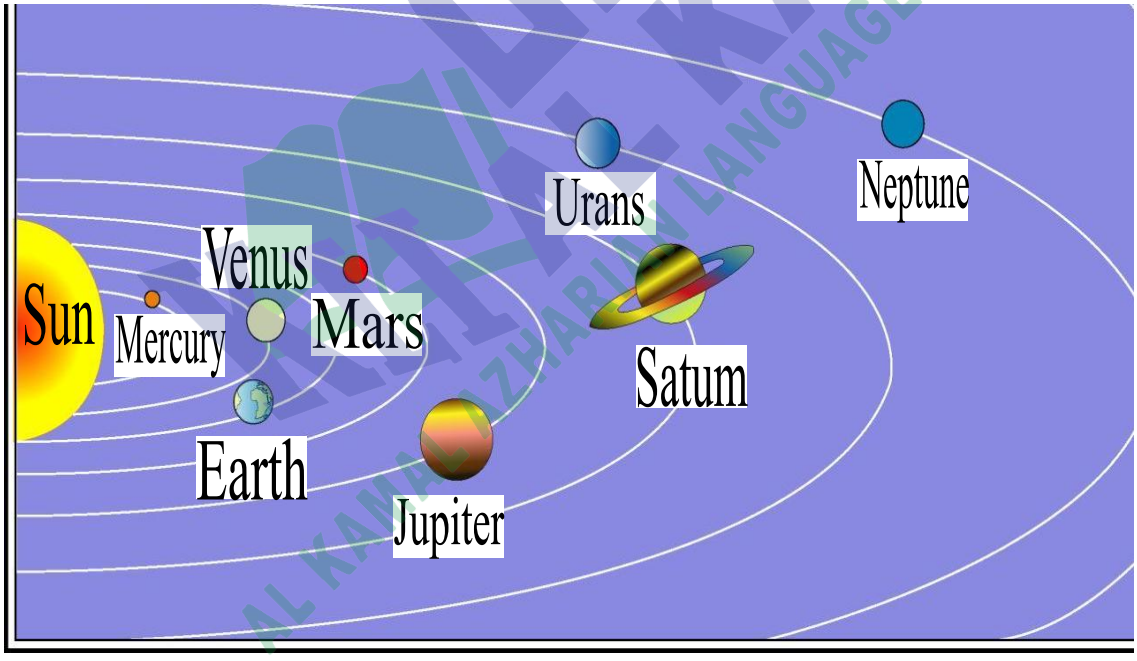
1. The star is a hot ball
2. The star give us heat and light
3. The sun is a star
4. Stars look small because they are so far away from us
5. We see the largest stars small than our sun because they are farther than it
6. We cannot count them because they are too many stars
7. There are large, medium and small the sun is medium size

**2- <u>The planets:</u>**

1. A planet is a dark body that revolves around the sun in affixed orbits
2. It does not emit (give) us light or heat
3. Each planet has its own orbit around the sun
4. There are eight planet called mercury, Venus, Earth, mars, Jupiter, Saturn, Uranus, Neptune.

## Important Note

1. **Mercury**: It is the nearest planet to sun
2. **Venus**: It is the most beautiful planet
3. **Earth**: The planet where we live
4. **Mars**: The red planet
5. **Jupiter**: It is the biggest planet
6. **Saturn**: has a colored ring around it
7. **Uranus**: The coldest planet
8. **Neptune**: It is the farthest planet and called blue planet




In this figure planets arranged from the nearest to the sun to the farthest

# Notes

1. Scientists don't classify Pluto as a planet because: It is very small and its size is less than one fifth of the earth size.

**3- <u>Moons:</u>**

1. The followers of the planets that revolve around them
2. The earth planet has one moon
3. The moon is a dark body but it looks like shiny because it reflects the sunlight falling on it

Lesson (2)

# The rotation of the sun and earth

**1- <u>The apparent movement of the sun:</u>**

The sun seems moving from east to west but this is not true and this motion called the apparent movement and this happened because the earth rotates around its axis and not to the rotation of the sun.

