Activity No: 01

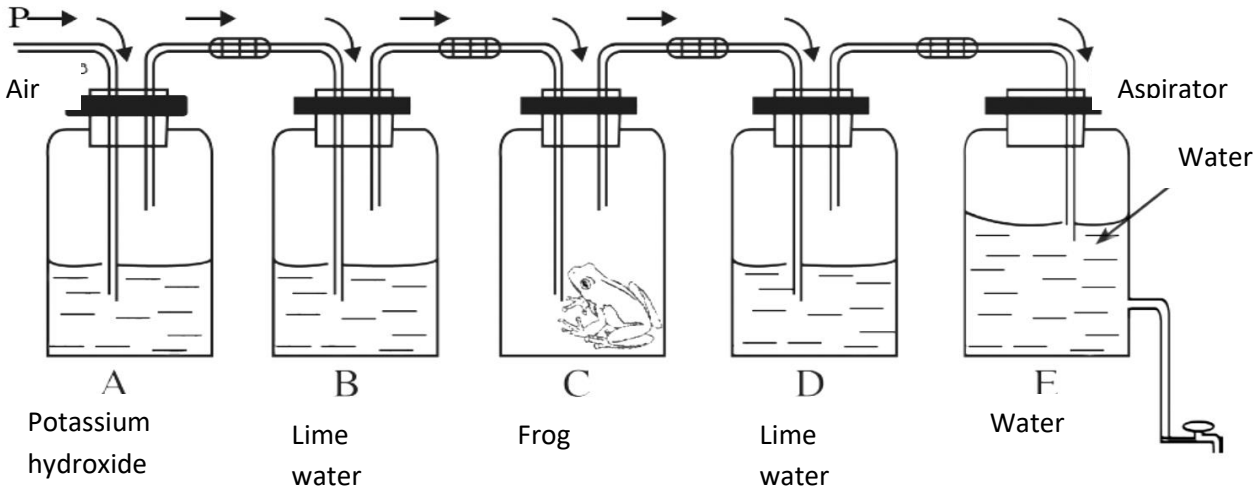
- Put the 2ml of starch solution in to the test tube.
- Add 2ml of amylase enzyme solution into it.
- Mix the solution with shaking the test tube.
- Put the drop of iodine on to it.
- Do the experiment within the time intervals given below.
    1. Report the observation.

Time		Observations
1	After 2 minutes	
2	After 4 minutes	
3	After 6 minutes	
4	After 8 minutes	
5	After 10 minutes	

2. What is reason for above observation 1 and observation 5?
3. What is the role of enzymes, when occurring the biological reactions?
4. What is the end product of above reaction?

Activity No: 02

- The apparatus is prepared for identify the one product, during the respiration.



1. What is the respiratory product, which can be identified by above apparatus?

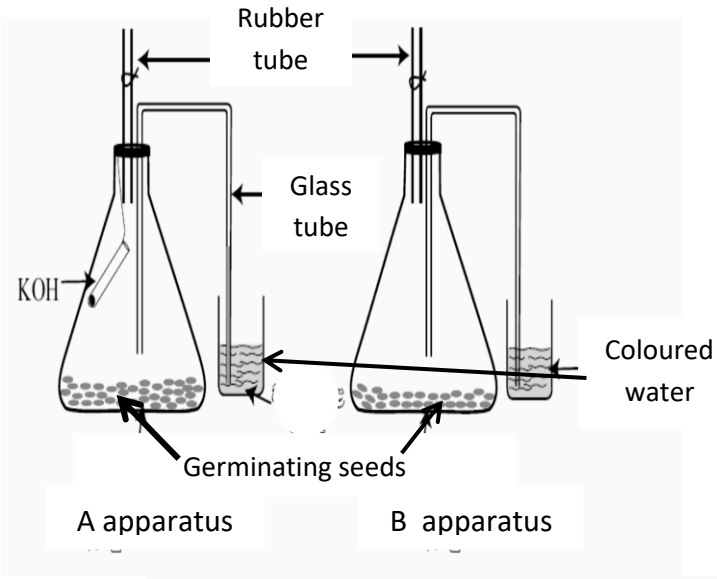
2. Complete the table relevant to above apparatus.

Vessel	Ingredients	Reasons of use
A		
B		
C		

3. What is the role of E vessel?
4. Name another living organism that can be used to c vessel.
5. What are the observations can be seen in B and D?
6. Explain the reason for those observations?
7. What is cellular respiration?
8. Write the word equation and balanced equation which related to the cellular respiration?

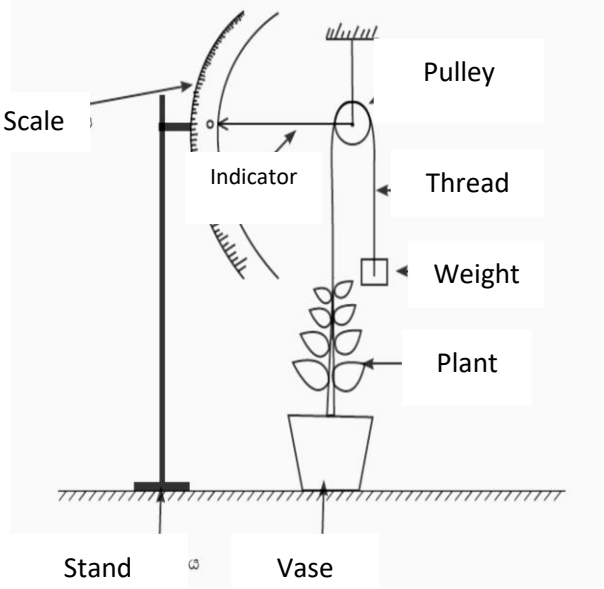
Activity No: 03

- The apparatus is prepared for represent the absorption of oxygen in respiration.
    1. What is role of rubber tubes?
    2. What are the observations occurred in A and B?
    3. What is the reason for using KOH in 'A' apparatus?
    4. Write the assumptions used in above experiment?
    5. Why we used germinating seeds?
    6. Why we used coloured water for this experiment?



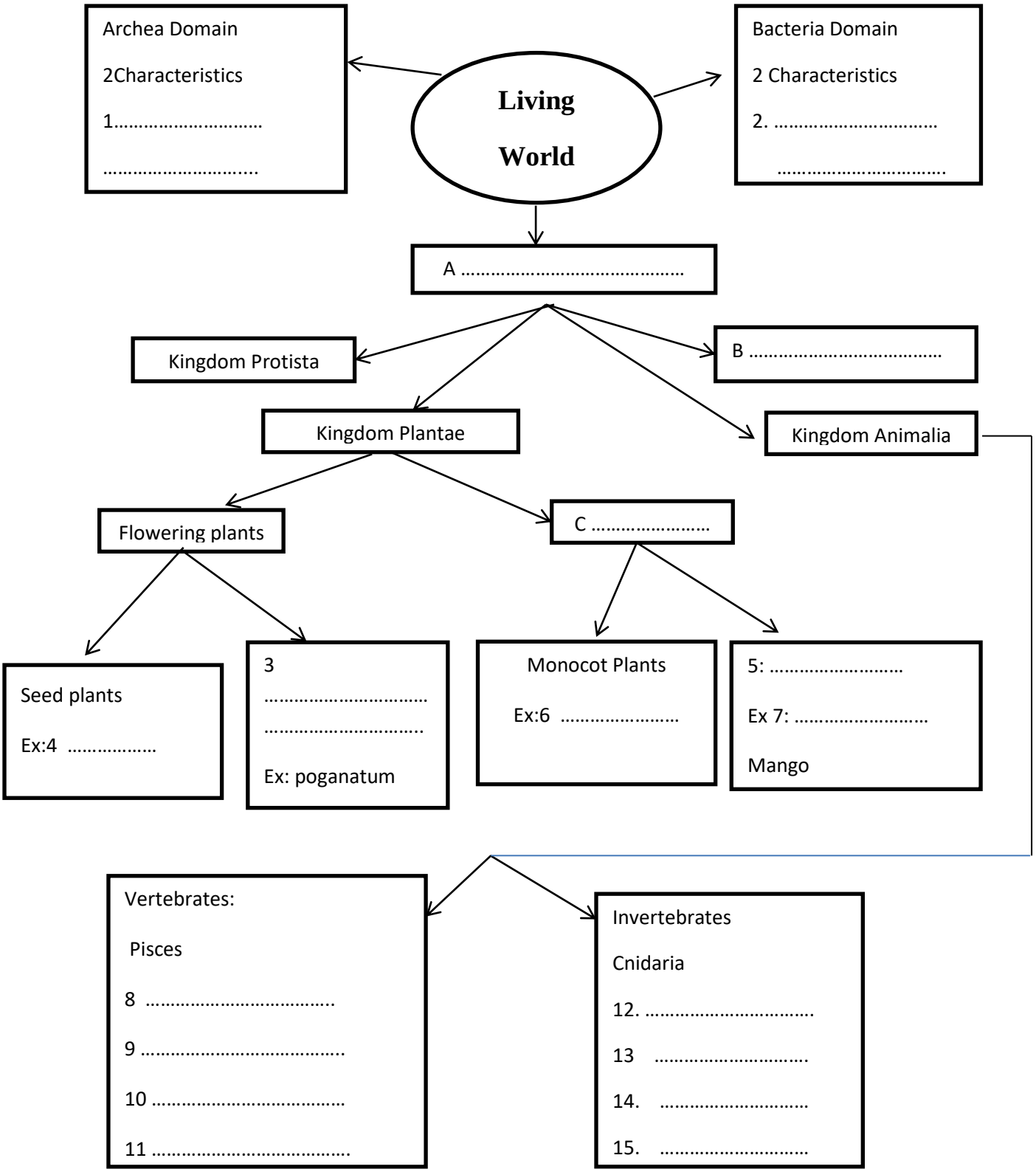
Activity No: 04

- This apparatus is prepared yesterday. When the time of that apparatus is prepared the indicator is in 0.
    1. What is the instrument used?
    2. What is the character which is measured in that instrument?
    3. What is the advantage of connected indicator in to pulley?
    4. Express the three main stages of growth and development?



Activity No: 05

- Following diagram is related to classification of organisms in living world.
    - Name the A, B, C, D and name the parts of 1- 15.



Activity No: 06

- Take out the two beads randomly at a time in two vessels of A and B.
- Put those beads in to that vessel again.
- Do the experiments two times at an instance.
- Show the marks in your group by using tally marks in following table.

A / B	Red	White
Red		
White		

1. What is the probability of getting both times red beads?
2. What is the probability of getting both times white beads?
3. What is the probability of getting red first time and white 2nd time?
4. What is the probability of getting white first time and red 2nd time?
5. Write the ratio of getting only red, getting only white and getting both red and white according to above observations.

Activity No: 07

- Consider No chart 1 which supply.
  1. What is the dominated character of P generation?
  2. What is the recessive character of P generation?
  3. Select the suitable picture for F_1 generation.
- No: 2 chart show cross of the F_1 generation.
  4. Complete the Punet chart relevant to cross of F_1 generation.
- Following Punnet square shows inheritance of hemophilia.

♀ / ♂	X^H	Y^H
X^H		
Y^H		

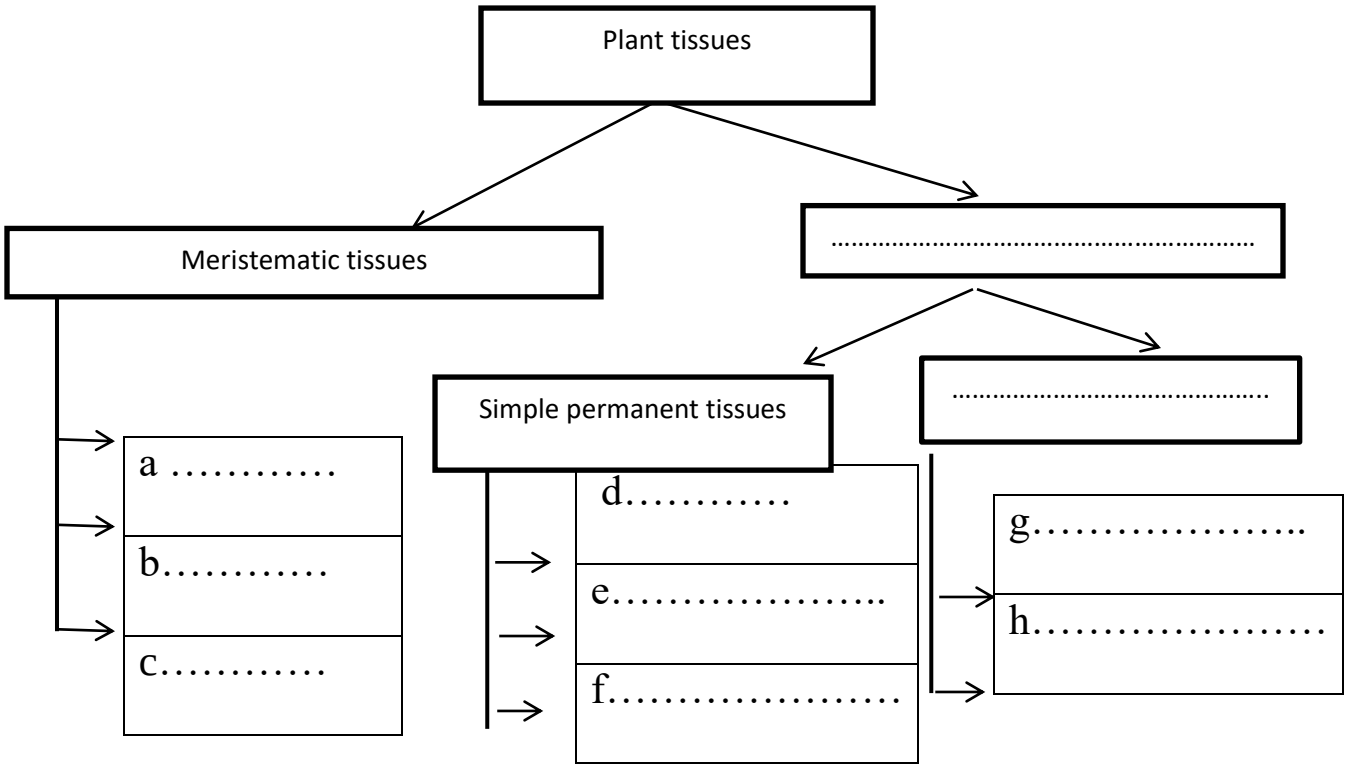
5. Complete the Punnet square.
6. What is the genotype of carrier mother?
7. State that type of sex and that healthy and diseased of the children.

Activity No: 08

- Classify the tissues according to the plant tissues and animal tissues by observing given figure.

Plant tissues	Animal tissues

- Fill in the blanks by considering plant tissue.

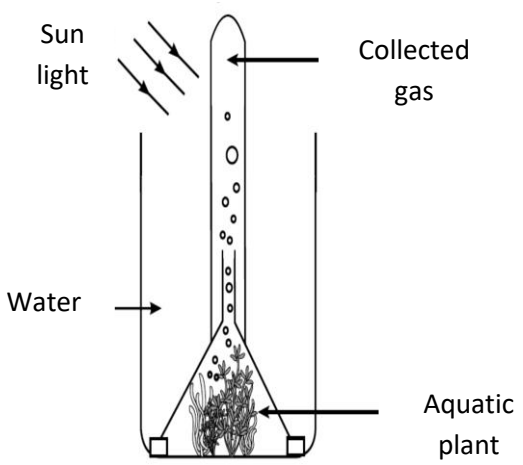


- Name a specific feature and a location in above a to h tissues.
- a –
- b –
- c –
- d –
- e –
- f –
- g –
- h –

- Write a specific feature to identify the each tissue by observing the given plant tissues.

Tissue	Specific feature

Activity No: 09

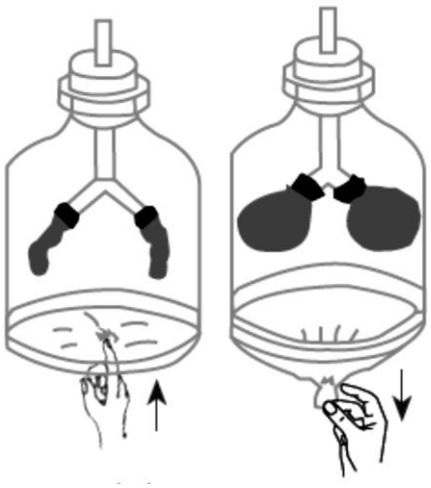


1. Name the product of photosynthesis collected in this tube.
2. Suggests a suitable method to collecting the large amount of gas in less time by using that apparatus.

- Pay attention to the 2nd apparatus.

3. What is the important of boiling the plant leaf in water?
4. What the reason of boiling in an alcohol?
5. What is the important for using that method when boiling in an alcohol?
6. What is the important of that method?
7. Write the observations after doing that experiment?
8. Name the main product and by products of the photosynthesis.
9. Write the balanced equation of photosynthesis.

Activity No: 10

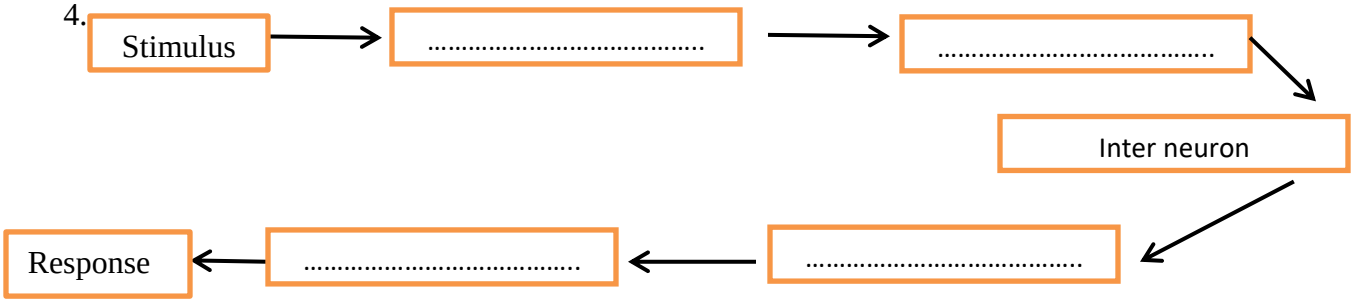


- The apparatus is prepared for demonstrate the mechanism of external respiration.
- Push and release the balloon membrane and observe the condition of balloons.
    1. Report the observations you got.
    2. Name the parts of above apparatus which related to organs of respiratory system.
        a) Bronchus:
        b) Bronchioles:
        c) Lungs:
        d) Diaphragm:

3. Complete the table by using observations of systems relevant video clips

system	Functions of system	Diseased associated with system

Activity No: 11

1. Write the sense occurred when touching "A" vessel.
2. Name the sense organ which gets that stimulus?
3. Which type of relax action which occurred?
4. 

5. Above chart is represented by a …….

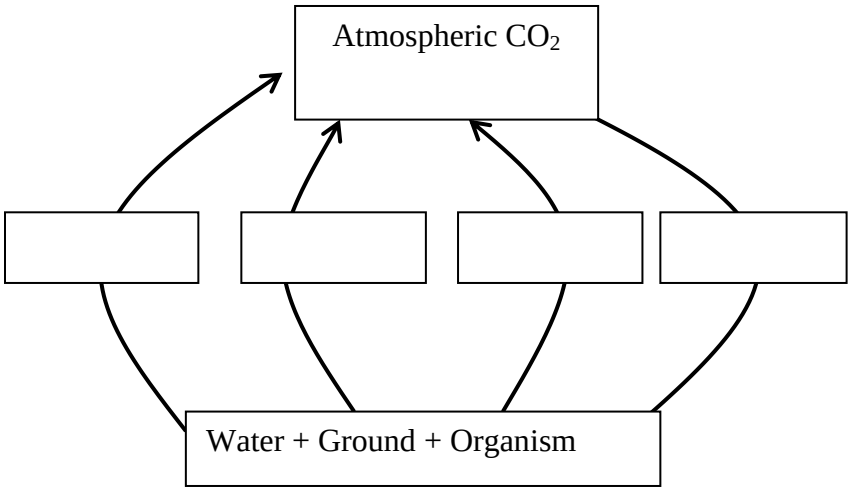
Activity No: 12

- Build up the food web by using pictures and arrows on the table.
  1. Note the food web which you created in given space.
  2. Write three linked food chain among that food chain.
  3. If producer has 10000j amount of energy in that food chain, represent the each consumer in the food chain by using energy pyramid.
  4. State the reasons for having limited links in the food chain.

