CLASS 7

SCIENCE

LAB RECORD (EM)

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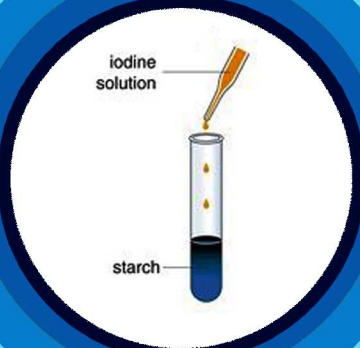
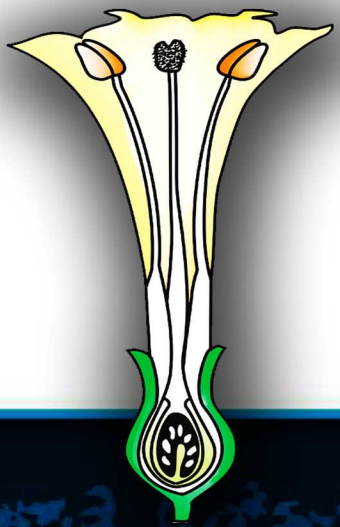
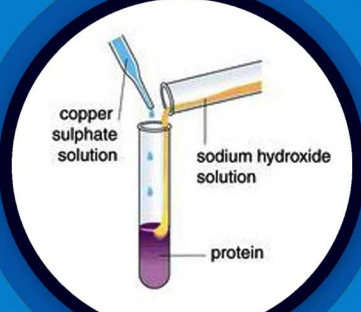
HINDUPUR, ANANTAPUR







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ACTIVITY 1

TEST FOR STARCH

Aim: To test the presence of starch

Materials required: Iodine solution, water, potato paste,

Precautions:

1. What ever the substance taken for the test, it must be in the form of powder or paste.

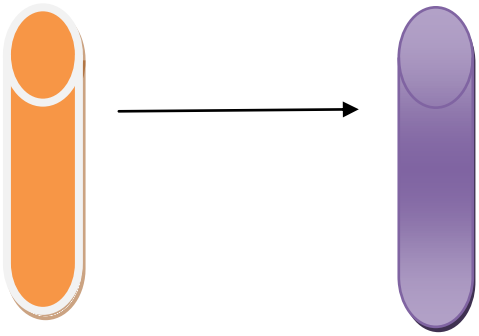
Procedure:

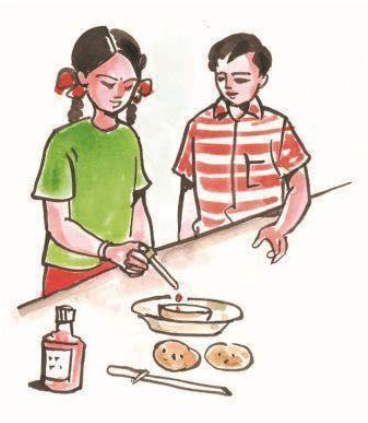
1. Taken a test tube, added a few drops of iodine solution to it and diluted with water till it becomes light yellow/ brown.
2. Taken potato paste in the test tube and added a few drops of dilute iodine solution to the sample.
3. Observed the changes in the color of potato paste.

Observation: The potato paste turns bluish black in color.

Inference:

1. By adding iodine solution, the starch turns into bluish black in color.
2. From the above result it is found out that the potato contains starch.





ACTIVITY 2

TEST FOR FATS

Aim: To test the presence of fats in the given food items

Materials required: Paper, Ground nuts, pulses, sweet and apple.

Precautions:

1. Rub the substance on the paper gently, otherwise the paper tears off.

Procedure:

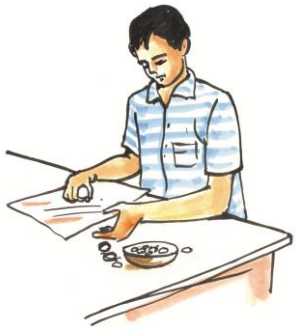
1. Taken a small quantity of each sample and a paper.
2. Rubbed them gently on a piece of paper and observed the changes.

Observation: When some food items are rubbed the paper turns translucent where as some items did not bring any change in the paper.

SN	FOOD ITEM	TURNED TRANSLUCENT/ NOT
1	Ground nut	
2	Pulses	
3	Sweet	
4	Apple	

Inference:

1. If the paper turns translucent, it contains fats and if the paper does not change it does not contain fats.
2. So among above items contain fats and do not contain fats.



ACTIVITY 3

TEST FOR PROTEINS

Aim: To test for the presence of proteins.

Materials required: copper sulphate, sodium hydroxide, pulses, water and test tube.

Precautions:

1. The copper sulphate and sodium hydroxide solutions must be prepared perfectly.

Procedure:

1. Dissolved 2 gms of copper sulphate in 100 ml of water to make 2% of copper sulphate solution.
2. Dissolved 10 gms of sodium hydroxide in 100 ml of water to make 10% of sodium hydroxide solution.
3. Taken a little quantity of pulses paste into a test tube, added a10 drops of water and stirred well.
4. Taken 10 drops of this solution in a clean test tube and 2 drops of copper sulphate solution and 10 drops of sodium hydroxide solution to the test tube and stirred well. Observed the changes.

Observation: The color of the food changed to purple.

Inference: Change of color to violet or purple confirmed the presence of proteins.

ACTIVITY 4

NATURAL INDICATORS

Aim: To find out natural indicators.

Materials required: Turmeric powder, paper, soap water and lime water.

Procedure:

1. Taken some turmeric powder, added a bit of water and prepared turmeric paste.
2. Rubbed this turmeric paste on a white paper.
3. Drawn a flower on that paper with a pencil and colored this flower with soap water using a brush.
4. Prepared another turmeric paper and colored the flower with lime water.

Observation: When colored with soap water, it turned into red color and when colored with lime water it turned into orange color.

Inference:

1. Some substances change the colors of some solutions.
2. In the above experiment the turmeric changes the soap water into red color and lime water into orange color.
3. The substances which indicate a change in color when substances are added to them are known as indicators.
4. Turmeric is a natural indicator.