**2- <u>The rotation of the earth:</u>**

***<u>First: earth rotates around it self (its axis)</u>***

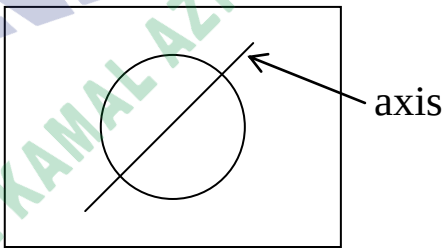
1. The axis is unreal line drawn through the center of earth.
2. This rotation takes 24 hours (one day) to complete one round.
3. This rotation causes day and night.

***<u>Give reason for:-</u>***

1. Sequence of day and night.

---

4. Earth's axis is not straight but it is inclined ( / )




***5. <u>Give reason for:-</u>***

1. The hours of day aren't equal the hours of night.

**<u>Because</u>**:

The axis of rotation of earth is inclined

***Second: earth rotates moves around the sun***

1. This rotation takes 365.25 days to complete one round and this is called one year.
2. This rotation causes the four seasons.

***Give reason for:-***

1. Sequence of four seasons.

---

| Summer | Autumn | Winter | Spring |
|---|---|---|---|
| Night hours is less than day hours | Day hours are nearly equal to night hours | Night hours is longer than day hours | Day hours are nearly equal to night |
| **Hot** | **Cool** | **Cold** | **Warm may rain** |

| The rotation of earth around the sun | The rotation of earth around it is axis |
|---|---|
| 1. occurs every 365 $\frac{1}{4}$ days.<br>2. Causes the sequence of the four seasons. | 1. occurs every 24 hours.<br>2. Causes the sequence of the day and night. |

**Important Note**

Length of the day = Time of sunset – Time of sunrise

Length of the night = 24 hours – Length of day

Lesson (3)

# Motion of the moon

1- Moon is a dark body, but it seems bright

**Because**:

It is reflects the sunlight falling on its surface

2- Moon is a satellite of the earth

3- The moon moves around the Earth

## Rotation of the moon

1. ***First:*** Moon rotates around itself (its axis)
2. ***Second:*** Moon rotates around the earth

1- This rotation takes 28 days to complete one rotation around the earth.

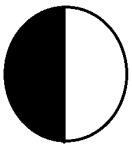
2- The moon rotates around the earth in a circular path.

3- We can see the moon in different phases (shapes) during the lunar month.

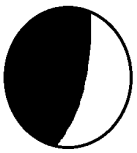
## Phases of the moon

The rotation of the moon around the earth causes the phases of the moon

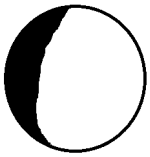
# There are 8 phases of moon



2- First crescent



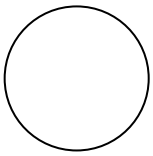
3- First quadrature



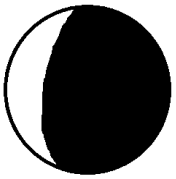
4- First gibbous

Earth

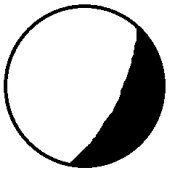
1- New moon



5- Full moon



8- Second crescent



6- Second gibbous

7- Second quadrature

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# Attraction force between the Sun , Earth and Moon

## Tide and Ebb

1. It is a phenomenon occurs in seas and oceans

2. Why Tide and Ebb phenomenon occurs?

It occurs due to the attraction between the Earth, the Moon and the Sun.

3. The attraction between the moon and Earth is more than the sun because the moon is the nearest to the earth.

4. The maximum rising of water level (tide) is in half of lunar month.

***Tide:***

Is the rise of water level in water surface to cover seashores.

***Ebb:***

Is the return back of water to its normal level.

**Important**

**Benefits of tide and ebb:**

1. Generating electricity (give us electricity)
2. Cleaning the coasts.
3. Cleaning the water channels.
4. Helping ships and boats to move.

**Bad effects of tide and ebb:**

High tide would damage beach, houses and roads.

Lesson (4)

# The atmosphere and the weather

Air ⟶ The Earth's atmosphere

↓

Is a mixture of different gases

**Components of Atmosphere**

Oxygen gas  carbon dioxide  nitrogen gas  water vapour  other gases

## 1- Oxygen gas

a- Oxygen gas represents (21%) of the air volume

b- The source of oxygen gas is photosynthesis process

***Importance of Oxygen:***

1. Respiration (brea thing) process
2. Burning of food and fuel
3. Welding and cutting metals by using oxy- acetylene flame
4. In diving to help the divers in respiration under the water

## 2- Carbon Dioxide gas

a- Carbon dioxide gas represents 0.03% of the air volume.

b- Lime water is used to test the presence of Carbon dioxide.

