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SELECTION

6

SCIENCE

ANBU NILAYAM

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SELECTION

SIXTH STANDARD

⑥

SCIENCE

TERM - I, TERM - II, TERM - III,

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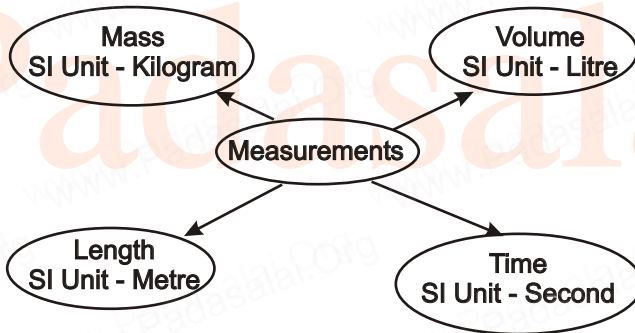
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SELECTION

SIXTH STANDARD

⑥ SCIENCE

TERM - I

PHYSICS**Unit - 1 Measurements****Mindmap****Evaluation****I. Choose the correct answer.**

1. The girth of a tree can be measured by

- a) metre scale
- b) metre rod
- c) plastic ruler
- d) measuring tape

Ans : d) measuring tape

2. The conversion of 7m into cm gives

- a) 70cm
- b) 7cm
- c) 700cm
- d) 7000cm

Ans : c) 700cm

3. Quantity that can be measured is called

- a) Physical quantity
- b) Measurement
- c) Unit
- d) Motion

Ans : b) Measurement

SELECTION 6 SCIENCE**4****TERM -I****4. Choose the correct one**

- a) $\text{km} > \text{mm} > \text{cm} > \text{m}$ b) $\text{km} > \text{mm} > \text{m} > \text{cm}$
 c) $\text{km} > \text{m} > \text{cm} > \text{mm}$ d) $\text{km} > \text{cm} > \text{m} > \text{mm}$

Ans : c) $\text{km} > \text{m} > \text{cm} > \text{mm}$ **5. While measuring length of an object using a ruler, the position of your eye should be**

- a) Left side of the point
 b) Vertically above the point where the measurement is to be taken.
 c) Right side of the point
 d) Any where according to one's convenience.

Ans : b) Vertically above the point where the measurement is to be taken.**II. True or False.**

1. We can say that mass of an object is 126kg. **Ans : True**
 2. Length of one's chest can be measured by using metre scale. **Ans : False**
 3. Ten millimetres makes one centimetre. **Ans : True**
 4. A hand span is a reliable measure of length. **Ans : False**
 5. The SI system of units is accepted everywhere in the world. **Ans : True**

III. Fill up the blanks.

1. SI unit of length is symbolically represented as
Ans : metre
 2. 500 gm = kilogram **Ans : $\frac{1}{2}$**
 3. Distance between Delhi and Chennai can be measured in
Ans : kilometre
 4. 1m = cm **Ans : 100**
 5. 5km = m **Ans : 5000**

IV. Analogy.

1. Sugar : Beam balance ; Lime juice ?
Ans : Measuring Jar
 2. Height of a person : cm ; length of your sharpened pencil lead ?
Ans : mm
 3. Milk : volume ; vegetables ?
Ans : Mass

SELECTION 6 SCIENCE**5****TERM -I****V. Match the following.**

| Column A | Column B |
|---------------------------|-----------|
| 1. Length of the fore arm | Metre |
| 2. SI unit of length | Second |
| 3. Nano | 10^3 |
| 4. SI unit of time | 10^{-9} |
| 5. Kilo | Cubit |

Ans :

| Column A | Column B |
|---------------------------|-----------|
| 1. Length of the fore arm | Cubit |
| 2. SI unit of length | Metre |
| 3. Nano | 10^{-9} |
| 4. SI unit of time | Second |
| 5. Kilo | 10^3 |

VI. Complete the given table

| | |
|------------------------------|-------|
| Volume | _____ |
| _____ | kg |
| Length of your little finger | _____ |
| _____ | km |

Ans :

| | |
|------------------------------|-----------|
| Volume | <u>L</u> |
| Mass | kg |
| Length of your little finger | <u>cm</u> |
| Distance | km |

VII. Arrange in increasing order of unit

1 Metre, 1 centimetre, 1 kilometre, and 1 millimetre.

Ans : 1 millimetre, 1 centimetre, 1 metre and 1 kilometre**VIII. Find the answer for the following questions within the grid**1. 10^{-3} is one _____**Ans : millimetre**

2. SI Unit of time _____

Ans : second

3. Cross view of reading for a measurement leads to _____

Ans : Error

SELECTION 6 SCIENCE**6****TERM -I**

4. _____ is the one what a clock reads .

Ans : Time

5. _____ is the amount of substance present in an object

Ans : Mass

6. _____ can be taken to get the final reading of the recordings of different of students for a single measurement.

Ans : Average

7. _____ is a fundamental quantity.

Ans : Length

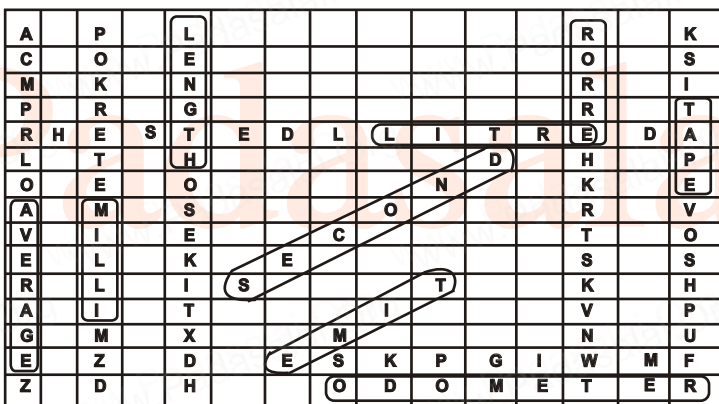
8. _____ shows the distance covered by an automobile

Ans : Odometer

9. A tailor use _____ to take measurements to stitch a cloth

Ans: Tape

10. Liquids are measured with this physical quantity

Ans : Litre**IX. Answer in a word or two.****1. What is the full form of SI system?**

International system of Units.

