

UNIT 23

VISUAL COMMUNICATION



Learning Objectives

At the end of this lesson the students will be able to:

- ◆ Differentiate a File from a Folder
- ◆ Know how to create a File and a Folder
- ◆ Use the software application to create Animation



INTRODUCTION

In general, whenever we think of computers, the things that come to our mind is computer screen, keyboard, mouse and CPU. We learnt about computer and parts of a computer as introductory part in standard VI. Apart from that, software and hardware also plays vital role in the working of computer. Now, shall we learn how to operate the computer?



The reason we prefer computer is its speed and the ability to store data. How can we save data and information in computer? We can save

them in folders which accommodate multiple files or a single file. Let us understand the terminologies like file and folder before moving further.



23.1 FILE

The output we get from any application is commonly referred as 'file'. Therefore the application for the specific purposes determines the nature of the file.



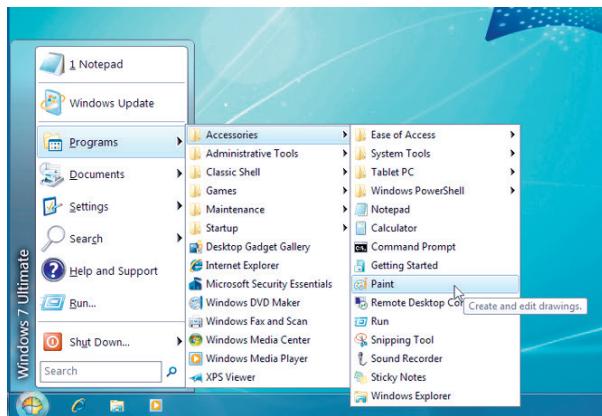
23.1.1 FOLDER

A folder is a storage space that contains multiple files. We can create files as per the user's need. For clear understanding, we can take the example of a bookshelf in a library. The individual book can be considered as a 'file' and the whole set of books in a shelf can be considered as folders. When we right click on the mouse, the popup menu appears on the screen with multiple options. Select 'NEW' option and a secondary menu comes up with another set of options. Select 'Folder' option in the menu. You can now save your file(s) in the newly created folder.



More people are using Windows and LINUX operating systems in their computers. We can do many activities like collect notes, draw/paint, create animations /spreadsheets/ word docs/PPTs etc.

We use 'Guide Board' to go to the unknown places like that when we 'On' the computer click the 'START' button at the left corner of the computer, it shows the list of all programs in the computer. Now select the required program and create the required files.



How can we create Files?

For example if the computer is operating on the Windows OS, we can collect our notes in 'Notepad' application and draw pictures in 'Paint' application.

As per its name we can type notes in 'Notepad' and save the created files in a folder. Likewise in the 'Paint' app we can draw and edit pictures. With these pictures, let us see how we can create image gallery, animations and graphics easily.



Pictures and audio-visuals gives us more understanding than teaching and writing on the black board. Is it right?



Instead of saying a story like 'once upon a time there was a king' we can understand the concept easily by seeing the video and also it registers firmly in the minds of the students. The device which helps in explaining the concepts easily through pictures is known as 'Visual Communication Device'. For example photos, audio -visuals, drawings, animations all these can be created easily with the help of computer. Cinema is a good example for 'Visual Communication Device'.

23.2 SCRATCH

Introduction

'Scratch' is a software used to create animations, cartoons and games easily. Scratch, on the other hand, is a visual programming



language. It was developed in the Massachusetts Institute of Technology (MIT) Media Lab to make programming easier and more fun to learn.

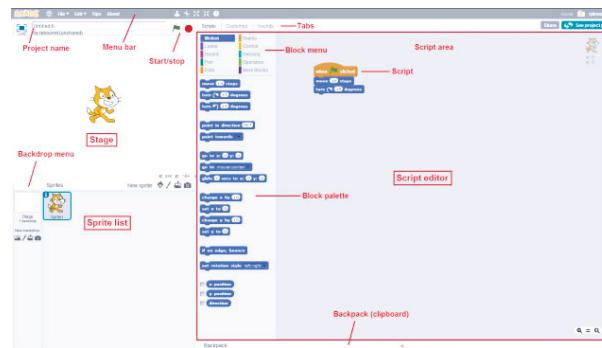
Scratch Environment Editor

The Scratch editor has three main parts: They are Stage, Sprite and Script editor.

Stage: Stage is the background appearing when we open the scratch window. The background will most often be white. You can change the background colour as you like.

Sprite: The characters on the background of a Scratch window are known as Sprite. Usually a cat appears as a sprite when the Scratch window is opened. The software provides facilities to make alternations in sprite.

Script editor / costume editor: Where you edit your programs or your sprite's pictures.

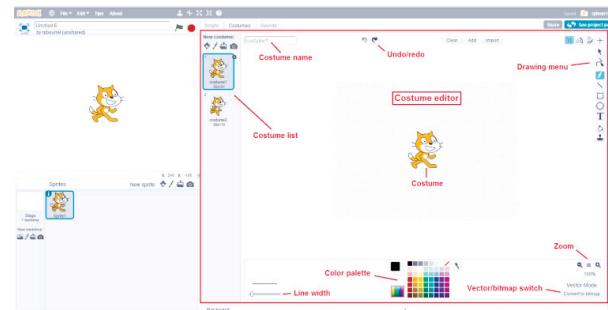


You should see a single window with at least the following three panes: the Stage (top left), the Sprite List (bottom left), and the Scripts tab (right), which contains the Blocks tab and the Scripts Area. The right pane also contains two additional tabs, Costumes and Sounds.

The script editor has three main parts:

- **Script area:** Where you build scripts.
- **Block menu:** Where you choose the category of blocks (programming statements) to use.
- **Block palette:** Where you choose the block to use.

When the Costumes tab is chosen, the costume editor is shown (outlined in red):



Movement and Loops

Click File/New to create a new project and enter a project name .

Click the menu **Script → Event**, drag a **when green flag clicked** block to the scripts area. Your scripts area should look like this:



Click the menu **Script → Motion**, drag a **goto x: 0 y: 0** block to the scripts area and snap it to the bottom of the **when green flag clicked** block. Your script should look like this:



Add a **move 10 steps** block to the bottom of your script and change the 10 into 100.