***Importance of carbon dioxide gas:***

1. Green plants need carbon dioxide to make their own food by photosynthesis process.
2. Making soda water.
3. Making fire extinguisher

**Because:**

Carbon dioxide does not burn and does not help in burning.

What is photosynthesis?

It is the process take place when plant take carbon dioxide gas and give out oxygen.

**3- Nitrogen gas**

a- Nitrogen gas represents 78% of the air volume.

b- The most abundant gas in the air.

**Importance of Nitrogen gas:**

1. It reduces the effect of the oxygen in combustion (burning)
2. It is used in industry of ammonia and nitrogen fertilizers

**4- Water vapour**

a- Water vapour represents a small ratio of the volume

***Important Notes:***

1. Jupiter, Mars and Venus have atmosphere , but they are not suitable for life because they haven't oxygen gas.

2. The increase of carbon dioxide gas in the atmosphere raises its temperature.

3. The humidity (air with water vapour) increases in the coastal areas due to the presence of water in seas and oceans.

## The Weather

It is the expected conditions of the atmosphere at certain place during a short period of time not exceeding one weak.

### The factors affect the weather

Temperature  atmospheric pressure  winds  clouds and rain

**1- Temperature**

***a- Maximum temperature:***

It is the temperature expected during the day.

***b- Minimum temperature:***

It is the temperature expected during the night.

***c- Temperature measuring:***

1. Digital thermometer
2. Mercuric thermometer

**2- Atmospheric pressure**

a- It is the pressing of the air on everything around us.

b- Atmospheric pressure is measured by barometer.

**3- Winds**

a- It is the movement of air from places of high atmospheric pressure to places of low atmospheric pressure.

***Important note:***

1. Wind vane: is used to measure the direction of the wind.
2. Anemometer: is used to measure the speed of the wind.

**4- Clouds and rains**

***Steps of water cycle:***

1. Water evaporates by the heat of the sun forming water vapour.
2. Water vapour rises in the sky and form clouds.
3. Clouds move by the effect of the wind and the volume of water drops increases in the clouds air can not carry them , so rain fall.

**The importance of weather prediction (fore cast)**

1- Low temperature means → wearing heavy clothes.

2- Strong winds means → it is advisable for ships and fishing boats not to sail.

3- The morning is foggy means → car drivers should slow down.

4- The rain falls means → wearing raincoat with umbrellas, farmer know the best time for irrigation.

# Final Revision

## Q.1: Define:-

1. Stars: .....
2. The sun: .....
3. Planets: .....
4. Moons: .....
5. Tide: .....
6. The ebb: .....
6. Atmospheric air: .....
7. Weather: .....
8. Maximum temperature: .....
9. Minimum temperature: .....
10. Wind: .....

## Q.2: Give reasons for:-

1. The big stars seem small in size.

.....

2. The sun is a self- shining body.

.....

3. The sun seems bigger to us than the other stars.

.....

4. The sun is a star, while the earth is a planet.

.....

5. Planets and moons have some similar characteristics.

.....

6. Although the moon lights at the sky, we don't consider it as a star.

.....

7. Jupiter is a planet.

.....

8. Although the moon is a dark body, we see it shiny.

.....

9. Uranus planet is named "the cold planet".

.....

10. The apparent rotation of the sun.

.....

11. The number of day hours is not equal to the number of night hours.

.....

12. Sequence of day and night.

.....

13. Sequence of the four seasons.

.....

14. The movement of shadow at different times of day.

.....

15. The day is summer is longer than the day in winter in the northern hemisphere.

.....

16. The moon has a clear effect on the earth.

.....

17. The moon rotates around the earth in a circular fixed path.

.....

18. The moon appears in different shapes during the lunar month.

.....

19. The moon is more effective than the sun in forming tide and ebb phenomenon.

.....

20. We see the moon shining in the middle of the lunar month.

.....

