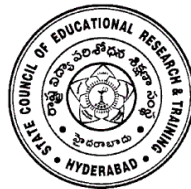# ICT TEACHER HAND BOOK

(Computer Education)

PRIMARY

State Council of Educational Research & Training,
Andhra Pradesh, Hyderabad.

Foreword

Information Communication Technology (ICT) is one of the rapidly changing area in domain of learning. The main purpose of introducing ICT in schools is to help the students to make use of different ICT tools in enhancing their learning. The ICT education helps the students to face the challenges of 21st century and attain the millennium developmental goals in education. ICT also helps in reducing the digital divide among the rural and urban students.

As per the UNESCO "technology can be powerful education multiplier, but we must know how to use it. It is not enough to install technology into classrooms- it must be integrated into learning. Nothing can be substitute for a good teacher. It is not technology itself that empowers people- empowerment comes from skills and knowledge".

The teachers have become more critical than ever- the challenge is how to enable teachers not only to overcome the technology barriers but also to empower them to integrate appropriate technology into the teaching and learning process.

This handbook contains the required content in using the different tools and linking then with other subjects i.e. Mathematics, Science, Social Science and languages.

The SCERT, A.P, Hyderabad appreciates the efforts of the content experts and other team members in developing these ICT handbooks. We also acknowledge the C-DAC, Hyderabad for sharing their content related to software security in the preparation of these handbooks.

We hope, the teacher may find this handbook useful and transact it in the classroom to enhance the learning levels of the students and also infuse confidence among them as they were not left behind in using technology on par with other students who are studying in corporate schools.

Date: 24.05.2014

Director

SCERT AP Hyderabad

Class - PRIMARY

CONTENTS

Instructions to Teachers

The main purpose of introducing ICT in school syllabus is the help the children to understand how to make use of ICT tools in enhancing their learning.

- This material is meant for teacher only. Hence, the teacher should read, understand and add their experience while transacting the same to students.

- Prepare a year plan in advance keeping in view of the number of periods available under computer education.

- Read all the topics given in the handbook and prepare thoroughly before start teaching.

- Refer relevant material and consult the experts in case of any doubts.

- Before going to practices, the theory/ content should be explained to students then only demo and practice sessions should be taken up.

- All abbreviations must be thoroughly practised by the teacher before teaching.

- Update your knowledge in software and hardware in addition to the latest ICT tools. Use internet to update the knowledge in the given topics.

- Ensure all children get equal opportunities in practices.

- There will be one periods in a week for ICT (Computer Education)subject, accordingly, teacher has to plan for transaction.

- Few projects are given at the end of the handbook. All students should do these projects. In addition to these, you may consult your colleagues and identify some more projects and assign to your students.

Assessment :

Children performance should be assessed at the end of each summative based on the indicators given below:

- Students are able to operate and use the ICT tools.

- Students are able to learn subject-wise content by using ICT tools.

There is no written test the children performance should be assessed through observation based on their participation and their ability in using the ICT tools in their learning.

Assessment Indicators

In addition to grading the qualitative Indicators are to be written in the students' progress report under Computer Education. The following are the indicators:

A1 Students can use all the tools of the ICT and can use them effectively in their learning.

A2 Students can use all the tools of the ICT and able to use them in their learning.

B1 Students are able to use the different tools of ICT and able to use most of them in their learning.

B2 Students are able to use the different tools of ICT and use some of them in their learning.

C1 Students are able to use the ICT tools and able to use few of them in their learning.

C2 Students are able to some of the ICT tools and try to use them in their learning.

D1 Students are able to identify the ICT tools and try to use a few of them in their learning.

D2 Students are able to identify some of the ICT tools but they are unable to use them in their learning.

Note: The computer education is linked with Work Education and made a single paper under other curricular subject areas. Hence, out of 50 marks, 25 marks each are to be allotted to Work Education and Computer Education.

*****

Information and Communication Technology (ICT)

Introduction

The field of Information and Communication Technology (ICT) is evolving at such a pace, where concepts, technology and terminology are continuously changing. ICT helps to bridge the digital divide amongst students of various socio economic and other geographical barriers. Information and Communication Technology (ICT) is universally acknowledged as an important catalyst for social transformation and national progress.

Information and communication technology which is a by-product of science and technology explosion has revolutionized the world of learning. It is very essential to integrate the IT with education in order to have the advantage of ICT education.

Around the world, policymakers and educators have high hopes for ICT in the classroom as a springboard to students "21st century skills"—that combines the competencies of problem solving, critical thinking and managing their own learning is needed for success in the global workplace.

Information and Communication Technology (ICT) has dominated in every walks of life affecting right from bus & railway reservations, hotel industry, online money transfers, bill payments, in class room teaching and learning process, distance education, e-learning and film making etc..

The learning activities through ICT make a difference. Students are much more likely to learn to solve real-world problems and collaborate productively with their peers, if their learning activities are carefully designed to offer opportunities.

The aim of 21st Century education is being redefined. It is not only for employment generation but also to create a better world through understanding and development of human qualities.

In this context, the Government of India has announced 2010 – 2020 as the decade of Innovation. For which reasoning and critical thinking skills are essential. And these skills are to be inculcated at the school level for which ICT tools and techniques should be integrated into class room instructions right from the primary

education level, so that the children develop the required skills. In this matter the web is an open source and the child should know how to grab it.

According to UNESCO education is important to achieve the Millennium Development goals; the following are reasons for which the ICT in education is a key aspect. i.e., '*More people would grow and develop; More people would learn and know; More people would be equal and just; More children would survive and live; More mothers would be healthier; More people would be able to combat illness; More people would think of the future; More people would work together.*'

The purpose of this material is to create awareness and practice among the student and teacher communities with a "diverse set of technological tools, resources used to communicate, create, disseminate, store, and manage information." These technologies include computers, internet, broadcasting technologies (radio and television) and telephony.

The relevant and contemporary content, lucid language, attractive illustrations and constructive exercises make the learning of computers more meaningful and enriching.

The journey of the student starts right from the ICT tools available in and around such as Radio, Tape recorder, TV, mobile and Computer. The students of primary level learn to draw by using MS & Tux Paint, learn to type small words, sentences, paragraphs, making documents by using typing tutor and MS Word. Moving away a little from these applications, the students can learn MS Excel for mathematical calculations & graphs and MS PowerPoint for making subject wise presentations. Further the students learn the concepts of Data Base Management System (DBMS), Internet, Networking and computer languages, maintaining the computers and its peripherals. The students are also introduced to learn about the Antivirus, Computer security and privacy and open source software technologies.

This material is useful in acquiring the concepts in a better way which make the student journey in learning more fruitful and engrossing. It has been developed in tune with the guidelines given by NCF-2005 and with various activity based methods. This will lay down a path to create interest to take up high level computer education courses in future and career.

The government had initiated Computer Education and Computer Aided Learning in selected Primary, Upper Primary and High Schools. A huge number of teachers in the State already had been trained to use computers in their regular class room transactions and a lot of computer aided learning material also has been developed and supplied to schools.

As part of Education Technology policy, the Education Department of Andhra Pradesh has been developing a large quantity of material in the form of Audio (Radio Programs under Vindam Nerchukundam), Audio and Video based programs (SIET and SAP Net) and Computer based programs(CDs) in collaboration with NGOs.

The Objectives of the ICT in School Education:

- To inculcate the ICT skills among the students of government schools.

- To bridge the digital divide between rural and urban students.

- To create computer awareness and literacy among students and teachers.

- To provide ICT environment in the schools to make teaching-learning process an effective and interesting

- To train the teachers on computer syllabi, emerging information and communication technologies.

- To develop confidence in students to use computers in future.

- Student-centered pedagogies that promote personalized and powerful learning for students;

- Extending learning beyond the classroom in ways most relevant to knowledge-building and problem-solving in today's world; and

- ICT integration into pedagogy in ways that support learning goals. It is important to note that ICT use is not a goal in itself, but a tool to broaden and deepen learning opportunities.

Teaching Learning Process

The ICT material has been developed from class 1 to class 10. The teacher can act as a facilitator to help the students in their learning process. In every Unit the teacher explains the concepts and students do the activities/projects with ICT tools and finely able to integrate with their subjects.

Academic standards and Assessment

Academic Standards

- The students are able to operate and use the ICT tools

- Students are able to learn subject wise contents through the ICT tools

Assessment Process

At the end of the each chapter exercises and projects have been given. On the basis of the students performance   appropriate grade may be awarded in summative assessment.

✶✶✶✶✶

Chapter - 1 What is ICT?

Learning Objectives

In this chapter you will be able to understand;

O   What is ICT?. (Information and Communications Technology)

Introduction:

ICT stands for Information and Communications Technology, by understanding what ICT is. You can make use of ICT in your learning process. Few examples of ICT tools are Television, Radio, Mobile Phones and Computers.

ICT will help you in many ways for learning and entertainment. Let's now understand how we are benefited with the ICT tools.

Television:

Television provides two types of information.

1.   Prerecorded – Under this all the programmes that are scripted, acted and directed by the people at the Doordarshan studios and sent to satellites for transmission like, TV Serials, advertisements, game shows, cookery shows etc.,

2.   Live - The programmes are beamed directly from the place of occurrence i.e., real time broadcasting for ex: Independence Day celebrations from Red Fort, meetings, calamities like earthquake or tsunami, discussions, educational fairs etc.,

CRT Television   *LCD   Television*   *LED   Television*

Mobile Phone:

Mobile also comes under telecommunications equipment.

We mostly use it for conversations through voice and text. It has 2-way communication.

IT has many applications like, calling, chatting, gaming, browsing, GPRS, etc.,

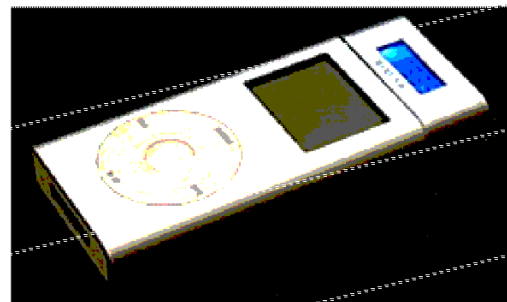**Standard Mobile**   **Touch Screen Mobile**   **High End Mobile**

Tape cum Radio:

Tape cum Radio also comes under communication equipment. It is used mostly for voice transmission. This is also a one way communication equipment. Tape is useful to listen prerecorded items like songs, speeches, dialogues, stories and eminent voices etc., It is also used to record and replay. Radio has many stations as AM, FM. Radio broadcasts news, educational programmes, Agricultural programmes, speeches, Live programmes, Weather information, Market info etc.,

Tape cum Radio   **FM Radio**   **ipod FM receiver**

Computer:

This is a two way communication device. This has a capability of Multimedia. We can use this for video, audio, text, animation, etc., In the modern days it occupies everywhere and serving in all the industries like, manufacturing, construction, hotel, film making, games & sports, etc.,

*Stationary   Computer   (Desktop)   Portable computer (Laptop)*

Comparison between ICT tools

Televisions (TV)	Mobiles	Radio & Tape	Computers
One way transmission	Two way transmission	One way transmission	Two way transmission
Audio & Visual display	Audio & Visual display and Text, pictures can be shared	Only Audio play	Audio & Visual display and information and data exchange
Transmission through Satellite	Transmission through Satellite	Radio transmission through Satellite & Tape will be with magnetic tapes	Transmission through Fiber optic Internet cable
Programmes are not controlled by the User	User control	Radio programmes are not controlled by the user & Tape is in user control	User control
Needs input cable or DTH Antenna	Needs service provider	Inbuilt system for Radio and Tapes required for Tape recorder	Needs software & internet
Recording our voice is not possible	Recording our voice is possible	Recording our voice in tape recorder is possible	Recording our voice is possible

Now let us understand more about the mostly used ICT tool - the Computer.

Charles Babbage has invented computer.

Charles Babbage was an English mathematician, philosopher and inventor born on December 26, 1791, in London, England. Often called "The Father of Computing," Babbage developed detailed plans for mechanical Calculating Engines, Difference Engines, and Analytical Engines. Babbage died on October 18, 1871, in London.
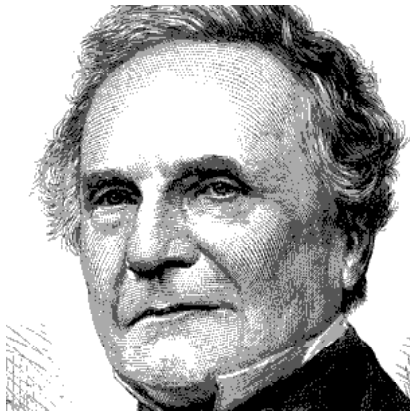
The history of computer development is often referred to with reference to the different generations of computing devices. Each of the five generations of computers is characterized by a major technological development that fundamentally changed the way computers operate, resulting in increasingly smaller, cheaper, more powerful and more efficient and reliable computing devices.

First Generation (1940-1956) Vacuum Tubes

The first computers used vacuum tubes for circuitry and magnetic drums for memory, and were often enormous, taking up entire rooms. They were very expensive to operate and in addition to using a great deal of electricity, generated a lot of heat, which was often the cause of malfunctions.

Second Generation (1956-1963) Transistors
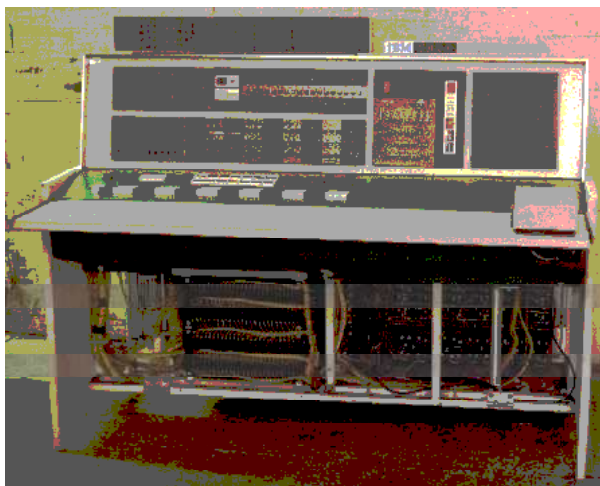
Transistors replaced vacuum tubes and ushered in the second generation of computers. The transistor was invented in 1947 but did not see widespread use in computers until the late 1950s. The transistor was far superior to the vacuum tube, allowing computers to become smaller, faster, cheaper, more energy-efficient and more reliable than their first-generation predecessors. Though the transistor still generated a great deal of heat that subjected the computer to damage, it was a vast improvement over the vacuum tube. Second-generation computers still relied on punched cards for input and printouts for output.