2. Name any one instrument used for measuring mass.

Beam Balance

3. Find the odd one out**Kilogram, Millimetre, Centimetre, Nanometre****Ans : Kilogram**

4. What is the SI Unit of mass?

Kilogram

5. What are the two parts present in a measurement

1. Number 2. Unit

X. Answer in a sentence or two.**1. Define measurement.**

The comparison of an unknown quantity with some known quantity is known as measurement.

2. Define mass.

Mass is the measure of the amount of matter in an object.

3. The distance between two places is 43.65 km. Convert it into metre and cm.

The distance between two places is 43.65 km.

a) Converting into metre :

1 kilometre = 1000 metre

∴ 43.65 kilometre = 43.65×1000

= 43,650 metre

b) Converting into centimetre:

1 metre = 100 centimetre

43650 metre = 43650×100

= 43,65,000 centimetre

4. What are the rules to be followed to make accurate measurement with scale?

1. An object should be placed parallel to the scale.

2. To avoid parallax error our eye must be vertically above the point, where the measurement has to be taken.

3. The head of the measuring object has to coincide with 'o' of the scale.

4. The measurement has to measure from 'o'.

5. Count the number of centimetre and from there count the number of finer divisions. The count of the division is 'mm'.

XI. Solve the following

1. The distance between your school and your house is 2250 m. Express this distance in kilometre.

Solution :

The distance between school and house = 2250m

1000 metre = 1 kilometre

$$= \frac{2250}{1000} = \frac{225}{100} = 2.25$$

2250 metre = 2.25 kilometre

2. While measuring the length of a sharpened pencil, reading of the scale at one end is 2.0 cm and at the other end is 12.1 cm. What is the length of the pencil?

Solution :

Reading of the scale at one end of pencil = 2.0cm

Reading of the scale at the other end of pencil = 12.1cm

Length of the pencil = 12.1 - 2.0 = 10.1

Length of the pencil = 10.1cm

XII. Write in detail

1. Explain two methods those you can use to measure the length of a curved line.

Two Methods of measuring Length of a curved line :

i) First Method :

Find the length of a curved line using a string :

Materials needed : A meter scale, a measuring tape, a string and a sketch pen.

Method:

- Draw a curved line AB on a piece of paper
 - Place a string along the curved line. Make sure that the string covers every bit of the curved line.
 - Mark the points where the curved line begins and ends on the string.
 - Now, stretch the string along the length of a meter scale and measure the distance between the two markings of the string. Note it.
 - This will give you the length of a curved line.
-

ii) Second Method :

Measuring the length of a curved line using a divider :

- Draw a curved line AB on a piece of paper
- Separate the legs of the divider by 0.5 cm or 1 cm using a ruler.
- Place it on the curved line starting from one end.
- Mark the position of the other end.
- Move it along the line again and again cutting the line into number of segments of equal lengths.
- The remaining parts of the line can be measured using a scale.
- Count the number of segments
- Therefore, the length of the line = (number of segments × length of each segment) + length of the left over part.

2. Fill in the following chart.

| Property | Definition | Basic Unit | Instrument used for measuring |
|----------|------------|------------|-------------------------------|
| Length | | | |
| Mass | | | |
| Volume | | | |
| Time | | | |

| Property | Definition | Basic Unit | Instrument used for measuring |
|----------|--------------------------------------------------------------------------------|------------|-------------------------------|
| Length | The distance between one point and the other desired point is called as length | metre | measuring tape, metre scale |

SELECTION 6 SCIENCE**10****TERM -I**

| Property | Definition | Basic unit | Instrument used of measuring |
|----------|-----------------------------------------------------------|------------|----------------------------------|
| Mass | Mass is the measure of the amount of matter in an object. | kilogram | Beam balance, Electronic balance |
| Volume | The space occupied by an object is called volume | Litre | Measuring Jar Pipette |
| Time | Time is the interval between two events | Second | Clock |

Think : Can you convert 1 km in terms of cm ?

1 km = _____ cm

Ans : 1,00,000 cm**Explanation :****1km = 1000m****1m = 100cm**
1000m = 1000 x 100
= 1,00,000cm
Numerical Problems :

Look at a meter scale carefully and answer the following:

How many mm are there in a cm?

Ans : 10mm

How many cm are there in a m?

Ans : 100cm**Complete the following:**7875 cm = 78 m 75 cm

→

100cm = 1m1195 m = 1 km 195 m

→

1km = 1000m15 cm 10 mm = 160 mm

→

1cm = 10mm45 km 33 m = 45033 m.

→

1km = 1000m

Additional Questions & Answers**I. Choose the best answer.****1. SI unit of Mass**

- a) metre b) kilogram c) ampere d) candela

Ans : b) kilogram**2. 1000 millimetre is**

- a) 10 metre b) 100 metre c) 1000 metre d) 1 metre

Ans : d) 1 metre**3. 1 Kilometre is**

- a) 1 mm³ b) 10³m c) 1mm² d) 1cm³

Ans : b) 10³m**4. is used to count even smaller durations of time.**

- a) sun dial b) sand clock
c) electronic clock d) water clock

Ans : c) electronic clock**II. Fill in the blanks.**

1. SI unit of area

Ans : m²

2. A scale was invented by a

Ans : William Bedwell

3. The formula to find area

Ans : length x breadth

4. Celcius and Fahrenheit are the units of

Ans : temperature

5. 1000 gram is

Ans : 1 kilogram**III. Match the following.**

- | | | |
|------------|---|------------------------|
| 1. Kelvin | - | a) Amount of substance |
| 2. metre | - | b) Temperature |
| 3. ampere | - | c) Intensity of light |
| 4. mole | - | d) Distance |
| 5. Candela | - | e) Current |

Ans :

- | | | |
|------------|---|------------------------|
| 1. Kelvin | - | b) Temperature |
| 2. metre | - | d) Distance |
| 3. ampere | - | e) Current |
| 4. mole | - | a) Amount of substance |
| 5. Candela | - | c) Intensity of light |

IV. Answer in one or two lines :**1. What are the devices are used to measure the volume of a liquid ?**

Pipettes, Burettes, Measuring jar, Beaker, Conical Flask.