Click the green flag at the top right corner of the stage to run your program.

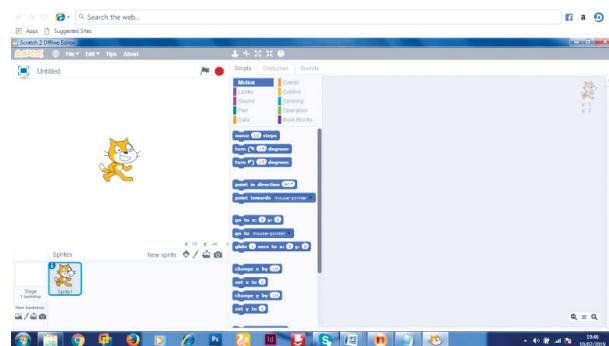


Adding Sound

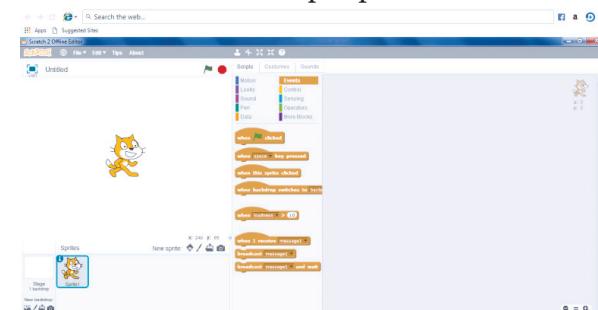
1. Click Sprite1 in the sprite list and click the Sounds tab.
2. Try the meow sound already there. If you don't like it, click the speaker icon to choose a different sound from the sound library.
3. Click the Scripts tab and find the play sound block from the Sound menu. Add this block to the when space key pressed script. (Select the sound you want from the drop-down list.)
4. Run your program.

Example:

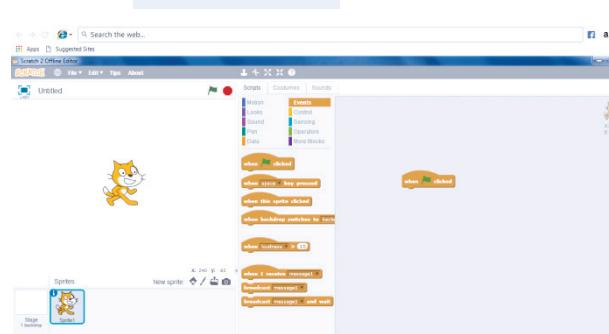
Program for print the word "Hello" with sound



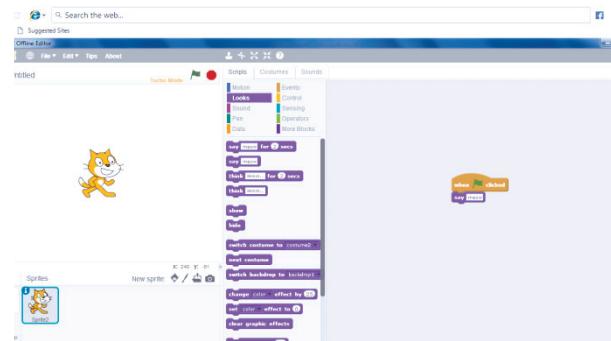
1. Click events in script option



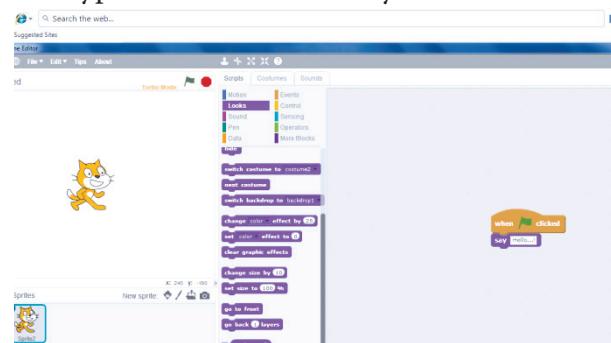
2. Drag tab to script area



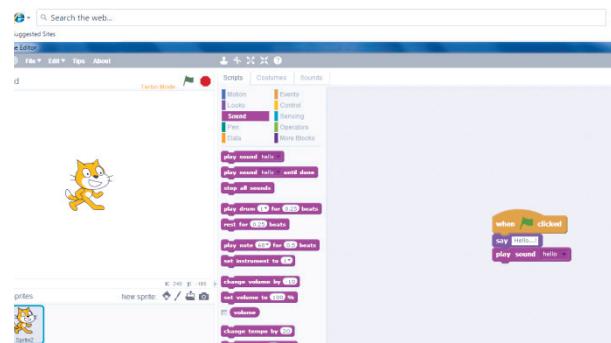
3. Click Looks in script option. Drag "say" to script area.



4. Type "Hello" word in say tab.

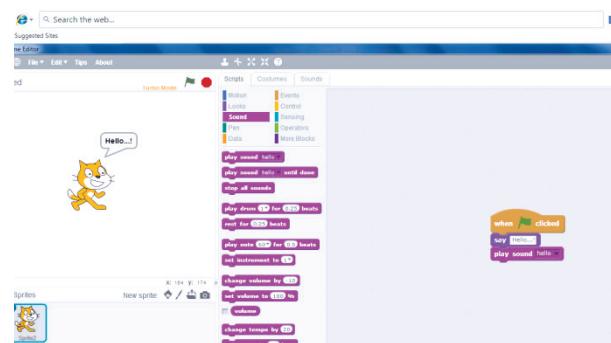


5. Click sounds in script option. Drag play sound to script area. Choose the hello sound from the audio file.



6. From File menu choose the Save option.

7. Click the green flag at the top right corner of the stage window to run the program





Output:



TEXTBOOK EVALUATION



I. Choose the best answer

1. Which software is used to create animation ?
a) Paint b) PDF
c) MS Word d) Scratch

2. All files are stored in the _____
a) Folder b) box
c) Pai d) scanner

3. Which is used to build scripts?
a) Script area b) Block palette
c) stage d) sprite

4. Which is used to edit programs?
a) Inkscape b) script editor
c) stage d) sprite

5. Where you will create category of blocks?
a) Block palette b) Block menu
c) Script area d) sprite

II. Match the Following

1. Script Area	Type notes
2. Folder	Animation software
3. Scratch	Edit programs
4. Costume editor	Store files
5. Notepad	Build Scripts