Third Generation (1964-1971) Integrated Circuits

The development of the integrated circuit was the hallmark of the third generation of computers. Transistors were miniaturized and placed on siliconchips, called semiconductors, which drastically increased the speed and efficiency of computers.

Fourth Generation (1971-Present) Microprocessors

The microprocessor brought the fourth generation of computers, as thousands of integrated circuits were built onto a single silicon chip. What in the first generation filled an entire room could now fit in the palm of the hand.

Fifth Generation (Present and Beyond) Artificial Intelligence

Fifth generation computing devices, based on artificial intelligence, are still in development, though there are some applications, such as voice recognition, that are being used today. The use of parallel processing and superconductors is helping to make artificial intelligence a reality.
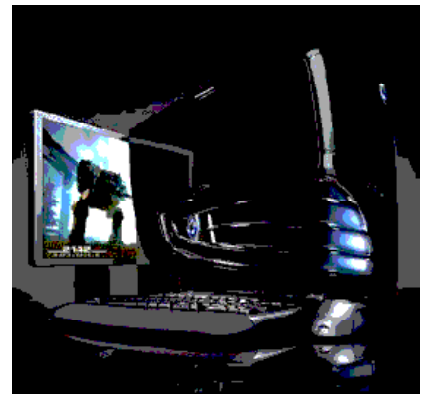
Summary:

In this chapter we have understood

○ What is ICT?

○ Example of ICT tools.

○ The evolution of Computers

Teacher Activity

Teachers can show students the ICT tools available nearby like Mobiles, Television, Radio cum Tape recorder and Computers

Teachers can encourage students with few hands on experience in observation

The students should be demonstrated with few examples by teacher in using the ICT tools.

Students need to observe various ICT tools demonstrated by the teacher in the class.

As they are not been introduced to the usage of ICT tools students are not encouraged to use them.

Questions:

Short note questions:

1. Write a short note on First Generation of computers.

2. Write a note about "Father of Computers".

Choose correct Answers

1. _____ is used in first generation of computers

A. Vacuum Tube   B. Integrated Circuit   C. Microprocessor   D Transistor.

2. Charles Babbage was born on _____

A. 19th November 1783   B. 23rd December 1786

C. 12th October 1923   D. 26th December 1791

3. ICT stands for _____

A. Information Circuit   B. Integrated Circuit

C. Inter Circuit   D. Information and communication Technology.

Key Words

◯   ICT – Information and Communications Technology

◯   LED – Light Emitting Diode

◯   LCD – Liquid Crystal Display

◯   Computer Generations

◯   Circuit

◯   Vacuum tubes

◯   Transistors

◯   Generations

Chapter - 2 Benefits and Limitations of ICT

Learning Objectives

In this chapter you will be able to understanad the Benefits and Limitations of ICT Tools

1.   Television :

This is a one way transmission tool. We can only view and listen to the programmes delivered by the Channels.

2.   Mobile :

All mobiles are not the same. Mobiles vary with the technology, price and its model.It is a two way transmission tool.

3.   Radio cum Tape :

Now a days CDs are more popular with respect to magnetic tapes. Life of magnetic tape is less when compared to other storage devices.

4.   Computer :

Software is required to run all the applications. It needs a little practice to use as per our needs.

Let us understand the benefits and Limitations of Computers

Benefits and Limitations of a Computer

Before we look at the benefits and limitations of a computer, let us compare a computer with a calculator, a typewriter and a human being.

Difference between a Computer and a Calculator

A calculator can perform only simple arithmetic operations like additions, subtractions, multiplications and divisions. A computer can perform not only the above operations but also tasks that involve complex mathematical calculations, such as weather forecasting or aircraft design. A calculator cannot store a large amount of data, whereas a computer can.

Difference between a Computer and a Typewriter

A computer is different from a typewriter in many ways. You can print many pages using a computer by giving a single instruction. You cannot do so with a typewriter. A typewriter cannot store the data that is typed, whereas a computer can store and process data. Using a computer makes it easier to correct mistakes without making the paper untidy.

Difference between a Computer and a Human being

The difference between a computer and a human being are shown in Table

1.1. *Computer*	*Human Being*
Is a machine	Is a living thing
Cannot work independently (a human being has to give instructions)	Can work independently
Is very accurate	Can make mistakes
Can work very fast	Comparatively very slow
Never gets tired or bored	Gets tired or bored
Cannot work without electricity	Does not require electricity

Benefits of a Computer

The main benefits of using a computer are:

Speed

A computer works at a very high speed and is much faster than human beings. It can perform hundreds of calculations in less than a seconds.

Accuracy

In addition to being fast, a computer is very accurate. If the data and the instructions given to the computer are correct, then the result given by the computer will also be correct. Scientists use computers to perform their calculations, as they require accurate results.

Diligence

Human beings get tired and bored doing the same work again and again. But the computer never gets tired or bored even if it has to repeat the same work many times. It can continue doing the same job with the same accuracy for hours together. For example, a school can use the computer to print invitations for its Annual Day function. The computer will take exactly the same time to print each invitation and will maintain the same quality throughout.

Storage

A computer can store a large amount of information for future use. For example, the details about all the students in a school, their names, addresses etc. can be stored in a computer. This information can be obtained from the computer whenever required.

Automation

A computer can be instructed to do a task automatically. When a particular work has to be done again and again, the computer has to be instructed just once and it will complete the task. For example, to print thousand copies of the invitation card for the school Annual Day, the computer has to be instructed only once and not thousand times.

Limitations of a Computer

The computer is a machine. It cann't perform any task on its own. You have to give clear and proper instructions (referred to as a software program or simply, a program) to the computer to perform any task correctly.

A computer cannot think. It cannot perform anything differently from what it has been told to perform. A computer will give wrong results if the instructions given to it are either incorrect or incomplete.

Summary:

In this chapter we have understood the benefits and limitations of ICT tools and also we have understood in detail about the benefits and limitations of ICT tool Computer.

Teacher Activity

1. Make the students learn to record their voice by using a tape recorder and a mobile?

Student Activity

1. Tell any five TV channel names that you know.

2. In which ICT tool recording is not possible?

Key Words

1.	Recording	2.	Storage device
3.	Magnetic tape	4.	Software
5.	Application	6.	Calculation
7.	Accuracy	8.	Program

Chapter - 3   Types of ICT Tools

Learning Objectives

In this chapter We will understand

○   The types of ICT tools – Computers

As we have understood about various ICT tools their usage, benefits and limitations, let us now understand various types of ICT tools, we can find various types of computers available in the market like desktops, laptops, handheld, palmtops etc.,

Desktop Computers

These computers are also called as Stationary Computers. These computers are mostly used in institutions where it is not required to move from place to place.

Now a days many developments are observed in the desktop computers. Earlier the desktop computers were black & white, then the color display was invented and then after the speed and performance of the computer are increased. Below mentioned diagrams will demonstrate the changes of desktop computers from the time of invention.
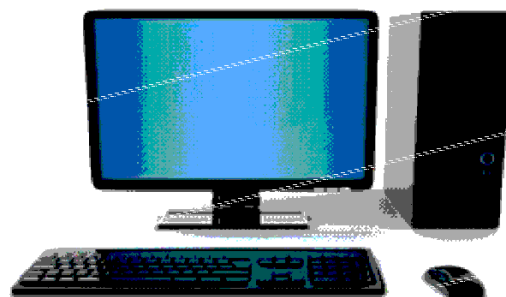
Laptops

Laptops are called portable computers, we can carry them from one place to other. Laptop works on batteries for 2 – 3 hours we can access all the features of a desktop computer in a Laptop.

Few Examples of Laptop computers are

Satellite model, Think pad, HP Pavilion series etc.,

ASUS K Series

Lenovo ThinkPad

Acer 5000 series

HP Pavilion g series
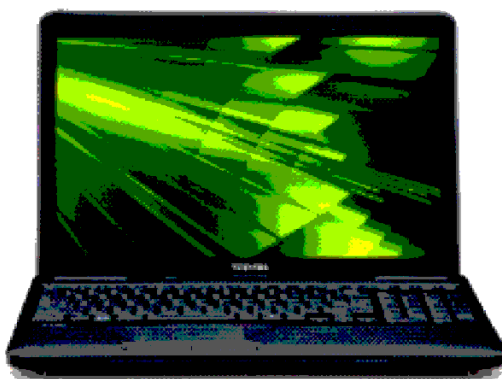
Toshiba Satellite C Series

Fujitsu LIFEBOOK LH531

Hand held tablets

The new generations of small computers are hand held tablets. These computers are capable to handle in a hand. They function with batteries and can perform many functions of desktop and laptop computers, the disadvantage of this computers is they do not have CD/DVD drive for which you need to connect external devices.

This computers functions with a stylus and has a digital key board. Few next generations are now working with touch screen technology also.

Palmtop Computers

This computers are basically used for limited usage, These are used for storing limited information.

Summary:

In this chapter

We have discussed about various types of ICT Tools – Computers.

Teacher Activity

Teacher can demonstrate the available types of computers in the school.

Student Activity

Write a short note on the types of computers you have seen.

Key Words

- ❍ Desktop Computer
- ❍ Hand held Computers
- ❍ Palmtop
- ❍ Laptop
- ❍ Stationary

Chapter - 4   Working of a PC-The I-P-O cycle

Learning objectives:

In this chapter you will be able to understand;

○   Let us understand the working of a PC (Personal Computer)

○   The Input- Process- Output Cycle

○   Any task considered has a process of I-P-O cycle, like the preparation of Sugar Cane juice.

○   We need a sugar cane (Input). This sugar cane is crushed and squeezed (process) and the extract is sugar cane juice (Output).

Similarly computer takes data as Input, process according to the instructions and gives the desired output. Below picture shows the pictorial representation of IPO cycle

TABLE - 3 : IPO Cycle

INPUT → PROCESS → OUTPUT

Input

Computers need input to work on. There are different types of input devices that feed the input to computers. The keyboard of the Personal computer is the ideal example of an **Input** device.

Process

Computer process the information received from the Input device using the processing devices

Output

Computer gives the information through the Output device which can be in image, video, audio or text format

Summary:

In this chapter you have learnt

The working principal of Computer and the IPO Cycle.

Teacher Activity

Explain the students the IPO cycle with few general examples.

Student Activity

Collect information of two tasks which involves the IPO cycle.

Key Words

○   Input

○   Process

○   Output

Chapter - 5 — Parts of Tools

Learning Objectives

In this chapter you will be able to understand;

❍   We will learn about the parts of ICT Tools

Now we have understood about the ICT tools and its usage and functionality. It is time to discuss the parts of ICT tools, we will discuss the parts of Computers.

Parts of a computer:

CENTRAL PROCESSING UNIT (CPU)   MONITOR
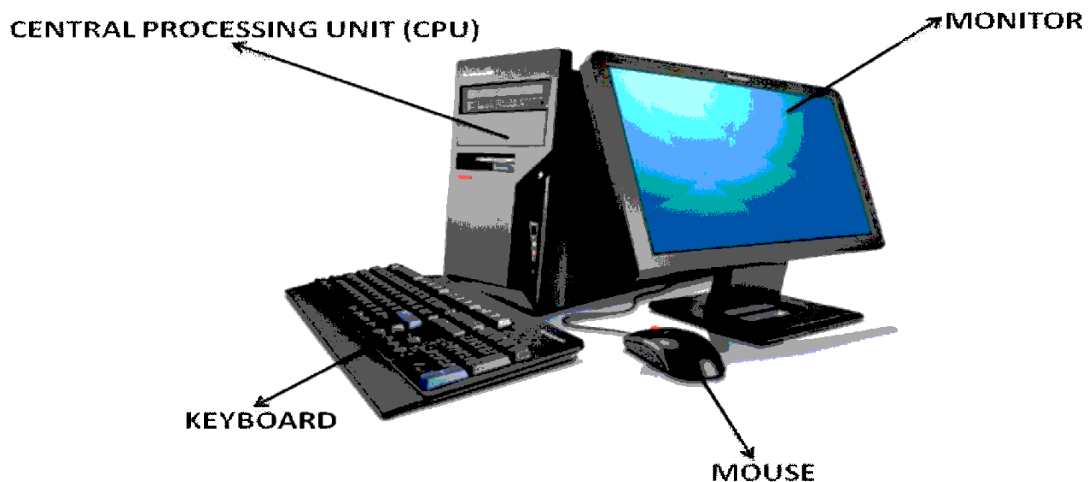
KEYBOARD

MOUSE

Input and Output Devices

❍   Keyboard and Mouse are also called the input devices and the Monitor is called the output device.

❍   Keyboard and the mouse are used to tell the computer what to do. They are used for giving instructions to computers. So these are called input devices.

ICT Teacher Hand Book
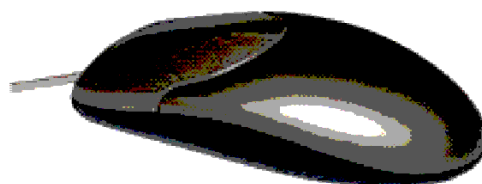
○ The keyboard is used for typing and the mouse is used to point and select options on the screen

♦ Monitor is used to display information on the screen

○ Another common output device is printer, printer is used to print the information displayed on the computer onto paper

Central Processing Unit (CPU) or System Unit

○ The computer takes the instructions given by the input device through the Central Processing Unit (CPU)

○ The CPU is also called as the brain of the computer.