21. Occurrence of the tide & the ebb phenomenon.

.....

22. A phenomenon of tide and ebb has great benefits.

.....

23. Oxygen gas is very necessary for life of living organisms.

.....

24. Although the percentage of carbon dioxide gas in air is very small, it is very import.

.....

25. Lime water turns milky if it is left in air for a long time.

.....

26. Nitrogen gas is very necessary in the atmosphere.

.....

27. Oxygen gas and carbon dioxide gas are very necessary for green plants.

.....

28. The presence of some droplets of water on a glass filled with ice.

.....

29. Divers carry oxygen cylinder on their backs during diving.

.....

30. Oxygen gas is important.

.....

31. Nitrogen and oxygen are the most abundant two gases in air.

.....

32. Carbon dioxide gas is used in fire extinguishing equipments.

.....

33. The importance of carbon dioxide gas.

.....

34. The humidity increases in coastal regions.

.....

35. Weather prediction is very necessary for fisher man and people.

.....

## Q.3: What happens when:-

1. The sun faces a part of the earth.

.....

2. The sun doesn't face a part of the earth.

.....

3. The earth's axis becomes vertical.

.....

4. The earth rotates around its axis.

.....

5. The earth revolves around the sun once every year.

.....

6. The moon rotates around the earth.

.....

7. There was no attraction between the moon and the earth.

.....

8. You leave a glass containing ice exposed to atmospheric air.

.....

9. Lime water is exposed to the atmospheric air for several hours.

.....

10. Nitrogen gas isn't present in Air.

.....

11. Atmospheric air doesn't contain carbon dioxide gas.

.....

12. Air doesn't move from high pressure regions to low pressure regions.

.....

13. Evaporation & condensation of sea water occur.

……

14. Drivers don't see the weather forecast.

……

## Q.4: Compare between:-

1. Star, planet and moon.
2. The types of rotation of the earth.
3. Oxygen gas, carbon dioxide gas and nitrogen gas.

## Q.5: Complete:-

1. The solar system includes ……, ……, ……,

…… , …… , ……, …… .

2. The planets are arranged according to:- ……..

a) Their distance from the sun (beginning from the nearest to the farthest)

……

b) Their sizes ……..….

3. The nearest planet to the sun is ……..

4. The farthest planet from the sun is …… and it is also called ……

5. The biggest planet is ……

6. The smallest planet is ……..

7. The nearest two planets to the earth are …… and ……..

8.…… is the most beautiful planet.

9. Mars is called the …… planet.

10. …… is characterized by having coloured rings around it.

11. …… is the coldest planet.

12. …… is the biggest celestial body in the solar system.

13. ……..... is the nearest neighbor to the earth.

14. The earth consists of two hemispheres which are …….. and ……..

15. The moon revolves around:-

a) ……

b) ……

16. Solar year equals ……, but the lunar year equal ……

17. The main source of oxygen gas on the earth is ……..… in green plants.

18. In photosynthesis process, plants take …… and give out ……

19. During respiration process of plants, they take …… and give out ……

20. …… includes weather factors which are temperature atmospheric pressure, winds, clouds and rain.

21. …….. causes the rise of the sea waves.

22. …… the volume of water drops in the clouds increases and the air can't carry them.

## Q.6: What the importance of:-

1. The sun. ……

2. Rotation of the earth around the sun.

……

3.Rotation of the earth around its axis.

……

4. Attraction force between earth, moon, and sun.

……

5. Tide and ebb.

.....

6. Oxygen gas.

.....

7. Carbon dioxide gas.

.....

8. Nitrogen gas.

.....

9. Lime water.

.....

10. Digital thermometer and mercuric thermometer.

.....

11. Barometer.

.....

12. Anemometer.

.....

13. Wind vane.

.....

## Q.7: Activities:-

1. To show the atmospheric pressure:-

- Steps:- .....

.....

- Observation:- .....

.....

- Conclusion:- .....

.....

2. To prove the presence of carbon dioxide gas in the atmosphere:-

- Steps:- .....

.....

- Observation:- .....

.....

- Conclusion:- .....

.....

3. To Prove that atmosphere contains water vapour:-

- Steps:- .....

.....

- Observation:- .....

.....

- Conclusion:- .....

.....

## Q.8: Important devices:-