III. Answer the following

1. What is Scratch?
2. Write a short note on editor and its types?
3. What is Stage?
4. What is Sprite?



PRACTICALS

S.No.		NAME OF THE EXPERIMENT	TIME
1	PHYSICS	Determination of weight of an object using the principle of moments	40 minutes
2		Determination of focal length of a convex lens	40 minutes
3		Determination of resistivity	40 minutes
4	CHEMISTRY	Identification o the dissolution of the given salt whether it is exothermic or endothermic	40 minutes
5		Testing the solubility of the salt	40 minutes
6		Testing the water of hydration of salt	40 minutes
7		Test the given sample for the presence of acid or base	40 minutes
8	BIO-BOTANY	Photosynthesis-Test tube and Funnel Experiment (Demonstration)	40 minutes
9		Parts of a Flower	40 minutes
10		To Study the Law of Dominance	40 minutes
11		Observation of Transverse Section of Dicot stem and Dicot Root	40 minutes
12	BIO-ZOOLOGY	Observation of Models-Human Heart and Human Brain	40 minutes
13		Identification of Blood Cells	40 minutes
14		Identification of Endocrine Glands	40 minutes



PHYSICS

1. DETERMINATION OF WEIGHT OF AN OBJECT USING THE PRINCIPLE OF MOMENTS

Aim:

To determine the weight of an object using the principle of moments



Apparatus required:

A metre scale, a knife edge, slotted weights, thread

Procedure:

- i. A metre scale is supported at its centre of gravity by a knife edge or suspended by using a thread tied to its centre so that the scale is in the horizontal position. Ensure that the scale is in equilibrium position.
- ii. A known weight W_2 and an unknown weight W_1 are suspended from either side of the scale using the weight hangers.
- iii. Fix the position of one weight hanger and adjust the position of the second weight hanger such that the scale is in equilibrium.
- iv. Measure the distance d_1 and d_2 of the two weight hangers from the centre of the scale accurately.
- v. The experiment is repeated for different positions of the unknown weight. Measure the distances. The reading are tabulated as follows:

Observation:

S.No	Weight in the wieght hanger(W_2) kg	Distance of known wieght d_1 (m)	Distance of unknown wieght d_2 (m)	$W_2 \times d_2$ (kg m)	Unknown weight $W_1 = \frac{W_2 \times d_2}{d_1}$ (kg)
1					
2					
3					

Mean:

Calculations:

Moment of a force can be calculated using the formula

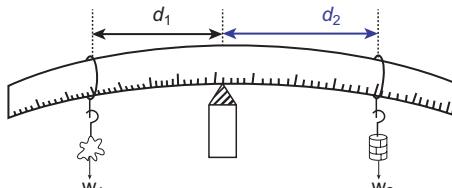
$$\text{Moment of the force} = \text{Force} \times \text{distance}$$

$$\text{Clock wise moment by unknown weight} = W_1 \times d_1$$

$$\text{Anticlockwise moment by known weight} = W_2 \times d_2$$

$$W_1 \times d_1 = W_2 \times d_2$$

$$\text{Unknown weight} = W_1 = \frac{W_2 \times d_2}{d_1}$$



Result:

Using the principle of moments, the weight of the unknown body $W_1 = \dots \text{Kg}$



2. DETERMINATION OF FOCAL LENGTH OF A CONVEX LENS

Aim:

To determine the focal length of a convex lens by using

1. Distant object method
2. uv method

Apparatus required: A convex lens, stand, wire gauze object, screen and measuring scale.

Formula:

$$f = \frac{uv}{(u + v)}$$

Here,

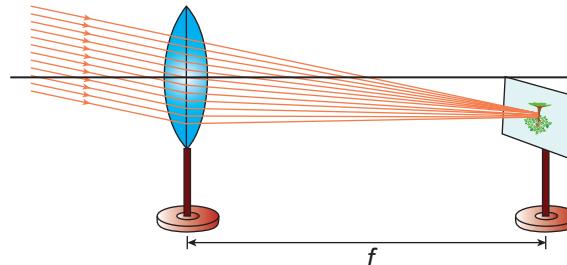
u is the distance between the object (light source) and the convex lens

v is the distance of the image (screen) from the convex lens

f is the focal length of the convex lens

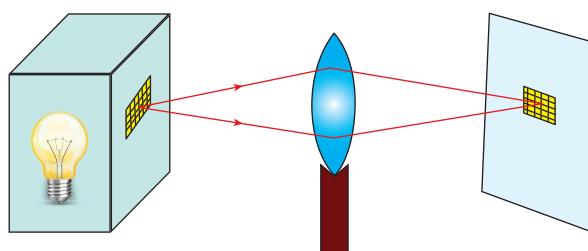
1. Distant Object Method:

Fix the given convex lens vertically on the stand and place it on the table near an open window of the laboratory. Locate a distant object (tree or building) through the open window. Place the screen behind the convex lens. Adjust the position of the convex lens and the screen so as to get a sharp, inverted and diminished image. Measure the distance between the screen and the convex lens with the help of the measuring scale. This distance is equal to the approximate focal length of the convex lens (f)



2. uv - Method:

Fix the given convex lens vertically on the stand and place it on the table. Place the wire gauze object on the left side of the convex lens (say at a distance greater than 2f). Measure the distance between the object and the lens (u). Place the screen on the right side of the convex lens and adjust its position to get a sharp, inverted and diminished image. Measure the distance between the screen and the lens (v). Repeat the same procedure, by changing the distance of the object (u) and tabulate your observations.





Observation:

Focal length of the convex lens (By distance object method) is (f) =cm

$$2f =cm$$

S.No	Size of the Image	Position of the object	Distance between the object and the lens (u) cm	Distance between the screen and the Lens (v) cm	Focal length of convex lens $f = \frac{uv}{(u+v)}$ cm
1	Diminished	$u > 2f$			
2					
3	Same size	$u = 2f$			
4	Magnified	$u < 2f$			
5					

Result:

The focal length of the given convex lens

1. By distance object method $f =cm$

2. By 'uv' method $f =cm$

3. DETERMINATION OF RESISTIVITY

Objective:

To determine the resistivity of the material of the given coil of wire.