○ After processing the Input, the result is displayed on the monitor. The monitor is called the output device.

○ The input given through the input device (Keyboard or Mouse) is processed in the CPU and the result is displayed using the output device.

Summary:

In this chapter we have learnt about Parts of a Personal computer

Teacher Activity

Teachers can show the parts of the computer in the computer lab to the students

Student Activity

Write a short note on parts of a computer you have seen in the computer lab.

Key Words

○ Input   ○ Output   ○ Process   ○ Keyboard
○ Monitor   ○ System Unit   ○ Mouse.

Learning Objectives

In this chapter you will be able to understand;

❍   Turning ON and OFF the ICT tool – Computer.

Turning ON:

To turn on the computer we need to follow the below mentioned steps

How to Start the Computer

The steps to switch on a computer are given below:

First you need to switch on the power supply to the Computer
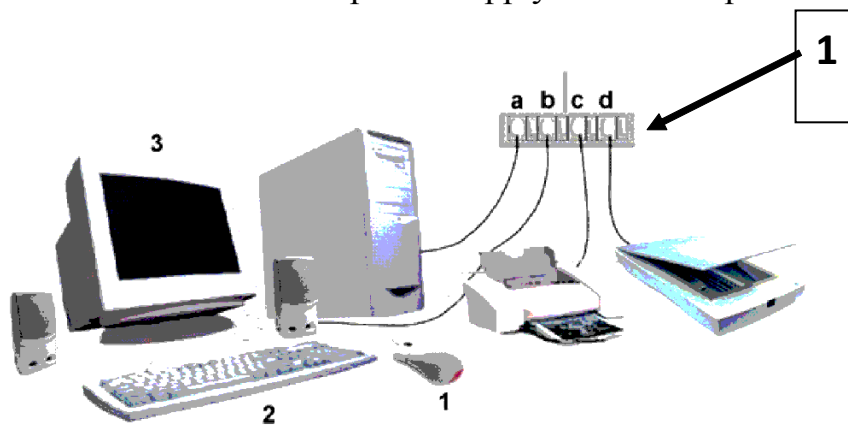
a, b, c and d represent the connectivity to the power switch.
1, 2 and 3 represent the connectivity to the system unit

2. Switch on the CPU [Central Processing Device]
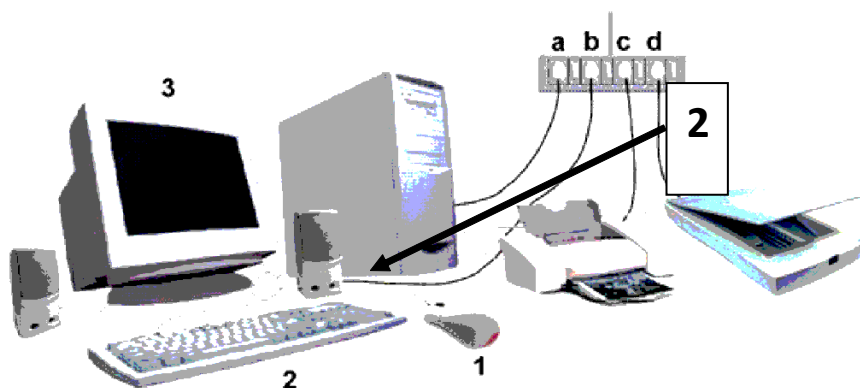
a, b, c and d represent the connectivity to the power switch.
1, 2 and 3 represent the connectivity to the system unit

3. Switch on the Monitor

a, b, c and d represent the connectivity to the power switch.
1, 2 and 3 represent the connectivity to the system unit

3
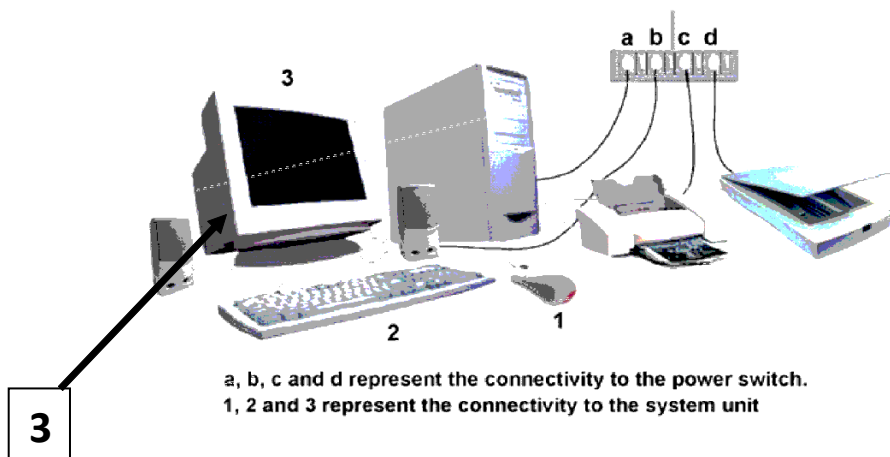
Wait for some time.

Now the computer is ready for use.

Now to Turn OFF computer and follow the below mentioned steps.

1.   Click on the "Start" Button using the mouse pointer.

Start Button

2.   Click on the "Turn Off Computer" option

Note: It is suggested to switch off all the modems, printer etc., devices which are not in use as they generate heat.
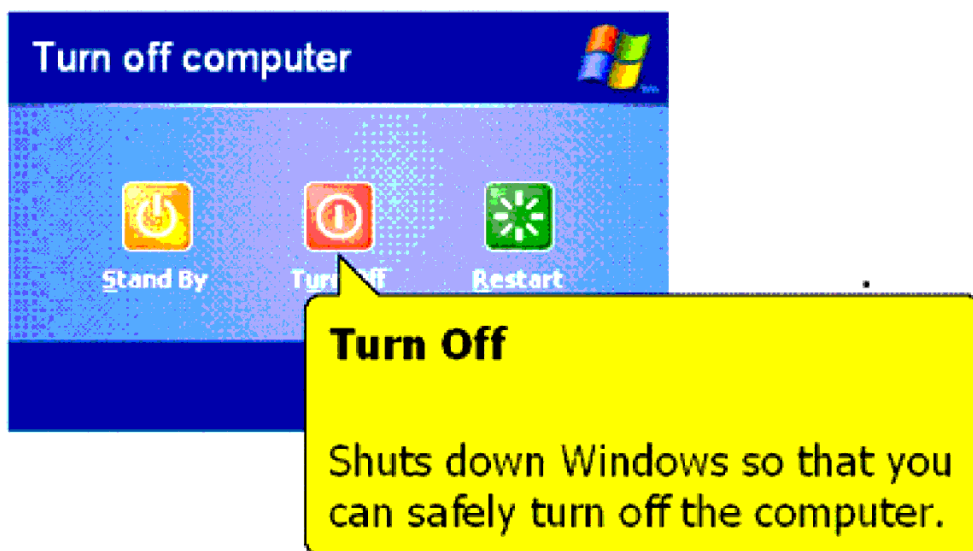
Summary:

In this chapter we have learnt

How to switch ON and OFF a computer?

Teacher Activity

Kindly demonstrate the ON and OFF process of a computer to the students.

Student Activity

Practice the process of switching ON and OFF of computer.

Learning Objectives

In this chapter you we will be able to learn about:

○   various Input devices for the ICT tools.

As we have discussed the ICT tool computer in the previous chapter, we will learn about various Input devices of a computer.

Few standard input devices for Computer are as follows:

○   Mouse

○   Keyboard

○   Scanner

○   Joystick

Mouse:

Mouse is an example for an input device, it is used to point image, text on the screen. It is represented with a cursor on the computer screen.
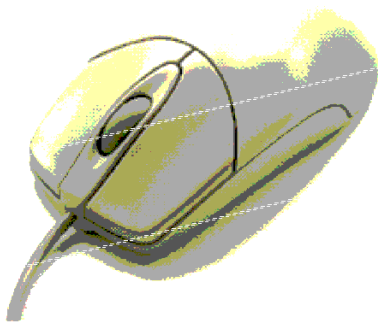
Ball Mouse   *Optical Mouse*

Mouse is used on a Mouse pad or smooth surface. When we move the mouse on the mouse pad the cursor on the screen moves accordingly.

Cursor :

It is a pointer which will be visible on the computer screen which is used to select objects on the screen.

More about Mouse:

The above mouse displayed is a bald mouse. It works on manual technology. It is provided with a ball and wheels to rotate.
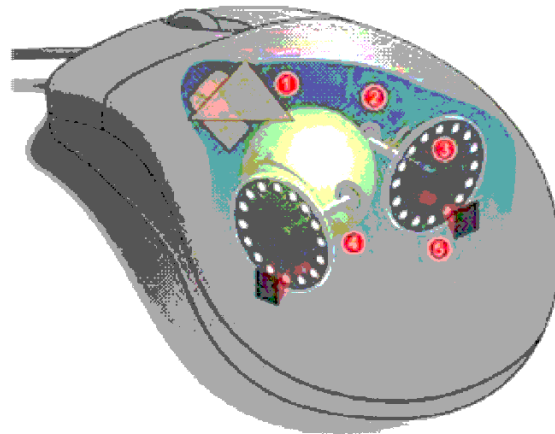
Mouse is an input device. It is connected to the system unit by means of a long wire. It is used to point at and choose things displayed on the monitor. A mouse may have two or three buttons. The most commonly used ones have two buttons – left mouse button and right mouse button. The left button is the most frequently used button.

Keyboard

When you move the mouse on a flat surface, you will see an arrow moving on the screen correspondingly. This arrow is known as the mouse pointer
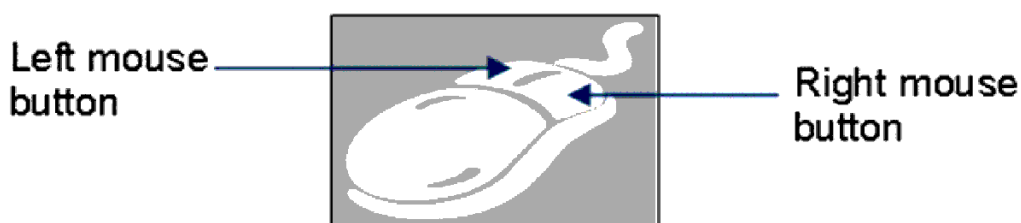
Keyboard:

Keyboard is also called Standard input device, it is used to key in text information to the computer. Keyboard is also used to give instructions to the computers.

A standard keyboard contains 104 keys. The Keyboard resembles a Typewriter. We can type letters A-Z and numbers 0-9.

Text and numbers can be typed as required. In computing, a keyboard is a typewriter-style device, which uses an arrangement of buttons or keys, to act as mechanical levers or electronic switches Keyboard is connected through USB or wireless.

There are different types of keys on the keyboard. They are as follows:

❍ *Alphanumeric keys* – includes alphabets and numbers.

❍ *Punctuation keys* – includes colon (:), semicolon (;), question mark (?), single quotes (') and double quotes (").

❍ *Special keys* – includes the Arrow keys, the Function keys (F1 to F12) and the Control keys.

Some of the special keys on a keyboard are given in Table

TABLE - 4 : Special keys on key board

Special Keys	Description
Ctrl	Used in combination with other keys for accessing shortcut keys.
Alt	Used in combination with other keys for accessing hotkeys.
Caps Lock	Used for capitalizing letters continuously.

Special Keys	Description
Tab	Used for entering multiple spaces between two words in a document.
Shift	Used for capitalizing a letter when the Caps Lock key is off. Also used for typing a symbol that appears on the top-half of a key that has two symbols.
Space	Used for entering a space.
Home	Used to move the cursor to the beginning of the line.

This is also one of the example of input devices, used to scan the actual photograph or document into digital form. Scanners are various types.
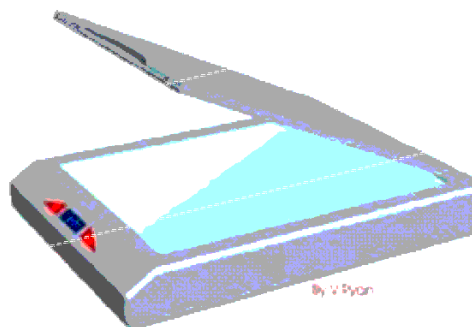
We can make an exact copy of the image to computer using the scanner device. Scanners are used to copy important documents in the office. Teachers and students can also make use of scanners in the teaching and learning process.

Joystick:

This is also one of the examples for Input devices, this is used in operating various controls of the computer games.

Web Camera:

Web Camera is now a days used in institutions, banks, railway stations, schools etc., this device is used to capture the video and store it in the computer.
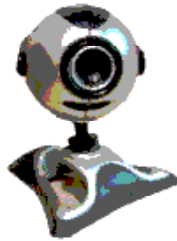
Web cameras are mostly used for security, protection and capturing images into computer.

Summary:

In this chapter we have learnt about various input devices of a computer.

Teacher Activity

Show all the available Input devices available in your computer lab.

Student Activity

Write a short note on the Input devices available in the Computer Lab.

1. Draw the diagram of the Mouse.

2. Observe various models of the mouses available in your school.

Key Words

1. Cursor

2. Ball Mouse

3. Optical Mouse

4. Input

Chapter - 8   System Unit

Learning Objectives

In this chapter you will be able to understand

The System Unit.

System unit is a very important component of a computer, this is considered the heart of a computer.

The system unit is a box-like structure that has all the components required to run the computer, with each component performing a specific function. These components work together to accomplish the main function of the computer, that is, accept and process input, and deliver output.