ACTIVITY 5

ACIDS, BASES AND NEUTRAL SUBSTANCES

Aim: To find out the given substances as acids, bases and neutral substances and classify them.

Materials required: Different solutions / juices of fruits, vegetables, etc., blue litmus and red litmus papers.

Precautions:

1. The change of litmus paper must be observed carefully.

Procedure:

1. Take solutions of some juices of fruits, vegetables, cool drinks and various solutions and tested them with a blue and red litmus papers.
2. Observed the changes and listed out the changes in the table.

Observations: The following observations are made.

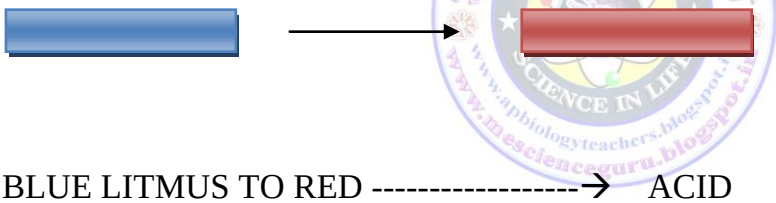
SN	Substance	Blue litmus to red	Red litmus to blue	No change
1	Orange			
2	Tomatoes			
3	Baking soda			
4	Mineral water			
5	Vinegar			
6	Shampoo			
7	Washing soda			
8	Salt water			
9	Spirit			
10	Saliva			
11	Cucumber			
12	Ridge gourd			
13	Cucumber			
14	Butter milk			
15	Milk			
16	Cold milk			
17	Lemon juice			
18	Grape Juice			
19	Bathing soap			
20	Detergent			
21	Lime water			
22	Sugar			

Some of the solutions turn blue litmus to red litmus. Some of them turn red litmus to blue litmus. But some solutions did not bring any change in litmus paper.

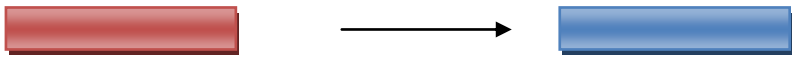
Inference:

1. The solutions which turn the blue litmus into red litmus are acids.
2. The solutions which turn the red litmus to blue litmus are bases.
3. But the solutions which do not change any litmus paper are neutral substances.
4. From the above table acids, bases and neutral substances can be classified as follows.

ACIDS	BASES	NEUTRALS



BLUE LITMUS TO RED ----------→ ACID



RED LITMUS TO BLUE ----------→ BASE

ACTIVITY 6

ACIDS WITH METALS

Aim: To test the reaction of acids with metals.

Materials required: Test tubes, Copper, Zinc, Magnesium, Iron, Brass, Aluminium pieces and lemon juice.

Precautions: We have to be careful while introducing lightened match stick.

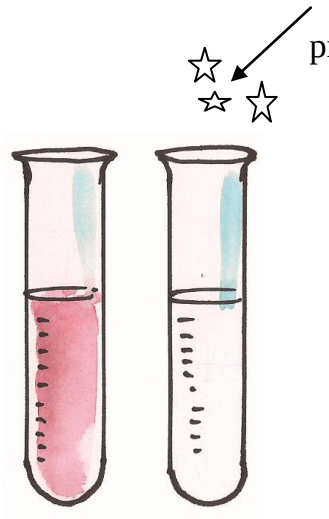
Procedure:

1. Taken the natural acid i.e. lemon juice in six test tubes.
2. Added Copper, Zinc, Magnesium, Iron, Brass and Aluminium pieces to each one of the test tube separately.
3. Lightened a match stick and introduced it into the test tubes.

Observation: The match stick made a pop sound, puts off and immediately caught fire.

Inference:

1. The gas which makes pop sound with fire is Hydrogen.
2. So it is proved when metals react with acids release Hydrogen gas.



ACTIVITY 7

ACID WITH MARBLE

Aim: To test the reaction of acids on marble piece.

Materials required: Test tubes, U shaped glass tube, lemon juice, lime water and marble piece.

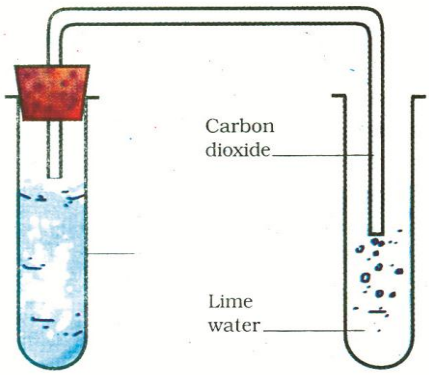
Procedure:

1. Taken lemon juice in attest tube and added some pieces of marble into it.
2. Observed the changes in the test tube.
3. Arranged an U shape glass tube from this test tube into another test tube containing lime water.
4. The gas released in the first test tube is passed into the lime water.

Observation: When lemon juice reacts with marble released a gas which turns the lime water milky white.

Inference:

1. The marble reacted with acid to release carbon dioxide that turned lime water milky.
2. The marble piece lost its glow.
3. In the same meaner the acid rains which are caused due to pollution damaged Tajmahal and our skin.



ACTIVITY 8

STOP WATCH

Aim: To calculate the time with stop watch.

Materials required: Stop watch and paper to note.

Precautions:

1. The start button has to be set immediately the work starts.

Procedure:

1. Taken a stop watch and listed the different events to be tested.
2. Set the start button and calculated the time taken for different events and made a note on it.

Observation: The time taken for different events is listed below.

SN	EVENT	TIME TAKEN
1	Ringing of long bell in the school	
2	Completion of prayer	
3	Running 200m in the school	
4	Completion of pledge	

Conclusion:

1. So stop watch is used to measure the time taken for a particular event.
2. Nowadays we find stop watch in the cell phones. It is used to measure the pulse rate.
3. It is also used to measure the time accurately in running races, swimming races, etc.

ACTIVITY 9

EXPANSION OF LIQUID DUE TO HEAT

Aim: To prove that the liquids expand due to heat.

Materials required: Flat bottom flask, color water, cork with capillary tube, water and a metal trough.