2. Why helium balloons fly at high ?

Weight of helium is lesser than the weight of air. So helium gas filled balloon flying at high.

3. What is weight ?

Weight is the gravitational pull experienced by matter.

4. What are the devices are used to measure the weight ?

Beam balance, Electronic balance, Weight gauge.

5. How can we measure time ?

We can use our pulse to measure 'rough' time.



6. What is odometer ?

An odometer is a device used for indicating distance travelled by an automobile.

7. What is Light Year ?

Light year is the distance travelled by light in one year.

In the given activity, measure the quantities using suitable measuring units and express them with suitable multiple and submultiples.

| Picture | Activity | Measuring Unit m/kg/s | Multiple / Submultiple |
|-------------------------------------------------------------------------------------|----------------------------------|--------------------------|---------------------------|
|  | Length of tip of pencil | metre | millimetre |
|  | Length of the pen | metre | centimetre |

SELECTION 6 SCIENCE**13****TERM -I**

| Picture | Activity | Measuring Unit m/kg/s | Multiple / Submultiple |
|-----------------------------------------------------------------------------------|--------------------------------|----------------------------------|-----------------------------------|
|  | Distance between two cities | metre | kilometre |
|  | Mass of dry fruits in table | kilogram | gram |
|  | Mass of ornaments | kilogram | milligram |
|  | Time taken to finish 100m race | seconds | minutes |

Activity : 1**Height measured by handspan and cubit.**

| Student 1 | Student 2 | Student 3 | Student 4 | Student 5 |
|------------------|------------------|------------------|------------------|------------------|
| 12 hand span | 10 hand span | 11 hand span | 8 hand span | 9 hand span |

Height measured by Scale

| Student 1 | Student 2 | Student 3 | Student 4 | Student 5 |
|------------------|------------------|------------------|------------------|------------------|
| 122cm | 105 cm | 110 cm | 83 cm | 95cm |

Activity : 2**Find the length of the banana.****Materials needed :** Banana, metre scale, measuring tape, string, and pen**Procedure :**

- ★ Place the string on the banana.
- ★ Make sure that the string covers every bit of the banana.
- ★ Mark the points where the banana begins and ends on the string.
- ★ Now, stretch the string along the length of a meterscale and measure the distance between the two markings of the string, note it.
- ★ This will give the length of banana.

**Find the length of a banana.**

Activity : 3

Construct your own beam balance using two scrapped coconut shells, strings or twines thick cardboard as frame and a little sharpened pencil as index needle.

What can you achieve?**1. Find which object is heavier**

Sharpener, Eraser

**2. Find approximate weight of lighter things
(Examples : leaves, piece of papers, etc)**Leaves, Piece of Papers

SELECTION

SIXTH STANDARD

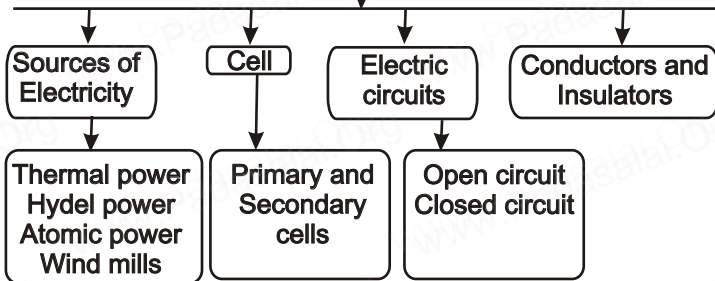
⑥ SCIENCE

TERM - II

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
Unit - 2. Electricity**Mindmap****Electricity****Evaluation****I. Choose the correct answer.****1. The device which converts chemical energy into electrical energy is _____**

- a) fan b) solar cell
c) cell d) television


Ans : c) cell**2. Electricity is produced in _____**

- a) transformer b) power station
c) electric wire d) television



Ans : b) power station**3. Choose the symbol for battery**

- a) 
c) 
Open

- b) 
d) _____

Ans : a) **4. In which among the following circuits does the bulb glow?**

- a) 
b) 

- c) 
d) 

Ans : d) 

SELECTION 6 SCIENCE**86****TERM -II****5. _____ is a good conductor**

- a) silver b) wood
c) rubber d) plastic

Ans : a) Silver**II. Fill in the blanks**

1. _____ are the materials which allow electric current to pass through them. **Ans : Conductors**

2. Flow of electricity through a closed circuit is _____

Ans : current

3. _____ is the device used to close or open an electric circuit.

Ans : Switch

4. The long perpendicular line in the electrical symbol represents its _____ terminal. **Ans : positive**

5. The combination of two or more cells is called a _____.

Ans : battery**III. True or False. If False, give the correct statement**

1. In a parallel circuit, the electricity has more than one path.

Ans : True

2. To make a battery of two cells, the negative terminal of one cell is connected to the negative terminal of the other cell.

Ans : False

Correct statement : To make a battery of two cells, the **positive** terminal of one cell is connected to the negative terminal of the other cell.

3. The switch is used to close or open an electric circuit.

Ans : True

4. Pure water is a good conductor of electricity.

Ans : False

Correct statement : **Impure** water is a good conductor of electricity.

5. Secondary cell can be used only once.

Ans : False

Correct statement : **Primary** cell can be used only once.

(or) Secondary cell can be used **many times**.