The major components of the system unit are power supply, exhaust fan, speaker, motherboard, and hard disk drive.
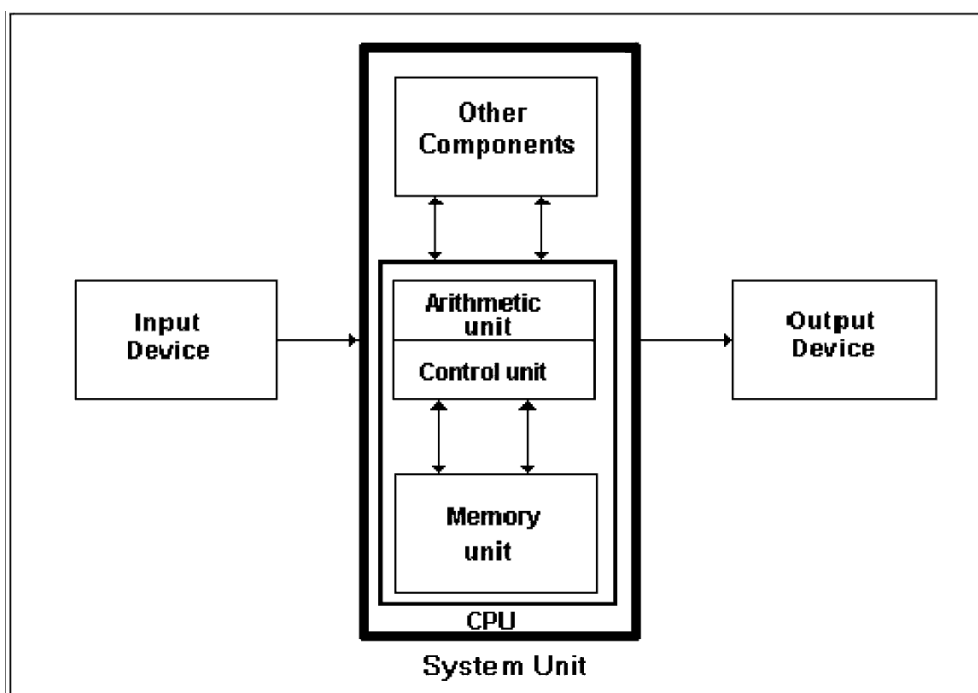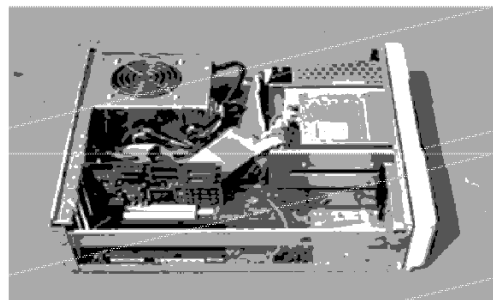
The part inside the system unit, which does the processing, is called the Central Processing Unit (CPU). The System Unit has several components other than the CPU, but the CPU is the most important. The CPU houses the Arithmetic Logic Unit (ALU), Control Unit and Memory Unit.

○ **Arithmetic Logic Unit (ALU)** – It performs all mathematical and logical operations.

○ **Control Unit (CU)** – It controls and coordinates the working of all the parts of a computer.

○ **Memory Unit (MU)** – The memory unit stores the input received from the input device, sends the data to the processing unit and stores the processed data and finally sends the result to the output device.

Each of these components and their functions are discussed below.

Internal Power Supply

The system unit draws power from AC mains. The internal components of a computer run on DC power. The conversion of AC power to DC power is taken care of by a component called SMPS

SMPS is an internal Power Supply. It is usually referred to as Switched Mode Power Supply (SMPS). Thus, the SMPS provides the required voltage to the other internal components like CD drive, hard disk drive, motherboard and external devices like the keyboard.

Exhaust Fan

The SMPS has a small fan, called the exhaust fan, attached to it. The fan works as long as the computer is switched on and keeps the SMPS unit cool.

Speaker

The system unit has an audio speaker attached to it. This speaker is connected to the motherboard and produces a sound whenever instructed by software programs. For example, when you switch on the computer, the system plays a beep sound.

Motherboard

The system unit contains a large board that has a number of tiny electronic circuits and other components. This board is called the motherboard. It is a very important part of the system unit and houses several vital components of the computer.

The components of the motherboard are:

- Microprocessor
- Clock chip
- Memory – RAM and ROM
- Bus
- Ports
- Expansion slots

Summary :

You have understood about the basic components of the System Unit.

Teacher Activity

Teacher can show the internal parts of the System Unit in the Computer Lab.

Student Activity

Students need to observe carefully the components of System Unit.

Note: Do not try to touch the components of System Unit.

Key Words

- System
- Components
- RAM and ROM
- Bus (Electronic Signal Path)
- Chip

Learning objectives

In this chapter we will learn about various Output devices.

Few of the standard Output devices are given below

○ Monitor

○ Speakers

○ Printers

Monitor:

Monitor or Visual Display Unit

The monitor (refer Figure) looks like a television screen. It is also called Visual Display Unit (VDU) and is used to display information from the computer. There are colored as well as black and white monitors. The monitor displays text and graphics. The monitor has a Power button to switch on or switch off the monitor.

Power Button

Power Button
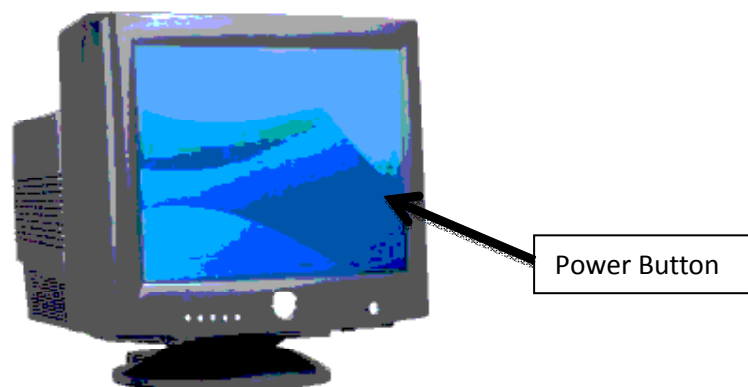
The first computer *monitors* used cathode ray tubes (*CRT*). Until the early 1980s, they were known as video display terminals and were physically attached to the computer. The main advantage of LCD displays is that they take up less desk space and are lighter. Currently. LED Stands for "Light-Emitting Diode." LEDs are commonly used for indicator lights (such as power on/off lights) on electronic devices.

They also have several other applications, including electronic signs, clock displays, and flashlights. Since LEDs are energy efficient and have a long lifespan (often more than 100,000 hours), they have begun to replace traditional light bulbs in several areas including CRT computer monitors.
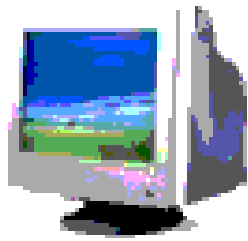
CRT Monitor   LCD monitor   LED Monitor

Note: For the LCD and LED monitors do not touch the surface with sharp objects like blade, pen or pencil edge as they get damaged and result in loss of image quality.

Speakers:

Speakers are an output device Computer speakers are multimedia speakers. They are external to a computer. Usually speakers will be in pairs. Both are connected with a wire to the computer jack. They have many verities. Speakers will be selected basing on the watt power. As watts increases sound increases. Computer speakers range widely in quality and in price. The computer speakers typically packaged with computer systems are small, plastic, and have mediocre sound quality. Some computer speakers have equalization features such as bass and treble controls.
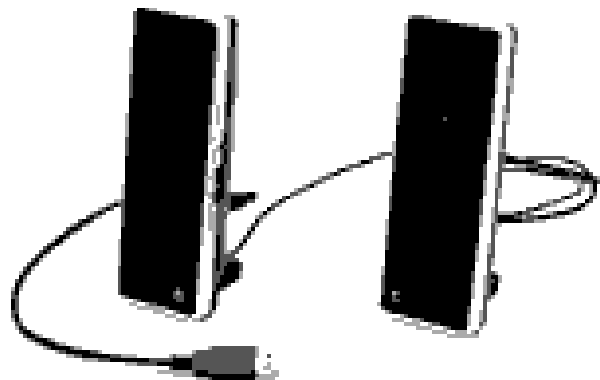

Normal Speakers   USB Speakers

Printers:

○ Another common output device is a printer, the printer is used to print the information displayed on the computer onto paper.

○ Used to transfer data from a computer onto paper.

○ Colour printers as well as grey scale printers available in the market.

○ Different types of printers are dot matrix printers, inkjet printers(4-8pages per minute) and laser printers(4-20 page per minute)

○ A dot matrix printer can be used for cyclostyling purposes also. You can remove the ribbon and print the question paper on the plastic-like sheet used for cyclostyling.

○ Dot matrix printer: Prints characters in the form of dots. Speed is measured in terms of characters per second Speed ranges from 200 to 540 characters per second.

○ Inkjet Printer: Prints fully formed characters. Speed is measured in terms of pages per minute. Speed ranges from 4 to 8 pages per minute.

○ Laser Printer: Prints fully formed characters. Speed is measured in terms of pages per minute. Speed ranges from 4 to 20 pages per minute.
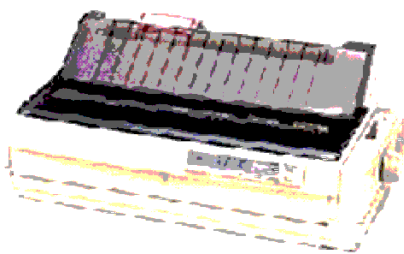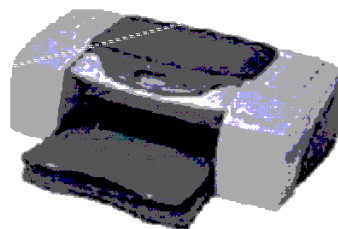
Dot matrix printer   **Inkjet printer**   **Laser printer**

The differences between the three printers are given below table

TABLE - 5 :Difference between Printers

Dot Matrix Printer	Inkjet Printer	Laser Printer
Prints characters in the form of dots	Prints fully formed characters	Prints fully formed characters
Speed: 200-540 characters per second	Speed: 4-8 pages per minute	Speed: 4-20 pages per minute
Not very expensive	Moderately priced	Expensive

Plotter

A plotter is used for drawing diagrams on paper. It is used for computer-aided designing. The aerodynamics, automobile and shipping industries use plotters regularly.

Summary:

In this chapter we have learnt about various output devices found in a Computer.

Speakers

Printers

Monitors

Teacher Activity

Make students to understand the various out put devices available in the Computer Lab. Demonstrate the usage of the Output devices also.

Student Activity

1. Understand about various Output device available in the computer lab at your school.

2. Name any three output devices seen in the market.

Key Words

○ Cyclostyling

○ Characters

○ Grey scale print

Chapter -10   Care and Protection

Learning objectives

In this chapter we will be understand;

❍ Taking Care of ICT devices

❍ Do's and Don'ts with ICT devices

All ICT tools are made of plastic, glass and sensitive materials. We need to be very careful while using these tools. We should avoid the following, while using the ICT tools

1. Eating near the ICT devices should be avoided.

2. Do not wash or clean them with water.

3. Keep them away from direct heat and light.

4. Keep them away from magnetic field (do not use magnets near the ICT devices).

5. Protect with proper cover after using the device.

Protecting Television:

Do's

1. Clean the television screen on regular intervals with a dry cloth.

2. Use proper connection to view the channels.

3. Maintain at least 6 feet distance between you and the Television.

4. Use proper stabilizer to get a stabilized power supply to the Television.

Don'ts

1. Never clean the Television with water.

2. Never open the Television back cover.

3. Do not watch the Television for long time.

4. Dot not stair to the screen from a near distance.

5. Do not use more brightness in the screen.

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Mobile:

Do's

1. Use an ISI and branded mobile phone.

2. Use the mobile when it is required.

3. Use hands free device for protecting your ears for attending long calls.

Don'ts

1. Never use unbranded mobile phone they may damage your ear.

2. Never keep the voice at maximum level, this will damage your ear.

3. Never drive while you are speaking to someone over mobile.

Dos and Don'ts in Computer Lab:

Do's:

1. Enter the Computer Lab with Computer Book.

2. Switch off the Monitor when not in use.

3. Switch off all the devices which are not in use as they generate heat when they are on Resulting in increase in room temperature.

Don't:

1. Do not allow anyone to drink or eat near the computer.

2. Do not allow direct sunlight to fall on your computer.

3. Do not place magnets near the computer.

4. Do not try to open the monitor or system unit, and do not touch the parts inside.

5. Avoid touching the screen with your hands or sharp objects

Summary:

In this chapter we have learned about

Care and protection of various ICT Tools.

Chapter - 11   Memory and Storage

Learning objectives

In this chapter we will learn about

○   Memory and Storage in ICT tool – Computer.

○   The computer stores variety of information in it. It stores alphabets from A to Z and numbers from 0 to 9 and also some symbols like @,!,#,$,%.^.&.* etc.,

The computer stores data in the Electromagnetic form.

Computer stores data in two forms Internal memory and External memory.

Internal Memory:

The examples for internal memory are RAM and ROM

RAM stands for – Random Access Memory

ROM stands for – Read Only Memory

External Memory

The examples for External memory are

Hard Disk

CD – ROM

DVD disk

Pendrive.

Hard Disk

The external storage media fixed inside the system unit is called the hard disk (refer Figure). Whenever you save data in a computer, it is stored on a hard disk. The hard disk is used for storing large quantities of data. The storage capacity of a hard disk may vary from 60GB to 2TB (Terabyte).

HARD DISK

Floppy Disk

Floppy disk is a magnetic storage device that is used to store information. This device helps in transferring data from one computer to another. The size of a floppy disk is 3.5 inches. The disadvantage of a floppy disk is that it is prone to damage by heat and dust. The storage capacity of a floppy disk may vary from 1.44 MB to 200MB.