Precautions:

1. The water level must touch the scale.

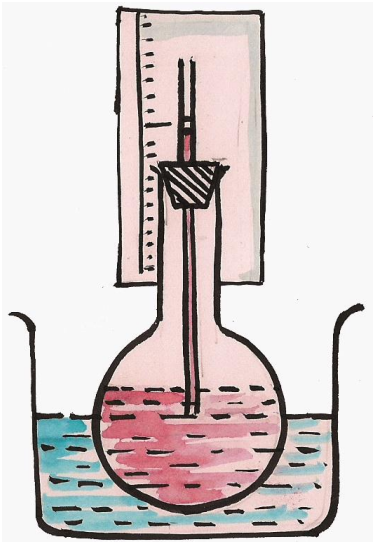
Procedure:

1. Taken a flat bottom flask and filled it with colored water.
2. Fixed a cork having a capillary tube in the mouth of the flask as such that the capillary tube is immersed in water.
3. A scale is fixed to the mouth of the flask.
4. Placed this flask in a metal trough and poured the boiling water into the trough.
5. Carefully observed the level of the water in the capillary tube.

Observation: The water level in the capillary tube raised up.

Inference:

1. When hot water is poured into the trough, the water in the flask expands and the water level in the capillary tube raised up.
2. With this experiment it is proved that water expands due to heat.



ACTIVITY 10

TEMPARATURE

Aim: To find the temperature at different places and different times.

Materials required: Thermometer and a paper to note.

Procedure:

1. Taken a thermometer and listed out the different times and different places to do the task.
2. Measured the temperature and noted them in a table.

Observation: The following temperatures are observed at different situations.

SN	OBSERVATION	RECORDED TEMPERATURE
1	Air in the shade	
2	Air in the sun	
3	Morning(at 8 am)	
4	Night(at 8 pm)	

Inference:

1. Different temperatures are found at different places and different times.
2. The temperature under Sun is more than that of in the shade, where as the temperature at the morning is more than that of at night.

ACTIVITY 11

RAIN GUAGE

Aim: To make a rain guage.

Materials required: Beaker, funnel, and scale.

Precautions:

1. The apparatus must be kept in open place to collect the rain water.

Procedure:

1. Taken a 1ocm wide beaker and insert a funnel of the same width.
2. Fixed a scale to the beaker to calculate the quantity of rain.
3. Kept this apparatus in an open place when it is raining and observed.

Observation: The rain water is collected through the funnel into the beaker. After the rain is over measured the amount of water collected in the beaker.

Inference: The depth of water is ---- cm. So the magnitude of rain fall is -----.

ACTIVITY 12

MAKING OF A CELL

Aim: Making a cell with the available things.

Materials required: Two injection bottles, a discharged battery, copper wires, LED bulb and sulphuric acid.

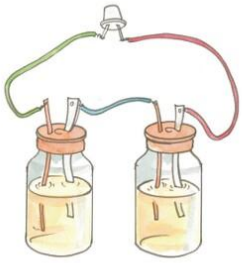
Precautions:

1. Sulphuric acid must be diluted and be used carefully.

Procedure:

1. Collected two injection bottles and 3 cm long bits of thick copper wire.
2. By using sand paper scraped 1cm of the coating off both ends of the wires.
3. Broke open a discharged dry cell and removed its outer metal covering, i.e. zinc plate.
4. Cut two 2mm wide and 3 cm long strips from this zinc plate.
5. Inserted the copper wires and strips separately into the rubber cap of the injection bottles.
6. Now taken a wire and connected the zinc plate of one bottle with the copper wire of the other bottle.
7. Fill both the bottles with sulphuric acid and close the bottles with the caps.
8. Taken an LED bulb and connected its both ends with the free ends of copper wires of the bottle.

Observation: The bulb started glowing.



Details:

1. In this cell Sulphuric acid is an electrolyte and zinc & copper wires are electrodes.
2. The electricity is generated in this cell and the bulb glows.

ACTIVITY 13

SERIES CONNECTION OF CELLS

Aim: To connect the cells in series manner and to learn its applications.

Materials required: Dry cells, copper wires and bulb.

Precautions:

1. The circuit must be closed and complete.

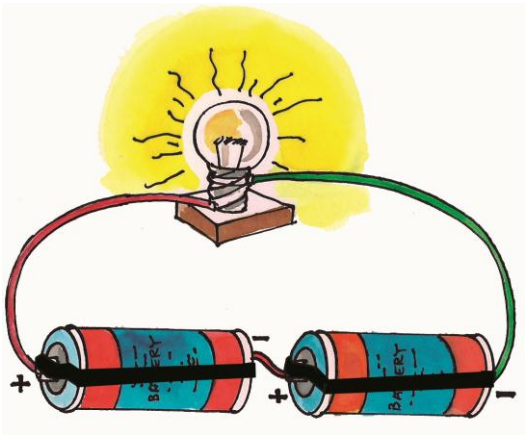
Procedure:

1. Taken dry cell and connected a bulb with copper wires and observed the light intensity.
2. Now taken two cells, connected to the bulb and observed the light intensity.
3. In this method the positive terminal of the first cell and negative terminal of the second cell are connected to the bulb.

Observation: It is observed that the light intensity is more when two cells are connected than one cell.

Conclusion:

1. In series connection, the cells show cumulative effect.
2. So the light intensity is increased when the number of cells is increased.



ACTIVITY 14

PARALLEL CONNECTION OF CELLS

Aim: To connect the cells in parallel manner and observe its effects.

Materials required: cells, copper wires and bulb.

Precautions:

1. The circuit must be closed and complete.

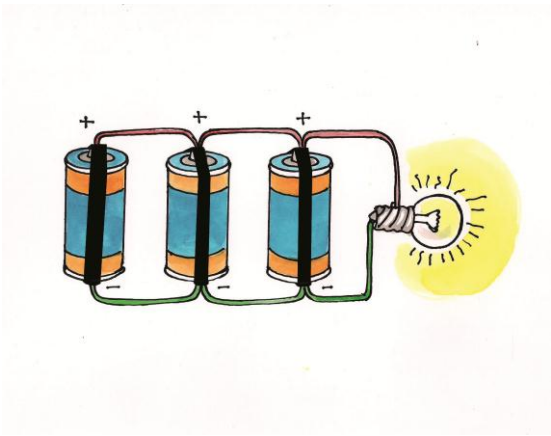
Procedure:

1. Taken a dry cell and connected it to a bulb and observed the intensity.
2. Now taken three dry cells and connected them in parallel manner i.e. all the positive terminals of the three cells are connected together and all the three negative terminals are connected together.
3. These three positive and three negative terminals are connected to a bulb.