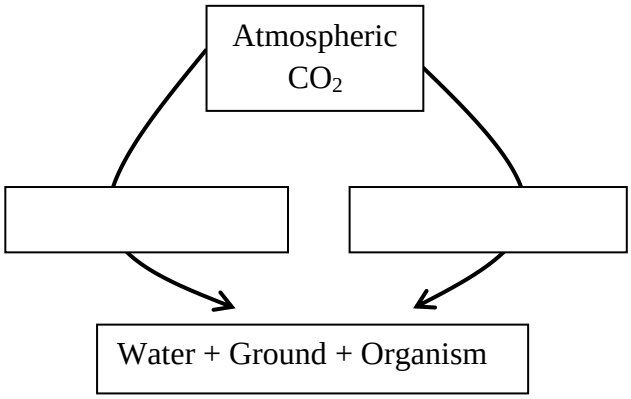
Activity No: 13

- Complete the Nitrogen and Carbon cycle by using given cords.

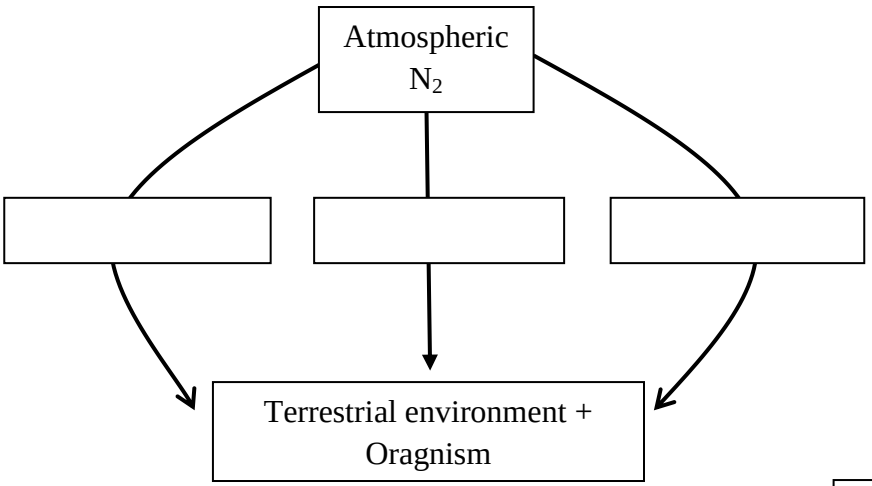
1.



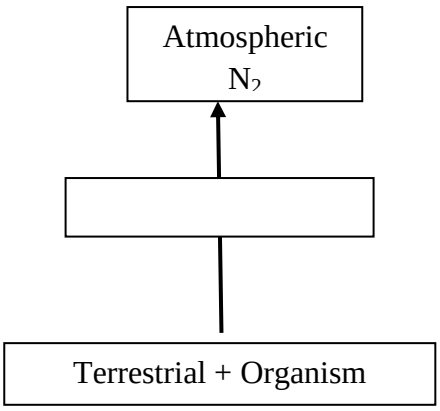
2.



3.



4.



Activity No: 14

- Complete the model of an animal cell and a plant cell by using parts of the given.
  1. Write the four structural differences between plant and animal cells.
  2. Complete the given below.

	Organelles	Function of the organelle
1	Chloroplast	
2	Ribosome	
3	Plasma membrane	
4	Vacule	
5	Cell wall	
6	Mitochondrion	
7	Endoplasmic Reticulum	
8	Cell plasma	

Activity No: 15

- Demonstrate the structure of the atoms separately by using model of the atom.

Elements	Protons	Electrons	Neutrons
H	1	1	
N	7	7	7
Ne	10	10	8
K	19	19	20
Cl	17	17	18

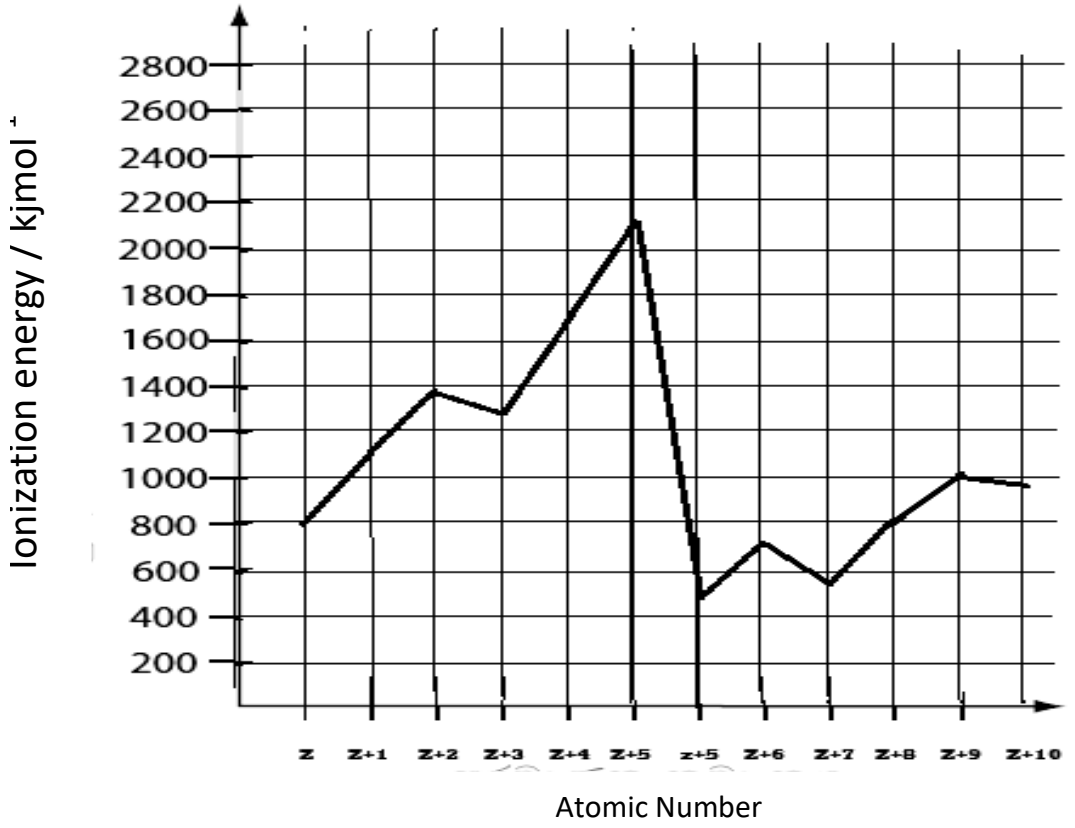
- Use red beads for protons, yellow beads for Neutrons, blue beads for electrons.
  1. Hold boards of K, L,M, N on the energy levels.
  2. Who is the scientist which introduced planetary models of atom?
  3. What are the two types of always equal sub atoms in neutral atom?
  4. What is the name for place which electron is situated?
  5. What are the two types of sub atoms which are in the nuclear?
  6. State the no of maximum electrons in each energy level.

Activity No: 16

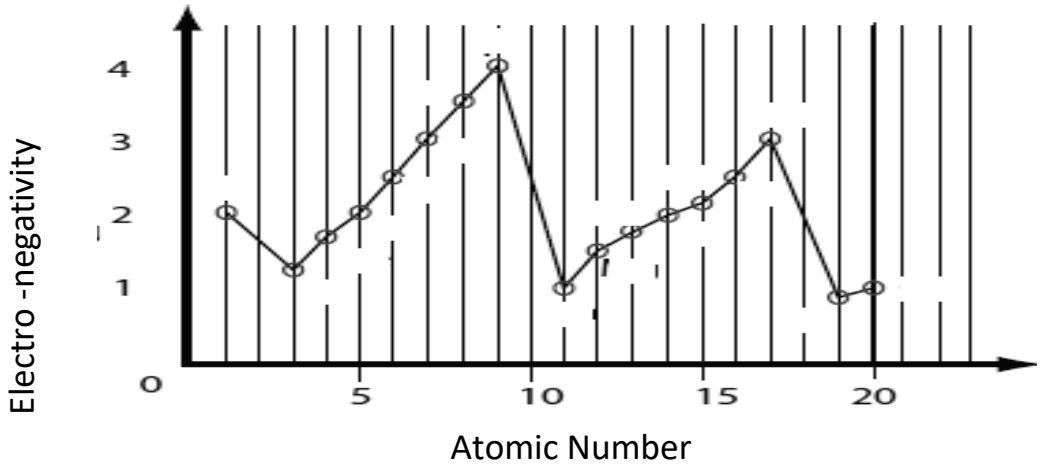
1. Build up the periodic table by placing models of element atoms using net given.
2. What is the connection between periods which you build group table and number of electrons of outer most shell in the atoms?
3. What is the connection between periods and energy levels of the atoms?
4. Marks the periods and groups b in the periodic table which you build using marker pen.

Activity No: 17

- Variation of ionization energies in the second and third periods are examined using graph.



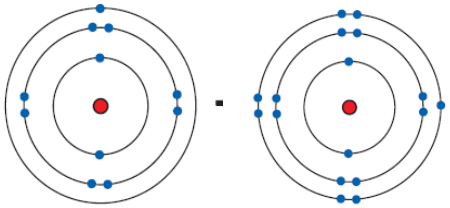
1. Place accurately in the graph elements you given.
2. How ionization energy varies across a period from left to right of the periods?
3. How ionization energy varies across from top to bottom of the group?
4. Give reasons for your answers?



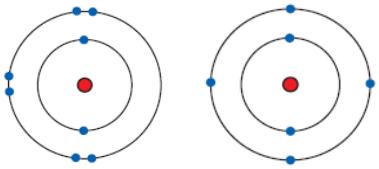
- Above diagram shows variants of electro negativity of first 20 elements.
  1. Place accurately in the graph elements you given.
  2. What is the scale which used to measure the electronegativity?
  3. What is the element which has highest electronegativity in first 1-20 elements?
  4. Describe how electronegativity various across from left to right.
  5. What happened electronegativity across from top to bottom in a group?

Activity No: 18

1. Build up the chemical bonds of the elements you given, by using substances you given.



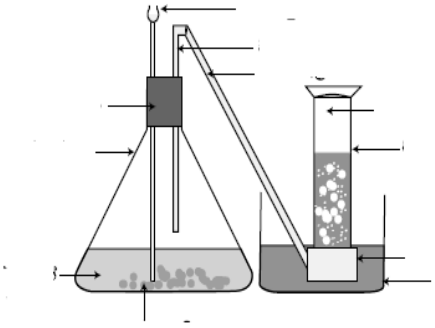
2. Represent the bonds which occurred in the above atoms by using beads on the strigiform board.

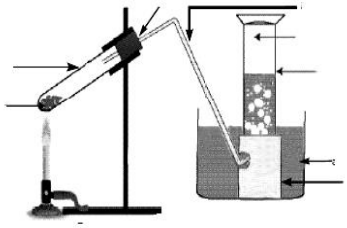


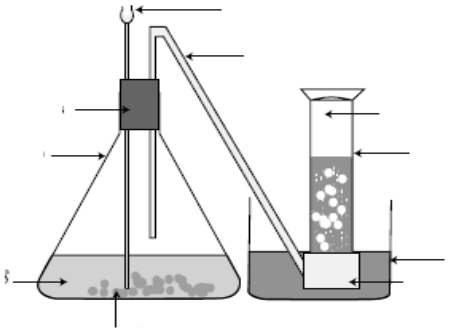
3. Name separately two type of bonds which you created above.
4. Represent the compound which you build above as a Lewis dot diagram.

Activity No: 19

- Name diagrams by using given diagram.







- Complete following table.

Apparatus	Gas which produced	Method of identify the gas	Instances where gas is used
A			
B			
C			

Activity No: 20

1. Burn the given Mg tape by using a flame and note the observations.
2. Add $\frac{1}{3}$ of dill, HCl in to test tube and put $CaCO_3$ in to it. Record your observations.
3. Add $\frac{1}{4}$ of $CuSO_4$ solution in to the test tube and add Mg tape in to the test tube note the observations after few times.
4. Write the balance equation for each above experiments.
   I. ……
   II. ……
   III. …….
5. What is the name of the reactions which are occurred simpler compounds by using one compound?

   (A ⟶ B+ C) ……..

6. $2\ Mg + O_2 \rightarrow 2\ MgO$ (A + B ⟶ C)

   Which type of chemical reaction is occurred in above?

7. Fill in the blanks.

   $CuSO_4 + Mg \longrightarrow$ ……. + Cu

8. Which type of chemical reaction is occurred in above?
9. A + B ⟶ C +D, What is the name of that reactions?

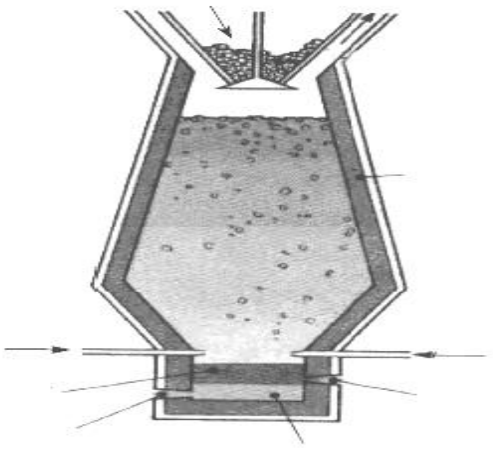
Activity No: 21

1. Cut the small piece of Sodium given.
2. Add $\frac{1}{2}$ of water in to the test tube and put piece of sodium in to it.
3. Take the two boiling tube and add $\frac{1}{3}$ of water and put piece of Mg in to the one tube and put piece of Zn (same to Mg) in to the another tube and record your observations.
4. Heat above two boiling tubes and record your observations.
5. Take the two boiling tube and add $\frac{1}{3}$ of dilute HCl in to that two tubes. And add piece of Mg in to the one tube and add same piece of Zn in to another tube and record your observe.
6. Write the order of that above three metals according to their rate of reaction.
   Among the metals of K, Al, Ca, Na, Au, Zn

   I. Name the metal which tarnishes short time reacted with the air rapidly.
   II. Name two metals which are reacted the cold water rapidly.
   III. Name two metals which are reacted with the hot water but do not reacted with the cold water.
   IV. Name the metal do not react with air, water and dill acid after although passing long time.
   V. Name the metal which is reacted dill acid but do not react with water in fast.

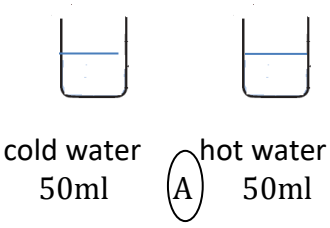
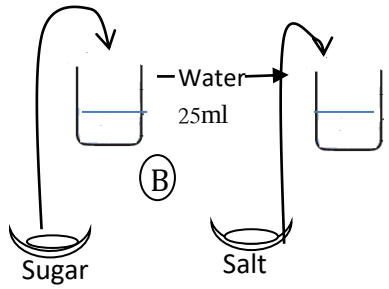
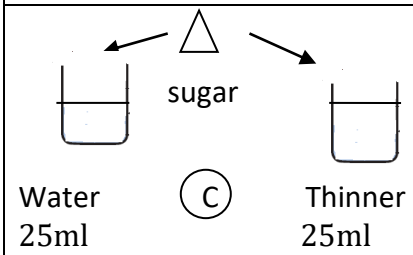
Activity No: 22

1. Place the words in given picture correctly.
2. What are reactions occurred in blast furnace to produce the CO_2?
3. State the above reactions by using balanced equations.
4. What is the product of reacting CO_2 with Coke?
5. How that product is important for the extraction of iron?
6. Write the balanced equation of above?
7. What is the slag which produced in extraction of iron?
8. What is the advantage of the float, slag on the iron?



Activity No: 23

1. What is the meaning of solubility?

	• Dissolve the 5g of sugar in to the both tubes. a) Which tube with water dissolve rapidly. b) Which factor is affected to the solubility according to the above activity? ……
	• Add sugar and salt in to the tubes separately and dissolve it. Adding a little at a time, dissolve salt in one beaker and sugar in other. When it comes to point beyond which more solid dissolves, stop adding the substances. • What is the highest remaining solvent ?…… • Which factor is affected to the solubility?
	a) What are the observations in this activity? b) Which factor is searched in this activity to affect to the solubility? C) What is the reason for dissolve sugar in to the thinner?

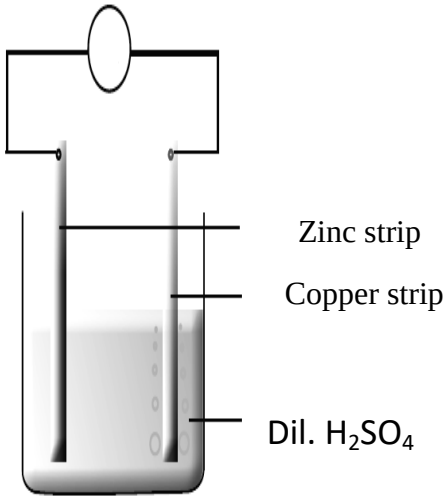
Activity No: 24

1. Prepare the 250ml of solution by using 14.6g of NaCl given.
2. State the order of the process you followed in that activity?
3. What are the instrument s you used in that?
4. 1moldm^{-3}NaClsolution was prepared by weighting 58.5g ofNaCldissolving it in a 1000ml of water.
    - A NaCl solution of 500ml is prepared by dissolving 29.25g of NaCl. What is the concentration of this solution?
    - The NaCl solution is prepared by dissolving 29.25g ofNaCl and 500ml of water. Find the concentration of this solution.
5. Write the model of the label which can be used to paste the flask.

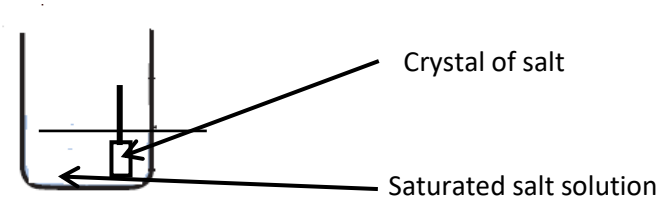
Activity No: 25

- Immerse the two metals strips in the beaker containing dilute Sulphuric acid and connect the Zinc strip and the Copper strip on the Galvanometer using the connecting wires.

1. What is the name of that apparatus?
2. Name the anode and cathode.
   Anode ……..
   Cathode ……
3. Write the anode reaction and cathode reaction.
   Anode reaction
   - Zn ⟶ ……+ ……
   Cathode reaction
   - …….+ …… ⟶ H_2
4. Write the overall cell reaction.
   - Zn + …… ⟶ …….. + H_2
5. What are the observations of this activity?

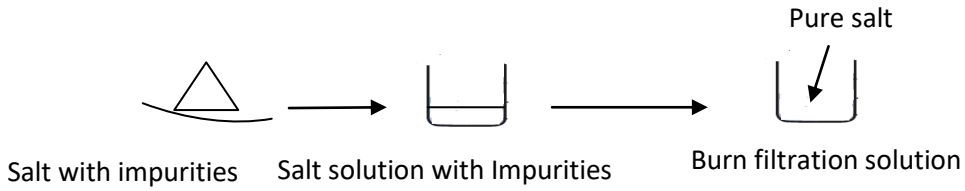


Activity No: 26

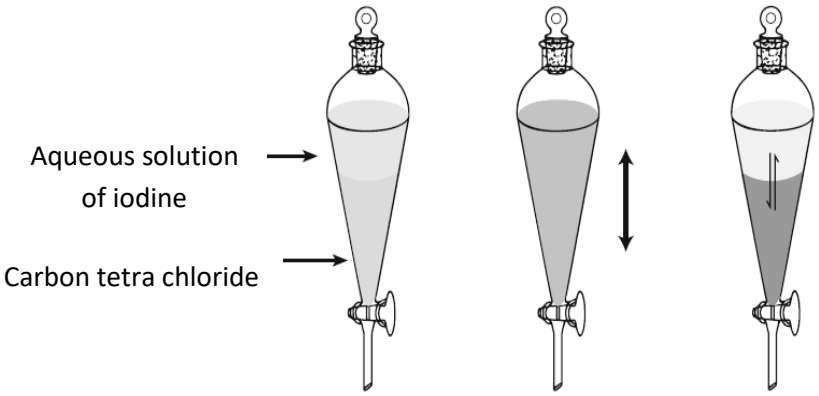


1. What is name use to separate the salt in salt solution?

2. Name the industry used that method.
3.



I. What is name of that process?
II. Name the instance where used that method.



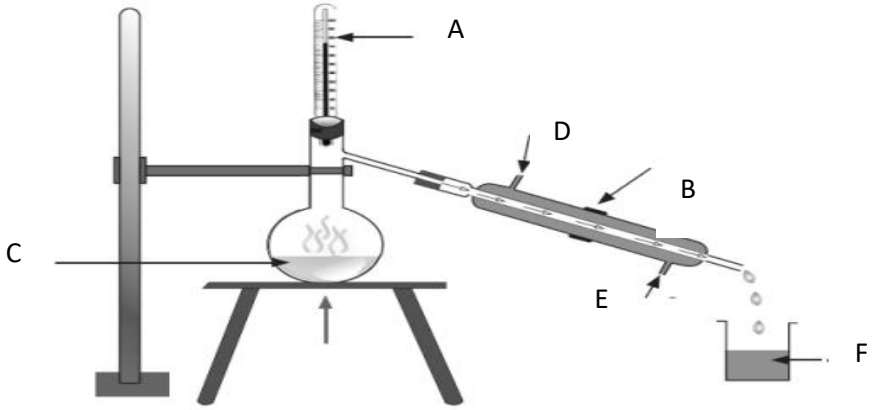
4.