FLOOPY DISK

Compact Disk – Read Only Memory (CD-ROM)

CD-ROM is a storage device that has a huge storage capacity. The advantage of a CD-ROM is that the data present in it is less prone to damage. Being read only, the data present in a CD-ROM cannot be changed and is mainly used to store programs and multimedia applications. The storage capacity of most CD-ROMs is approximately about 700 MB.
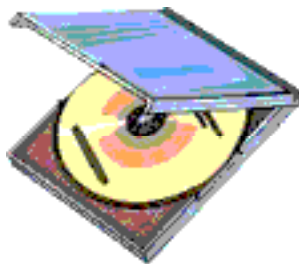
CD

USB Flash / Pen Drive

An USB flash drive is a portable external storage device that plugs into computer through an USB port. It can be easily carried in a pocket and plugged into any computer. USB flash drives are also called as thumb drives or pen drives. Using USB flash drive, it is easy to transfer data from one computer to another. The storage capacity may vary from 8MB to 1 TB.
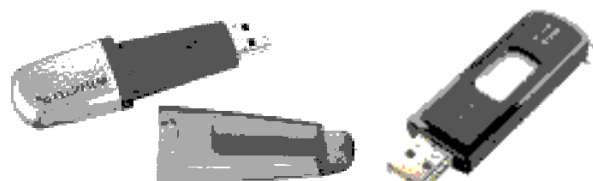
PEN DRIVE

DVD- RW & ROM

DVD stands for Digital Video Disk. It is an optical storage disk that stores data that only can be read. A DVD-RW disk can read and as well as write data multiple times. The storage capacity of most DVD-RW & ROMs is approximately about 4GB.

DVD

Blue –ray Disc

Blue-ray Disc is an optical storage device used to store high definition video, games and large amount of data. The storage capacity is 5 times more than a DVD. It was developed by Blue- ray Disc Association. It uses a blue-violet laser to read as well as write data in the disc.

BLUE RAY DISC

Disk Drives

Just as you need a tape-recorder to listen to an audiocassette, you need a storage device to use a storage media.

The computer has a special device to read from and write to the storage media. This device is called the disk drive. It is a part of the system unit. The disk drive performs the function of reading data from the disk as well as writing data to the disk. Hence, disk drive is an Input-Output (I/O) device.
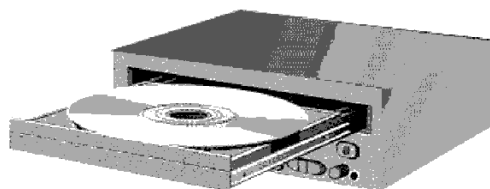
DISK DRIVES

The drive for a floppy disk is called the **floppy disk drive**. You can read and write information to a floppy disk using the hardware device called the floppy drive.

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The **hard disk drive** enables you to read and write onto a hard disk. Floppy drives and hard drives are thus examples of input and output devices.

The drive used to read from a CD-ROM/DVD is called the **CD-ROM /DVD drive**. A CD-ROM/DVD drive is an input device because it can only read from the CD-ROM, it cannot write onto it.

Each drive is given a name. The floppy disk drive is called the A drive, the hard disk drive is called the C drive and the CD-ROM/DVD drive is called the D drive.

A hard disk can be divided into a number of drives. This is called partitioning. Each of these drives will be assigned a letter. Depending on the number of hard disk drives, the letter assigned to the CD-ROM / DVD drive will differ.**USB Port** A device is required to connect the USB drive with a computer. USB port establishes connection between a USB drive with the computer. To read and write data into USB drive a USB port is required. A single USB port can be used to connect up to 127 peripheral devices, such as mice, modems, and keyboards. There are various types of USB and length of drive, storing from 8 MB to more than 1
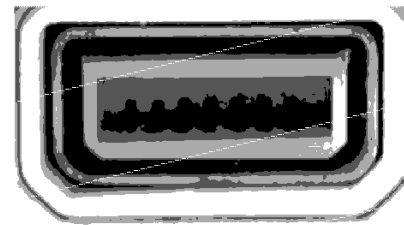
USB PORT

GB of data. **Optical drives** Optical disk drive is a drive that uses laser lights to read and write the data on optical disk. Some common types of optical drives include CD-ROM, CD-RW, DVD-ROM, DVD-RW.

Summary:

In this chapter you have learnt about the Memory and Storage of Computer.

Teacher Activity

Teachers can show various available External Memory devices to the students

Student Activity

Write a short note on computer storage.

Key Words

- ○ Storage
- ○ Internal
- ○ External
- ○ Drives
- ○ Optical drive

Chapter - 12　Software and Applications

Learning objectives

In this chapter you will be able to learn about;

○　What a software is?

○　Understand the application software.

An Introduction to Software

A computer cannot perform any work with just the hardware. It requires a set of instructions that tells what has to be done with the input data. The set of instructions is called a program and a set of related programs is called software. Some important classes of software are:

○　Application software

○　Compiler software

○　Operating system

Software is written using a computer language.

Computer Languages

Computers are given instructions using computer languages. There are different computer languages. These languages have a set of rules called syntax. Each language has its own syntax and thus they differ from each other.

There are basically two types of computer languages:

○　Low-level language or Machine language

○　High-level Language

Low-level Language

The instructions in machine language consist of 0's and 1's. This is normally used to give very basic instructions to the computer. A computer can understand only machine language.

High-Level Language

It is very difficult to write software using machine language. So, high-level languages are used for this purpose. These languages are English-like and closer to human languages. Examples of such languages are BASIC, COBOL, FORTRAN, Pascal, C, etc,

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Types of Software

Application Software

A software program written to perform a particular function is called application software. There are basically two types of application software.

Standard Software Packages

Application software that take care of a variety of business and corporate needs are readily available in the market. These are called standard software packages. They can run on any standard computer.

There are a variety of standard software packages used for different purposes. For example, a word processing package enables us to use a computer like a powerful typewriting machine. You can type your essays and letters very easily and quickly into the computer. The word processing package will check for spelling and grammar mistakes automatically. It will allow you to make changes or corrections easily.

Customized Software Packages

This type of software is developed for a particular purpose and for a particular organisation. A customised package may not be relevant to any other user. The railway reservation system of the Indian Railways is an example of customised software.

Compiler Software

Consider a situation where there are two people, Manoj and Swamy who understand and speak Telugu and Tamil respectively. In order to communicate with each other, they would require a translator.

Similarly, as you saw earlier, a computer cannot understand high-level languages. So to convert different high-level languages into machine language, the computer needs a translator. This translator program is called the compiler software.

A software called the compiler converts the computer language into machine language. For example, there is a C compiler that converts programs written in the C language to machine language.

Operating System

Besides the application software and compiler software, there is a third kind of software, called the operating system (OS), which is very important for the working of a PC as it is required to run other programs. Apart from the power supply, you require an operating system to work on your computer.

The moment you switch on your computer, the computer checks if all its internal devices such as RAM and ROM, peripheral devices such as printer, monitor, etc. are functioning properly. After these checks are successful, the operating system is loaded into the internal memory (RAM) of the computer.

An operating system performs tasks such as getting inputs from the user and sending the inputs to the system. In other words, it acts as an intermediary between the user and the computer (refer Figure 4.1).

The operating system manages the computer like a traffic policeman who controls the moving traffic around him.
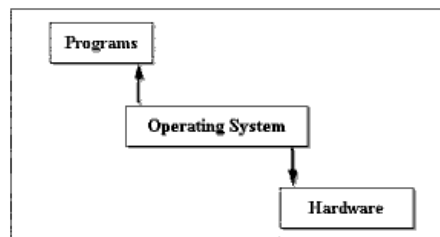
An operating system performs the following functions:

○ It enables the user to interact with the machine. It takes the user's instructions, and tells the computer as to what is to be done.

○ It manages the various input-output (I/O) devices of the computer and allocates the devices whose services the user requests for.

○ It helps you to manage the storage space in your computer.

○ It supervises all the activities of the computer.

The two types of operating systems for the computer systems are:

○ **Single-user OS:** The operating system that runs on a single-user system is called a single-user operating system. An example for a single user operating system is MS-DOS. MS-DOS has a CUI (Command User Interface) where data is displayed character by character in a textual manner.

○ **Multi-user OS:** The operating system that runs on a multi-user system is called a multi-user operating system. For example, Windows, Linux are examples of multi-user operating system. In a multi-user operating system, more than one user can concurrently work on a system at a time.

Data Organisation

You saw that the operating system helps in storage management. But, how is data and information stored in a computer?

Information is stored in the secondary storage media in the form of files. Files are computerised documents that store information in different forms like text and pictures.

Suppose you have a common notebook for English, Maths and Science. Will it not be difficult for you to study for your exams? You have to search each page of your notebook to find out what you have to study for each exam.

In the same way, if all the information in a computer is stored together you will not be able to get proper information when you need it. That is why computers store data and information as files.

Types of Files

A computer may have the following types of files (refer Figure 3.2) in its storage media.

◯ Text file   ◯ Data file   ◯ Graphic file
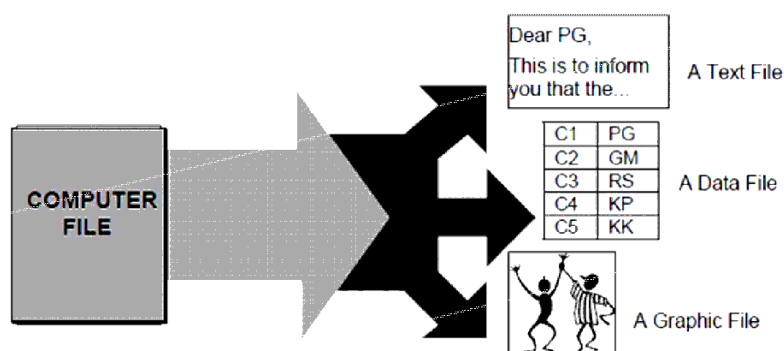
Text file: A file containing information in the form of text is called a text file. Textual information can be in the form of a letter.

Data file: Data files contain information about specific items or persons.

Graphics file: Graphic files contain information in the form of pictures, videos, sketches and other forms of visual information

Summary

In this chapter you have learnt about Computer Software, application and data.

Teacher Activity

Teacher can show some examples of Software like Windows, MS DOS or Linux.

Key Words

Software   Windows   Linux   Data   Operating System

Chapter - 13 Impact and Trends on Society

Learning objectives

In this chapter we will understand the impact of ICT on Society.

Using various ICT Tools now a days we have many advantages like we can get entertainment, send and receive communication and learn various subjects

Using Television:

One can view various television channels which can be related to entertainment, sports and news

Example : DD India, DD Sports and DD News

Using Mobile:

We can transfer message from one place to other place using a mobile phone, the data transferred can be text or voice oriented. By using the mobile phones now a days it has become easy to send and receive messages.

1.1 Information Security Awareness

Information security needs have to be addressed at all levels, from the individual user to an organization and beyond that to the government and the nation. Information Security is becoming synonymous with National Security as Computer Networking, which is vulnerable to Cyber attacks, forms the backbone of critical infrastructure of the country's banking, power, communication network etc.. It is, therefore, important to have secured Computer Systems and Networks. Also, increased focus on outsourcing of IT and other services from developed countries is bringing the issue of data security to the fore. Furthermore, owing to the massive Internet boom, a lot of home users with little or no prior knowledge of the threats and their countermeasures are exposed to the Internet. This, the attacker, can exploit to expand their base of malicious activity and use innocent people for their schemes. Consequently, we aim to spread the education to school children, teachers, parents and senior citizens and equip them with the knowledge needed to mitigate the threat.

Looking at the growing importance for the Information Security, Department of Information Technology, Ministry of Communications and Information Technology, Government of India has formulated and initiated the Information Security Education and Awareness (ISEA) programme. One of the activities under this programme is to

widely generate information security awareness to children, home users and non-IT professionals in a planned manner.

1.2 Importance of Cyber Security

Cyber security is important for the users because they have to protect themselves against identity theft. Organizations including government also need this security to protect their trade secrets, financial information, and some sensitive or critical data. Since all sensitive information that is mostly stored on a computer that is connected to the Internet, there is a need for information assurance and security. So in order to have Cyber Security, everyone should follow the Cyber Security standards that enable us to protect various Malware threats.

A poor cyber security practice arises because of some of the following reasons. Poor administrative practices of application, poor software coding which may be vulnerable and improper usage of Cyber Security practices.
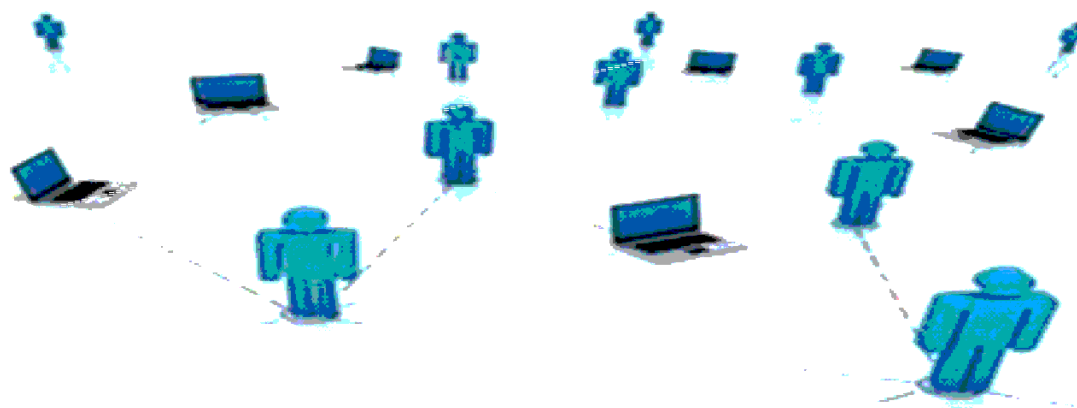
Internet – Everything is connected

For Education:

Students can make use of ICT tools for education process, we can connect DVD player to Television and learn the subjects using the Educational CD's.

Tux Paint

Learning Objectives

In this chapter you will be able to understand;

- ○ Introduction to Tux Paint
- ○ How to open Tux Paint
- ○ Tux Paint Interface
- ○ Use of Tools
- ○ Draw Diagrams
- ○ More Tools

Introduction:

By learning about Tux paint you will be able to draw diagrams.

Introduction to Tux Paint: Tux Paint is a free, award-winning drawing for children ages 3 to 12 (for example, preschool to class VIII). Tux Paint is used in schools around the world as a computer literacy drawing activity. It combines an easy-to-use interface, fun sound effects, and an encouraging cartoon mascot who guides children as they use the program.