Observation: The bulb has glow with the same intensity in both the situations.

Conclusion:

1. It is concluded that there is no any difference in the light intensity even the number of cells vary in parallel connection of cells.
2. Because the electricity is not cumulatively supplied to the bulb.



ACTIVITY 15

SERIES CONNECTION OF BULBS

Aim: To connect the bulbs in series and find out the results.

Materials required: Bulbs, copper wires and a cell.

Precautions:

1. All the bulbs must be in working condition.

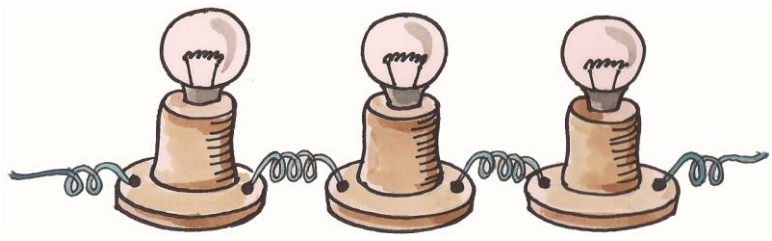
Procedure:

1. Taken three bulbs and connected them in series i.e. the positive terminal of one bulb is connected to negative terminal of another bulb.
2. Connected this to a dry cell and observed the brightness of each bulb.
3. Disconnected one of the three bulbs from the circuit and observed.

Observation: When the cell is connected to the three bulbs in series, all the bulbs glow equally. But when one bulb is disconnected all the bulbs put off.

Inference:

1. In series connection, the flow of electricity is also in single series.
2. When one bulb is disconnected, the circuit remains open and the flow of electricity is disturbed.
3. This can be observed in serial bulbs used in decorative items at the time of marriages and other festivals.



ACTIVITY 16

PARALLEL CONNECTION OF BULBS

Aim: To connect the bulbs in parallel connection and find out the applications.

Materials required: Bulbs, cell and copper wires.

Precautions:

1. All the bulbs must be in working condition

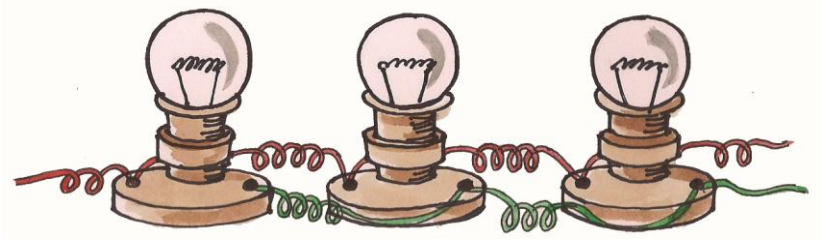
Procedure:

1. Connected the three bulbs in parallel manner i.e. one end of each of the three bulbs are connected to one wire. The other ends of the three bulbs are connected to another wire.
2. These two wires are connected to a cell and observed.
3. Removed one bulb and observed.

Observation: All the three bulbs glow dimly. Even when one bulb is removed, all the bulbs glow continuously.

Inference:

1. In parallel connection of bulbs, all the bulbs receive the electricity equally and separately.
2. So even when one bulb is removed, it does not disturb the circuit.
3. So remaining bulbs glow continuously.
4. This can be observed in our house hold electric circuit.



ACTIVITY 17

EXPANSION OF AIR ON HEATING

Aim: To prove that air expands on heating.

Materials required: Empty injection bottle, refill and a cork.

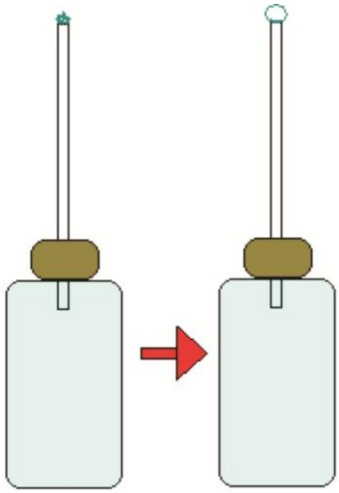
Procedure:

1. Taken an empty injection bottle and one empty ball point refill.
2. Inserted the refill into the cork of injection bottle.
3. Put a water drop on the upper end of the refill.
4. Rubbed our hands together, hold the injection bottle with both hands for some time and observed.
5. Later kept this bottle in a saucer of cold water and observed.

Observation: It is observed that the water drop bubbled when we hold the bottle. But when the bottle is placed in the saucer of cold water, the water drop regained its state.

Inference:

1. The bottle contains air in it.
2. When it is hold with the warm hands, the air in the bottle also got heated and expanded.
3. This expanded air bubbled the water drop.
4. But when it is placed in the saucer of cold water, the air is cooled and gained its earlier status.
5. So as the water drop. With this experiment it is proved that the air expands when heated.



ACTIVITY 18

HOT AIR AND COOL AIR

Aim: To prove that hot air is lighter than cold air.

Materials required: Two paper cups, broomstick, thread and candle.

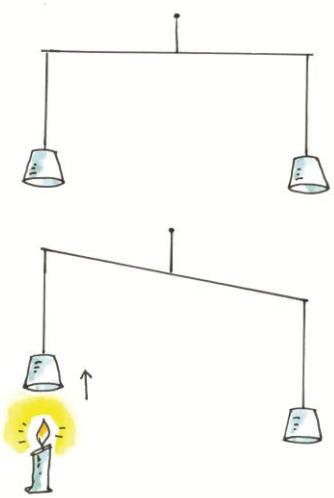
Procedure:

1. Taken two paper cups of same size.
2. Taken a broomstick and hanged the cups in inverted position on the two ends of it.
3. Tied a piece of thread in the middle of the stick and hold the stick by the thread like a weighing balance.
4. Put a burning candle below one of the cups and observe.