I. Why iodine solution and carbon tetra chloride solution are separated in the solution?

II. Why the yellow colour decreased continuously in aqueous solution?

III. What are the instances used in that concept?

5.



i. Select the words which related to the letters in apparatus and write it.

ii. Why water is going though in to the lower side and come out though the upper side in the Liebig condenser?

iii. What is the reason for using thermometer?

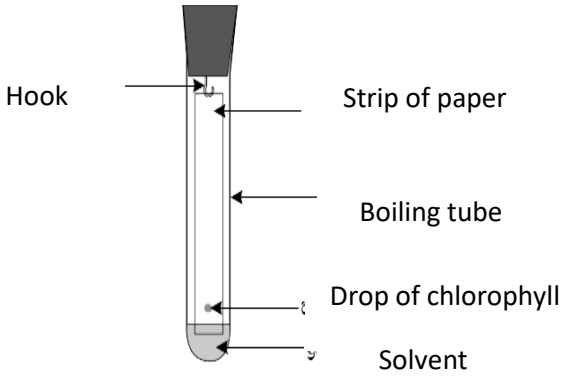
iv. What are the instances used that method?

6. i. Name the above separating method of mixture.

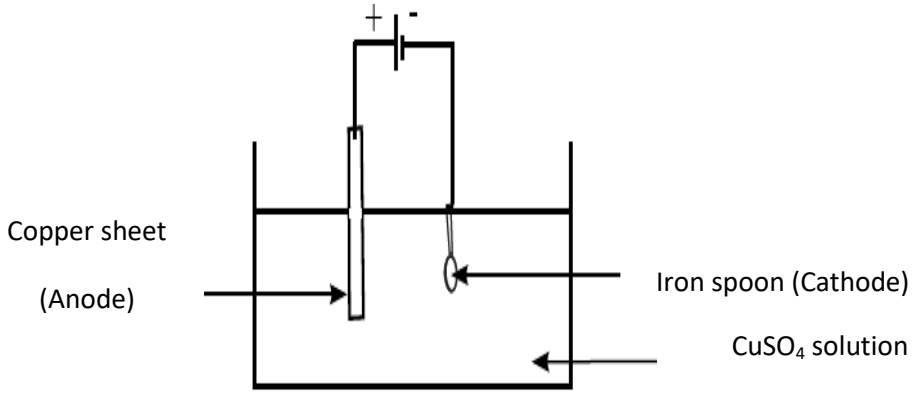
ii. Write the quality of solvent which using in that activity.

iii. Name two solvents like above.

iv. Write instances where used that method.

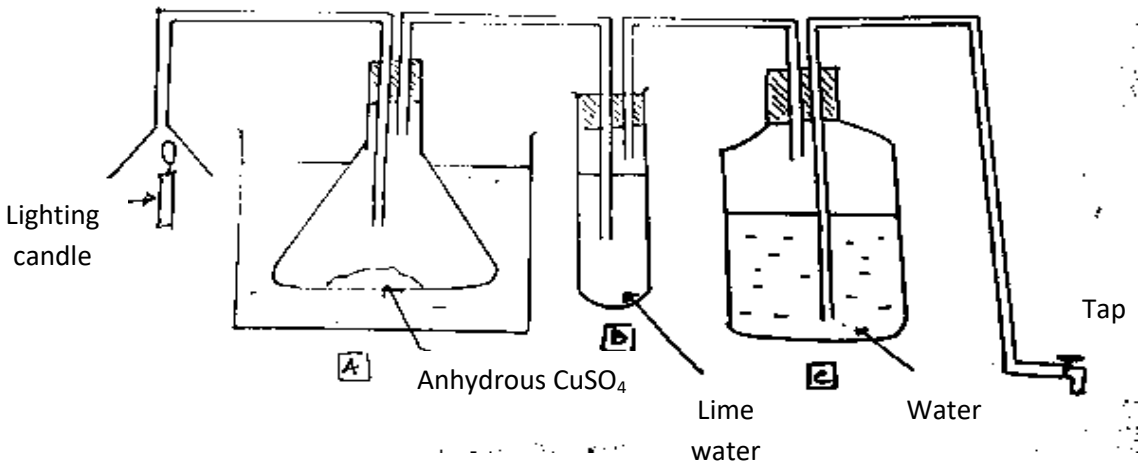


Activity No: 27



- Connect the iron spoon and the Copper plate to the cell by connecting wires and immersed them at once in the Copper Sulphate solution.
- Record your observations.
  1. What is the name of this process?
  2. Name the anode and cathode.
     Anode …… Cathode ……..
  3. Write the anode and cathode reactions.
     Anode reactions:-
     Cathode reaction:-
  4. Write three observations can be seen in this activity.
  5. Write the two things which consider when doing that activity.

Activity No: 28



- Open the tap which is in the apparatus.
- Observe the changes occurred in this system after few times.

1. Complete the table by using your answers of A and B experiments.

Part	Observations	Reasons of the observations
In the A flask		
In the B flask		

2. What is the conclusion according to the observations?
3. What is the use of C apparatus?

Activity No: 29

1. Add litmus paper in to the given HCl acid solution.
2. Observe the colour changes.
3. Add litmus paper in to NaOH solution and record your observations.
4. Mixed the above both two mixture and put the litmus paper in to it observe the colour changes,
5. Record your observations and complete the table.

Solution / Type of litmus paper	NaOH solution	HCl Acid solution	NaOH and HCl solution
Colour of red litmus			
Colour of blue litmus			

6. Write conclusion according to the observations you got.
7. What are instances which used in neutralization?

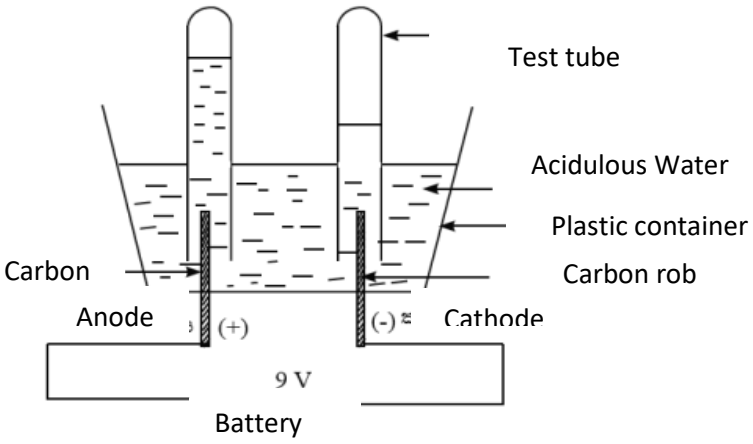
Activity No: 30

1. Record the observations which occurred at the behind electrode.

2. Name the anode and cathode in this activity.

3. What is the name of this process?

4. Name the glasses which liberated at the anode and cathode.



5. Fill in the following ionic equation relevant to this process.

$H_2O \longrightarrow H^+ + ...$

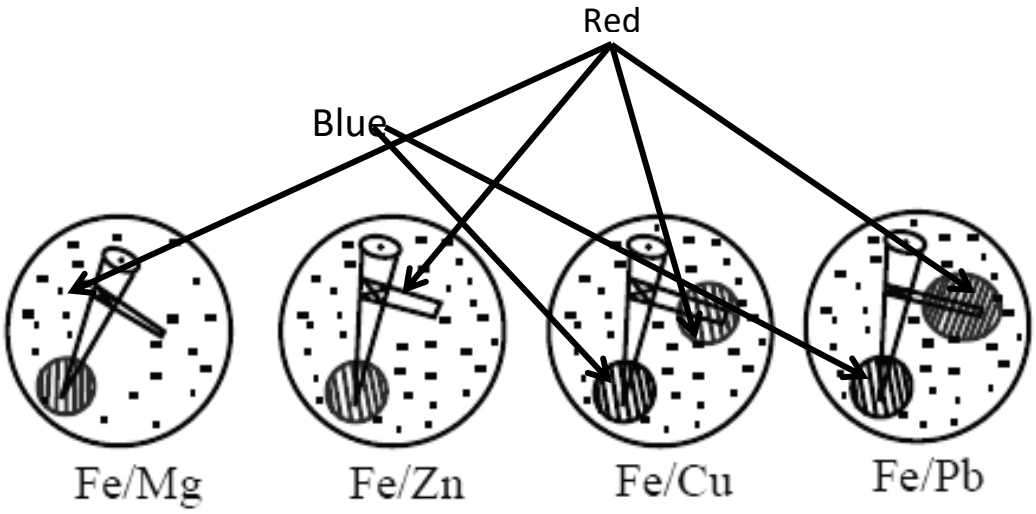
$H^+ + \ldots\ldots\ldots\ldots \longrightarrow H$

$H + H \longrightarrow \ldots\ldots\ldots\ldots$

$OH^- \longrightarrow \ldots\ldots\ldots\ldots + \ldots\ldots\ldots\ldots$

$4H^- \longrightarrow 2H_2O + \ldots\ldots\ldots\ldots$

Activity No: 31



1. What is the purpose of using phenolphthalein and potassium ferri cyanide for agar medium?
    - Phenolphthalein :-
    - potassium ferri cyanide :-
2. Why agar medium is used for this experiment?
3. What is the Anode of "A" apparatus?
4. Write the Anode reaction.
5. What is the cathode of "B" apparatus?
6. Write the cathode reaction.
7. Name the anode and cathode of the "C" apparatus and write reactions.
8. What are the apparatus which is occurred corrosion of iron among the A, B, C, D apparatus?
9. Write two instances where cathode protection is used?

Activity No: 32

1. What is a Polymer?
2. Categorize the polymers you are given as natural and artificial polymers.

Natural	Artificial

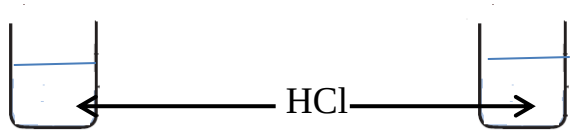
3. Keep the monomer of the polymer at on the space given.

polymer	Monomer
Rubber	
Polythene	
Polychrome ethane	
Poly tetra fluro ethane	

Activity No: 33

1. Come to conclusions using the observations you gained by doing following reactions.
   i. $CaCO_3$ powder and $CaCO_3$ crystals and dilute HCl.

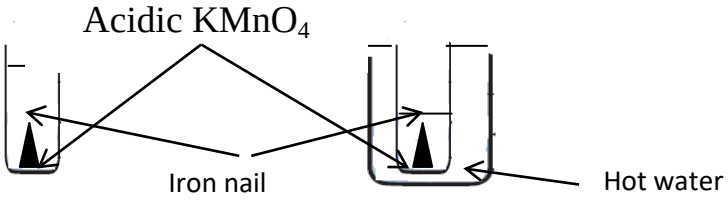
$CaCO_3$ powder $CaCO_3$ crystals



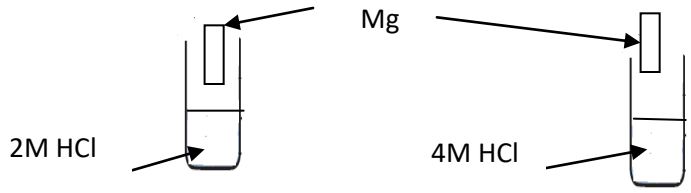
- Observations:

- Conclusions:

ii. Reaction on acidic $KMnO_4$ and Fe



iii. Reaction between HCl acid and Mg



- Put the Mg pieces in to the test tubes at same time.

Observations:-

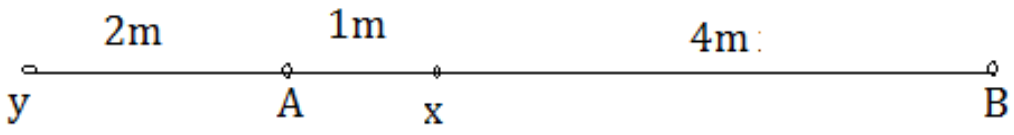
Conclusions:-

iv. The influence of catalysts on the speed of reaction.

- Using the Manganese dioxide given takes the observations.
- Observations:-

- Conclusions :-

Activity No: 34



- Observe the diagram given.
- Taking A as the starting point, do the activity in the table and complete it.
- Do all the activities using one member once.

Activity	Distance	Displacement
1. Go from A to B		
2. Go from A to B and come back to B		
3. Go from A to B and come back to X		
4. Go from A to B come back to Y		

i. Complete the given table.

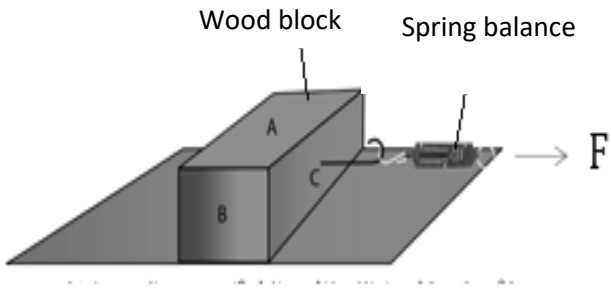
Quantity	Unit	Scalar or vector
Distance		
Displacement		

ii. What is the difference between distance and displacement?

iii. An athlete ran 2 rounds in a 200m running track and stopped at the place he started:

- What is the distance of his movement?
- What is his displacement?

Activity No: 35



i.

a) When the force of spring balance is increasing from O, What force makes the word block still (not moving)?

b) When it starts moving the reading of spring balance is …….
What force causes that value?

c) When moving the value gained at b is less than a. What force cause that less value?

ii. Define the frictional forces gained at a,b,c.

a …….

b ……..

c ……..

iii.

- Keep the wood block on table and pull.
- Keep on sand paper and pull.
- Are the readings gained at above two occasions same? Or different explain.

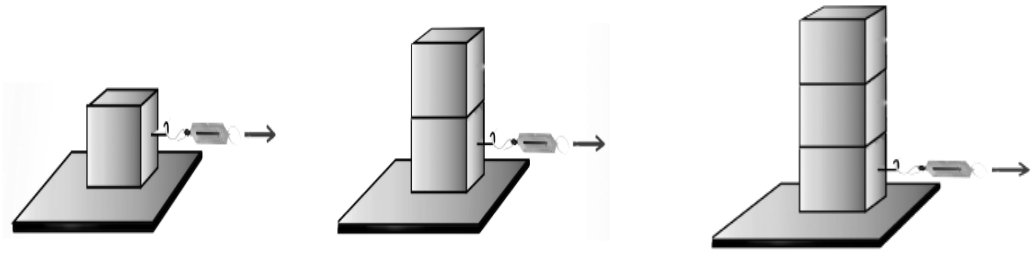
iv.

- Keep A, B, C sides separately on the table of wood block and pull.
- Mention the reading in the table.

Side	A	B	C
Reading			

v.

- Keep the wood blocks given as follows.
- Pull the spring balance and get the readings and write in the space given.



Readings: …… ……. …….

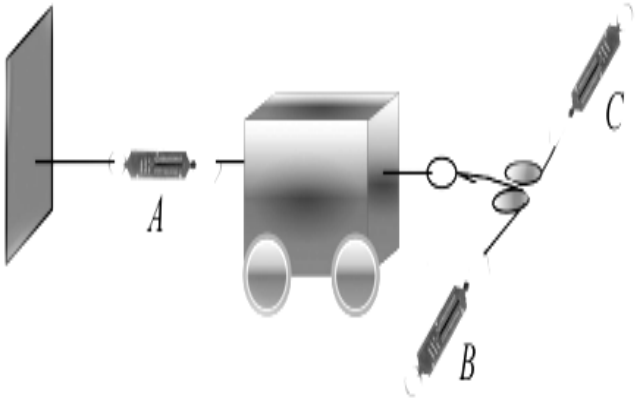
- Are the readings we get are equal or not?
- Reason out ……..

vi. From the activities above what are the factors influences on limiting frictional force?

vii. Given 2 examples each for increasing frictional force and decreasing frictional force in day today life.

<u>Activity No: 36</u> **A)**

1. The diagram shows an apparatus arranged.
2. Give 2 forces from B and C.
3. Get the readings for 3 occasions and write in the table by changing B and C spring balance values.

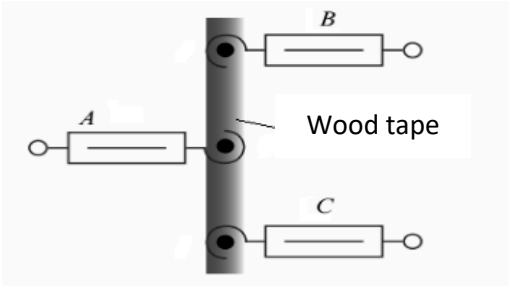


Occasion	A	B	C
1			
2			
3			

4. Using the observations gained create a relationship between A, B, C forces.
5. What is the conclusion that you can come to on resultant force between two co-planer forces?

B)

- You are given arranged apparatus as in the diagram.
- Keep "A" static. Give 2 parallel forces at "B" and "C".
  1. Mention the readings of A, B, and C.
     A ……. B ……. C ……..
  2. What is the relationship between "A" reading and B, C readings?
  3. What can you say about the resultant force of 2 parallel forces?



Activity No:37

1. Calculate the resistance of the resistors using color-code table.
2. Calculate the resistance of resistors using the multi-meter and compare the two values.
3. Connect resistors parallel y and serially and observe how resistance decrease or increase.

Resister	Calculated value	Multi-meter value
1		
2		
3		
4		

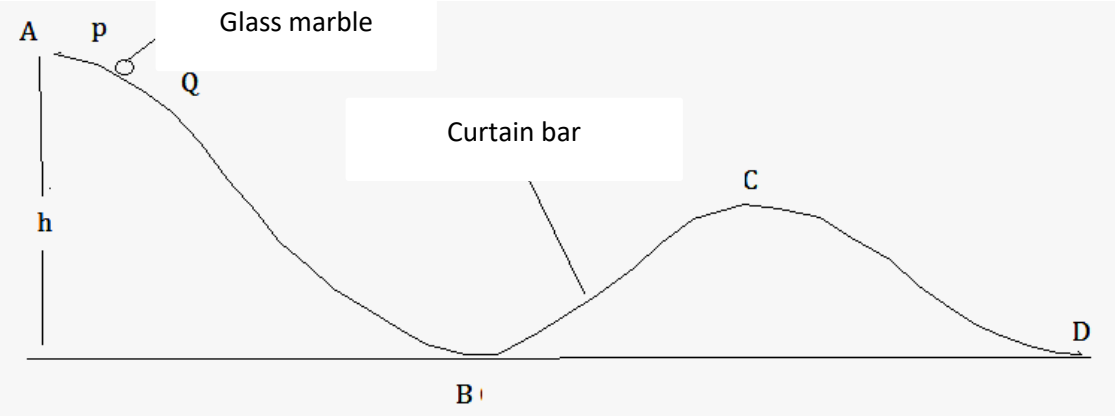
- Values obtained when resistors are connected serially.

Resistor amount	Multi-meter value
2	
3	
4	

- Values obtained when resistors are connected parallel.