Kids are presented with a blank canvas and a variety of drawing tools to help them be creative.

To Start the Tux Paint Program,

1. Click the Start button

2. From the menu displayed, select All Programs option

3. Choose the Tux Paint option
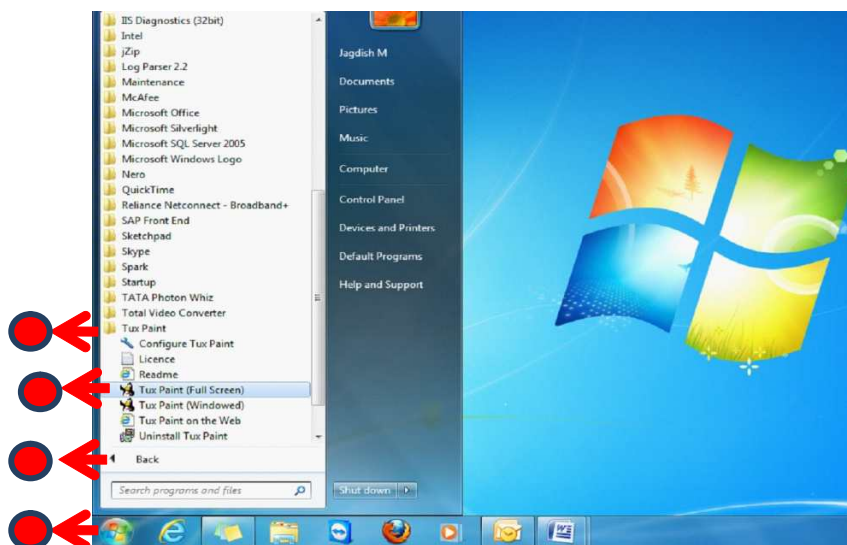
1 - Start button	3 – Tux Paint
2 – All Programs	4 – Tux Paint (Full Screen)

4.   Choose the Tux Paint (Full Screen) Option

The steps are show below

Tux Paint opens as shown below
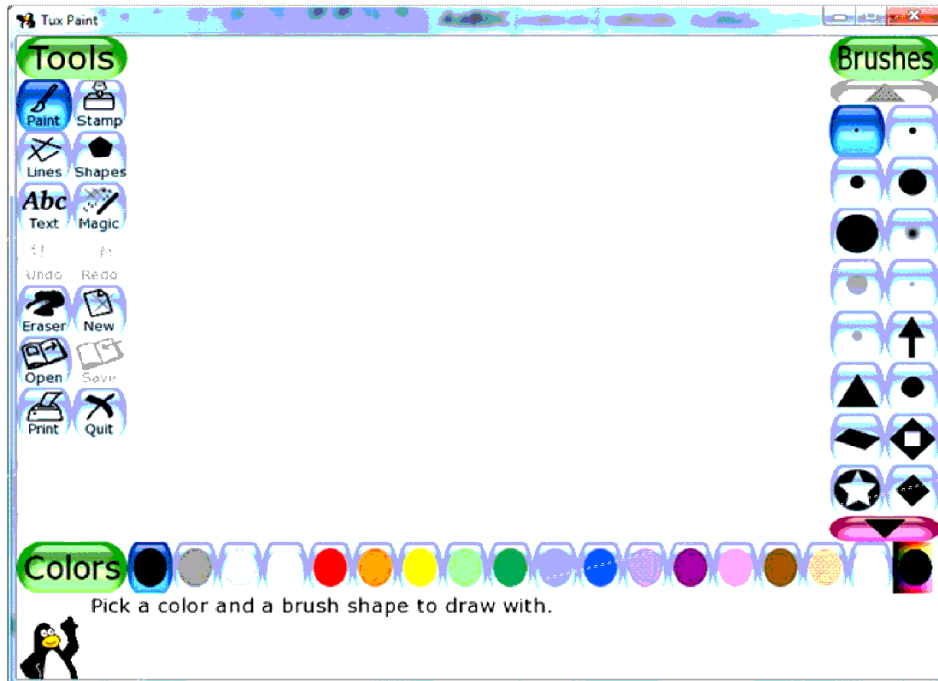
The Tux Paint Interface
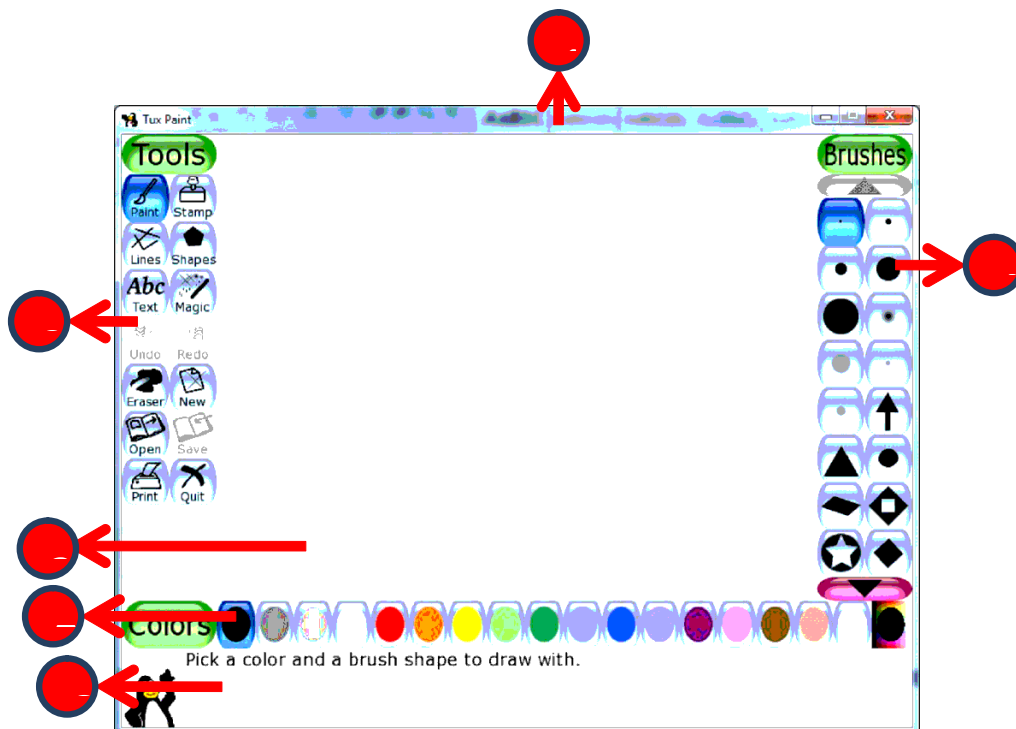
1 – Title Bar
2 – Tools
3 – Canvas

4 – Brushes
5 – Colors
6 – Help

The Tux paint window can be divided into six sections:

1. Title Bar: Top most part of Tux paint window is called title bar

2. Tools: The tools section has a collection of tools using which you will draw the picture or color the picture

3. Canvas: The blank white area where you will draw and colour is called canvas, it is also called as drawing area

4. Brushes or Selector: This section is a sub-section of tools. It has a collection of different types of brushes, stamps and other options related to the tool that you select.

5. Color Palette: The colors section has a collection of colours. You can also select other colours by selecting the last option.

6. Help area: The help area will display instructions and tips for you.
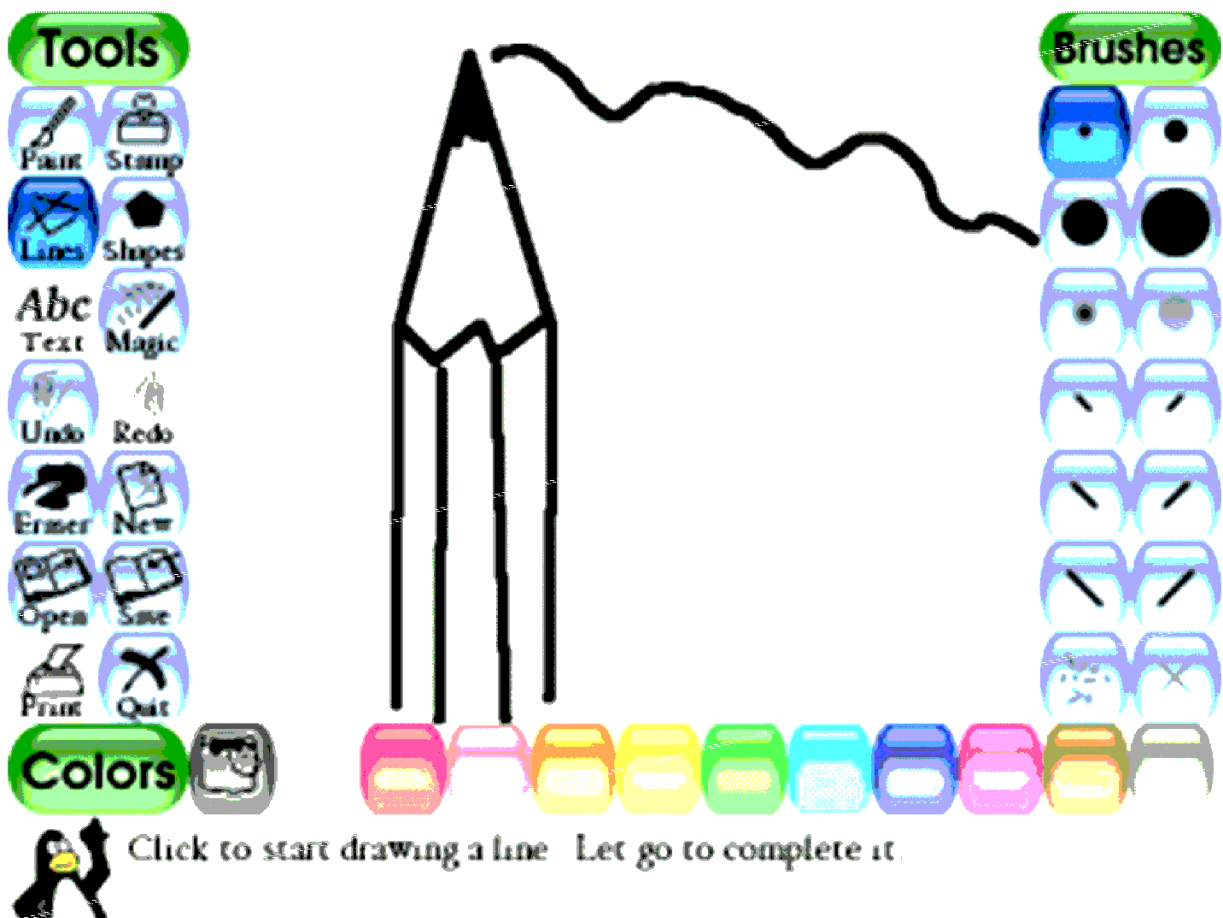
PAINT TOOL

- You can use the various tools available in the tools section to draw picture

- You can click on a tool to select it

- The paint tool will be selected by default

- The Paint tool ![paint icon] is used to draw or paint a picture

- To use this tool ![paint icon]

    - Select the ![paint icon] Paint tool from the Tools Section

    - Select a brush from the Brushes section

    - Select a colour from the color palette

   - Keeping the mouse button pressed, start drawing on the canvas

- To save the picture click on the save button ![save icon] under tools section.

Try to draw the below picture using tools available under tools section and brushes under selection section then save it will a name pencil.

○ To save the picture click on the ![Save] save button under tools section

○ To quit Tux paint click on quit button under tools section ![Quit]

NEW TOOLS ![New]

To draw a new picture click the new button ![New]

1. Select the New Tool from the tools section. A list of options will be display
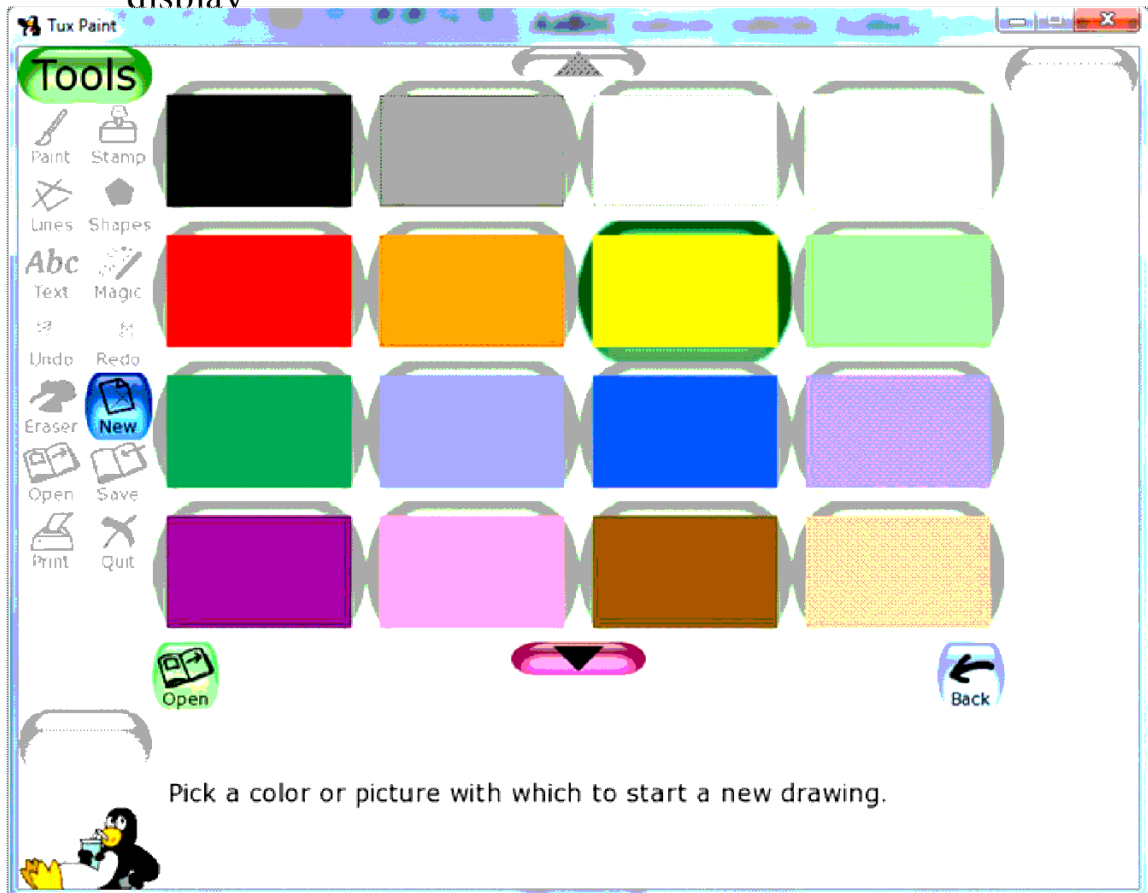
1. Choose an option