SELECTION 6 SCIENCE

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TERM -II

IV. Match the following.

| Sl.No. | Symbol | Description |
|--------|--------|-----------------------|
| 1 | | a) open key |
| 2 | | b) cell |
| 3 | | c) bulb glows |
| 4 | | d) battery |
| 5 | | e) bulb does not glow |

Ans :

| Sl.No. | Symbol | Description |
|--------|--------|-----------------------|
| 1 | | d) battery |
| 2 | | e) bulb does not glow |
| 3 | | a) open key |
| 4 | | c) bulb glows |
| 5 | | b) cell |

V. Arrange in sequence

A Cell

A Device

Electrical Energy

Is Called

In To

Chemical Energy

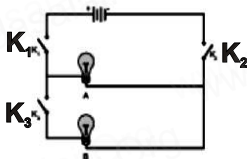
That Converts

Ans :

A device that converts chemical energy into electrical energy is called a cell.

VI. Give very short answer

1. In the given circuit diagram, which of the given switch(s) should be closed. So that only the bulb A glows.



Ans : K_1 and K_2 switches should be closed.

SELECTION 6 SCIENCE

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TERM -II

2. Assertion (A) : It is very easy for our body to receive electric shock.

Reason (R) : Human body is a good conductor of electricity.

- a) Both A and R are correct and R is the correct explanation for A.
 b) A is correct, but R is not the correct explanation for A.
 c) A is wrong but R is correct.
 d) Both A and R are correct and R is not the correct explanation for A.

Ans : a) Both A and R are correct and R is the correct explanation for A.

3. Can you produce electricity from lemon?

Ans : When copper and zinc plates are inserted into the lemon and connected using wire, electricity can be produced.

4. Identify the conductor from the following figures.

Ans : Iron chain



5. What type of circuit is there in a torch light?

Ans : A torch light has a simple circuit which is connected in series.

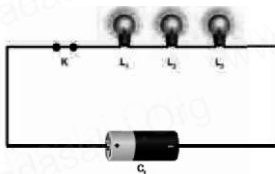
6. Circle the odd one out. Give reason for your choice. Switch, Bulb, Battery, Generator.

Ans : Generator

Reason : Generator is the device used to produce electricity. Others are used to make simple circuit.

VII. Give short answer

1. Draw the circuit diagram for series connection.



2. Can the cell used in the clock gives us an electric shock? Justify your answer.

Ans : No, it cannot give electric shock because the cell used in the clock converts chemical energy into electrical energy. It is a primary cell from which we can produce minimum current. Which is not sufficient to produce electric shock.

3. Silver is a good conductor but it is not preferred for making electric wires. Why?

Ans : Silver is not preferred for making electric wires because it is very expensive.

VIII. Answer in detail**1. What is the source of electricity? Explain the various power stations in India?**

Ans : Any device from which electricity is produced is called the source of electricity.

1. Thermal Power stations

★ In thermal power stations, the thermal energy generated by burning coal, diesel or gas is used to produce steam.

★ The steam thus produced is used to rotate the turbine. While the turbine rotates, the coil of wire kept between the electromagnet rotates.

★ Due to electro magnetic induction electricity is produced. Here heat energy is converted into electrical energy.

2. Hydel power stations

★ In hydel power stations, the turbine is made to rotate by the flow of water from dams to produce electricity.

★ Here kinetic energy is converted into electrical energy.

★ Hydel stations have long economic lives and low operating cost.

3. Atomic power stations

★ In atomic power stations, nuclear energy is used to boil water.

★ The steam thus produced is used to rotate the turbine.

★ As a result, electricity is produced. Atomic power stations are also called as nuclear power stations.

★ Here nuclear energy is converted into mechanical energy and then electrical energy.

4. Wind mills

★ In wind mills, wind energy is used to rotate the turbine to produce electricity.















★ Here kinetic energy is converted into electrical energy.

SELECTION 6 SCIENCE

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TERM -II

2. Tabulate the different components of an electric circuit and their respective symbols.

| Sl.no. | Electric component | Figure | Symbol | Remarks |
|--------|--------------------|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| 1 | Electric cell |  Cell |  | Longer terminal refers positive and shorter terminal refers negative. |
| 2 | Battery |  Battery |  | Two or more cells connected in series |
| 3 | Switch-open |  OFF ON |  Open | Switch is in off position |
| 4 | Switch-closed |  OFF ON |  Closed | Switch is in on position |
| | |  |  | The bulb does not glow |
| 5 | Electric bulb |  |  | The bulb glows |
| 6 | Connecting wires |  |  | Used to connect devices. |

3. Write short notes on conductors and insulators.

| S.No. | Conductors | Insulators (Non-Conductors) |
|-------|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| | The materials which allow electric charges to pass through them are called conductors. | The materials which do not allow electric charges to pass through them are called insulators or non-conductors. |
| | Examples: Copper, iron, aluminum, impure water, earth etc., | Examples: plastic, glass, wood, rubber, china clay, ebonite etc., |

IX. Question based on Higher Order Thinking Skills

1. Rahul wants to make an electric circuit. He has a bulb, two wires, a safety pin and a piece of copper. He does not have any electric cell or battery. Suddenly he gets some idea. He uses a lemon instead of a battery and makes a circuit. Will the bulb glow?

Ans : Yes, the bulb will glow. When the safety pin and a piece of copper is inserted in the lemon and connected in series connection with wires.

The positive terminal of the electric bulb should be connected to a piece of copper and the negative terminal to the safety pin. So that the bulb glows.

X. Search ten words in the given word grid and classify them as conductors and insulators

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| A | G | H | R | N | A | E | J | U | R |
| R | H | A | E | A | R | T | H | M | A |
| E | R | S | S | A | L | G | U | M | Q |
| T | P | L | A | S | T | I | C | N | T |
| A | T | I | R | O | N | A | A | O | N |
| W | J | A | E | I | W | O | O | D | T |
| A | B | D | M | C | O | P | P | E | R |
| E | R | U | B | B | E | R | M | P | T |
| S | L | R | H | E | S | S | A | I | I |
| A | T | N | A | S | B | H | N | L | R |

| S.No. | Conductors | Insulators |
|-------|-------------|------------|
| 1. | ★ Copper | ★ Rubber |
| 2. | ★ Earth | ★ Wood |
| 3. | ★ Aluminium | ★ Glass |
| 4. | ★ Iron | ★ Eraser |
| 5. | ★ Sea water | ★ Plastic |

Additional Questions & Answers**I. Choose the best answer.**

1. In Tamilnadu the thermal station is situated at _____

a) Neyveli

b) Papanasam

c) Kalpakkam

d) Aralvaimozhi **Ans : a) Neyveli**

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2. Mettur hydel power station is situated in _____ district of Tamilnadu.