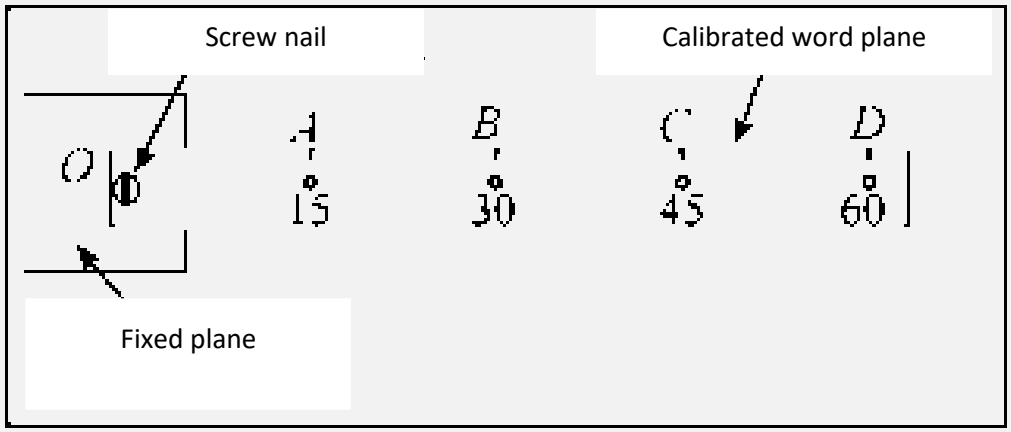
Resistor amount	Multi-meter value

Activity No:38



- Hold the glass marble at various heights. Release it from rest and get observations.
- Calculate the height necessary for the glass marble to pass C and move through D.
  1. What is the energy the glass marble has when it is at “P” at rest?
  2. If you know the mass of glass marble write an equation to measure potential energy of that occasion.
  3. To which energy the potential energy change when marble move from “P” to “Q”.
  4. When ball comes to “B”,
     a – What is the energy that turn to minimum?
     b - What is the energy that comes to maximum?
  5. Calculate the potential energy at an occasion by measuring the mass of glass marble.
  6. Assume there is necessary wastage during energy change. Calculate the velocity obtained by the glass marble at B.

Activity No:39



- Rotate the plane by applying forces at A, B, C, D, E places respectively.
- Put the details on the table.

occasion	Force applied (X) N	Perpendicular distance from nail to point of rotation (Y) cm	Multiplication X x Y
A			
B			
C			
D			
E			

1. What can you say about the (X x Y) values?
2. What can you say how the above forces influence moment of forces?

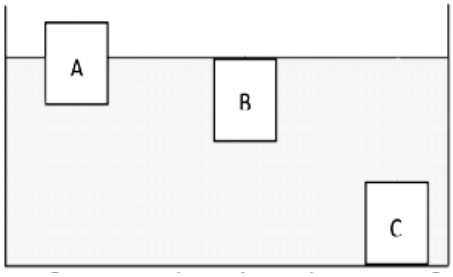
Activity No:40

1. Explain the relationship between the weight of wood block and up-thrust at below A, B, C occasions. (weight – w up- thrust - u)

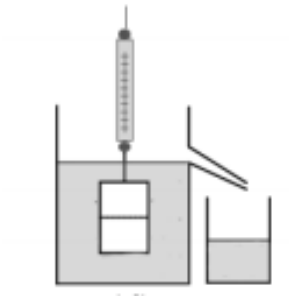
A ……

B ……

C ……



How 3 different solid objects are in water



- Calculate the masses of 3 objects that sink, immerse and float on air.
- Arrange the apparatus us above and dip each spring balance and measure the mass of water dispersed.
- Mention the reading in the table.

Object	Weight on air (N) true weight	Weight in water (N)Apparent weight	Reduced Apparent weight	Up thrust (N)	Dis pressed weight of water(N)
Sunk					
Fully submerged and float					
float					

1. When an object immerse in a liquid what happens to its weight? Give reasons.
2. When objects sink in a liquid totally, the weight of liquid dispersed by the object is less / equal / greater than the weight of that object.
3. When an object float on a liquid completely, does liquid disperse or not?
4. When objects sink and float, the weight of liquid disperse by that object is equal / less than or greater than the weight of that object.
5. Mention the principal of Archimedes from the above observations.
6. When the density of a liquid increase does the up thrust increase or decrease? Explain.

Activity No:41

1. Keep the brick on the sponge in A, B, C surfaces and measure the amount of it sinks on sponge.

Surface	Amount of sinking	Pressure less/ high/ medium
A		
B		
C		

a) According to the above experiment write one factor cause pressure

b) Explain how the above factor influence the pressure

2. Keeping the bricks 1, 2 up on one another mention the amount it sinks.

Occasion	Amount of sinking	Pressure less / high
Brick 1 (A surface)		
Brick 1 (A surface)		

a) According to the above activity what is the other factor that cause pressure?
……..
Explain how that factor influence pressure
……..

b) Write an equation from the above factors to calculate pressure
…….

c) Define pressure. ……

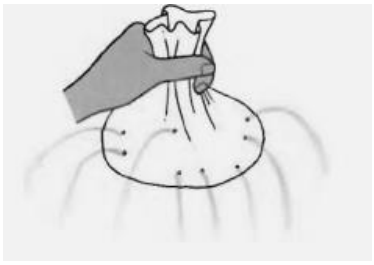
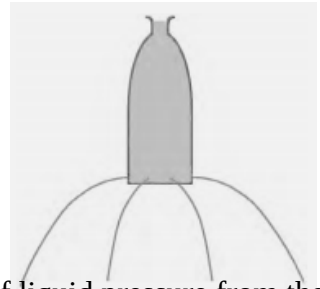
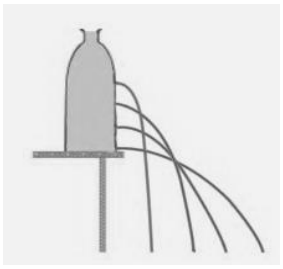
d) What are the units of pressure
….……..……
……..

3. When setting the reading at 'A' occasion, calculate the pressure at A, B, C surfaces.

Surface	Area m^2	Force N	Pressure
A Surface			
B Surface			
C Surface			

Activity No:42

1. Do the following activities.
   I. Fill the polythene bag with water and make small holes in it and observe.
   ……
   ……
   II. Fill the bottle with water and observe where there are holes at equal height.
   ……
   ……..
   III. Fill water to the bottle where there are holes at different heights.

IV. Mention 4 features of liquid pressure from the above observations.

……..

……

……

……

1. The pressure (increase / decrease) when the depth of a liquid increases.
2. Liquid pressure is (equal / different) in different liquid at same level.
3. Liquid pressure (equal/ different) at same level in liquid with different densities.
4. Liquid pressure is(less/ high) in a liquid with less density at a certain depth.
5. Liquid pressure is (less/ high) in a liquid with high density at a certain depth.
6. Mention the 3 factors responsible for the density of a liquid.

   ……

   ……

   ……
7. Mention the equation of measuring liquid density.

   ……
8. What are the units of liquid pressure?

   …….

Activity No:43

- You are given a home electric circuit.
- Arrange the equipment you are given at suitable spaces.
- Mention the functions of the equipment's in the table.

Equipment	Functions
1. Over load circuit beaker	
2. Electric meter	
3. Isolator	
4. (RRCB)Residual current Circuit breaker	
5. Miniature circuit Breaker	
6. Switch	
7. Earth wire	
8. Plug socket	

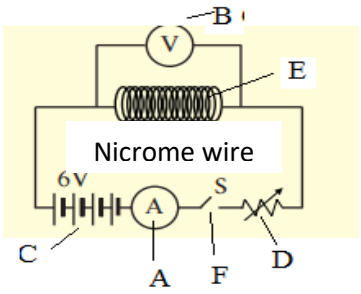
1. What is the unit used to measure electrical energy used?
   ……
   ……
2. Write an equation to calculate the electrical units consumed?
   ……
   ……
3. If 5 bulbs of 1000W are used 3 hour per 30 days calculate the electrical units consumed.
   ……
   ……..

Activity No:44

- Using the electrical equipment given complete the table given.

Electrical	Appearance	Symbol	Function
1			
2			
3			
4			
5			
6			
7			
8			

Activity No:45

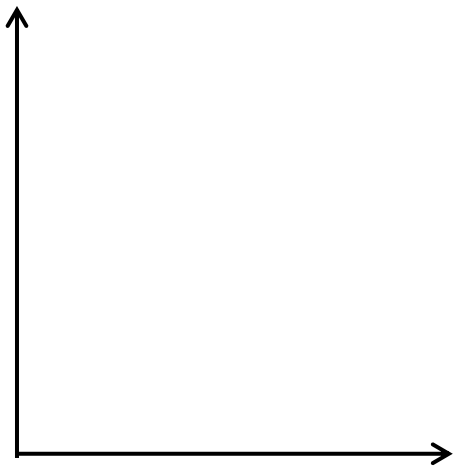


1. Name the equipment from A to F.
   A ……..
   B ……
   C ……
   D ……
   E ……
   F ……
2. Close the switch and measure the current flow and potential difference in the circuit and mention in the table.

- Open the switch and change rheostat and get readings for 3 different occasions.

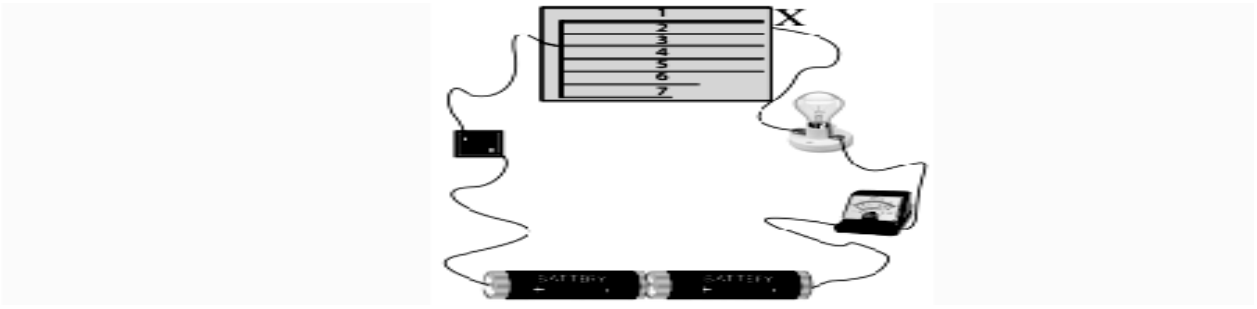
Current I	Potential Difference V	V / I
1		
2		
3		

3. Using the readings given draw the graph between potential difference and current.



4. Using the table and graph, write the Ohm law that you confirm here.
   ……
   ……..

Activity No:46



In above diagram:

1 – Very thick Nichrome wire 2 - Medium thick Nichrome wire 3 – Thin Nichrome wire

Fi

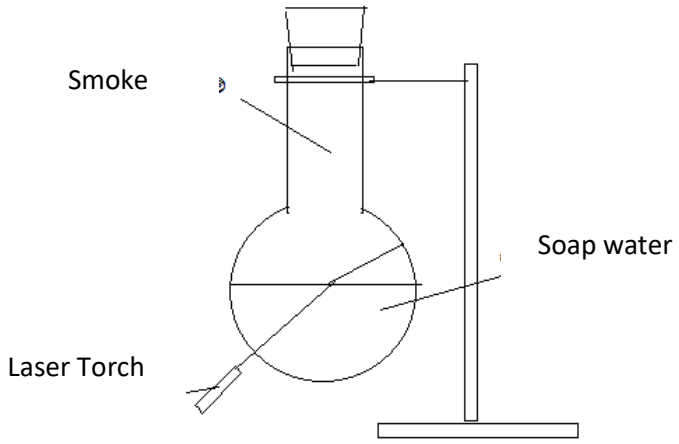
ta 4 – Thin Copper wire 5 – thin Iron wire 6, 7 – thin Iron wires of different lengths

Conductor	Ammeter reading
1	
2	
3	
4	
5	
6	
7	

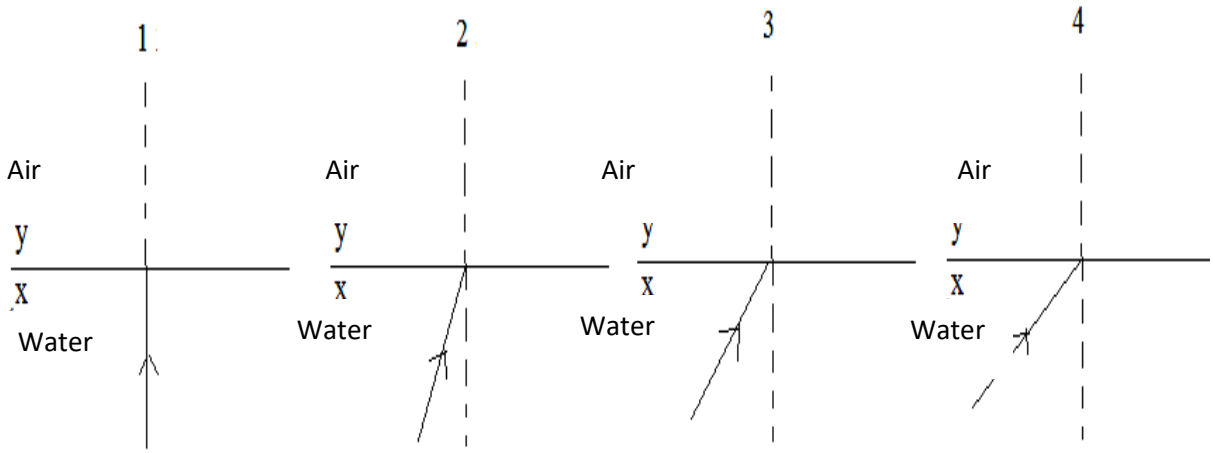
1. What is the conclusion that you can come to by observing the readings of 1, 2, 3?
   ……
   ……
2. What is the conclusion that you can come to by observing the readings of 3,4,5?
   ……
   …….
3. What is the conclusion that you can identify that there are 3 factors influence the resistance of a conductor. What are they?
   ……
   …….
4. From the observations you can identify that there are 3 factors influence the resistance of a conductor. What are they?
   ……
   ……
5. When the area of the cross section of a conductor increases, does the resistance decrease or increase?
   ……
   ……
6. When the length of a conductor increases does the resistance increase or decrease?
   ……
   ……
7. When identical two conductors are made from two different metals and equal potential difference is given to each but current changes. What is the reason for it?
   ……
   ……
8. Write an equation to show how the above 3 factors influence the resistance?
   ……
   ……..

Activity No:47

- Focus the laser torch at different angles and observe the path of light ray.



1. Complete the ray diagrams of following.



2. Mention X, Y medium.
   X - …… Y - ……
3. What is the behavior of light ray when it moves from X to Y medium?
   ……
4. If light ray travel from Y to X how does it travel?
   ……
5. In diagram 3v of X medium what is the name that the angle of incidence is called?
   ……

6. What is the process that happens there?

Activity No:48

- Recognize convex and concave mirrors.
- Recognize the focus, focal length, center of curvature and principal axis of the concave.
- Keep the object at different locations in the table and get images on screen and complete the table.

Position of object	Position of images	Features of image
1. Mirror and F		
2. On F		
3. Between F and C		
4. On C		
5. Away from C		

- Observe the images formed by convex mirrors.
  What are the features of those images?
  ……
  ……
  …….....

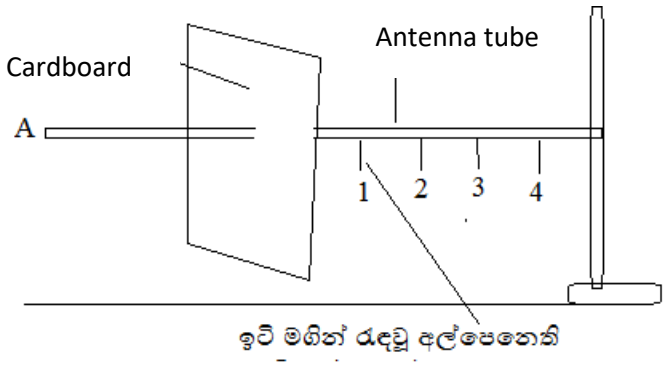
Activity No:49

- Recognize convex and concave lenses.
- Identify the focus, focal length of convex lens.
- Keep the object at different places and get images on screen and complete the table below.

Position of object	Position of image	Features of image
1. Between F and Lens		
2. On F		
3. Between F and 2F		
4. On 2F		
5. Away from 2F		

Activity No:50

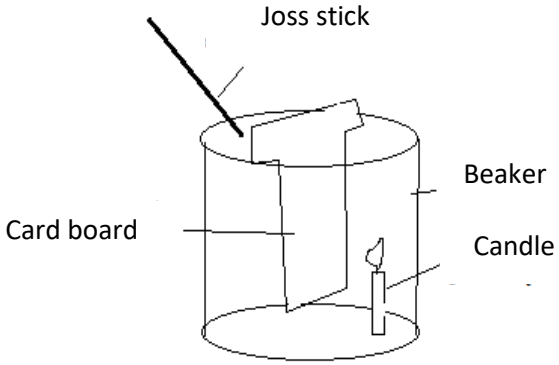
A. Conduction of heat



- Heat ‘A’ end from a heater.
    1. Which pin falls off from the antenna tube first?
    2. Mention the order of falling of pins.
    3. What is the reason for the pins to fall off?
    4. Why there is a cardboard held?

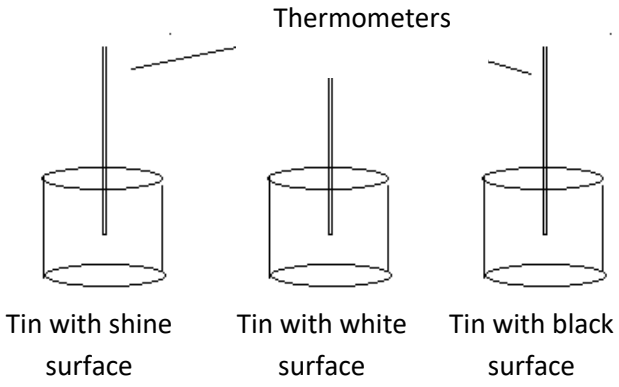
B. Convection of heat.

1. Light the candle and bring the lit joss stick close to this and get observations.
2. What is the reason for the observation?
3. Mention 2 phenomena relate to the above observation.
4. Mention 2 liquid that are not gaseous that conduct heat by convection.



C. Radiation

- Mention the initial temperature of the thermometers.
- Keep these 3 tins under sunlight and measure temperature within every 2 minutes and record it in the table.

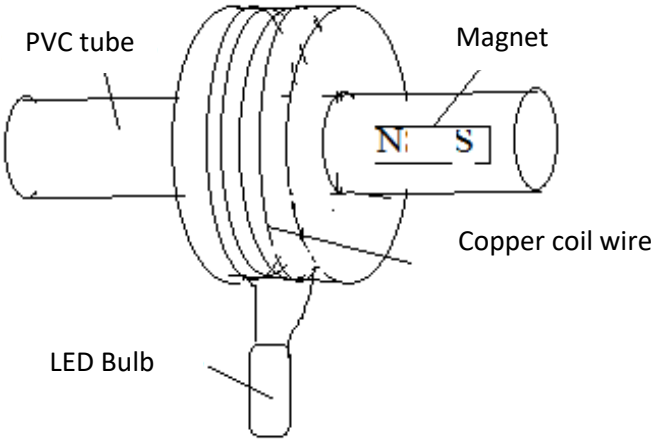


Tin	Temperature			
	Initial	After 2 minutes	After 4 minutes	After 6 minutes
Tin with shiny surface				
Tin with white surface				
Tin with black surface				

1. What are the conclusions that you can come to from the above readings?
2. Write a technique that is followed to reduce heat occurred by radiation in day today life.
3. Write a technique that is followed to increase heat in day today life.
4. Write 2 occasions where radiation of heat is used fruitfully.

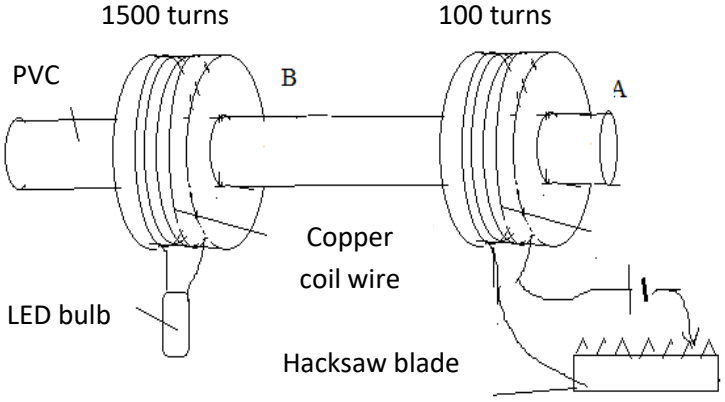
Activity No:51

A.



- Cover the 2 sides of PVC tube from both hands and move magnet in speed.
- Get the observations.
  1. What phenomena cause occurring of current here?
  2. According to the method that LED bulb lights up, what kind of current is generated here?
     Is it direct current or alternate current?
  3. Mention 3 methods to follow to increase current generated here.