2. Then Click the Open button

3. Then start drawing the picture

Line Tool

- ○ This tool is used to draw geometric shapes like rectangle, square etc.,

- ○ Select the line tool from the tools section, select a brush from the Brushes section the select a colour from the colour palette them keep the mouse button pressed, start drawing the line on the canvas
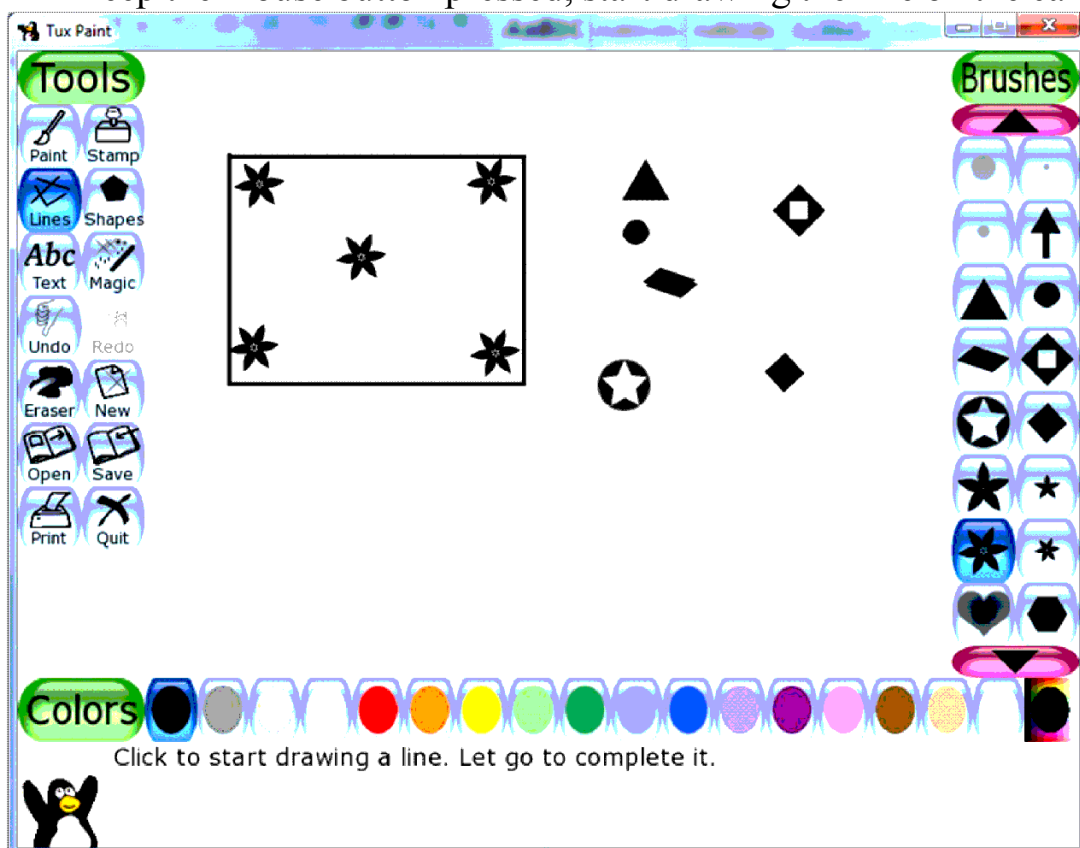
ERASER TOOL

This tool is used to erase image on the canvas

To use the Eraser tool select eraser tool from the tools section, select an eraser style and size from the selector section click on the canvas area keeping the mouse button pressed, start moving the mouse to erase the image.

Find below the picture after erasing
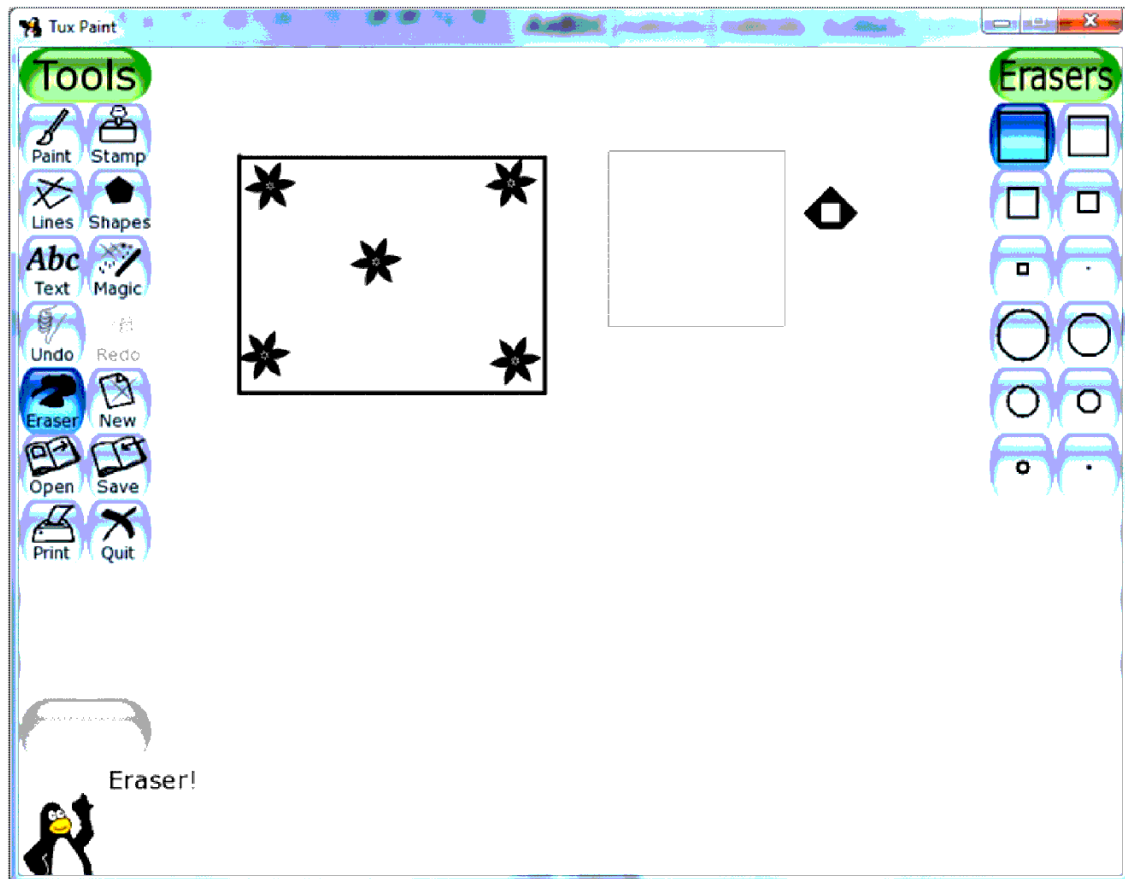
UNDO **AND REDO** **TOOLS**

- ○ The Undo tool is used to undo the action that were performed

- ○ The Redo tool is used to reverse all the actions done by the undo button

TEXT TOOL

- ○ The text tool is used to type text on the canvas

- ○ Select the text option on the tools section

- ○ Then select the font style on the selector panel, then you can increase or decrease the font size by clicking on the up arrow or down arrow.

- ○ Select a color from the color palette then click on the canvas and start typing the text appears as show in the below picture
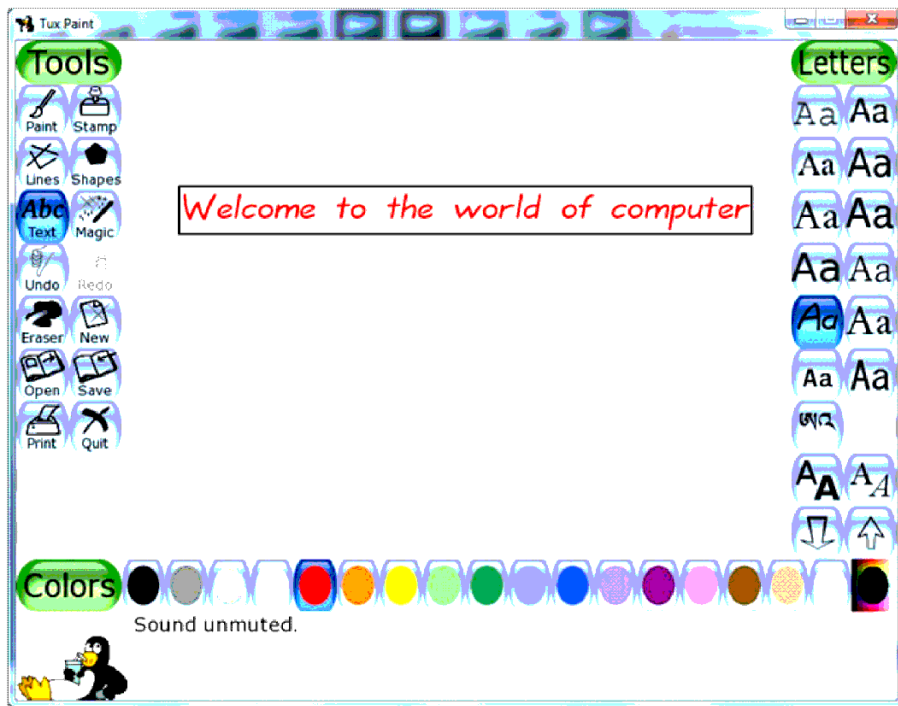
STAMP TOOL

The stamp tool is used to stamp an image that is available in the Tux program.

Select the stamp tool from the Tools section a list of stamps will be displayed in the Selector panel then select the required stamp and click on the canvas area where it has to be applied. You can increase of decrease size of the stamp by click

Stamp

Increase or decrease size
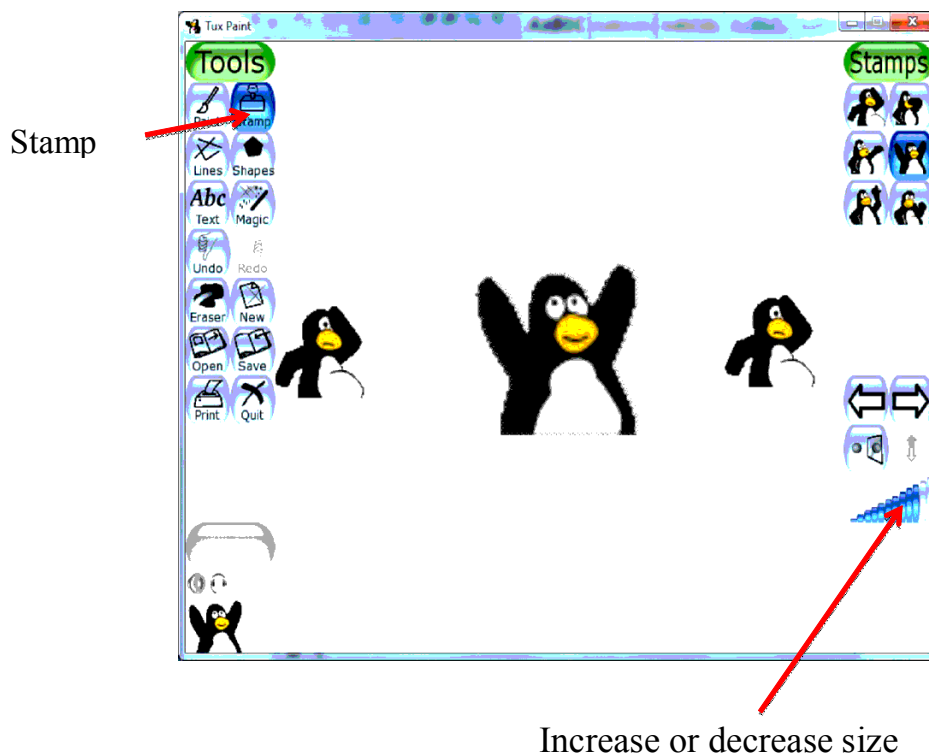
PRINT TOOL

As soon as you Select the print tool from the tools section. It will display a message asking if you want to print will be displayed. Click Yes. A print dialog box will be displayed à click print button.

QUIT TOOL

The Quit tool is used to close the Tux program. Select the Quit tool from the Tools section. A message asking if you want to close the program will be displayed then clicks yes.