Observation: The balance of the cups is disturbed. The cup under which the candle is placed becomes lighter and raised up.

Inference:

1. When the candle is placed under the cup, the air inside it is heated and becomes lighter.
2. So it raised up and the balance is disturbed.
3. From this experiment it is proved that hot air is lighter than cool air.



ACTIVITY 19
FLOW OF AIR

Aim: To observe the flow of air and air pressure.
Materials required: Plastic bottle, two holed rubber cork, glass tubes and a balloon.

Precautions:

1. The rubber cork should be tightly fit to the bottle.

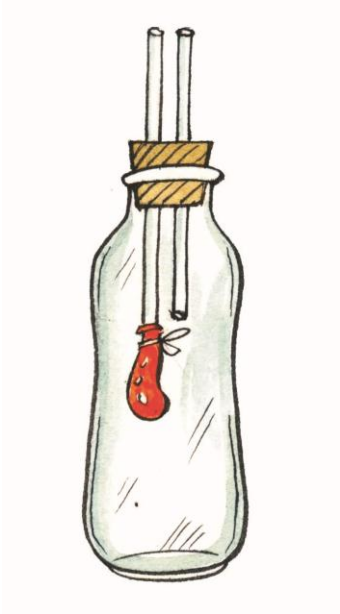
Procedure:

1. Taken a large plastic bottle and two holed rubber cork that fits firmly into the mouth.
2. Also taken two glass tubes and tied a colored balloon to the lower end of one of the glass tubes.
3. Inserted the glass tubes into the two holes of the cork and fit it to the bottle.
4. Now suck the air out of the bottle through the tube that does not have balloon attached and blow the air into the bottle. Observed the changes in the balloon.

Observation: When the air is sucked out of the bottle, the balloon inside the bottle bulged and when the air is blown into the bottle, the balloon shrunk.

Inference:

1. When the air is sucked out, the air pressure is decreased inside the bottle than the outer atmosphere.
2. So the air enters into the balloon through the glass tube and it bulges.
3. But when the air is blown into the bottle, the pressure inside the bottle is increased and exerts pressure on the balloon.
4. So it pushes its air out and shrinks.



ACTIVITY 20

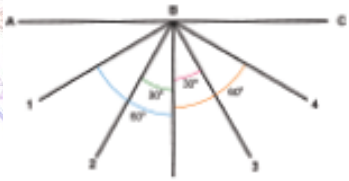
LAWS OF REFLECTION

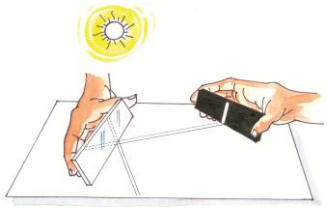
Aim: To prove the laws of reflection

Materials required: A paper, mirror strip, mirror strip with a slit and a pencil.

Procedure:

1. Taken a paper, drawn a line segment AC across the middle.
2. Drawn another straight line at right angles to segment AC.
3. The second line should dissect the segment AC at point B. This is normal line.
4. Drawn two lines from the point B on the left side of the normal and two on the right side.
5. The lines should be at the angle of 30* and 60* respectively from the normal and numbered these lines 1,2,3,4.
6. Now placed a mirror strip vertically on segment AC with its reflecting surface facing the normal.
7. Taken a mirror strip with a slit and let its light ray fall along the lines 3 and 4.
8. Observe the rays in different angles and note them in the table.





Observation: The light ray that falls on the mirror is incident ray and the ray reflected out is reflected ray. The angle between the normal and the incident ray is called Angle of Incidence. The angle between normal and reflected ray is called the Angle of Reflection.

SN	INCIDENT RAY	ANGLE OF INCIDENCE	REFLECTED RAY	ANGLE OF REFLECTION
1	On line – 4		On	
2	On line – 3		On	
3	Normal		On	

Inference:

1. From the above experiment the three laws of reflection can be proved.
2. The incident ray and reflected ray are on either side of normal. This is the first law of reflection.
3. The incident ray, the reflected ray and normal are on the same plain. This is the second law of reflection.
4. The angle of incidence and the angle of reflection are equal. This is the third law of reflection.

ACTIVITY 21

PERISCOPE

Aim: To make a periscope by using available material

Materials required: Empty agarbatthi box, two mirror strips, scale, pencil, blade, match box, candle and glue.

Precautions: The mirrors must be perfect parallel to each other and arranged in 45* angle.

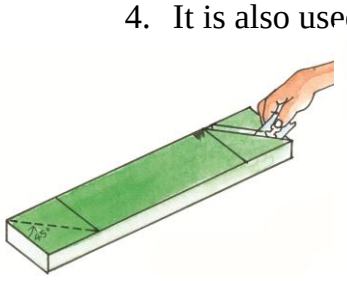
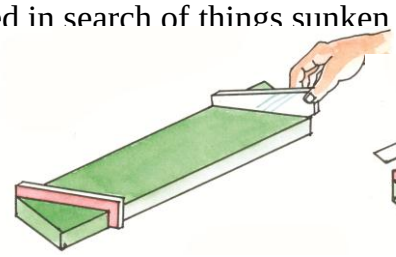
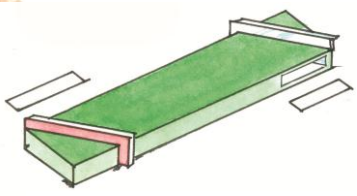
Procedure:

1. Closed both ends of the agarbatthi box and drawn squares at both ends.
2. Drawn the diagonal to these to these squares and slit them with a blade.
3. Fixed the mirror strips in these slits so as that they should be parallel to each other with their reflecting surfaces facing each other.
4. Cut out two windows on the narrow sides of the box so as that they should open directly on the reflecting surfaces of the mirror stripes.

Result: When we looked through one window we could see the things lying in front of the other window.

Details:

1. When the mirrors are placed parallel to each other at the angle of 45 degrees, the images are reflected opposite to each other.
2. Hence we can see the images formed on other mirror.
3. This periscope is used in the army and navy.
4. It is also used in search of things sunken in the oceans.