Equipment required:

A coil of wire, screw gauge, a metre scale, battery, key, ammeter, voltmeter, rheostat and connecting Wires.

Formula:

The resistivity of the material of the coil of wire is

$$\rho = \left(\frac{A}{L} \right) R \quad (\text{in ohm metre})$$

Where A is the area of cross section of the wire (m^2)

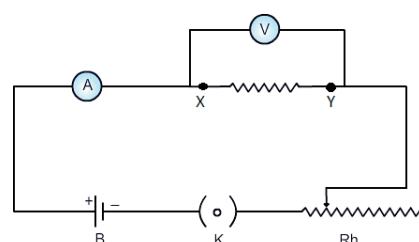
L is the length of the coil of wire (m)

R is the resistance of the coil of wire (ohm)

Circuit Diagram:

Procedure:

- Connect the battery, ammeter, given wire, rheostat and key in series, as shown in the circuit diagram.
- Connect the voltmeter in parallel to the unknown resistor.





- Close the key and hence the circuit is closed.
- Adjust the rheostat such that the ammeter reads a current of 0.5 ampere.
- Note down the potential difference across the resistor as shown by the voltmeter.
- Adjust the rheostat and change the current in steps of 0.5A (that is 0.5A, 1.0A, 1.5A, etc.).
- For each current, note down the corresponding potential difference as shown by the voltmeter.
- Tabulate the observations.
- Measure the diameter of the wire using a screw gauge.
- Measure the length of the coil using metre scale

Observations:

(i) To find the resistance:

S. No	Ammeter reading-I (Ampere)	Voltmeter reading-V (Volt)	Resistance = V/I (Ohm)
1			
2			
3			
MEAN			

(ii) To find the diameter of the wire using screw gauge:

S. No	Pitch Scale reading-PSR (mm)	Head scale coincidence-HSC	Head scale reading- HSR=HSC×LC (mm)	Total reading = PSR + HSR (mm)
1				
2				
3				
Mean Diameter				

Calculations:

$$\text{Radius of the wire, } r = \text{diameter}/2 = \text{_____ m}$$

$$\text{Area of cross section of the wire, } A = \pi r^2 = \text{_____ m}^2$$

$$\text{Length of the wire } L = \text{_____ m.}$$

$$\text{Resistivity of the material of the wire} = \rho = \left(\frac{A}{L} \right) R = \text{_____ } \Omega \text{ m}$$

Result:

$$\text{The resistivity of the material of the wire} = \text{_____ } \Omega \text{ m}$$



CHEMISTRY

4. IDENTIFY THE DISSOLUTION OF THE GIVEN SALT WHETHER IT IS EXOTHERMIC OR ENDOTHERMIC.

Aim:

To test the dissolution of given salt is exothermic or endothermic



Principle:

If the reaction or process liberates the heat, then it is called exothermic.

If the reaction or process absorbs the heat, then it is called endothermic

Apparatus required:

Two beakers, Thermometer, stirrer ,weighed amount of two samples.

Procedure:

Take 50ml of water in two beakers and label them as A and B. Note the temperature of the water from beaker A and B. Then, add 5g of sample A into the beaker A and stir well until it dissolve completely. Record final temperature of the solution. Now, repeat the same for the sample B. Record the observation.

Observation:

S. No	Sample	Tempature before addition of sample ($^{\circ}\text{C}$)	Tempature after addition of sample ($^{\circ}\text{C}$)	Inference (temperature increases or decreases)
1	A			
2	B			

Result:

From the inferences made

The dissolution of sample A is _____ (Exothermic or endothermic)

The dissolution of sample B is _____ (Exothermic or endothermic)

Note:

Sodium hydroxide, ammonium nitrate, glucose, calcium oxide etc. may be given as the sample.



5. TESTING THE SOLUBILITY OF THE SALT

Aim:

To test the solubility of the given salt based on the saturation and unsaturation of the solution at a given temperature.



Principle:

A solution in which no more solute can be dissolved in the solvent at a given temperature is called saturated solution. If the solvent can dissolve more solute than what is present, the solution is called unsaturated solution.

Materials Required:

A 250 ml beaker, a Stirrer, sufficient quantity of distilled water, 100 ml measuring jar, table salt in three packets weighing as 25g, 11g, and 1g.

Procedure:

In a 250ml beaker, pour 100 ml water using measuring jar. To this water add table salt (25 g) from first packet. stir the content very well. Add the next packet containing 11 g salt followed by constant stirring. Now add the third packet containing 1 g salt. Record your observations.

Observation:

S. No	Amount of salt added	Observation [Salt dissolved/undissolved]	Inference [unsaturated/saturated/super saturated]
1			
2			
3			

Result: From the above observation, it is inferred that the amount of salt required for saturation is _____ g

6. TESTING THE WATER OF HYDRATION OF SALT

Aim:

To check whether the given sample of salt possesses 'Water of Hydration' or not. To verify the presence of water molecules in the given hydrated salt.



Principle:

Water of crystallization or water of hydration is the phenomenon shown by certain salts in which water molecules are present inside the crystals are responsible for their colour and geometry. e.g. Crystalline copper sulphate $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$

Materials Required: A pinch of crystalline copper sulphate in a test tube, tongs, spirit lamp.



Procedure:

A pinch of crystalline copper sulphate taken in a test tube and heated for sometime. Water droplets are seen on the inner walls of the test tube. This shows that the given salt contains water of crystallization. If the above observation is not noticed for the given salt, the water of hydration is absent.



Result:

In the given sample of salt, Water of crystallization / hydration is

- A) Present
- B) Absent

7. TEST THE GIVEN SAMPLE FOR THE PRESENCE OF ACID OR BASE

Aim:

To identify the presence of an acid or a base in a given sample.



Materials Required:

Test tubes, test tube stand, glass rod, phenolphthalein, methyl orange, sodium carbonate salt and the given sample.