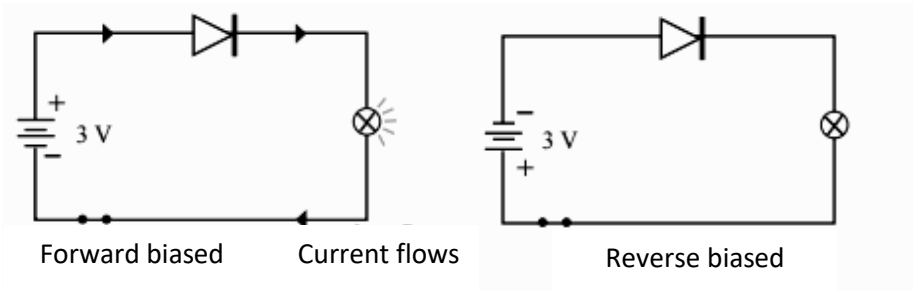
B.



- Connect 2 coil wires of 1500 turns with 100 turns as in the diagram.
- Touch the negative terminal of the dry cell on the hacksaw blade.
  1. Observe the bulb and record it.
  2. Propose a suitable name for this.
  3. Name 'A' and 'B' wires.
     A - …… B - ……
  4. To increase the current generate at 'B', write a change that should be done to 'A'?
  5. What kind of a transformer is the above apparatus?
  6. Name the other type of transformer?
  7. Name the places where the above mentioned 2 types of transformers are used.

Activity No:52

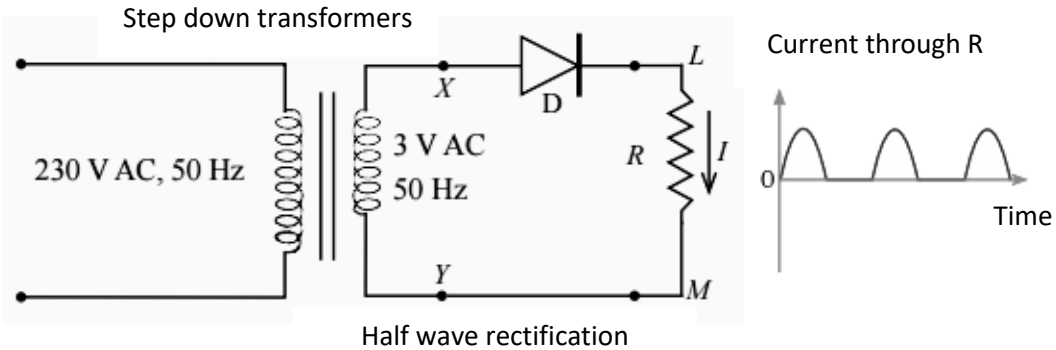
- Using the following circuits and apparatus arranged and their observations, mention the functions of each and their important points.
  1. Forward and reverse biased transistor.



1 diagram

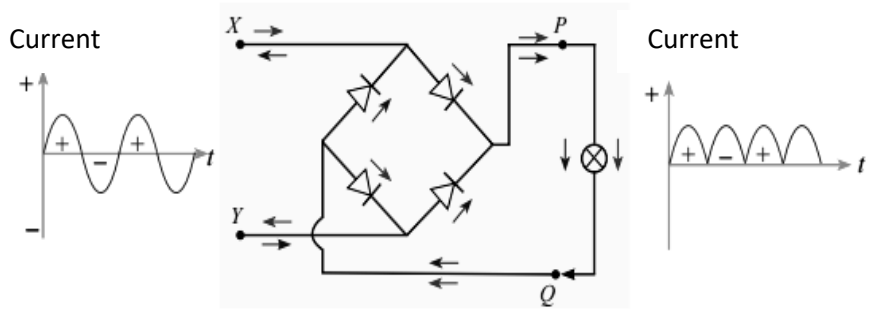
2 diagram

2. Half wave rectification

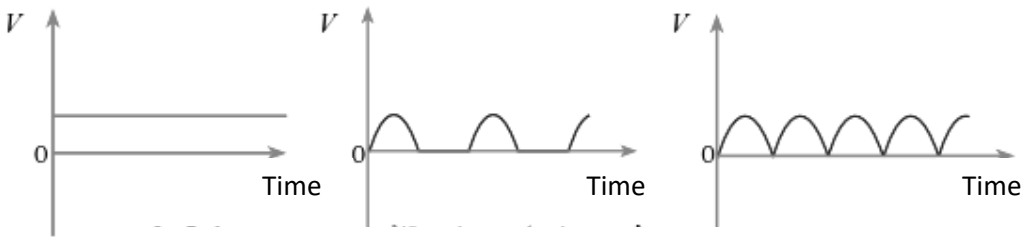


Half wave rectification

3. Full wave rectification

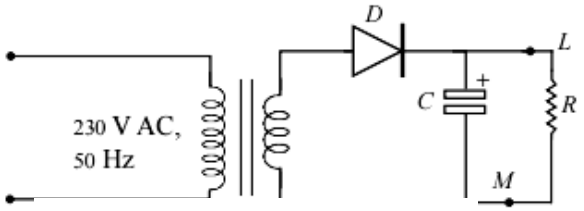


Full wave rectification using a bridge current

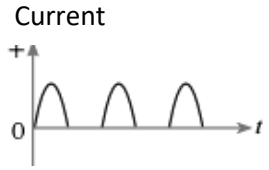


Change of voltage output in a battery and rectification

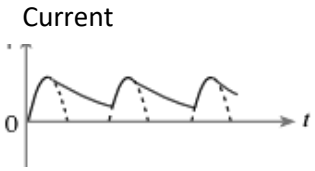
4. Smoothing of a half wave rectification



Half wave rectification circuit



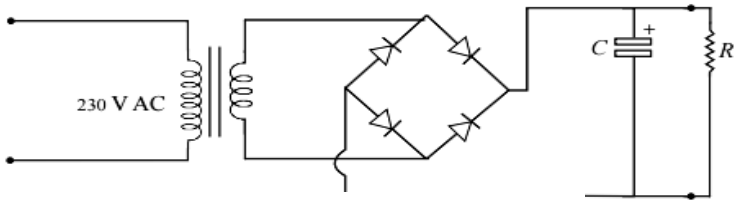
Output before smoothing



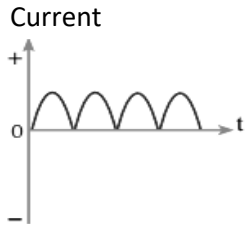
Output after smoothing

Smoothing of a half wave rectification

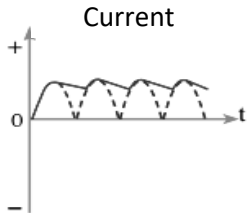
5. Smoothing of a half wave rectification



a. Full wave rectification

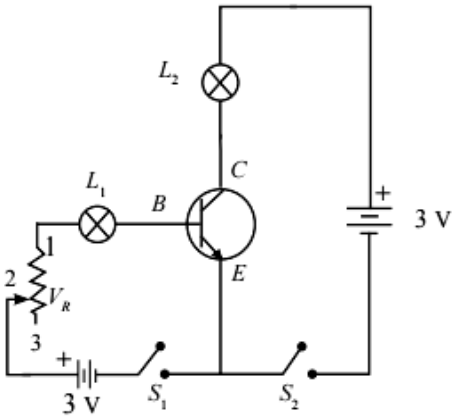


Before smoothing – without capacitor

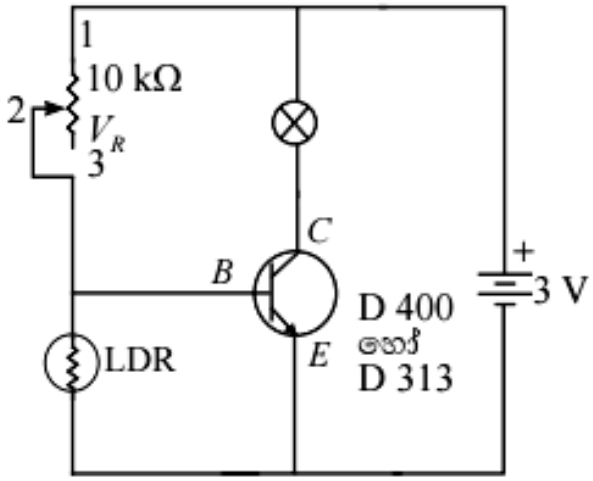


After smoothing – with capacitor

6. Current amplifier process of transistor



7. Switching action of a transistor



Important details:

……
……
……
……

Questions related to learning outcomes of Grade 10 - 11

Competency: 10- 1

Competency Levels : 1.1 , 1.2 , 1.3 , 1.4 , 1.5 , 1.6

- **Introductions: Answer all the questions.**
  Answer sheets should be evaluated by the teachers to identify your weak points.

1.1:

1. Name the four biomolecules in living body.
2. Name the main elements in organisms.
3. Complete the following table.

Food	Main nutrient in it	Elements in it (Symbols)
Rice		
Fish		
Butter		

4. Name all the elements in nucleic acid.
5. The basic structural unit of nucleic acid is nucleotide. Name 3 components of nucleotide.
6. What are 2 types of nucleic acid?
7. What is mean by enzymes?
8. 2 ml of amylase enzyme is added to the flour solution. Then Iodine drop lets is added to the solution after 20 minutes. The blue colour is not observed write the reason for it.
9. Which specific property of water is enabling for the survival of aquatic organism?

10. Fill in the table below.

Nutrients	Importance
Carbohydrate	
Protein	
Lipid	
Nucleic acid	
Minerals	
Vitamins	
Water	

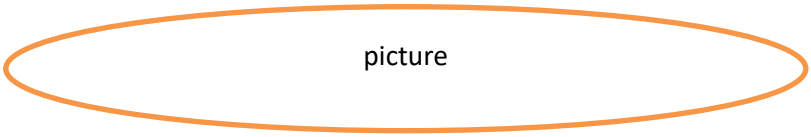
11. Complete the following table related to plant and animals.

Minerals	Importance	Deficiency symptoms
Hydrogen		
Posphorus		
Pottasium		
Sulpher		
Iron		
Calcium		
Zinc		

Vitamin A		
Vitamin B		
Vitamin C		
Vitamin D		
Vitamin E		
Vitamin K		

1.2:

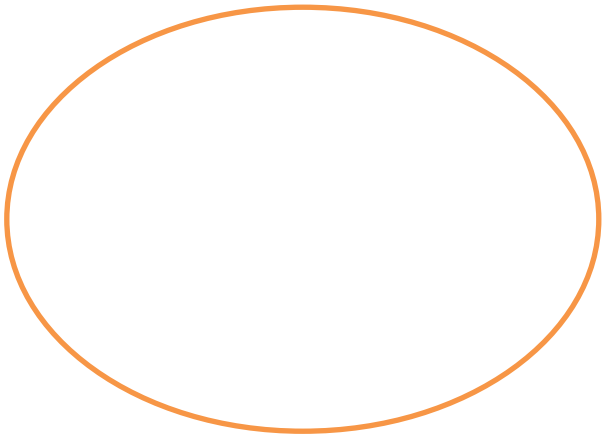
12. Label the animal cell.



13. What is meant by the tropical cell?
14. Write the differences between plant cell and animal cell by completing the table.

Organelle	Plant cell	Animal cell
Cell wall		
Vacuole		
Chloroplast		

15. Label the following plant cell.

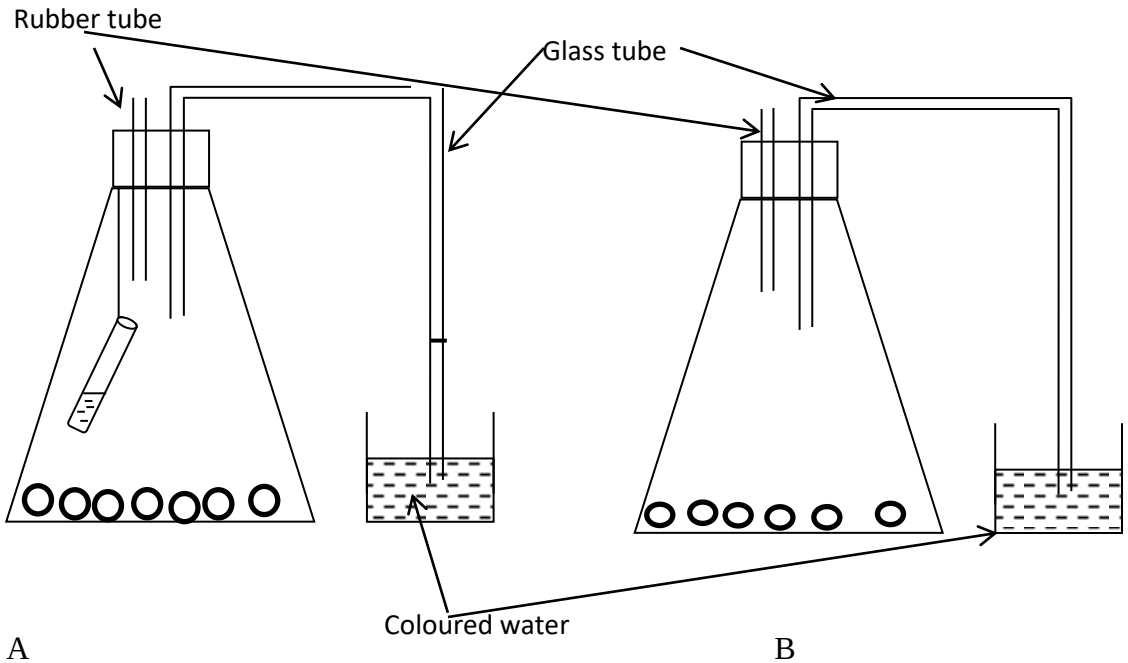


16. Explain the cell theory.
17. Draw the organelle and write the functions.
18. What is meant by cell growth?
19. Name the 2 types of cell division.
20. Write the differences between mitosis and meiosis.

Mitosis	Meiosis

1.3 :

21. Write all 8 the special features of organisms.
22. Answer the questions based on the following activity.



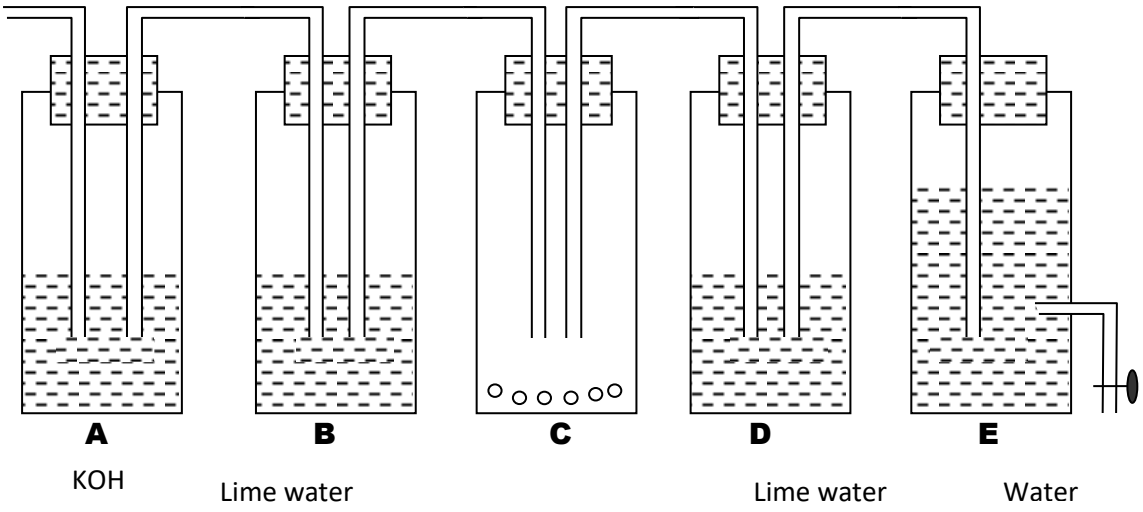
A B

I. What is the intension of the above activity?

II. What is the reason of using KOH?

III . What are the inference / conclusion of this activity?

23. Answer the question using following activity.



I. What are the observations in the bottle B and D?

II. Write the changes occurred to air in each bottle.

1.4:

24. Write 4 advantages of classification.

25. Name 3 domains of modern classification.

26. Write 4 advantages of bacteria.

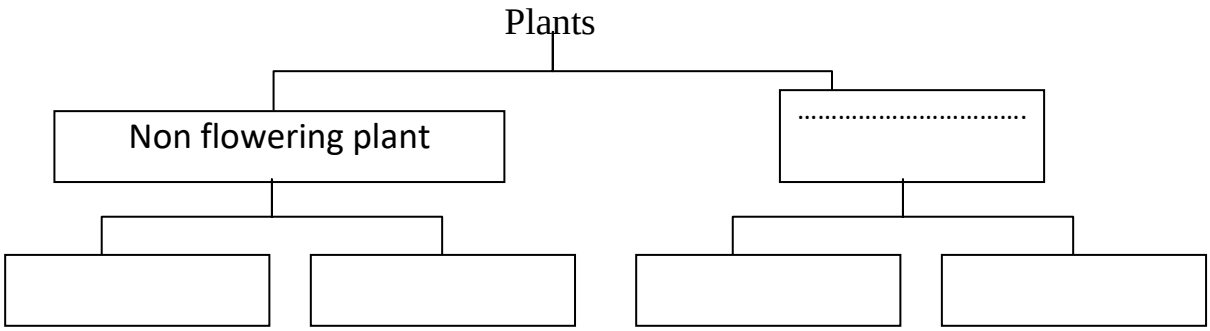
27. Write the features of kingdom Protista with examples.

28. Name the kingdom which mushroom belongs to name other 2 organisms in the kingdom.

29. What is the feature used to classify the kingdom Plantae in to two?

30. Write the special features of kingdom Plantae.

31. Fill the dichotomal key given bellow.

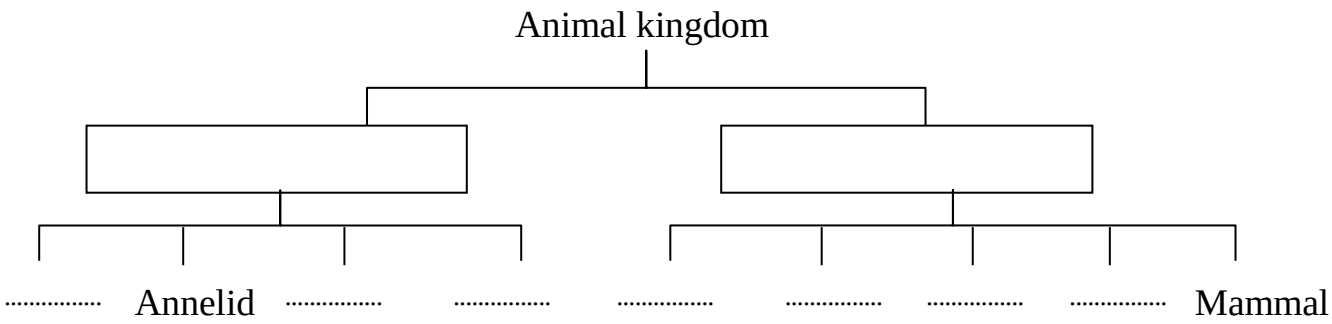


Eg:- ..... Eg: ..... Eg: ..... Eg: Mango

32. Tabulate the differences and similarities between monocotyledonous and dicotyledonous plant.

Monocotyledonous	Dicotyledonous

33. Fill the dichotomous key given below.



34. Write the features of Arthropod.

35. Name 5 organisms present in the environment belong to artopoda.

36. Write the features of Annelida.

37. Write the features of Mollusca.

38. Complete the following table.

Phylum	Special Features	Examples
Fish		
Amphibian		
Reptile		
Birds		
Mammals		

39. Write the laws of binomial nomenclature.

40. Write the scientific name of human.

1.5:

41. Write 2 main methods of reproduction.

42. Explain briefly those 2 reproductive methods.

43. Write the similarities and differences between the above.

44. Give 3 examples for each natural vegetative reproductive method in plant.

45. What is meant by under -ground stem?

46. Write the uses of under - ground stem.

47. Write 4 types of under - ground stems with examples.

48. Write the advantages and dis advantages of plant.

49. What is mean by artificial vegetative propagation?

50. Fill the table given below.

Method of layering	Description	Plant can be used
Ground layering		
Aerial layering		

51. Write 2 main methods of grafting.

52. Write features of stock and scion in grafting.

53. Describe the bud grafting in order by diagram.

54. Draw the diagrams of twig grafting.

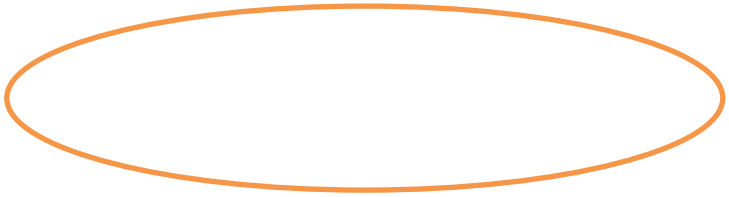
55. Write 2 advantages and dis advantages of grafting.