ACTIVITY 22

REAL IMAGES VIRTUAL IMAGES

Aim: To learn about real images and virtual images in the mirrors.

Materials required: V- stand, concave mirror, candle and a paper.

Precautions: While adjusting the mirror and candle, they have to be moved slowly.

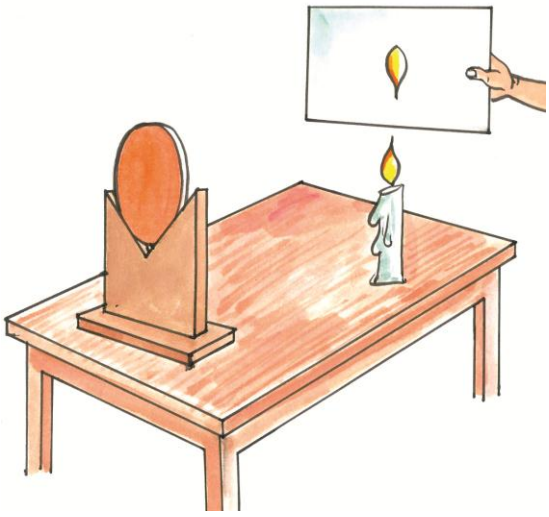
Procedure:

1. Placed a concave mirror on a V-stand and lighted the candle in front of it.
2. Placed a thick white paper behind the candle. This acts as a screen.
3. Adjusted distances between candle and mirror, screen and mirror by moving them either forward or backward till a clear image appear on the screen.
4. Repeated this activity by using a convex mirror and a plane mirror in the place of concave mirror.

Observation: The image formed in concave mirror can be caught on the screen. But the images formed in convex and plain mirrors cannot be caught on the screen.

Inference:

1. The image that can be obtained on a screen is called a Real image.
2. We can see this image in the mirror too.
3. But the image that cannot be obtained on a screen but can be seen only in the mirror is called a Virtual image.
4. So the image formed in concave mirror is a real image, but the image formed in convex and plain mirrors is a virtual image.



ACTIVITY 23

GASES IN OUR BREATH

Aim: To test the exhaled air from the lungs.

Materials required: Two test tubes, rubber corks, glass tubes and lime water.

Precautions:

1. Lime water should be freshly prepared.
2. Before blowing we must take a long breath.

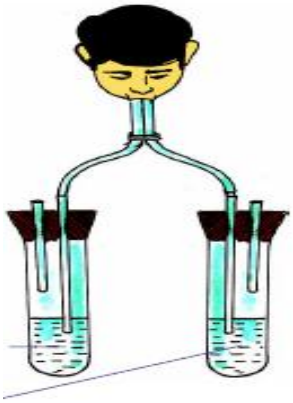
Procedure:

1. Taken two glass tubes and filled one of them with water another
2. with lime water.
3. Closed them with two hole rubber corks and inserted glass tubes into the holes as shown in the diagram.
4. Fixed rubber tubes to the glass tubes from each test tube and tied them together.
5. Now blown the air through the rubber tube so that the same quantity of exhaled air is introduced into the water and lime water.

Observation: There is no any change in the first test tube with water. But the lime water turned milky white in the second test tube.

Conclusion:

1. In general Carbon dioxide turns lime water into milky white.
2. The lime water turned milky white in the second test tube due to the exhaled air.
3. From the above observation it is proved that the exhaled air contains Carbon dioxide.



ACTIVITY 24

RESPIRATION IN PLANTS

Aim: To prove that the plants also respire and release Carbon dioxide.

Materials required: Conical flask, sprouted seeds, test tube, lime water, two holed cork, glass tube and a funnel.

Precautions:

1. We must take sprouted seeds for better result.
2. The cork should be tightly fit into the mouth of the conical flask.

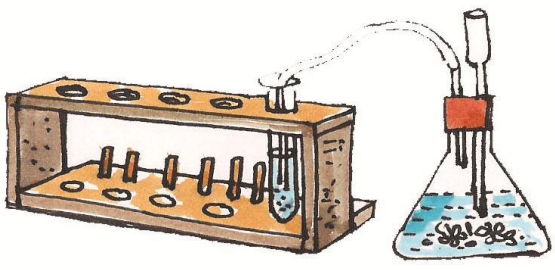
Procedure:

1. Taken a conical flask with sprouted seeds in it and fit a two holed rubber cork tightly into its mouth and inserted a glass tube into the two holes.
2. Fit a rubber tube on one of the glass tubes and funnel on the other. Filled a test tube about one fourth with lime water and dipped the rubber tube into it.
3. Added water to the conical flask until one forth is filled and observed.

Observation: It is observed that some gas is released from the conical flask. It passes through the rubber tube, enters the test tube and turns lime water milky white.

Inference:

1. From the above experiment it is proved that the sprouted seeds respire and release Carbon dioxide.
2. Thus also proved that the plants respire.



ACTIVITY 25

PARTS OF A FLOWER

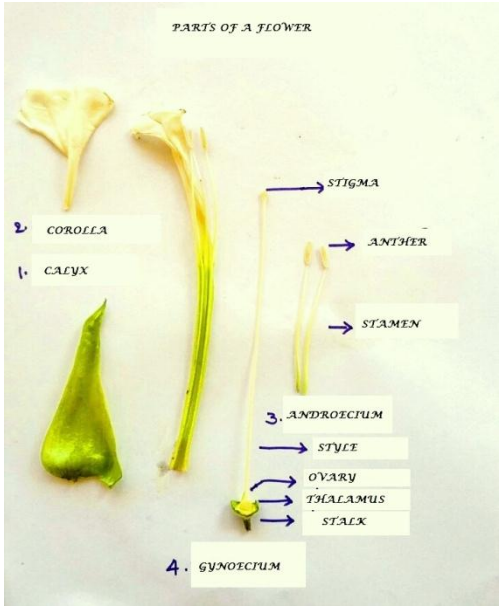
Aim: To observe the different parts of a flower.
Materials required: flowers, forceps.
Procedure:

1. Collected different types of flowers from the garden.
2. Among all these flower first selected the Datura flower,
3. Removed each and every part of the flower, observed all the parts and drawn the diagrams.