- a) Cuddalore b) Salem
c) Madurai d) Dindigul **Ans : b) Salem**

3. Koodankulam atomic power station is situated in _____ district of Tamilnadu.

- a) Kanchipuram b) Theni
c) Thiruvallur d) Tirunelveli **Ans : d) Tirunelveli**

4. Windmills are more prevalent at _____ in Kanyakumari district.

- a) Papanasam b) Kalpakkam
c) Kayatharu d) Aralvaimozhi
Ans : d) Aralvaimozhi

5. Which of the following is a conductor?

- a) Plastic b) Wood
c) Copper d) Match stick **Ans : c) Copper**

6. An example for insulator is _____

- a) Iron b) Sea water
c) Earth d) Rubber **Ans : d) Rubber**

7. _____ is a kind of fish which is able to produce electric current.

- a) Kendai b) Eel
c) Keluthi d) Iraal **Ans : b) Eel**

II. Fill in the blanks.

1. In thermal power station energy is converted into electrical energy. **Ans : heat**

2. In hydel power station energy is converted into electrical energy. **Ans : kinetic**

3. In watches the are used. **Ans : primary cells**

4. are used in mobiles **Ans : Secondary cells**

5. Experiments should not be performed with.....
Ans : house hold electricity

6. invented electric bulb
Ans : Thomas Alva Edison

III. Answer briefly.

1. What is a battery?

Ans : A battery is a collection of cells.

2. What is ammeter?

Ans : Ammeter is an instrument used in electric circuits to find the quantity of current flowing through the circuit.

3. What is an electric circuit?

Ans : An electric circuit is the continuous or unbroken closed path along which electric current flows from the positive terminal to the negative terminal of the battery.

4. Name the types of electric circuit?

Ans : (i) Simple circuit
(ii) Series circuit
(iii) Parallel circuit.

Activity 1:

List out the electrical appliances used in your home.

Ans :

- ★ Tube light
- ★ Fan
- ★ Mixer grinder
- ★ Refrigerator
- ★ Water heater
- ★ Electric stove

Activity 2:

From the following pictures, identify those use primary cell and secondary cell. Mark Primary cell as 'P' Secondary cell as 'S'.

P



S



P



S



S



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Activity 3:

Take a dry cell used in a flashlight or clock. Read the label and note the following 1. Where is the '+' and '-' symbol? 2. What is the output voltage? Look at the cells that you come across and note down the symbols and voltage.

Ans :

1)



(+ve) Positive terminal

(-ve) Negative terminal

2) 1.5v

Activity 4:

Connect the objects given in the table between A and B and write whether the bulb glows or not.



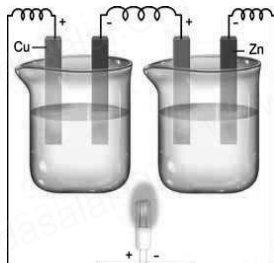
| S.I. No. | Objects | Materials of the objects | Glow or not glow |
|----------|--------------|--------------------------|------------------|
| 1. | Pin | Conductor | Glow |
| 2. | Match stick | Insulator | Not glow |
| 3. | Safety pin | Conductor | Glow |
| 4. | Pencil | Insulator | Not glow |
| 5. | Metal spoon | Conductor | Glow |
| 6. | Rubber | Insulator | Not glow |
| 7. | Pen | Insulator | Not glow |
| 8. | Wooden scale | Insulator | Not glow |
| 9. | Hairpin | Conductor | Glow |
| 10. | Glass | Insulator | Not glow |

Activity 5:

Produce electricity using copper plates, zinc plate, connecting wires, key, beaker and porridge (rice water) [the older the porridge the better will be the current]

Arrange copper and zinc plates in series as shown in the figure. Half fill two beakers with porridge. Connect the copper plate with the positive of and LED bulb and zinc to the negative. Observe what happens.

Now you can replace porridge with curd, potato, lemon etc.

**Ans:**

The bulb glows

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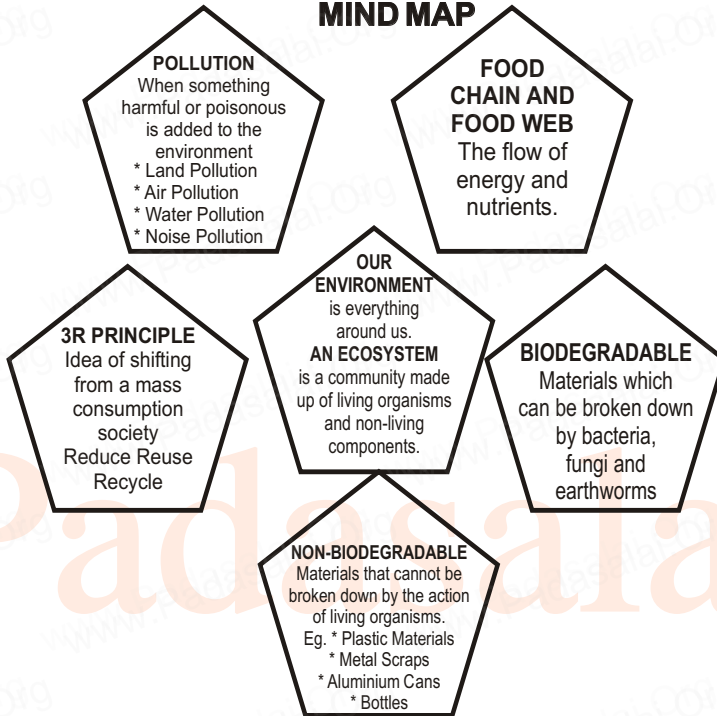
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UNIT - 4 Our Environment**MIND MAP****Evaluation****I. Choose the appropriate answer****1. Identify the fresh water ecosystem.**

- a) Pond b) Lake
c) River d) All of them

Ans : d) All of them**2. Producers are.....**

- a) Animals b) Birds
c) Plants d) Snakes

Ans : c) Plants**3. It is a biodegradable waste.**

- a) Plastic b) Coconut Shell
c) Glass d) Aluminium

Ans : b) Coconut Shell

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4. It is an undesirable change that occurs in air and water.