56. What are the nutrients should be included in a culture medium?

57. Tissue culture cannot be conducted in an open environment. Why?

58. Write the benefits of tissue culture.

59. Name floral parts given bellow.



60. Fill the table given below.

Part of the flower	Functions
Anther	
Stigma	
corolla	
Ovule	
calyx	
ovary	

61. Write the definition for self -pollination and cross pollination separately.

62. Write the adaptations in flower to step the self- pollinations.

63. Name agents of pollination.

64. Fill the table given bellow.

Factor	Adaptation	Examples
Wind		
Water		
Animal		

65. “After fertilization zygotes develop to from an embryo”. Explain this process briefly.

I. Write the changes occurred in a flower after fertilization.

a) Ovary

b) Wall of the ovary

c) Ovule

66. What is meant by dispersal of speed?

67. Write the importance of speed dispersal.

68. Fill the table using the knowledge of dispersal of speed.

Method of seed dispersal	Adaptation	Example
Wind		
Animal		
Water		
Explosive		
Mechanism		

69. What is meant by germination of seed?

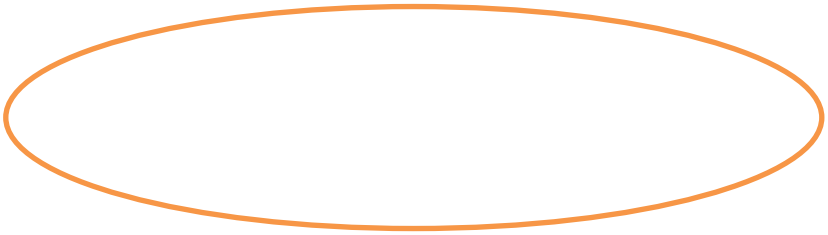
70. What are the factors needed for the germination of seed?

71. What is the hormone which is responsible for the secondary sexual characteristics of boys in during 13- 16 years?

72. Write 5 secondary characteristics in male?

73. What are the secondary characteristics in female? What is the hormone responsible for it?

74. Label the following diagram.



75. Fill the table about menstrual cycle.

Phase	Hormone	Function
Follicular Phase		
Luteal Phase		

76. What are the changes in uterus during the following phases?

a) Menstrual Phase

b) Proliferation phase

c) Secretory phase

77. What is meant by parturition (Child birth)?

78. What is meant by fertilization?

79. How do you call the fertilized egg?

80. Name sexual transmitted diseases and their pathogens.

1.6:

81. Write the common inherited characteristics in organisms.

82. Describe the following terms.

a) Dominant feature

b) Recessive feature

83. Complete the punnet square of Mendal using the pure bread tall and short characters'. (Tall – T , Short _ t)

84. Describe the following terms.

a) Homologous chromosome

b) Linked gene

c) Gene

d) Heterozygous gene

e) Chromosome

85. What is the meant by sex- linked inherited diseases?

1. **Starting date of the activity book: ……**

Date	Number of questions done	Signature of teacher

2. **Ending date of the activity book: ……**

Questions related to learning outcomes of Grade 10 - 11

Competency:10.2

Competency Level :2.1 ,2.2 ,2.3 , 2.4 , 2.5

- **Introductions: Answer all the questions.**
  Answer sheets should be evaluated by the teachers to identify your weak points.

2.1:

85. Who introduced the planetery model of atom?

86. Describe the planetary model briefly.

87. What is the maximum number of electrons that can be present in the shells K,L, M and N?

88. What is meant by electronic configuration?

89. An atom has 11 electrons. Write the electronic configuration of it.

90. Draw the electronic configuration diagram.

91. What are the other sub- atomic particles present in an atom except electrons?

92. Tabulate mass and charge of subatomic particles.

93. Which sub atomic particle is equal to the number of electrons in a neutral atom?

94. What is meant by atomic number?

95. Write the elements in order from the atomic number 1- 20 using symbols?

96. Explain briefly how do you identify the group number and period number of an atom using electronic configuration?

97. Tabulate the first 20 elements with their group number and period number.

98. Explain the terms group and period in periodic table.

99. What is meant by isotope?

100. Explain the reason that same atom can have many isotopes.

101. What is meant by mass number?

102. What are the sub atomic particles influence the mass number of an atom?

103. Atomic number of an atom X is 11and the mass number is 23. Write it in standard form.

104. What is meant by first ionization energy?

105. How does the first ionization energy vary from left to right of the periodic table?

106. How does the first ionization energy vary from top to bottom in the periodic table?

107. What is meant by electro-negativity?

108. Which element has highest electro- negativity according to Pauling scale?

109. How does the electro-negativity changes from left to write of a period and top to bottom of a group?

110. Compare the properties of metals and non- metals?

111. Draw a periodic table and colour the metals and non-metals.

112. Write 2 physical properties and 2 chemical properties of sodium.

113. How does the Sodium stored in the lab? Write the reason for it.

114. Give 3 physical properties of Magnesium.

115. What is the colour of Sulphur flame when it is burnt in the air?

116. Give example for crystalline form and amorphous form of Carbon.

117. Give metalloids in a periodic table.

118. Fill the chart using the Oxides of given elements.

Element	Na	Mg	Al	Si	P	S	Cl	Ar
Acidic / basic property								

118. What is meant by valency?

119. Fill the table.

Element	Atomic number	Group number	Valiancy
H			
He			
Li			
Be			
B			
C			
N			
O			
F			
Ne			
Ca			

121. Valency Calcium is 2 and valency of chlorine is 1. Write the formula of the compound Calcium Chloride.

122. Valency of hydroxide is 1. Write the formula of Calcium hydroxide.

123. What is valency of He and Ar. Explain the reason for your answer.

2.2:

124. What is meant by atomic mass unit?

125. Explain what is relative atomic mass?

126. Explain what is relative molecular mass?

127. Find the relative molecular mass of the following compounds?

N = 14 H = 1 Ca = 40 C = 12 O =16 Al = 27 Cl = 35.5

I. NH_3 II. $Ca(HCO_3)_2$ III. $Al(OH)_3$ IV. CCl_4

128. What is Avagardro constant? Write the value of it.

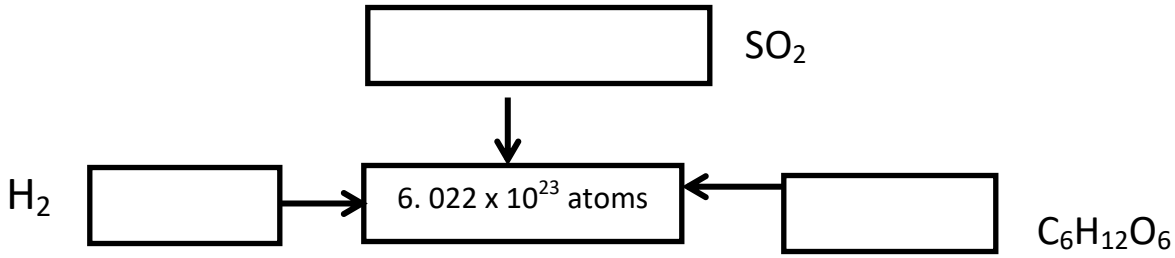
129. What is the unit used to measure the substance present in it?

130. What is molar mass?

131. What is unit of molar mass?

132. Relative atomic mass of element X is 16. What is molar mass of it?

133. If S = 32 H = 1 O = 16 C = 12 to obtain each atom how many grams of each molecules should be taken to obtain 6.023×10^{23} molecules.



134. How many moles are there in 50g $CaCO_3$?

135. Find the relative molecular mass of $C_6H_{12}O_6$.

136. Calculate the number of molecules present in 360g glucose.

137. How many grams of glucose should be taken to obtain 10 moles of $C_6H_{12}O_6$?

2.3:

138. Which sub-atomic particle help for chemical bonds?

139. Electronic configuration of Sodium is 2, 8. 1. It releases one electron and become Na^+ to become a noble gas configuration. Show it in an equation.

140. Fill the table given below.

Na atom	Na^+ ion
e …….. p …… Total charge ……	e …… p …….. Total charge ……

141. Atomic number of Cl is 17. Write the electron a Cl should gain or loose electrons?

142. Cl gain one electron and become Cl^-. Show it in an equation.

143. Fill the table given below.

Cl atom	Cl^- ion
e …….. p …… Total charge ……	e …… p …….. Total charge ……

144. What are the 2 types of bonds?

145. In an ionic bond loosing of electron and gaining of electron occurs. Show the structrue of NaCl in diagram.

146. Which group of elements have the tendency of forming ionic bonds.

147. Which type of bond is created by sharing pairs of electron between atoms?

148. Draw the Lewis structure of H_2, Cl_2 , N_2 ,O_2

149. Draw the atomic structure of CCl_4 .

150. Draw the dot- cross Lewis structure of CCl_4.

151. What is meant by electro- negativity?

152. Give example for the covalent compound created between two atoms with equal electro-negativity.

153. Give example for the covalent compound created between two elements with different electro-negativities.

154. What is meant by inter molecular bond.

155. Explain how does the inter molecular altraction is created in water molecule.

156. Write the properties of ionic compound and covelent compound.

157. NaCl solution and ethyl alcohol solution are equally provided. Write an activity by conduction of electricity to final out the ionic and covelent compounds.

158. Give 3 examples for ionic and covelent compounds.

2.4:

159. Separate the physical change and chemical change.

160. Give 2 examples for physical change and chemical change.

161. What are the 4 types of chemical reactions?

162. Give example for each type of chemical reaction.

163. Write the balance chemical equation for following reaction.

i. $Mg + O_2 \longrightarrow$

ii. $Al + HCl \longrightarrow$

iii. $N_2 + H_2 \longrightarrow$

iv. $Mg + HCl \longrightarrow$

v. $CaCO_3 \longrightarrow$

164.

ii. What is the structure used to extract iron from iron ore? Answer the following question based on the reaction of metals with water.
i. Write 2 observations when Sodium reacts with water.

ii. When metals react with water is the product obtained acid or base?

165. Name 2 acids used in the laboratory frequently.

166. Write the common equation for the reaction between metal with acids.

167. What is the gas evolved during the reaction between metal and acid?

168. It is very dangerous to do the reaction between acid, and Sodium, Potassium. Write the reason for it.

169. What is the name of the series obtained by arranging the metals in descending order of rate of reaction?

170. Write element in descending order off rate of reaction.

171. Write 3 uses of activity series.

172. How do you store high reactive element in laboratory?

173. Explain how activity series helps to avoid the corrosion of metals?

174. Write the method of extraction of metal in the activity series.

175. i. What is the main compound in the iron ore?

ii. What is the structure used to extract iron from iron ore?

176. What are the raw materials used in extraction of iron?

177. Write the reactions take place during iron extraction.

178. What are impurities present in slag?

179. Write 2 chemicals that can be prepare Hydrogen gas.

180. Draw the set-up of preparing H_2 gas in the laboratory using an acid and a base.

181. Explain how H_2 gas collected in the laboratory and write the reason for it.

182. How do you identify H_2 gas in the laboratory and what is the observation for that?

183. Write 2 chemicals in used to prepare O_2 in the laboratory.

184. Write the balanced chemical equation for the preparation of O_2 gas you mentioned above.

185. Write the setup used to collect the O_2 gas in the laboratory.

186. Explain why O_2 gas is collected in the laboratory and give reason for that.

187. What is experiment you do to verify the O_2 gas. What are the observations there?

188. Write 2 chemical substance used to prepare CO_2 gas in the laboratory.

189. Draw the set of apparatus which can be used to prepare O_2 gas in the laboratory.

190. What is the method of collecting CO_2 gas and write the reason for collecting that.

191. Write an experiment to prove that the collected gas is CO_2.

192. Write a use of CO_2 , O_2 and H_2.

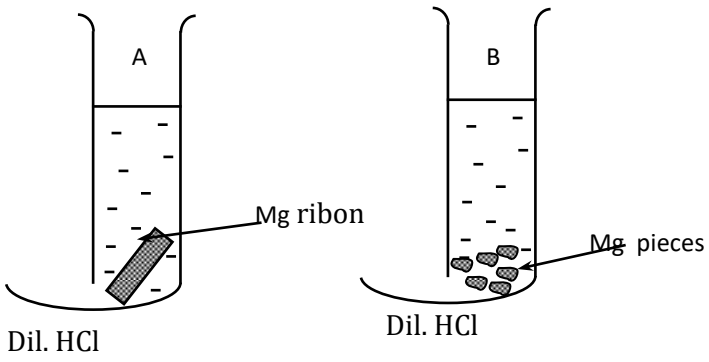
2.5:

193. Give 2 examples for fast reaction and slow reaction that takes place in the environment.

193. What is meant by rate of reaction?

194. What are the factors affecting the rate of reaction?

195. Which factor of rate of reaction can be tested by the following reaction?

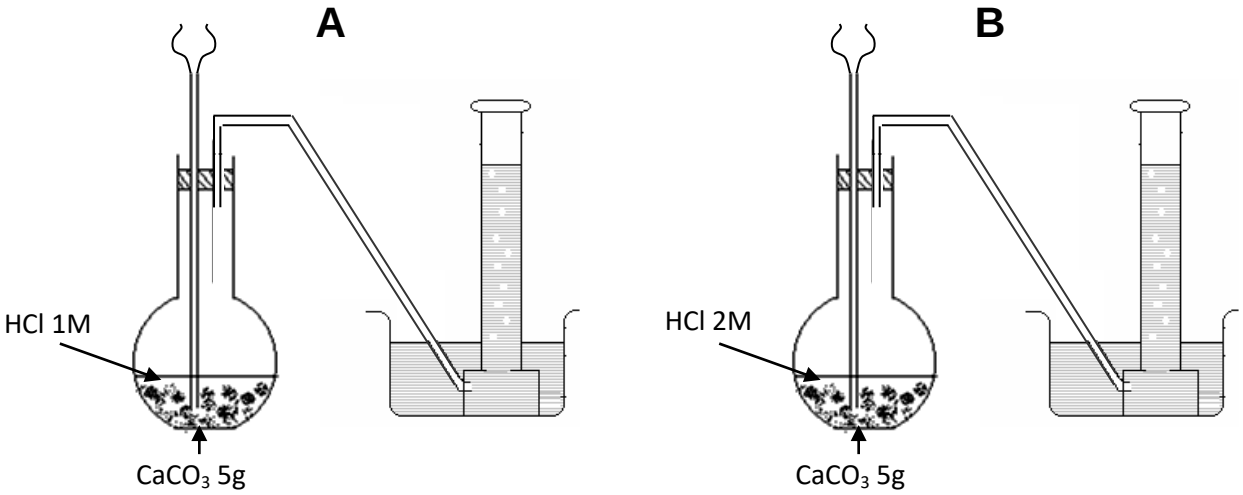


196. i. In which test tube move gas is evolved?

ii. Write 2 other observations in the test tubes A and B.

iii. Among the test tube A and B in which test tube rate of reaction is high?

197. Following diagram shows. How do the concentrations affect the rate of reaction?



i. In which set up rate of reaction is high write the reason.

198. Write 2 factors influence the rate of reaction.

199. Write an activity to show that temperature affect the rate of reaction.

3. **Starting date of the activity book: ……**

Date	Number of questions done	Signature of teacher

4. **Ending date of the activity book:**
   ……

Diagnostic test for the learning outcomes of Grade 10 - 11

Competency: 10 - 3

Competency Levels :3.1 , 3.2 , 3.3 , 3.4 , 3.5, 3.6, 3.7, 3.8 , 3.9

- **Introductions: Answer all the questions.**
  Answer sheets should be evaluated by the teachers to identify your weak points.

3.1:

1. Write physical quantities related to motion.
2. What is meant by vector quality?
3. What is meant by scalar quality?
4. Write 3 examples each for scalar quantities and vector quantities.
5. Describe the following terms.
   a) Distance
   b) Speed
   c) Acceleration
   d) Displacement
   e) Velocity
6. Fill the table given bellow.

Quantity	Vector / Scalar	S.I. unit	Symbol
Distance			
Speed			
Acceleration			
Displacement			
Velocity			
Deceleration			

7. Write the equation for speed.
8. If an object moves 50m distance within 5 seconds .Find the speed of this.
9. What is meant by mean speed?
10. Write the equation for the mean speed.
11. If an object travels 100m distance within 10 seconds. What is the speed of that object?
12. Write the equation for velocity.
13. In which instance mean velocity should be calculated?
14. Write the equation for the mean velocity.
15. Using the following table find the mean velocity?

Time (s)	0	1	2	3	4	5
Distance (m)	0	4	7	9	12	15

16. What is the equation used to find the acceleration.
17. Using the following table draw the displacement time graph.

Time (s)	1	2	3	4	5	6	7	8	9	10
Displacement (m)	0	3	6	9	12	12	12	12	6	0

I. What is the movement of the object during first four second?
II. What is the rate of change of displacement during first four seconds?
III. Describe the motion of the object during 4 – 8 seconds.
IV. How does the motion occur during 8 – 10 seconds?
V. Find the velocity during last 2 seconds.

18. The displacement time graph of an object moved in a straight line is given bellow.

Time (s)	0	1	2	3	4
Distance (m)	0	2	4	6	8

i. Using the table draw the velocity- time graph.
ii. What is meant by the line indicated by graph?
iii. Using the graph acceleration can be calculated in 2 ways. What are they?
iv. Find the acceleration of the object?
v. How do you find the distance of the object using the graph?
vi. Find the distance that the object moved.

3.2:

19. What is the energy used to move an object at rest?

20. What can we do using energy?

21. Who introduced the laws of force and motion?

22. Write Newton's 1^{st} law.

23. What is the reason for moving forward on the passenger when breake is applied for a moving a bus?

24. Write Newton's 2^{nd} law.

25. Write an activity to show that acceleration increases when force is increasing.

26. Write an activity to show that mass is inversely proposed to acceleration.

27. Write an equation using acceleration, mass and force.

28. Write an expression to show that when force is constant acceleration is inversely proposed to acceleration.

29. Write the expression for 2^{nd} Newton's law.

30. What is the S.I .unit for balance?

31. If the mass of object is 4kg and moves with $3ms^{-2}$ acceleration, find the force of that object.

32. If an object moves with 60N force with the mass 10kg. Find the acceleration of that object.

33. Write Newton's 3^{rd} law.

34. Write the action and reaction for the following situation.

I. A cracker moves upward.

II. The force acts on a swimmer.

III.When riding a boat

35. What is the meant by "weight of an object"?

36. What is the weight of an object with the mass of 50kg. ($g= 10ms^{-2}$)

37. Write the expression for momentum of an object.

38. Find the momentum of an object which is the mass of 800kg and travels 5m distance.

3.3:

39. What is meant by "Frictional force"?

40. If there is no relative motion between objects. What is friction act on them?

41. What is the frictional force act when an object tents to move?

42. If there is a relative motion between objects. What is the friction on that?

43. What is meant by "Limiting frictional force"?

44. What is the factors influence on "Limiting frictional force"?

45. Briefly explain that activity to show that nature of the surface affect the limiting fractional force.

46. Briefly explain that activity to show that mass affect Limiting frictional force.

47. Is area of the surface affecting the frictional force?

48. Write two strategies to decrease the frictional force?

49. Write 4 examples for the instances to reduce the fractional force.

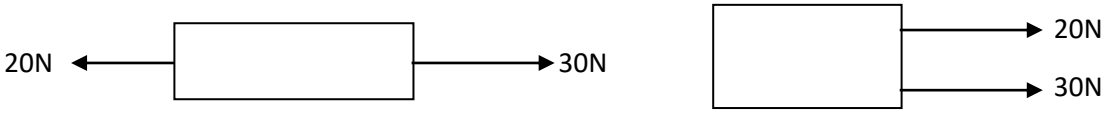
50. Write the strategies to increase the friction.

3.4:

53. What is name can be used when more than one force is applied, the single force that gives the same result as that or all the contributing forces?