Observation: We have observed different parts such as stalk, the seat of the flower and some more internal parts and drawn all the diagrams in our note books.

Details:

1. The flower is attached to the stem with the help of a stalk.
2. The stalk has a slightly swollen head known as thalamus. It is the seat on which the parts of the flower are located.
3. There is a green tube like structure called calyx.
4. Next to the calyx there is funnel shaped white colored structure called corolla.
5. Both calyx and corolla are called petals.
6. After removing the petals we observed elongated structures attached to these petals. They are called stamens. There is a bulb like structure on the stamen known as anther. It is also known as male reproductive part.
7. Next to the androecium is gynoecium. It consists of ovary, style and stigma. It is also known as female reproductive part.



ACTIVITY 26

BUDDING IN YEAST

Aim: To observe budding in yeast.

Materials required: A glass, sugar, yeast powder, slide, cover slip and microscope.

Precautions: The glass tumbler with yeast and sugar must be closed for one day.

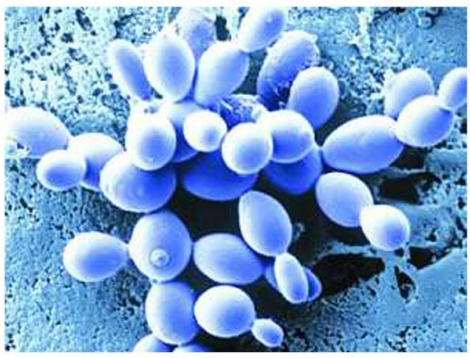
Procedure:

1. Taken some water in a glass tumbler and mixed a spoon of sugar and yeast powder.
2. Covered the glass and left it undisturbed for a day.
3. On the next day placed a drop of the solution on a slide, covered it with a cover slip and observed under microscope.

Observation: It is observed that the yeast cells produce buds on their body which develop into new individual cell.

Inference:

1. Yeast grows with the help of a small bulb like out growth which increases in size and breaks off from the parent plant to live independently.
2. This process of reproduction is called budding.



ACTIVITY 27
BREAD MOULD

Aim: To examine Rhizopus or common mould.
Materials required: Mould sample, plain glass slide, cover slip, water, disposal gloves.

Preparation of mould: Taken a slice of bread, covered it with a vessel leaving it undisturbed for two or three days.

Precautions: The mould takes three to four days to completely develop. So the bread slice has to be left for three to four days undisturbed.

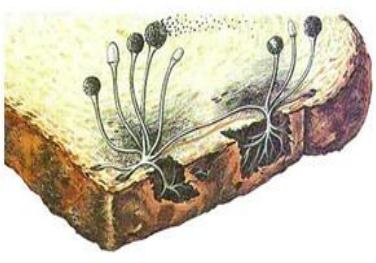
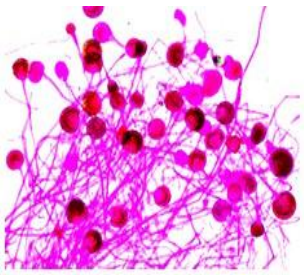
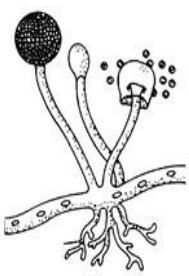
Procedure:

1. Collect sample bread piece with mould and place a drop of water in the center of the slide.
2. Using a toothpick, scrape very little of the mould and place it on the drop of water.
3. Take the cover slip and set it at an angle to the slide so that one edge of it touches the water drop, then carefully lower it over the drop so that the cover slip covers the specimen without trapping air bubbles underneath.
4. Use the corner of a tissue paper or blotting paper to blot up any excess water at the edge of cover slip.
5. View the slide with a compound microscope, observe and draw the diagram.

Observations: A fine thread like structures and knob like structures are observed. The threads are called hyphae and knob like structures are called sporangia.

Details:

1. Each sporangia contains hundreds of minute spores.
2. When sporangium bursts, the tiny spores are dispersed in the air.
3. The dispersed tiny spores spread over the remaining parts of the bread and develop into hyphae.

ACTIVITY 28

PHYSICAL CHANGE

Aim: TO observe the changes that take place in water while heating and cooling.

Materials required: A beaker, ice cubes and a burner.

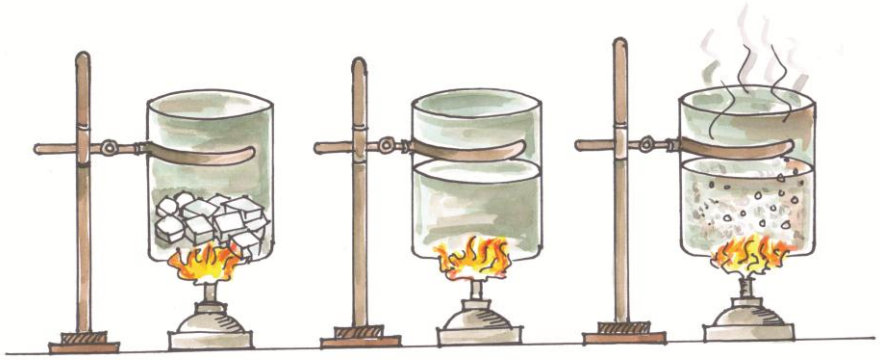
Procedure:

1. Taken a few pieces of ice in a beaker and heated them on a burner.
2. Observed the changes carefully and noted them.
3. Reduced the temperature and observed.

Observation: Ice slowly melted and became water and on further heating it changed into steam. When we reduced the temperature, the water vapour changed back to water and when temperature is further reduced it changed into ice.

Inference:

1. In the above activity we notice that the change of the state of ice to water and to vapour but the substance, water, remains same.
2. Changes of this type where no new substance is formed are known as physical changes.



ACTIVITY 29

CHEMICAL CHANGE

Aim: To observe the chemical changes in different objects.

Materials required: Piece of wood, a piece of paper and a ball of cotton.

Precautions: We have to be careful while burning the above things.