- a) Recycling b) Reuse
c) Pollution d) Reduce

Ans : c) Pollution**5. Usage of chemical pesticides and fertilizers causes.....pollution.**

- a) Air Pollution b) Water Pollution
c) Noise Pollution d) None of the above

Ans : b) Water Pollution

II. Fill in the blanks**1. Primary consumers that eat plants are called.....****Ans : Herbivores****2. Temperature, light and wind are.....factors.****Ans : abiotic****3.....is the process of converting waste materials into new materials.****Ans : Recycling****4. Water pollution can spread.....and chemicals.****Ans : diseases****5. The 3R's are Reduce,.....and Recycle.****Ans : Reuse**

III. True or False. If False, give the correct statement**1. The Pacific ocean is an example of an aquatic ecosystem.****Ans : True****2. Bacteria and fungi are called decomposers.****Ans : True****3. Human and animal wastes are examples of non-biodegradable waste.****Ans : False****Correct Statement :** Human and animal wastes are examples of bio degradable waste.**4. Excessive use of pesticides leads to air pollution.****Ans : False****Correct Statement :** Excessive use of pesticides leads to land and water pollution.**5. In schools, waste management rules say that we should separate waste in two categories.****Ans : False****Correct Statement :** In schools, waste management rules say that we should separate waste in three categories.

IV. Match the following

| | | |
|------------------|---|-----------------------|
| 1. Biotic factor | - | Terrestrial Ecosystem |
| 2. Sewage | - | Land pollution |
| 3. Fertilizers | - | Air pollution |
| 4. Desert | - | Water pollution |
| 5. Smoke | - | Animals |

Answer :-

| | | |
|------------------|---|-----------------------|
| 1. Biotic factor | - | Animals |
| 2. Sewage | - | Water pollution |
| 3. Fertilizers | - | Land pollution |
| 4. Desert | - | Terrestrial Ecosystem |
| 5. Smoke | - | Air pollution |

V. Arrange the following in a correct sequence and form a food chain

1. Rabbit → Carrot → Eagle → Snake

Ans :-

Carrot → Rabbit → Snake → Eagle

2. Human → Insect → Algae → Fish

Ans :-

Algae → Insect → Fish → Human

VI. Give very short answer**1. Define ecosystem.**

★ Eco system is a community of living and non-living things that work together.

2. What are the two types of ecosystems ?

1. Natural ecosystem
2. Artificial ecosystem

3. Write any two things that can be recycled.

- ★ Clothes
- ★ Plastics

4. What are the types of pollution.**Types of pollution :**

1. Air pollution
 2. Water pollution
 3. Land (soil) pollution
 4. Noise pollution.
-

5. Give one example of a food chain in an aquatic ecosystem ?

Aquatic plants (Producer) → Aquatic Insect Larva (Primary Consumer) → (Secondary Consumer) → Fish (Tertiary Consumer)

6. Name some pollutants.

Pollutants → Fossil fuels, Solid waste, Sewage, Industrial effluents, Pesticides, Fertilizers.

7. What are the pollutions caused by the objects given below ?

- a. Loud Speaker b. Plastic

Pollutions Caused by**a) Loud Speaker :**

Noise pollution, Loud sounds, High blood pressure, Stress, hearing loss.

b) Pollutions caused by Plastic :

Air pollution, affects skin, eyes and respiratory system.

VII. Give short answer.**1. What is biodegradable waste ?**

Biodegradable waste are those things that can be easily decomposed by natural agents like water, oxygen, ultra violet rays of the sun, Micro organisms etc.

Eg :

- ★ Vegetable and fruit peels
 - ★ Left over food
 - ★ Garden waste
-

2. How can we reduce water pollution ?**Measures to prevent water pollution :**

1. Do not pour leftover oil, old medicines or waste down the drain or into the toilet.
 2. Reduce the use of chemical pesticides and fertilizers to grow crops.
 3. Use waste water for garden in home.
 4. Do not litter or dump waste - always use a waste bin.
-

3. Write the importance of the food chain.**Importance of food chain :**

1. Learning food chain help us to understand the feeding relationship and interaction between organisms in any ecosystem.
 2. Understanding the food chain also helps us to appreciate the energy flow and nutrient circulation in an ecosystem. This is important because pollution impacts the ecosystem.
 3. The food chain can be used to understand the movement of toxic substances and their impacts
-

VIII. Answer in detail**1. Give two examples of how you can avoid or reduce waste ?**

- ★ We can reduce the waste by using durable goods that last longer instead of things that are used once and thrown away.
 - (e.g) Write on both sides of papers.
 - ★ Instead of unnecessary printing, use electronic facilities.
 - ★ Share newspaper, magazines and other things with others.
-

2. Write a short note on noise pollution.

- ★ Noise pollution affects the environment. We all like a quiet and peaceful place since unpleasant or loud sounds disturb us.
- ★ Loud music, the sounds of motor vehicles, fire works and machines cause noise pollution.
- ★ Continuous noise disturbs our sleep and does not let us to study.
- ★ Noise pollution has been directly linked to stress and health impacts such as high blood pressure and hearing loss.
- ★ Even underwater noise pollution from ships, can make whales lose their way as they use sounds to navigate.