Principle:

In acid medium,

- (a) Phenolphthalein is colourless
- (b) Methyl orange is pink in colour
- (c) Sodium carbonate gives brisk effervescence.

In Base medium,

- (a) Phenolphthalein is pink in colour
- (b) Methyl orange is yellow in colour
- (c) Sodium carbonate does not give brisk effervescence.

Procedure:

S. No	Experiment	Observation (Colour change)	Inference (Acid / Base)
1	Take 5ml of the test solution in a test tube and add a few drops of Phenolphthalein in it.	a) No change in colour. b) Solution Turns pink in colour	a) Presence of acid b) Presence of base
2	Take 5ml of the test solution in a test tube and add a few drops of Methyl orange in it.	a) Solution Turns pink in colour b) Solution Turns yellow in colour	a) Presence of acid b) Presence of base
3	Take 5ml of the test solution in a test tube and add a pinch of sodium carbonate salt.	a) Brisk effervescence occurs. b) No brisk effervescence.	a) Presence of acid b) Presence of base

Result: The given test solution contains _____ (acid / base).



BIO-BOTANY

8. PHOTOSYNTHESIS-TEST TUBE AND FUNNEL EXPERIMENT(DEMONSTRATION)

Aim:

To prove that oxygen is evolved during photosynthesis.

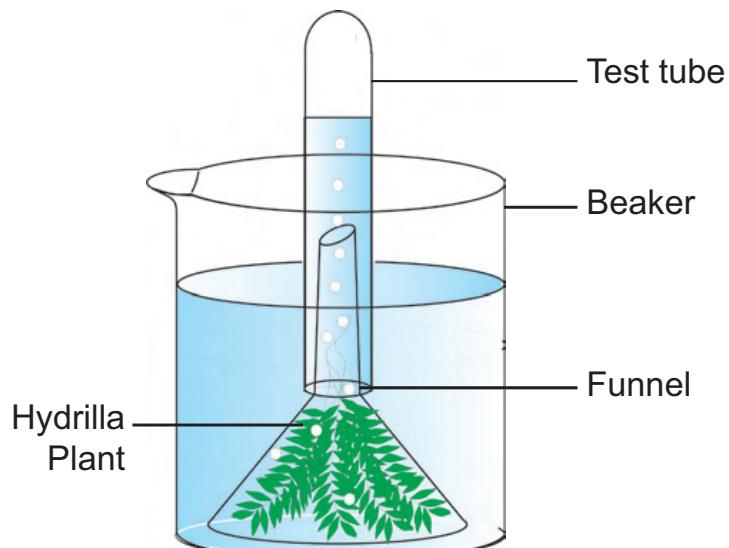


Materials required:

Test tube, funnel, beaker, pond water and Hydrilla plant.

Procedure:

1. Take a few twigs of Hydrilla plant in a beaker containing pond water.
2. Place an inverted funnel over the plant.
3. Invert a test tube filled with water over the stem of the funnel.
4. Keep the apparatus in the sunlight for few hours.



Observation:

After one hour, it is noted that water gets displaced down from the test tube.

Inference

During photosynthesis, oxygen is evolved as a by-product. Gas bubbles liberated from the Hydrilla plant reach the top of the test tube and it displaces the water downwards. Take the test tube and keep the burning stick near the mouth of the test tube. Increased flame will appear. Hence, it is proved that oxygen is evolved during photosynthesis.



9. PARTS OF A FLOWER

Aim:

To dissect and display the parts of the given flower and observe the Calyx, Corolla, Androecium and Gynoecium. Draw labelled sketches.

Materials Required:

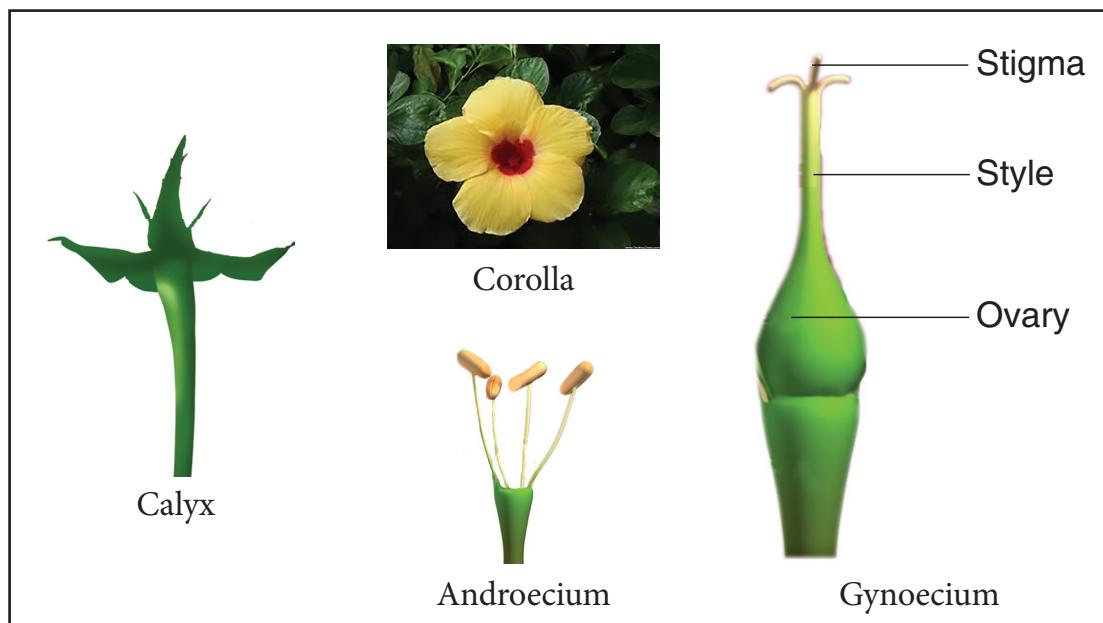
Flower, needle and paper

Procedure:

With the help of the needle dissect the different whorls of the flower

Floral Parts:

Calyx	}	Accessory organ
Corolla		
Androecium	-	Male part of the flower
Gynoecium	-	Female part of the flower



Observation:

Draw and label the parts of the flower.