Procedure:

1. Taken a piece of wood, a piece of paper and a ball of cotton.
2. Burnt them and observed the changes that take place.

Observation: Recorded my observations when the above things are burnt in a table.

SN	NAME OF THE MATERIAL	CHANGES OBSERVED WHEN BURNT
1	A piece of wood	
2	A piece of paper	
3	A piece of cotton	

Inference:

1. In the above activity we noticed that when a piece of wood, paper and cotton are burnt a new material is formed.
2. This is black in color and in powder form which is different from the original material.
3. We also noticed the change in shape and size of new material.
4. This type of change which leads to form a new substance is known as Chemical change.

ACTIVITY 30

CHEMICAL CHANGE IN MAGNISIUM RIBBON

Aim: To observe the changes in Magnesium ribbon on heating.

Materials required: Magnesium ribbon, candle, water, test tube and litmus papers.

Precautions: We have to be careful while burning the magnesium ribbon.

Procedure:

1. Taken a small piece of Magnesium ribbon and burnt it on flame of candle.
2. After burning, collected the ash, mixed it with a small quantity of water and dissolved it.
3. Tested this dissolved mixture with blue and red litmus papers to decide whether it is an acid or base.

Observation: When Magnesium ribbon is burnt, It has given a brilliant white dazzling light leaving a powdery substance behind. When the solution mixed with the ash is tested with litmus paper, it turned red litmus to blue litmus.

Inference:

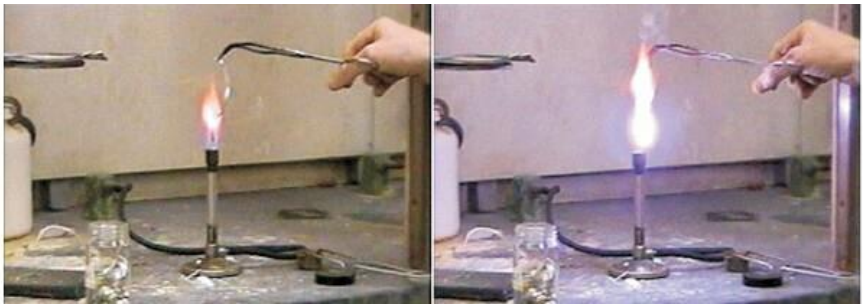
1. When Magnesium ribbon burns in the presence of Oxygen, It forms Magnesium Oxide in the form of powder ash, which is a new substance.

Magnesium + Oxygen ----------→ Magnesium oxide.

2. When this ash is mixed with water another new substance is formed.

Magnesiumoxide + Water ----------→ Magnesium hydroxide

3. This solution turned red litmus to blue litmus. So it is a basic solution. This activity is the best example of chemical change.



ACTIVITY 31

CHEMICAL CHANGE IN COPPER SULPHATE SOLUTION

Aim: To Observe the chemical change in copper sulphate solution.
Materials required: Beakers, Copper sulphate, Sulphuric acid, iron nail.

Procedure:

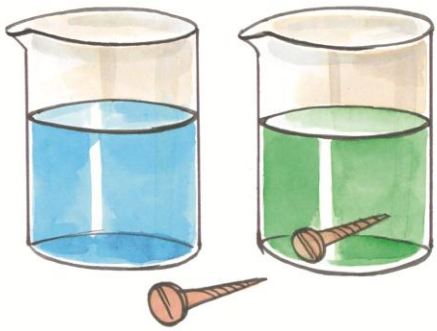
1. Taken a glass beaker half filled with water and added a table spoon of Copper Sulphate to it.
2. Now added a few drops of Sulphuric acid to the Copper sulphate solution.
3. Taken some sample of this solution in another beaker and added an iron nail and kept it undisturbed for half an hour.
4. Compared the color of solutions.

Observation: We noticed that the blue colored solution changed into green color and a brown color deposit is seen on the iron nail.

Inference:

1. The change in the color of the solution is due to the formation of Iron Sulphate, a new substance.
2. The brown deposit on the iron nail is Copper, another new substance.
3. This is the example for chemical reaction.

Copper Sulphate (blue) + Iron -----→ Iron Sulphate (green) + Copper (Brown deposit)



ACTIVITY 32

VINEGAR AND BAKING SODA

Aim: To observe the reaction between vinegar and baking soda.

Materials required: Test tubes, vinegar, baking soda and lime water.

Procedure:

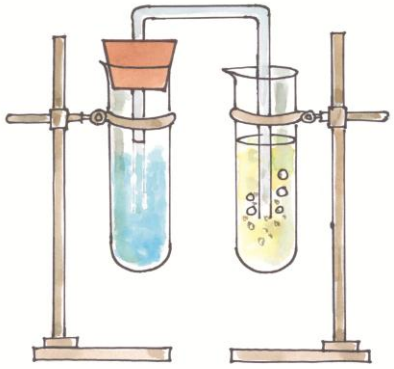
1. Taken a spoon of vinegar in a test tube and added a pinch of baking soda to it.
2. Passed the gas evolved from it into the lime water in another test tube and observed the changes.

Observation:

1. When baking soda is added to vinegar gas bubbles come out with a hissing sound.
2. When this gas is passed into the lime water it turned it into milky white solution.

Inference:

1. In the above activity the gas evolved is Carbon dioxide and milky white substance formed is calcium carbonate.
2. Since new substances are formed, these are examples of chemical changes.



ACTIVITY 33
CRYSTALLISATION

Aim: To observe the crystallization of sugar.

Materials required: A test tube, sugar and water.

Procedure:

1. Taken a big size test tube and filled it with water.
2. Added some sugar to it and stirred it and continued to add sugar and stir until saturation is attained.
3. Then heated this sugar solution and added some more sugar to it while stirring continuously.
4. Continued to add sugar till no more sugar can be dissolved.
5. Now filtered the solution and allowed it to cool for half an hour.

Observation: We noticed the formation of large size crystals of sugar at the bottom of the beaker.

Inference:

1. When the sugar is dissolved in water, no new substance is formed.
2. When it is cooled the sugar crystals are regained as such. So it is physical change.
3. This property of salt is used in making of salt.