Ways to reduce noise pollution :-

1. Turn off your electronics when you do not use them.
 2. Lower the volume when you watch TV or listen to music.
 3. Remind drivers not to use the horn too much.
 4. Avoid fireworks.
 5. Speak, do not shout (try to set an example)
-

IX. Question based on Higher Order Thinking skills**1. What would happen if an organism is removed from the food chain?**

If an organism is removed from the food chain, energy flow and nutrient circulation in an ecosystem, will be affected.

2. Explain the link between waste and dangerous diseases like dengue and malaria ?

- ★ Dumping of garbage and stagnation of water pools, let mosquitoes to breed.
- ★ They can spread unwanted diseases like dengue and malaria.

X. See the diagram and answer the following questions.**1) Explain what is happening in the picture ?**

★ Fires in the open dump, burns the unhealthy chemicals and pollute the ecosystem.

★ These chemicals are present in the air we breathe.

★ The left over ash from burning waste pollutes the soil.

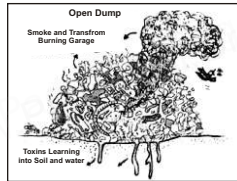
★ When it rains, some of the dangerous chemicals goes into the ground.

2) What types of pollution are caused by open dumps ?**1. Environmental pollution :**

* Air pollution
pollution

* Land pollution

* Water

**Additional Questions & Answers****I. Choose the best answer :-****1.....produce their own food**

- a) Carnivores b) Producers
c) Herbivores d) Consumers **Ans : b) Producers**

2. In India an average person produces.....waste per day

- a) 0.45 kg b) 1.45 kg c) 4.5kg d) 0.145 kg
Ans : a) 0.45kg

3.is important to create pollution free environment.

- a) 2R b) 1R c) 3R d) None of the above
Ans : c) 3R

II. Fill in the blanks :

1. Producers are also called as.....**Ans : autotrophs**

2.....inter connects all food chains. **Ans : Food web**

3. The process converting waste materials into better quality product is..... **Ans : Creative reuse / upcycling**

4. India produces.....of solid waste every day.

Ans : 532 million / kilos

III. Answer the following :**1. Differentiate Aquarium and Terrarium**

| Aquarium | Terrarium |
|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| Aquarium is a place in which fish and other water creatures and plants are maintained. | Terrarium is a place in which live terrestrial animals and plants are kept. |
| An aquarium can be a small tank, or a large building with one or more large tanks. | Plants and animals are kept in a terrarium with controlled conditions that copy their natural environment. |

2. Differentiate Herbivores and Carnivores

| Herbivores | Carnivores |
|------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| Animals which eat plants or plant products . e.g : cattle, deer, goat and rat. | Animals that eat other animals . e.g : lion, tiger, frog and owl. |

3. Write a short note on food web.

If we put all the food chains within an ecosystem together, then we end up with many interconnected food chains. This is called a food web.

4. What are the principles of 3R ?

- * Reduce
- * Reuse
- * Recycle

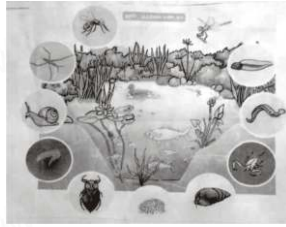
5. Give examples for Domestic hazardous waste .

Domestic hazardous waste means discarded paint drums, pesticide cans, CFL bulbs, tube lights, expired medicines, broken mercury thermometers, used batteries, used needles and syringes and contaminated gauge, etc., generated at the household level.

6. What are the types of waste ?

- * Liquid waste (in our drains)
- * Gases in air (Pollutants from factories)
- * Solid waste (Garbage)

Activity 1 : Think of the objects in your home. Just keep in mind, the books, toys, furniture, food materials and even pets of your home. These living and non-living things together make your home. Look at the following picture and list out the living and non-living things.



| Living things | Non - Living things |
|----------------------------------------------------------------------|----------------------------------------|
| Lotus plant , Fish, Duck, Mosquito, Leech, Snail, Larva, Frog. | Stones, Water, Soil, Air, Sunlight. |

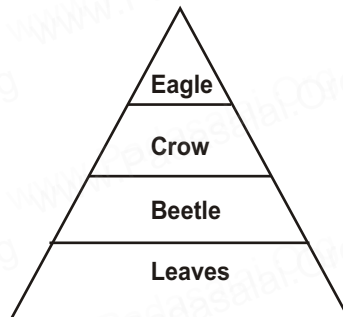
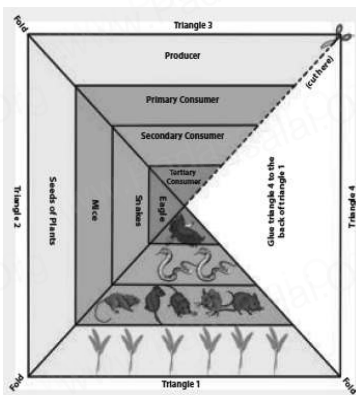
Activity 2 :Take a square paper. Fold its diagonals. Draw three lines in three triangles as shown in the picture.

Cut from the edge of the diagonal to the center as shown in the picture.

If you fold this triangle and paste behind the third triangle you get a pyramidal shape.

In one of the triangles, draw images of each of the organisms in the different levels.

In another triangle write the names of the organisms. In the last triangle, write the energy level of the organism. Have a look at the following example. You must come up with different organisms!.



Activity : 3

Take two mud pots or glass jars and fill them up with garden soil. In the first pot, mix wastes such as banana peel, some vegetable peels and a few tree leaves into the soil. In the second pot, mix a piece of plastic carry bag, sweet wrapper and metal foil into the soil.

**What happen to the waste materials placed in both pots ?
Do you notice a difference between first and second pot ?
Observe the changes over two weeks and discuss with your classmates.**

* In the first pot of the materials is biodegradable waste.

* In the second pot of the materials is non-biodegradable waste.

* In the first pot contains decomposed materials, and the second pot contains non decomposed materials.