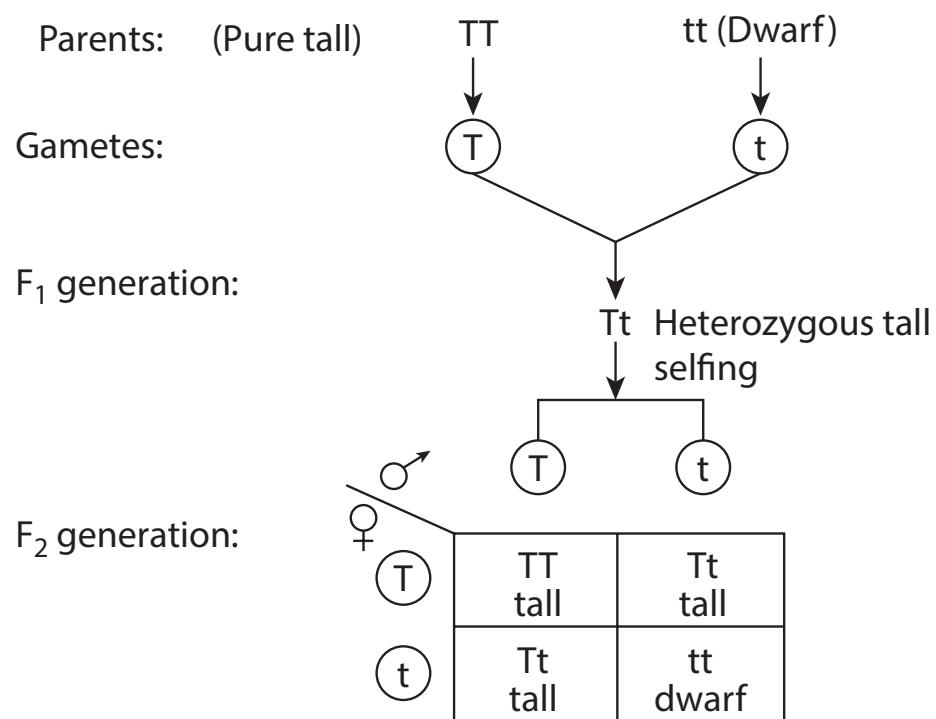
10. TO STUDY THE LAW OF DOMINANCE

Aim:

To study the law of dominance by using model / picture / photograph. To find out the genotypic ratio and phenotypic ratio in pea plant using checker board

Procedure:

Depict parental generation and the gametes using colour chalk pieces



Result:

Phenotypic ratio 3:1

Genotypic ratio 1:2:1

Inheritance of only one pair of contrasting character is called monohybrid cross. A cross between two forms of a single trait like a cross between tall and dwarf pea plant.



11. OBSERVATION OF TRANSVERSE SECTION OF DICOT STEM AND DICOT ROOT

Aim:

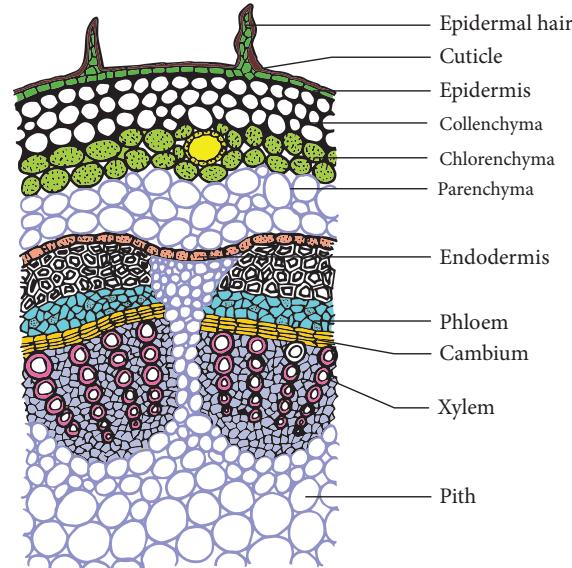
To observe transverse section (T.S) of Dicot Stem and Dicot Root from permanent slides.

Observation:

- A. The given slide is identified as T.S of Dicot Stem

T.S of Dicot Stem

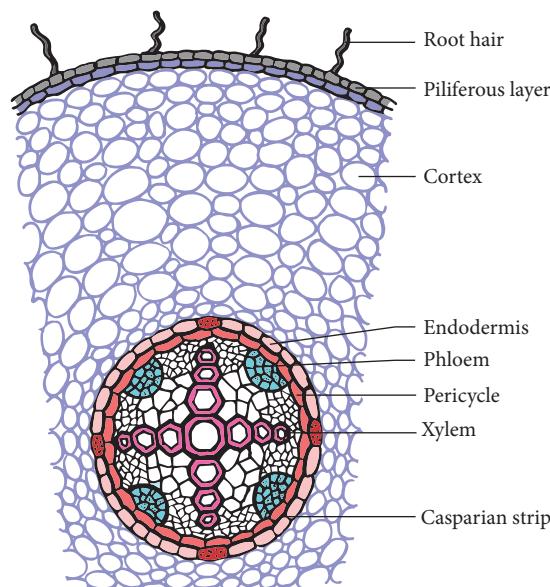
- (i) Vascular bundles are arranged in a ring.
- (ii) Conjoint, collateral, endarch and open vascular bundle.
- (iii) Ground tissue differentiated into cortex, endodermis, pericycle and pith.
- (iv) 3 to 6 layer of collenchyma tissues present in hypodermis.



- B. The given slide is identified as T.S of Dicot Root

T.S of Dicot Root

- (i) Radial vascular bundle.
- (ii) 2 to 4 xylem present
- (iii) Cambium present
- (iv) Cortex is made up of parenchymatous cells





BIO-ZOOLOGY

12. OBSERVATION OF MODELS-HUMAN HEART AND HUMAN BRAIN

Identification of longitudinal section (L.S) of the human heart.

Aim:

To observe and draw a labelled sketch of L.S of human heart and write the structure.