54. How to find the resultant of two collinear forces acting along the same direction?

55. Find the resultant forces of given instances.



3.5:

57. What is the meaning of moment of force?

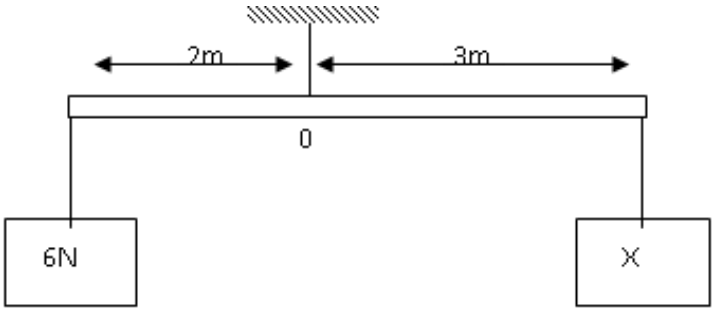
58. What are the factors associated with moment of force?

59. Write the mathematical equation for the moment of force.

60. Write the units of moment of force.

61. Find the moment of force if applying force is 2N and perpendicular distance to the line of action is 1.5 m.

62. Find the applying force for B side when rod AB is balanced at its o.



63. What is the meaning of couple of forces?

64. Write the instances where couple of force is used in day to day life?

65. Draw a diagram to show couple of forces acts on the tap when opening or closing the tap.

3.6:

66. What is the meaning of equilibrium of force?

67. Write the instances where of equilibrium of force is used?

68. State the two examples for the equilibrium of an object under two forces and show it on a named diagram.

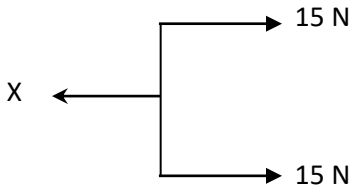
69. State the two examples for the equilibrium of an object under three forces and show it on a named diagram.

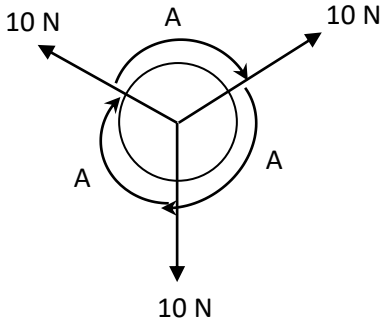
70. Write 2 instances where 3 non-parallel forces act on an object and mark them in a diagram.

71. What are the conditions fulfilled to be equilibrium of 3 non-parallel forces on an object?

72. Write one instance where more than 3 forces are at equilibrium on an object.

73. i. Find the force X. ii. Find the value of the angle A.





3.7:

74. Write 3 factors affected for the pressure in liquids.

75. Write the formula to find the pressure in liquids.

76. The highest of a tank is 2m. When water is filled, find the pressure at the bottom of the tank. (Density of water $1000kgm^{-3}$, g $=10ms^{-2}$)

77. Find the pressure at the bottom of the tank , when tank is filled with half of water.

78. Explain a simple activity with diagrams to show the liquids has the same pressure towards every direction.

79. Write 2 instruments where they are made by using the phenomena of pressure of liquids.

80. What are the 2 equipment used to measure the pressure of air?

81. What are the factors affected for the change of atmospheric pressure?

82. Write the Archimedes' Theorem.

3.8:

83. What is meant by work?

84. State whether following instances are doing a work or not?

a. Pushing a wheel barrow. (Yes / No)

b. Stopping a moving stone. (Yes / No)

c. Pushing a cart by a bull. (Yes / No)

d. A child pushes a wall. (Yes / No)

85. What is the SI unit of measuring work? Give the symbol.

86. What is meant by 'A Joule'?

87. What is the work done when an object is moved 2m distance with a 20N force?

88. Find the force when an object is moved 50cm distance and if work done here is 5j.

89. What is meant by energy?

90. What is the measuring unit of energy?

91. Write 6 forms of energy.

92. What are the 2 types of mechanical energy?

93. What is the energy contained in a moving object?

94. What is the energy contained in a structured spring?

95. What is the energy contained in moving water?

96. What is the energy contained in a stretched rubber band?

97. What is the force contained in a fruit on a tree?

98. Write the expression used to calculate the kinetic energy?

99. Explain briefly what is the potential energy?

100. Write the expression use to calculate the potential energy?

101. Calculate the amount of kinetic energy when an object with 10kg is moving with a velocity of $4ms^{-1}$.

102. Calculate the amount of potential energy of an object having a mass of 75kg and it is situated at an elevation of 4m above.

103. What is power?

104. Write the unit of power?

105. Write an expression to calculate the power.

106. The time taken to lift of 5 kg of mass to 6m is 5s. Find the power?

3.9:

107. Write 5equipments which are worked with electricity.

108. What are the main 2 type of electricity?

109. What is the name given for the electric charges which are stored on surfaces of insulators?

110. Write a simple experiment to show the static electric charges are formed by rubbing.

111. What are the sub atomic particles contained in an atom?

112. What is the type of sub atomic particle that can be removed easily from an atom?

113. What is the charge of above sub atomic particle?

114. What are the 2 types of static electric charges?

115. What happened when getting close charged 2 objects negative- negative/ positive-positive?

116. What is happened when charged with positive- negative objects gets closed?

117. Explain briefly, how does a Neon bulb light up with static electricity?

118. Explain briefly what is an electric current?

119. What are the electric conductors?

120. Write 3 examples for electric conductors.

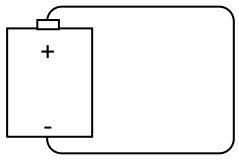
121. What is shell that having free electrons in metallic atoms?

122. What are the free electrons?

123. Sketch a diagram to show how electrons are arranged in an atom?

124. Explain briefly the reason to conduct electricity through conductors?

125. Show the direction of flow of electrons and the conventional current with an arrow head in the following diagram.



126. To flow current through a conductor, there should be a voltage supply. Draw a simple circuit diagram to show it with a cell and wires.

127. What is the name given for the voltage difference when there is no current flow through an electric source?

128. What is the name for the disturbance given by the conductor against the flow of current?

129. What are the factors affecting for the resistance of a conductor?

130. Write the measuring instrument, unit and the symbol of the unit of following quantities.

i. Current ii. Resistance iii. Voltage difference

131. Draw the diagram how to connect a voltmeter and ammeter to a circuit properly?

132. State the Ohm's law.

133. Explain a simple activity to show the relationship between V and I in a conductor.

134. According to the above activity draw the graph to show the relationship between V and I.

135. Write the relationship between voltage differences (V), Current (C) and the resistance (R).

136. Calculate the voltage difference (V) in a conductor when 3A of current is flowing through it and the resistance is 5**Ω**.

137. What are types of resistors?

138. Draw the symbol for the permanent resistors?

139. Write the colour chord of the chart to read the value of a resister.

141. Draw the symbol for the variable resistors?

142. Name the types of variable resistors.

142. Write 3 instances where variable resistors are used?

143. What are the light dependent resistors / LDRs?

144. What are the instances where LDRs used?

145. Draw the physical appearance of a LDR and name the circuit symbol of it?

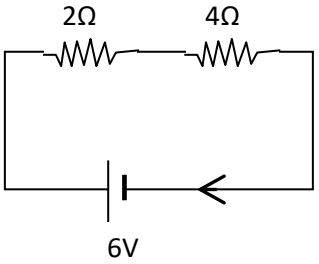
146. What are the 2 ways of connecting resistors?

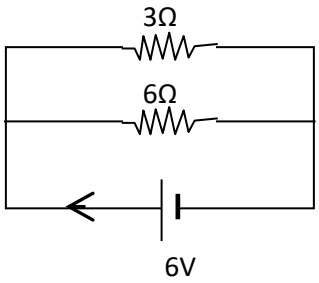
147. Draw the circuit diagrams to the parallel and series connection of R_1, R_2, and R_3 resistors.

148. What is meant by resistant resistance (R_E).

149. Find the resultant resistance of 2**Ω**, 3**Ω** and 4**Ω**, when they are connected parallel and serially.

150. Find the current flow through the following diagrams.





5. Starting date of the activity book: ……

Date	Number of questions done	Signature of teacher

6. Ending date of the activity book: ……

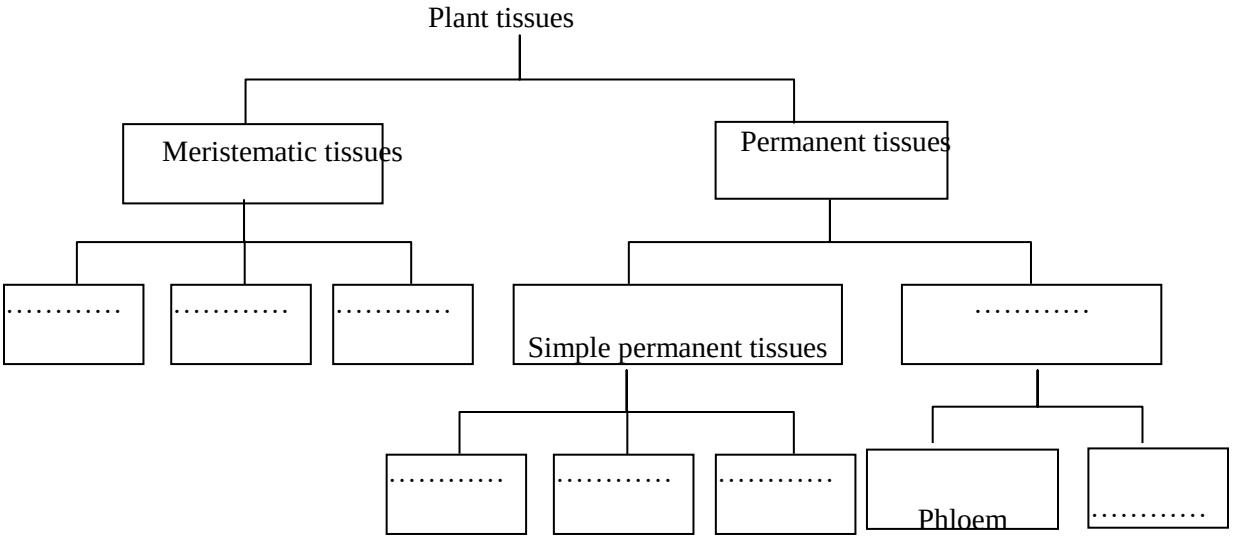
Questions related to learning outcomes of Grade 10 - 11

Competency: 11- 1

Competency Level :1.1 , 1.2 , 1.3 , 1.4 , 1.5 , 1.6 ,1.7 , 1.8

- **Introductions: Answer all the questions.**
  Answer sheets should be evaluated by the teachers to identify your weak points.

1. Complete the following dichotomous key. Related to the plant tissues.



2. Write 4 features of the meristematic tissues of plants?
3. Name 3 types of permanent tissues can be seen in plants.
4. Write the functions of phloem and Xylem tissues separately.
5. Compare and contrast the structural features of Xylem and Pholem tissues.
6. Name 4 types of animal tissues.
7. Write 5 functions of epithelial tissues.
8. Write 4 places where epithelial tissues are situated.
9. Write 3 features of the connective tissues.
10. Write the functions of the blood as connective tissues.
11. Complete the following table related to the muscles.

	Smooth muscle	Skeletal muscle	Cardiac muscle
Structural diagram of the tissue			
Shape of a cell			
Unicellular/ multicellular			
Presence of striations			
Voluntary/ involuntary			
Cells are branded/ unbranded			
Place where they are situated			

12. Draw and name the part of a typical nerve cell.
13. Write 2 functions of nerve cells?
14. Write 3 names of nerve cells divided according to their functions.
15. What is 'Photosynthesis'?
16. Write 4 factors needed for the photosynthesis.
17. Why does the plant keep 48 hours under a dark conditions when doing practical related to Photosynthesis?
18. Write an experiment to show plants need sunlight for the Photosynthesis. (With diagrams)
19. Write an experiment to show chlorophylls is needed for the Photosynthesis. (With diagrams)
20. Write the steps to identify the starch stored in a leaf and mention the reason, why does we do those things?
21. Explain an activity with diagrams, how to collect O_2 when the Photosynthesis happens and how can it be identified?
22. How does O_2 gas identify?
23. Write the balanced equation for the Photosynthesis.
24. What are the importances of Photosynthesis for the biosphere?
25. Explain briefly what is the 'digestion'?
26. What are the 2 ways of digestions?
27. Name the enzyme secreted into the food in the mouth cavity and write the equation, how does that enzyme work on the food?
28. What is the name of the movement of the food in theoesophagus?
29. State briefly, how does the food mechanically digest in the stomach?
30. Name 2 things in the gastric juice and mention, What is the type of nutrient that converts into simpler substances by above mentions and substances.

31. Write the function of HCl and pepsin in the stomach separately.
32. What is the name of the enzyme in gastric juice infants?
33. Write 3 substances absorbed by the stomach.
34. Complete the following table. Related to the digestion in small intestine.

Organ that secretes	Type of enzyme	Substrate (the nutrient)	Products
Pancreas pancreatic juice	Tripsine Lypase	……. …….. ……..	…….. …….. …….
Small intestine Intestinal juice	Maltase Peptidase	…… …… ……..	…… …….. …….

35. Where does bile produce?
36. What are the substances contained in bile?
37. How does the bile help to digestion?
38. Write the end products of followings.
    a) Carbohydrate-
    b) Protein –
    c) Lipids –
39. Write 3 adaptations shown by small intestine to increase the efficiency of absorbing end products.
40. Write 4 names of substances absorbed to the blood. Capillaries from fingerlike projections in small intestine.
41. What are the substances absorbed by the lacteals?
42. What are the components absorbed in the large intestine when end-products are going through it?
43. What are the substances contained in fecal matter remained in rectum?
44. Complete the following table.

Disease	Symptoms of the disease	Reasons for the disease	Things to avoid from the disease
Gastritis			
Constipation			
Diarrhea			

45. Write 3 main incidents happen in the respiration in human.
46. Explain briefly a simple activity with diagram to show the external mechanism of respiration.

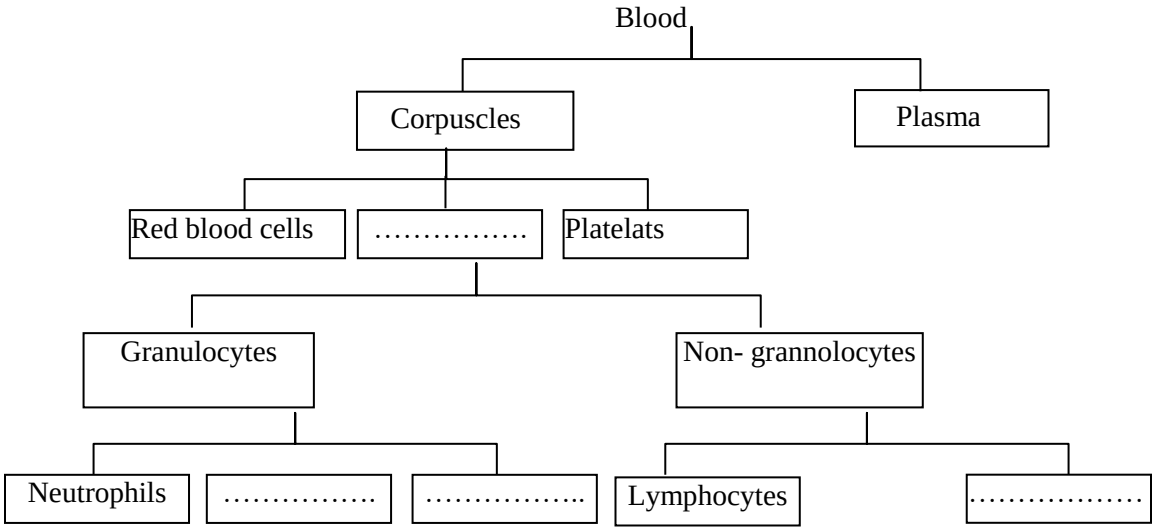
47. What is the function of the mucus in the nasal cavity?
48. What are the changes occurred in air by the cilia in the nasal cavity?
49. What are the 2 steps of external respiration?
50. Draw the simple sketch to show the movements of ribs when in hailing?
51. Write 2 changes occurred in thoracic cavity when in hailing.
52. What is meant by a respiratory surface?
53. Write 4 features of a respiratory surface?
54. What is organ acting in human as the respiratory surface?
55. Write 4 adaptations shown by the walls of alveoli for the efficient exchange of air?
56. Define what is cellular respiration?
57. Write 2 stages of cellular respiration and compare them with a table.
58. Write the balanced equation for the cellular respiration.
59. What is the name of the chemical compound that the produced chemical energy by cellular respiration stored?
60. Write 3 functions of adenosine Tri Phosphate (ATP)?
61. Complete the following table related to the diseases related to the respiratory system.

Disease	Symptoms	Reasons for the disease	Things to avoid from disease
Influenza			
Pneumonia			
Asthma			
Bronchitis			
Tuberculosis			
Cancers			
Silicosis			
Asbestosis			

62. Explain briefly, what is “Excretion”?
63. Complete the following table related to the excretion of human.

Excretory organ	Excretory matter	Way of removing the excretory products
Lungs	CO_2 , water	
Kidney		Urine
Skin	Urea , Uric acid , water	

64. What is the function of the kidneys?
65. Explain briefly, the 3 stages of producing urine within nephrons?
66. Name 3 diseases related to the excretory system and write their symptoms and things can do to avoid from those diseases in a table.
67. Write 3 functions of the blood.
68. Complete the following chart related to the blood tissue.



69. Define what is ‘pulmonary circulation’?
70. Define what is ‘systematic circulation’?
71. Explain separately, what are the systolic blood pressure and the diastolic blood pressure in blood pressure.
72. What are the 3 stages of cardiac cycle?
73. Explain briefly, the thing happen in above 3 stages separately.
74. Explain briefly, how does the Lup- Dup sound generate in the function of heart?
75. What is meant by tissue fluid?
76. What is the name given for the tubular system that tissue fluid connects to the blood circulatory System?
77. What is meant by “lymph”?
78. What is the function of lymphatic system?
79. Name 3 diseases related to the blood circulatory system and mention their symptoms and thing we can do to avoid from those diseases in a table.
80. Name 2 main parts of the central nervous system.
81. Name 2 main parts of the brain.

82. Mention the functions of the parts of the brain in following table.

Part of the brain	Functions
Cerebrum	
Cerebellum	
medulla oblongata	

83. What is a reflex action?
84. What are the 2 types of reflex action?
85. Write 2 examples for each reflex action?
86. Write 3 types of neurons join for the reflex action.
87. Write the steps of a reflex action in a flow chart.
88. Write 2 parts of autonomic nervous system.
89. What is the function of autonomic nervous system?
90. Write 3 examples activities for each of Sympathetic and parasympathetic nervous system.
91. Complete the table related to the endocrine system.

Gland	Location of gland	hormone	Utility
Pituitary			
Thyroid			
pancreas			
Adrenal glands			
Testes			
Ovaries			

92. Why does the endocrine glands name as ductless glands?
93. Write 5 features of hormones?
94. What is homeostasis?
95. Name 3 factors should be controlled in the internal environment in the body.
96. Name the hormone related to reduce the blood glucose level and explain briefly how does that hormone work when it goes up?
97. Name the hormone related to increase the blood glucose level. When it goes down and briefly explains how does that hormone work.
98. Write the normal body temperature of human in Celsius and Fahrenheit.

99. Write the actions taken by the bodyto maintain a body temperature when body temperature is increased or decreased.
100. What is the hormone related to the regulation of water balance?
101. Explain the actions taken by the body. Because the water level in blood is low and high.

7. Starting date of the activity book: ……

Date	Number of questions done	Signature of teacher

8. Ending date of the activity book: ……

Diagnostic test for the learning outcomes of Grade 10 - 11

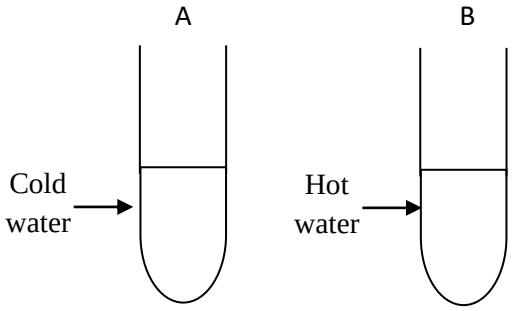
Competency:11- 2

Competency Levels: 2.1, 2.2 , 2.3 , 2.4 , 2.5, 2.6, 2.7, 2.8 , 2.9, 2.10

- **Introductions: Answer all the questions.**
  Answer sheets should be evaluated by the teachers to identify your weak points.

2.1

1. What is the name given for the matter, if it is containing 2 or more components?
2. Write 2 features of such matter.
3. Write 3 features of a homogeneous mixture?
4. Write 3 features of a heterogeneous mixture?
5. Write the type of mixture when coconut oil and water are mixed together.
6. Mentions following mixtures are homogeneous or heterogeneous.
   a) Salt solution
   b) Atmospheric air
   c) Condi's solution
   d) Sugar solution
7. What is meant by solubility of a substance?
8. Write 3 factors affected for the solubility of a substance.
9. Write a simple activity to show the nature of solute is affected for the solubility of that substance.
10. Following activity show, how does the temperature affect for the solubility.