Give some examples for Biodegradable and Non - biodegradable waste.

| S. No. | Biodegradable waste | Non - biodegradable waste |
|--------|---------------------|---------------------------|
| 1. | Food Waste | Plastic Bottles |
| 2. | Leaves | Plastic covers |
| 3. | Grass | Metals |
| 4. | Vegetables | Aluminium Cans |
| 5. | Banana Peels | Glass Bottles |

Discuss with your teacher and friends.

1. Are animal bones biodegradable ?

Yes, Biodegradable

2. Are all types of clothes biodegradable ?

No, Not biodegradable

Activity 4 : Preparation of vermi compost

Dig a pit for about one feet depth in the backyard or garden of your home or school. Fill the pit by bio wastes, paper and food wastes, place few earth worms in it, sprinkle water and close the place with jute or cardboard and ensure moisture all the time.



After 45 days the vermi casting layer formed just above the pit. These castings will be applied to the plant. This contains water soluble nutrients. This type of compost helps in plant growth as well as sustain the land is fertility.

Classroom Exercise : Identify who am I ?

1. I am the type of pollution caused by burning of fossil fuels like petrol or coal and the smoke of burning garbage. I float around and cause breathing problems. I am.....pollution. **Ans : Air Pollution**

2. I am the type of pollution caused by loud sounds and I can cause serious damage to your ears and also affect sleep. In India, I am mainly caused by loudspeakers and honking of air horns of cars. I ampollution.

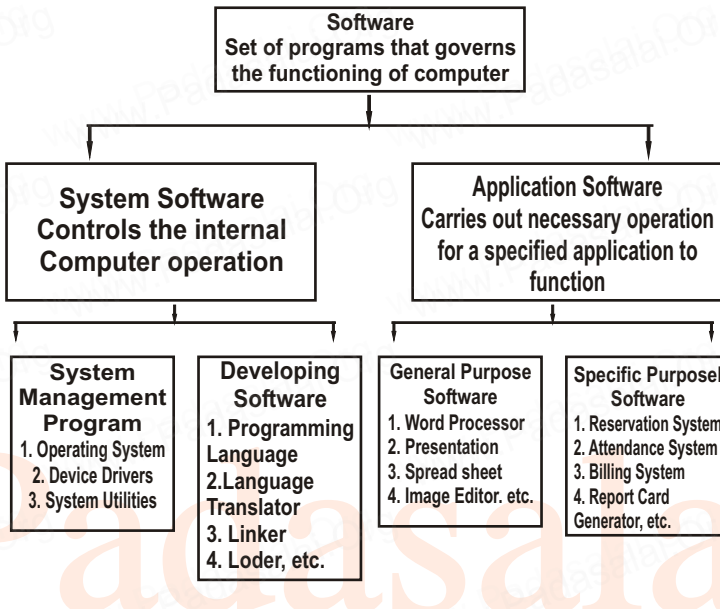
Ans : Noise Pollution

3. I flow from homes and farms into rivers and lakes. I kill fish and make water unfit for drinking. I am.....pollution. **Ans : Water Pollution**

4. I am the type of pollution caused by using too much chemical fertilizers and pesticides by farmers. I lower the quality of soil and even move chemicals into plant parts which are eaten by people.

I am.....pollution.
pollution.

Ans : Land

UNIT - 6 Hardware and Software**MIND MAP****Evaluation****I. Choose the correct answer****1. Find out the part that is not found in CPU ?**

- a) Mother Board
- b) SMPS
- c) RAM
- d) Mouse

Ans : d) Mouse**2. Which of the following is correct ?**

- a) Free and open source
- b) Free and Traditional Software
- c) Passive and open source
- d) Passive and Traditional source

Ans : a) Free and open source**3. LINUX is a**

- a) Paid Software
- b) Licensed Software
- c) Free and Proprietary Software
- d) Free and Open source software

Ans : d) Free and open source software

4. Find out Paid and Proprietary software from the given list

- a) Windows b) MAC OS
c) Adobe Photoshop d) All the above

Ans : d) All the above**5.....is a Operating System**

- a) Android b) Chrome
c) Internet d) Pendrive

Ans : a) Android**II. Match the following**

| | | |
|-------------|---|-------------------------------|
| 1. MAC OS | - | Free and Open source Software |
| 2. Software | - | Paid and Proprietary Software |
| 3. Hardware | - | Input Device |
| 4. Keyboard | - | RAM |
| 5. LINUX | - | Geogebra |

Answer :-

| | | |
|-------------|---|-------------------------------|
| 1. MAC OS | - | Paid and Proprietary Software |
| 2. Software | - | Geogebra |
| 3. Hardware | - | RAM |
| 4. Keyboard | - | Input Device |
| 5. LINUX | - | Free and Open source Software |

III. Short answer**1. What is Hardware and Software ?****Hardware :**

★ Hardware is the parts of the computer which we can touch and feel.

★ Hardware includes Input and Output devices, Cabinet, Hard Disk, Mother Board, SMPS, CPU, RAM, CD Drive and Graphics Card.

Software :

★ Hardware is lifeless without software in a computer.

★ Software are programmed and coded applications to process the input information.

★ The Software processes the data by converting the input information into coding or programmed language.

★ Touching and feeling the software is not possible but we can see the functions of the software in the form of output.

2) What do you mean by Operating System? How it Works? System Software :

★ System Software (Operating system) is software that makes the hardware devices process the data inputted by the user and to display the result on the output devices like Monitor.

★ Without the operating system, computer cannot function on its own.

★ Some of the popular operating system are Linux, Windows, Mac, Android etc.

3) What is Free and Open Source Software? Give any two examples?**Free and Open source :**

★ Free and open software is available at free of cost and can be shared to many end users. Free software is editable and customizable by the user and this leads to updation or development of new software.

★ Examples of Free and Open source software, LINUX, Open office, Operating System, Geogebra etc.

| |
|-------------------------------------------|
| Additional Questions & Answers |
|-------------------------------------------|

I. Short Answers :**1. What are the types of system and application software ?****System And Application Software types**

The operating system and application software are available in two forms. They are :

1. Free and Open source
 2. Paid and Proprietary Software
-

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