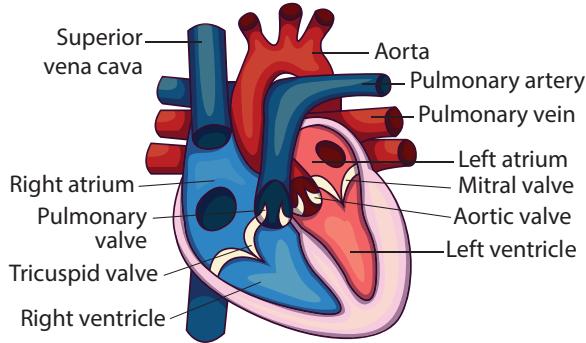
Materials Required:

Model showing the L.S of human heart

Observation:

The given model is identified as L.S. of human heart

1. The human heart has four chambers. It is made up of two auricles and two ventricles
2. The chambers are separated by interauricular and interventricular septum. It prevents the mixing of oxygenated and deoxygenated blood.
3. Tricuspid valve - It is located between the right auricle and the right ventricle
4. Bicuspid valve - It is located between the left auricle and the left ventricle
5. The heart is covered by a protective double walled membrane called pericardium
6. The heart pumps blood to all parts of the body.



Identification of L.S of the human brain.

Aim:

To observe and draw a labelled sketch of L.S of human brain and indicate the different regions of the brain

Materials Required

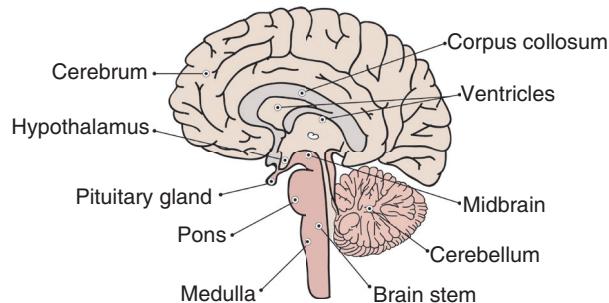
Model showing the L.S of human brain



Identification:

The given model is identified as L.S. of human brain

1. The brain is enclosed in the cranial cavity
2. It is the controlling centre of all the body activities.
3. It is covered by three connective tissue membrane or meninges: Duramater Arachnoid membrane and Piamater
4. The human brain is divided into three parts namely forebrain, midbrain and hindbrain



13. IDENTIFICATION OF BLOOD CELLS

Aim:

Identification of blood cells (Red blood cells and white blood cells). To draw a neat labelled diagram and write a note on the blood cells identified.

Materials Required

Permanent prepared slides of blood cells.

Identification:

The given slide is identified as **Red blood cells**

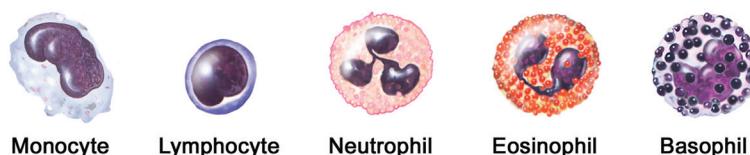
1. They are biconcave and disc shaped.
2. They are also known as erythrocytes
3. Mature mammalian RBC's do not have nucleus.
4. Haemoglobin is a respiratory pigment which gives red colour.
5. It transports oxygen from lungs to tissues and carbon-dioxide from tissues to lungs



Red Blood Cells

The given slide is identified as **White blood cells**

1. WBC's are colourless and they have nucleus.
2. They are also known as Leucocytes
3. They show amoeboid movements.
4. They fight against germs and other foreign bodies and thus protect the body from microbial infections and diseases.
5. There are five different types of WBC named as Neutrophils, Eosinophils, Basophils, Lymphocytes and Monocytes



Monocyte Lymphocyte Neutrophil Eosinophil Basophil



14. IDENTIFICATION OF ENDOCRINE GLANDS

Aim:

To identify the endocrine gland, its location, hormone secreted and functions - Thyroid gland and Pancreas

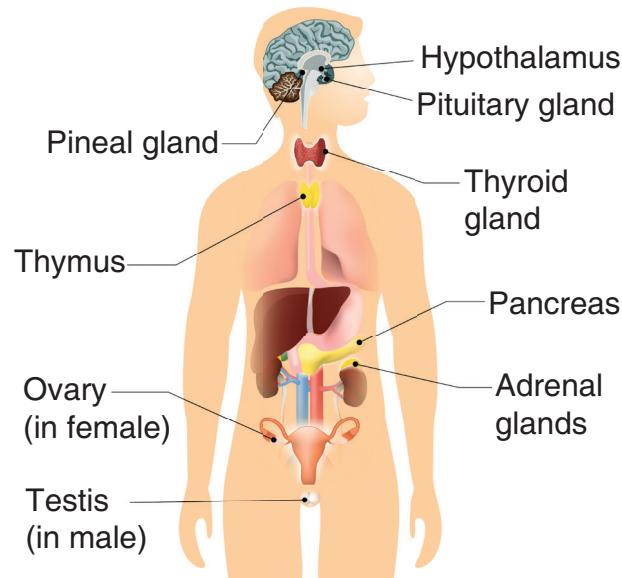
Materials Required:

1. Endocrine glands – (a) Thyroid gland (b) Pancreas – Islets of Langerhans
2. Any one endocrine gland should be flag labelled.

For the purpose of flag labelling a model / a chart / photograph showing all endocrine glands should be used. (Mark the endocrine glands mentioned for the practical)

Identification:

Identify the flagged endocrine gland, write its location, the hormones secreted and its functions.



(a) Thyroid gland

Identification: The flag labelled endocrine gland is identified as Thyroid gland

Location: Thyroid gland is a bilobed gland located in the neck region on either side of the trachea.

Hormones secreted: Triiodothyronine (T3) and Thyroxine (T4)

Functions of Hormones:

1. Thyroid hormones increases the basal metabolic rate (BMR).
2. It increases the body temperature.
3. It regulates metabolism



4. It is required for normal growth and development
5. It is also known as personality hormone.
6. Deficiency of thyroxine results in simple goiter, myxoedema (in adults) and cretinism (in children).
7. Excess secretion causes Grave's disease.

(b) Pancreas – Islets of Langerhans

Identification:

The flag labelled endocrine gland is identified as Islets of Langerhans in the Pancreas.

Location:

Islets of Langerhans are seen embedded in the pancreas which is located in the abdominal region.