2g of sugar is dissolved in each of A and B.

I. Write the observations after 2 min.
II. Write the conclusion according to the above observations.

11. Write 3 instances where factors affected for the solubility are controlled in our day to day life.

2.2

12. Write 5 ways of expressing the composition of a mixture.
13. Write the method used to express the concentration of a solution.
14. 250cm^3 of 1$moldm^{-3}$NaCl solution should be made.
    I. Name the equipment's needed to make this.
    II. Calculate the amount of NaCl in grams needed for this amount.
    III. Mention the steps briefly to make this solution.
    IV. Find the concentration of a solution which is made 250 cm^3 of glucose solution with 90g.
15. Find the amount of NaCl in 500$cm^3$of 0.2 $moldm^{-3}$NaCl solution. (Na = 23, Cl = 35.5)
16. Find the amount of urea in 250 cm^3 of 0.4 $moldm^{-3}$ of urea ($CO(NH_2)_2$).(C = 12 , O = 16 , N = 14 , H = 1)

2.3

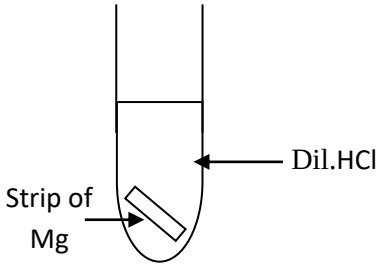
17. Write 5 methods used to separate the components of a mixture.
18. What is the name of the method used to separate alcohol and water contain in a mixture.
19. Explain with a label diagram, the way of separating water and alcohol from a mixture.
20. State the way of separating components of a mixture and give one example for each.
21. Explain briefly, the process of producing Salt from sea water.
22. Name 5 plats that can be used to get essential oils.
23. Explain with a labeled diagram, the way of producing essential oils in the laboratory.

2.4

24. Write 3 examples for each of Acids, base and a neutral can be seen in our daily life?
25. What are the strong acids and bases found in the lab?
26. Write the features of acids, bases and salt separately.
27. Explain briefly, what are an acid and a base?
28. What are the strong acids?
29. Explain briefly, how does a strong acid behave in an aqueous solution?
30. What are the weak acids?
31. Write 3 examples for weak acids?
32. What are the strong bases?
33. Explain, how does a strong base behave in an aqueous solution?
34. What are the weak bases?
35. Write 3 examples for weak bases?
36. Name the indicators used to identify acids and bases and write the colours given by them in acidic and basic medium.

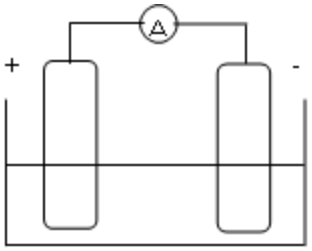
37. Mention, how do the salts are producing?
38. What is meant by 'neutralization'?
39. State a suitable equation to show the neutralization.
40. Write 2 examples for each of using acids, bases and salts in our daily life.

2.5



41. Is the temperature increased or decreased when strip of Mg is put in to Dil.HCl solution?
42. What are the exothermic reactions?
43. Give 3 examples for exothermic reactions.
44. What are the endothermic reactions?
45. Give 3 examples for endothermic reactions?
46. You have to find, what happened when dil. HCl and NaOH are mixed.
    I. Write 3 readings you have to take.
    II. Write 2 assumptions you have to take.
47. Explain the reasons for following scientifically.
    I. Cold water is used make lime from slaked lime.
    II. When producing H_2 gas by using NaOH and Al, the bottle contained them is submerged in a water bath.

2.6



48. Following diagram shows a simple cell made by using Zn, Cu and dil. H_2SO_4.
    I. Name, positive, negative, terminals and the electrolyte.
    II. Name the anode and the cathode of this cell.
    III. Write the reactions occurred near the Zn plate.
    IV. Is it an Oxidation or not?
    V. Write the reaction occurred near the Cu plate.
49. When, Zn and Fe plates are sinked in a dil. H_{2SO4} solution, and supply a current from an external circuit to Zn and Fe.
    I. Name the anode and the cathode on it.
    II. Write the chemical reaction near the anode.
    III. Write the chemical reaction near the cathode.
    IV. Mention the direction of the following of the electrons.
50. Salt solution, Sugar solution, Glucose solution, Ethyl solution, Copper sulfate solution. Separate above solutions as electrolytic solutions and other solutions.
51. If we electrolyze a NaCl solution,

I. Write the reaction near the anode.
II. Write the reaction near the cathode.

2.7

52. When electrolyze the acidulated water.

I. Write the reaction near the Anode.

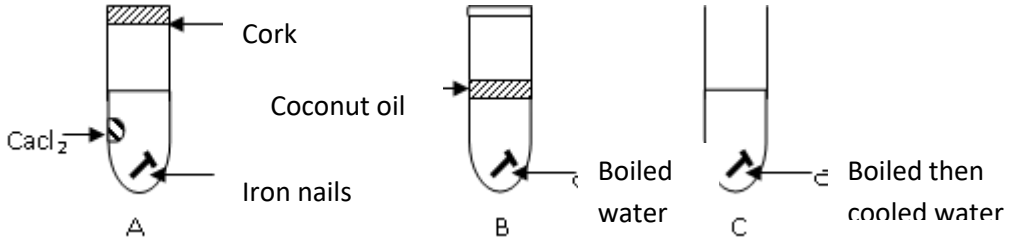
II. Write the reaction near the cathode.

III. Write the whole reactions.

53. Write the change, occur in the cathode when electrolyze a $CuSO_4$ solution using Iron electrodes.
54. What are the raw materials used to extract the metal sodium?
55. What are the electrodes that used to extract the metal sodium?
56. What is the name of the special cell that used to extract the metal sodium?
57. If you have to electroplate a clip with Copper metal.
    I. What is the electrolytic solution that you use?
    II. What are the materials that you use as the anode and the cathode?
    III. Write the chemical reaction near the cathode.
58. What is the electroplating?
59. Write 4 instances that we the electroplating.
60. Write 2 uses of electroplating.

2.8

61. What is the corrosion of metals?
62. Write 2 factors effect for the rusting of iron.
63. Given bellow is an apparatus to find out the factors effect for the rusting of iron.

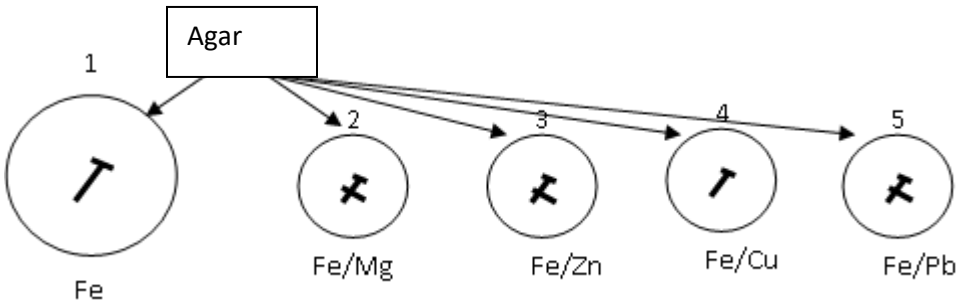


After 2 days,

I. What are the observations in ‘A’ tube?
II. What are the observations in ‘B’ tube?
III. What are the observations in ’C’ tube?
IV. Write the reasons for each observation above separately.

64. Write the chemical equation for the iron rusting?
65. Write 2 factors that speed up the iron rusting.

66. Write 2 factors that slow down the iron rusting.
67. Write 5 methods that we use to prevent the iron rusting.
68. Explain scientifically the reason for the using of 'Al' wrappings to store the needles.
69. What is Cathodic Protection?
70. Given bellow is an apparatus done by using new iron nails, Agar, NaCl, Phynopthelin, Potassium fericyonite.



I. What is the purpose of the using of Phynopthelin?
II. For what Fericyonite used here?
III. What is the observation in the number 1 petridish after one hour?
IV. Explain the reason for that observation.
V. What are the observations in the 2 and 3 petri dishes?
VI. Explain the reasons for those observations.
VII. What are the observations in the 4 and 5 petri dishes?
VIII. Explain the reasons for those observations.
IX. What is your conclusion according to the whole observations?

2.9

71. What is the common name for the compounds include only Carbon and Hydrogen?
72. Mention a simple activity to show that the CO_2 and H_2O emit when combust a candle.
73. Write 2 main characteristics of Alkanes.
74. Draw a Butane molecule.
75. What is the common name for the Hydrocarbons having a double bond between ' C' and 'C'?
76. Mention the structure and the chemical formula for Ethane molecule.
77. The chemical formula for ChloroEthene is C_2H_3Cl. Draw the structure of it.

2.10

78. Explain the below words and give one example for each.

    I. Monomers
    II. Polymers
    III. Polymerization
    IV. Repeating units

79. Classify the bellow polymers as natural and artificial.
    Polythene, Starch, Rubber, Nylon, Polystyrene, Celiulose ,Portein.
80. Draw the structures of the monomer and the polymer of the polythene.
81. What are the 3 categories that we classify the polymers?
82. What is the element that used to Vulcanized the rubber?
83. Explain the structural change occur during vulcanizing the rubber.
84. Draw the structures of the rubber before vulcanize and the after vulcanized.
85. Write 3 differences of the normal rubber and the vulcanized rubber.
86. Write 4 instances that we use the artificial polymers in day to day life.

9. Starting date of the activity book: ……

Date	Number of questions done	Signature of teacher

10.Ending date of the activity book: ……

Diagnostic test for the learning outcomes of Grade 10 - 11

Competency:11- 3

Competency Levels: 3.1, 3.2 , 3.3 , 3.4 , 3.5, 3.6, 3.7,3 .8

- **Introductions: Answer all the questions.**
  Answer sheets should be evaluated by the teachers to identify your weak points.

1. Write 3 differences between electro- magnetic waves and the mechanical waves.
2. Write 2 types of the mechanical waves.
3. What is the instrument that uses to demonstrate the 2 types of the mechanical waves in the laboratory?
4. Write the connection between the direction of the motion of the wave and direction of the motion of the particles of the 2 types of mechanical waves.
5. Write the characteristics of the two types of mechanical waves in a table.
6. Define the frequency of a wave and mention the units of it.
7. Define the amplitude of a wave.
8. Define the wave length of a wave.
9. How an electro- magnetic wave generate?
10. What is the connection between the electro-magnetic field and the direction of the propagations of the wave?
11. Fill the below table of the uses of electro- magnetic waves.

Electro- magnetic wave	Uses
Radio waves	
Infra-red waves	
Visual light	
X- rays	

12. What is the type of the wave that the sunlight and the heat of the sun reach the Earth?

3.2

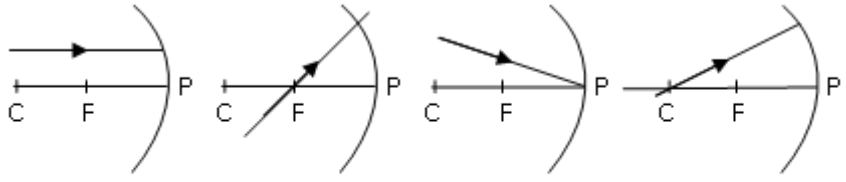
13. What is the type of the wave of the sound waves?
14. What are the 2 types of the propagation of the sound through the air?
15. Explain briefly an activity to find out whether a medium is required to transmit the sound wave or not.
16. Write the ascending order of the speed of a sound wave through the solid, liquid and the gas medium.
17. Musical instruments were divided into three according to the method of producing sound. Write those 3 types.
18. Write 2 examples for each for above 3 types.
19. Fill the bellow table.

Characteristics of sound	Factors effects
Pitch	
Loudness	
Quality of sound	

20. What is the limit of hearing of the human being?
21. Define the ultrasound. Write 2 uses of them.

3.3

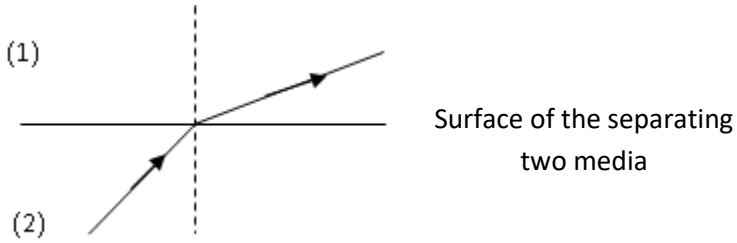
22. Define the Pole, Center of curvature, focus and the main axis of a curved mirror.
23. Complete the below light rays after the reflection through the mirror.



I II III IV

24. Write 3 characteristics of the image of a person who stand in front of a convex mirror.
25. The focal length of a concave mirror is 3cm , the height of the object is 1cm and the distance between the object and the mirror is 4.5cm. Write the ray diagram and the distance to the image from the mirror.
26. What is the reason that we can see a pencil in a water glass has broken?

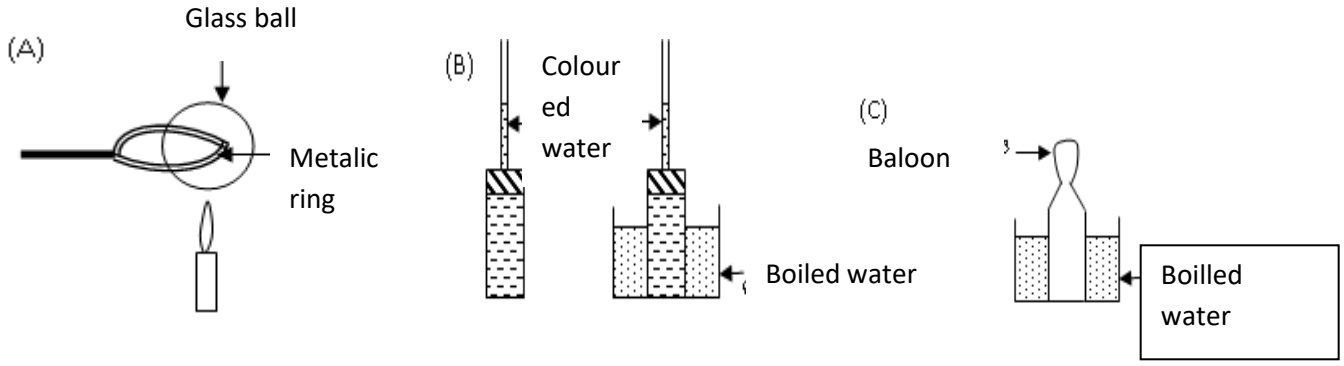
27. What are the 2 types of media according to the speed of the light through them?
28. Name the below diagram according to the above media.



29. Fill the below blanks.
    The refracted ray bends away from the normal when it travel, from …….. medium to …….medium.
30. Write the law of refraction.
31. A law of refraction has named according to the scientist it found. What is it?
32. What is the refractive index?
33. The refractive index is defined relative to which medium?
34. Is there a unit for the refractive index? If yes, what is it?
35. When the incident angle inside the dense medium is gradually increased, the refracted ray bends further away from the normal. At a certain value of the incident angle, the refracted ray travels along the interface between the two media. What is the name of the angle of incidence in when this happens?
36. Write a ray diagram for the total internal refraction.
37. Write 3 applications of total internal refraction.
38. Write 2 types of lenses that you learned?
39. Draw a ray diagram to show the travelling path of a ray that enters a convex lens parallel to the principal axis.
40. Draw a ray diagram to show the travelling path of a ray that enters a convex lens passing through the optical axis.
41. Draw the ray diagrams to show the image for the bellow object distances.
    I. Between the lens and its focal point
    II. On the focal point
    III. Between the focal length and twice the focal length
    IV. On the distance equal to twice the focal length
    V. On the distance greater than twice the focal length
42. Write the characteristics of the images for above instances.
43. Draw a ray diagram to an object between F and 2F of a concave lens.
44. What is the type of lens in a simple microscope?
45. What is the difference between the curvatures of the eyepiece and the objective lenses of a compound microscope?

3.4

46. Write 2 liquids use in the thermometers.
47. What is the scientific phenomena that cause to the elevation of the liquid in the thermometer when heat it?
48. State the O ^{o}C in Kelvin Scale.
49. The heat transfer from a Copper block to aluminum ball that contact each other. Write a characteristics feature of those objects.
50. Define the heat capacity.
51. Define the specific heat capacity. Write the unit of it.
52. Write a formula to the amount of heat, Q required increasing the temperature in 1^0 c of an 'm' mass of a given substance of 'C' specific heat capacity.
53. When we give heat further to an object which had been heated to 100^0c, why the temperature does not increase?
54. Briefly explain the evaporation and vaporization.
55. Define bellow words.
    I. Melting point
    II. Freezing point
    III. Boiling point
56. Define bellow words.
57. What is the process associating heat that can be explained by bellow activities?



58. Fill the below table.

Information	Methods of transferring heat
Good in metals. Weak in nonmetals.	
The method of transferring heat though liquids and gases.	
The method of transferring heat without a medium	

59. Write whether the absorption of thermal radiation of below surfaces is more or less.

White surfaces, black surfaces, rough surfaces

3.5

60. What is the power output of an electric appliance?
61. Write the formula for the total energy of an electric appliance and the voltage, current and the time spend.
62. Calculate the total energy of an electric appliance with 240 voltage, 5A current for 2 min time.
63. Calculate the power of it.
64. Fill the below table.

Electric appliance	Function
Service fuse	
Electricity Meter	
Main Switch	
Trip switch	
Distribution Box	

65. What is the function of MCB or fuse of domestic electric circuit?
66. What is the advantage of connecting plug circuits as ring circuits in a domestic electric circuit?
67. Write the standard colours of bellow wire covers. Live, Neutral, Earth
68. Write 2 important pre cautionary measures for safety when using the domestic electricity.

69. What is the type of connecting the bulbs in domestic electric circuit? Draw a diagram to show 3 bulbs connecting according to that type.
70. What is the unit of calculating to spent number of units of electricity?
71. Write the formula to use to calculate the number units of electricity in the domestic electric circuit?
72. Calculate the number of units of electricity that consume by 100w, 5 bulbs for 8hours.

3.6

73. Fill the bellow table.

Conductors	Semi - Conductors
Current pass when a voltage is supplied	
There are electrons as charge carriers	

74. Define the Intrinsic and Extrinsic semiconductors.
75. What is 'doped'?
76. Write an element to dope to 'Si' to make P type semiconductor.
77. What is type of charge carriers' more in that type of semiconductor? Explain how it happens?
78. Write an element to dope to 'Si' to make 'n' type semiconductor.
79. What is type of charge carriers' more in that type of semiconductor? Explain how it happens?
80. What type of electronic appliance use the p-n junction?
81. Draw a diode and draw the symbol of it.
82. Draw a circuit of connecting reverse bias of a diode, 2 cells and a bulb.
83. Draw a circuit of connecting forward bias of a diode, 2 cells and a bulb.
84. Draw a graph of alternative current.
85. What is the different between direct current and alternative current?
86. What is the electronic appliance that can be used to convert the alternative current in to direct current?
87. What is the half wave rectification?
88. Draw a graph of half wave rectified current.
89. Write a weakness of half wave rectification.
90. What is the name of the group of diode that use in full wave rectification?
91. Draw a graph of full wave rectification?

92. What is the instrument that use to smoothing the full wave rectified current?
93. What are the compounds uses to make the light emitting Diodes (LED)?
94. Name the 2 types of transistors and draw the symbols of them.
95. Write two types of functions of a transistor.

3.7

96. Who is the scientist that found a magnetic field is induced when an electric current pass through a conductor?
97. What are the factors effects for the force induced in a conductor which pass a current and situated in a magnetic field.
98. Write the 2 laws used to find the direction of the magnetic field produced by the current flowing through a conductor.
99. Write 3 instances where magnetic force is used.
100. State Fleming's left hand rule.
101. What is the type of magnet used in a speaker?
102. Write 3 parts of a DC motor and give their functions.
103. Write the energy transformation of the DC motor.

3.8

104. What is meant by electro-magnetic induction?
105. What are the factors affected for the induced current?
106. What is the name of the law used to find the direction of the induced current in a conductor kept under a magnetic field?
107. Give 3 instances where electro -magnetic induction is used.
108. What is the function of transformer?
109. State the 2 type of transformers and give 2 examples for each.
110. Draw the symbol of transformer.

11.Starting date of the activity book: ……

Date	Number of questions done	Signature of teacher

12.Ending date of the activity book: ……