Hormones secreted:

1. α cells secrete glucagon
2. β cells secrete insulin

Functions of Hormones:

1. Insulin converts glucose into glycogen and stores it in liver and muscles.
2. Glucagon converts glycogen into glucose.
3. Insulin and glucagon maintain the blood sugar level (80 – 120 mg/dl) by their antagonistic function.
4. Decrease in insulin secretion causes diabetes mellitus.



GLOSSARY

- Aqueous - நீர்க்கரைசல்
Average Atomic mass - சராசரி அணுவிறை
Artificial transmutation - செயற்கை மாற்றுத் தனிமமாக்கல் முறை
Anemia - இரத்தசோகை
Addiction - அடிமையாதல்
Apical dominance - நுனி ஆதிக்கம்
Abscission - உதிர்தல்
Analogous organs - செயல் ஒத்த உறுப்புகள்
Atom Bomb - அணுகுண்டு
Alternating current - மாறுதிசை மின்னோட்டம்
Audible sound - செவியுணர் ஒலி
Apparent change - தோற்ற மாறுதல்
Carcinogens - புற்று நோயக் காரணி
Cerebrospinal fluid - மூளை தண்டு வட திரவம்
Crop - தீனிப்பை
Controlled chain reaction - கட்டுப்படுத்தப்பட்ட தொடர்வினை
Ductility - கம்பியாக நீட்டுதல்
Deliquescent substance - நீர் ஈர்த்து கரையும் பொருள்
Dwarfism - குள்ளத் தன்மை
Dormancy - தூங்கு நிலை அல்லது ஓய்வு நிலை
Dihybrid cross - இரு பண்பு கலப்பு
Diastema - பல் இடைவெளி
Diaphragm - உதரவிதானம்
Dispersion - நிறப்பிரிகை
Ethnobotany - தாவர தொடர்பியல்
Earthing - புவியிணைப்பு
Electric potential - மின்னழுத்தம்
Equilibrant - எதிர் சமனி
Functional group - வினைச் செயல் தொகுதி
Froth floatation - நுரை மிதப்பு முறை
Fossils - புதை உயிர் படிமம்
Goitre - முன்கழுத்துக் கழலை
Gigantism - அசுரத்தன்மை
Green Revolution - பசுமை புரட்சி
Genetic Engineering - மரபுப் பொறியியல்
Genotype - மரபு வகை
Geotropism - புவிஸர்ப்பு சார்பு
Hard soap - வன் சோப்பு
Hygroscopic substance - நீர் ஈர்க்கும் பொருள்
Homozygous - ஒத்த கருநிலை
Homologous organs - அமைப்பு ஒத்த உறுப்புகள்
Hermaphrodite - இருபால் உயிரி
Heterodont - மாறுபட்ட பல்லமைப்பு
Hydrogen bomb - வைட்டரஜன் குண்டு
Hyper meteropia - தூரப்பார்வை
Impulsive - உந்து விசை
Infrasonic sound - குற்றெராலி
Mass percentage - நிறை சதவீதம்
Medulla oblongata - முகுளம்
Mutation - சடுதி மாற்றம்
Molds - பூசணங்கள்



Menarche	- பருவமடைதல்
Myopia	- கிட்டப்பார்வை
Non- conventional energy resource	- மரபு சாரா ஆற்றல் வளங்கள்
Non Aqueous	- நீரிலி கரைசல் அல்லது நீரற்ற கரைசல்
Neurotransmitters	- நரம்புணர்வு கடத்திகள்
Natural radioactivity	- இயற்கை கதிரியக்கம்
Nuclear fusion	- அனுக்கரு இணைவு
Nuclear fission	- அனுக்கரு பிளவு
Nuclear reactor	- அனுக்கரு உலை
Oncology	- புற்றுநோயியல்
Pacemaker	- இதய இயக்கம் சீராக்கி
Phagocytic	- நோயங்குடன்னி / செல்விழுங்கி
Parthenocarpic fruits	- கருவுறாக் கனிகள்
Plastids	- கணிகங்கள்
Plant breeding	- தாவர பயிர்ப் பெருக்கம்
Polypliody	- பன்மயம்
Parturition	- குழந்தைப் பிறப்பு
Placenta	- தாய் சேய் இணைப்புத் திசு
Redox reaction	- ஆக்சிஜனேற்ற ஒடுக்க வினை
Relative molecular mass	- ஒப்பு மூலக்கூறு நிறை
Renewable energy	- புதுப்பிக்கத் தக்க வளம்
Rehabilitation centre	- மறுவாழ்வு மையம்
Response	- துலங்கல்
Reflex action	- அனிச்சைச் செயல்
Respiratory Quotient	- சுவாச ஈவு
Radioactivity	- கதிரியக்கம்
Refraction	- ஒளி விலகல்
Resolving power	- பிரிதிறன்
Resistivity	- மின்தடை எண்
Rarefactions	- நெகிழ்வுகள்
Soft soap	- மென் சோப்பு
Saturated solution	- தெவிட்டிய கரைசல்
Super saturated solution	- அதி தெவிட்டிய கரைசல்
Solubility	- கரைதிறன்
Septum	- தடுப்புச் சுவர்
Social forestry	- சமுதாயக் காடுகள்
Stomata	- இலைத்துளை
Stem cell	- மூலச் செல்
Suckers	- ஒட்டு உறிஞ்சிகள்
Segments	- கண்டங்கள்
Sanguirorous	- இரத்த உறிஞ்சிகள்
Softy measures	- பாதுகாப்பு நடவடிக்கைகள்
Stellar energy	- விண்வெளி ஆற்றல்
Spectrum	- நிறமாலை
Scattering	- ஒளிச்சிதறல்
Short circuit	- குறுக்குத் தடச்சுற்று
Un saturated solution	- தெவிட்டாத கரைசல்
Uncontrolled Chain Reaction	- கட்டுப்பாடற்ற தொடர்வினை
Umbilical cord	- தொப்புள் கொடி
Uterus	- கருப்பை
Ultrasonic sound	- மீயொலி
Vapour density	- ஆவி அடர்த்தி
Vestigial organs	- எச்ச உறுப்புகள்
Wobble	- தள்ளாட்டம்
Zygote	- கருவுற்ற முட்டை



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