OPEN TOOL

- ❍ The Open Tool is used to open an existing file. Click open button under Tools section → A list of existing option will be displayed

   ❍ The Open button is used to open and display a particular im age on canvas

- The slides button is used to display the files in the form of a slide show
- The Erase button is used to delete an image
- The back button is used to return to the main program window
- Choose the picture to be opened then click the open button
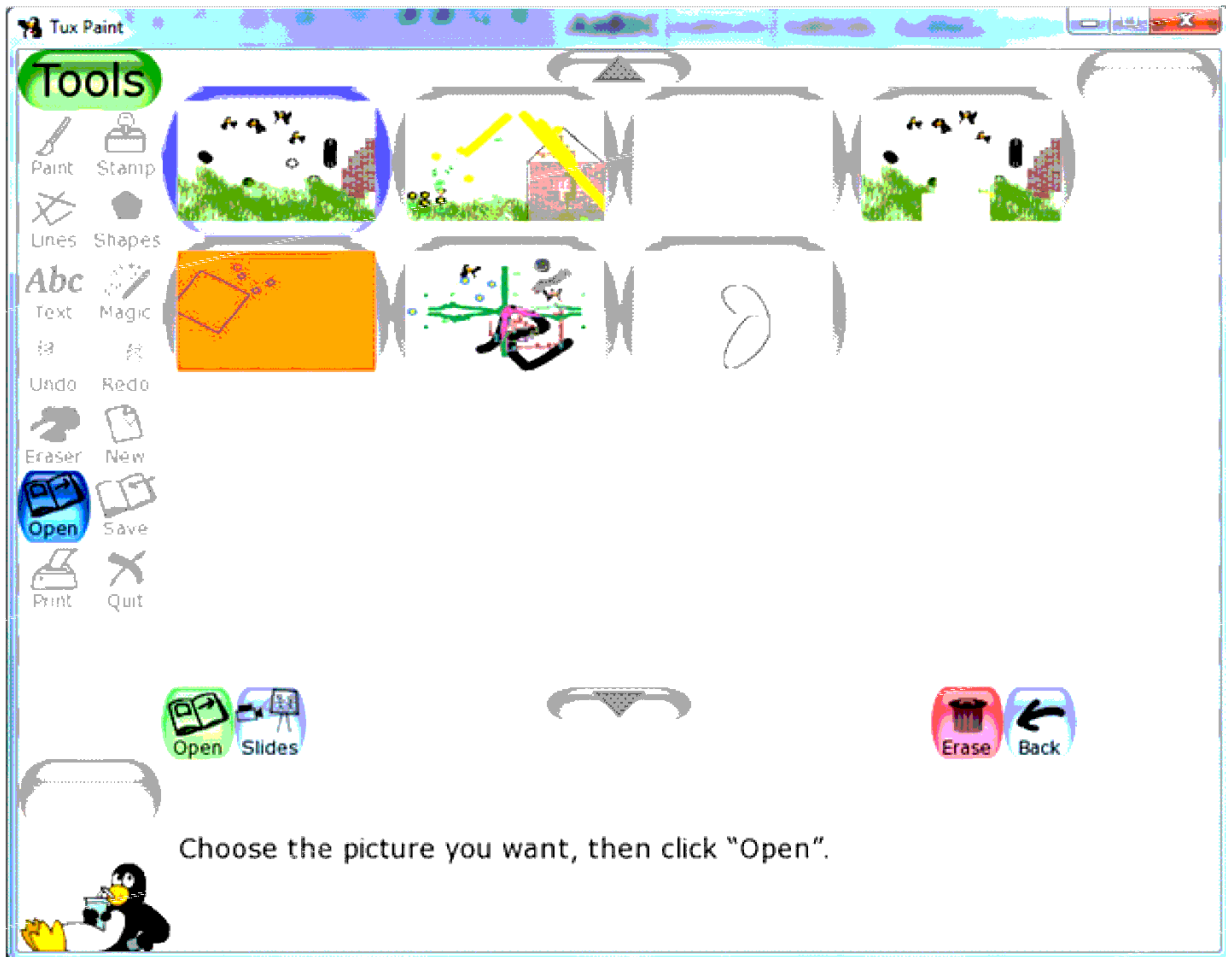
MAGIC TOOL

- The Magic tool is used to apply special effects to an image.
- Select an effect from the selector panel → Click on the canvas area where it has to be applied

Click and move the mouse around to make the picture blocky

The blocks magic tool

Summary:

In this chapter we have learnt about

○ Introduction to Tux Paint

○ How to open Tux Paint

○ Tux Paint Interface

○ Use of Tools

○ Draw Diagrams

○ More Tools

Teacher Activity

1. Conduct Lab practice exercise.

Student Activity

Draw a picture using Tux Paint

Test Your Knowledge

I.   What is the difference between a program and a software?

_____

_____

_____

2.   What type of software do you use to accomplish specific tasks?

_____

_____

_____

3.   Write any two functions of an Operating System.

_____

_____

_____

I.   Fill in the blanks

1.   Tux paint window is divided into _____ number of sections

2.   The blank white area where you will draw and color is called _____

3.   Top most part of Tux paint window is called _____ bar

4.   The _____section has a collection of tools using which you will draw the picture or color the picture

5.   The blank white area where you will draw and color is called _____ , it is also called as _____area

II.   Answer the following question

1.   Write a few points about stamp tools.

2.   Write a few uses of magic tools.

3.   Write the steps to open tux Paint

Chapter - 15   Tux Typing Tutor

Objectives

In this chapter you will be able to understand;

○ Introduction to Tux Typing

○ How to open and closing Tux Typing

○ Understanding the interface

○ Placing Fingers

○ Practice

Any teacher or educator knows that the key to helping kids learn is to make it fun.

The same goes for typing, which is why Tux Typing has been designed to make typing as fun as possible for children. Tux Typing stars Tux who is actually the Linux penguin logo. Basically, words fall from the sky and you have to type them to make them disappear before they fall to the ground and end up in Tux's belly!

What's great about Tux Typing is that every game is different with different backdrops, sounds and effects so it won't get boring quickly. However, it has to be said that the more difficult challenges and levels on Tux Typing would challenge even experienced touch typists, never mind children! Words fall at a very rapid rate on the hardest levels and even we had trouble keeping up.

Tux Typing is a delightful typing tutorial game for kids that will keep them coming back for more and rapidly improve their typing skills.

Opening Tux Typing
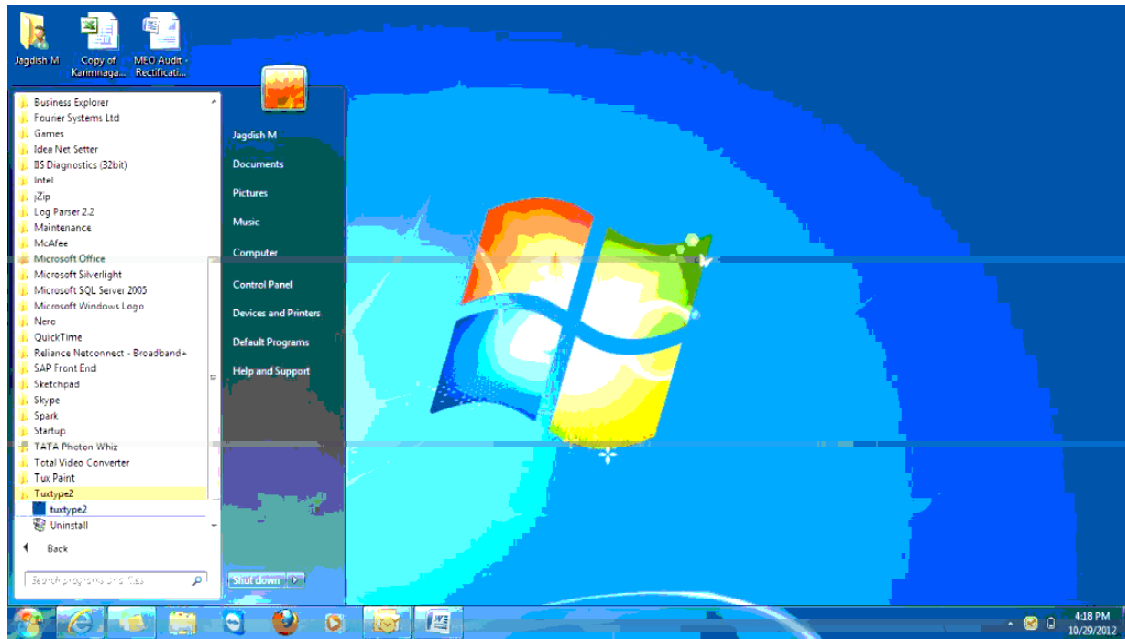
Click on Start Button → Select All Programs → go to Tuxtype2

You will get the below screen
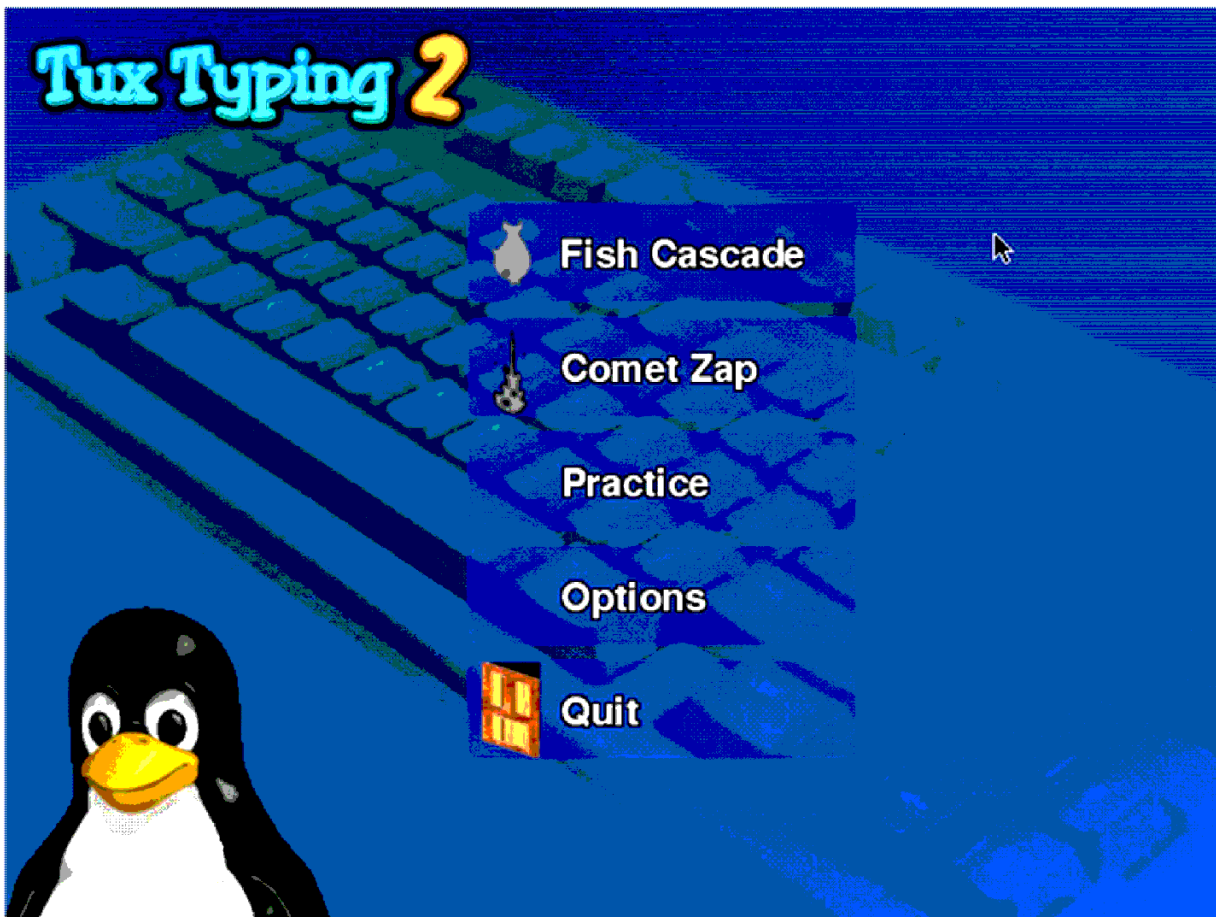
The main Tux Typing menu asks you to choose a level ranging from **Space Cadet** to **Commander**.

Within these difficulty levels are different challenges from typing the Alphabet to whole words. Alternatively, you can just choose to practice typing and Tux Typing will give you a phrase and then indicate how you should type it using which fingers in order to become a touch typists.
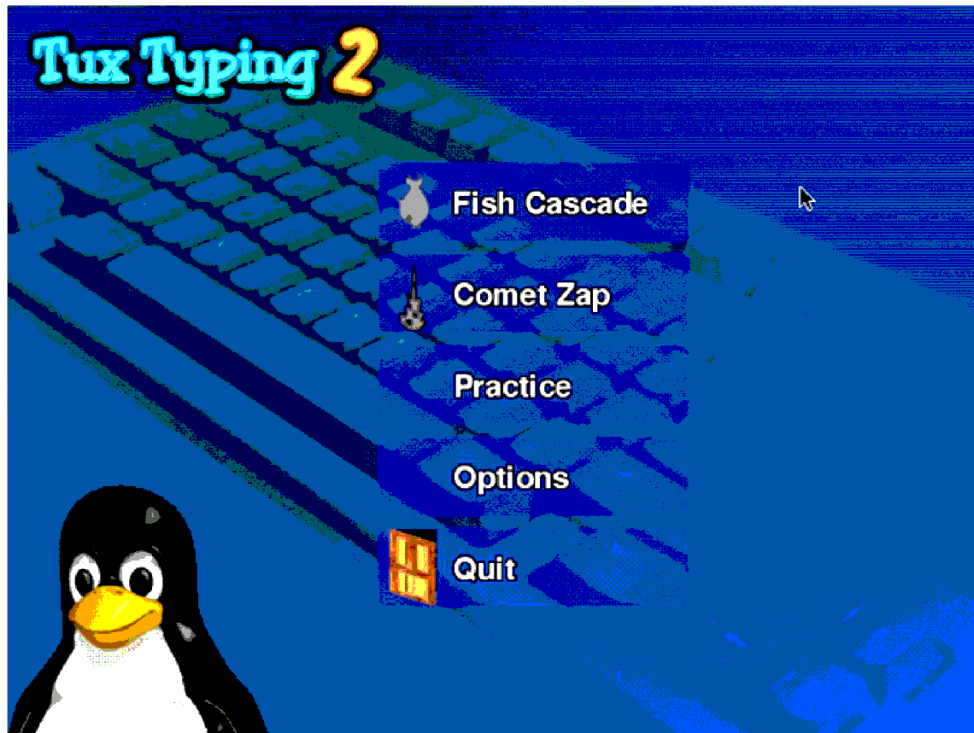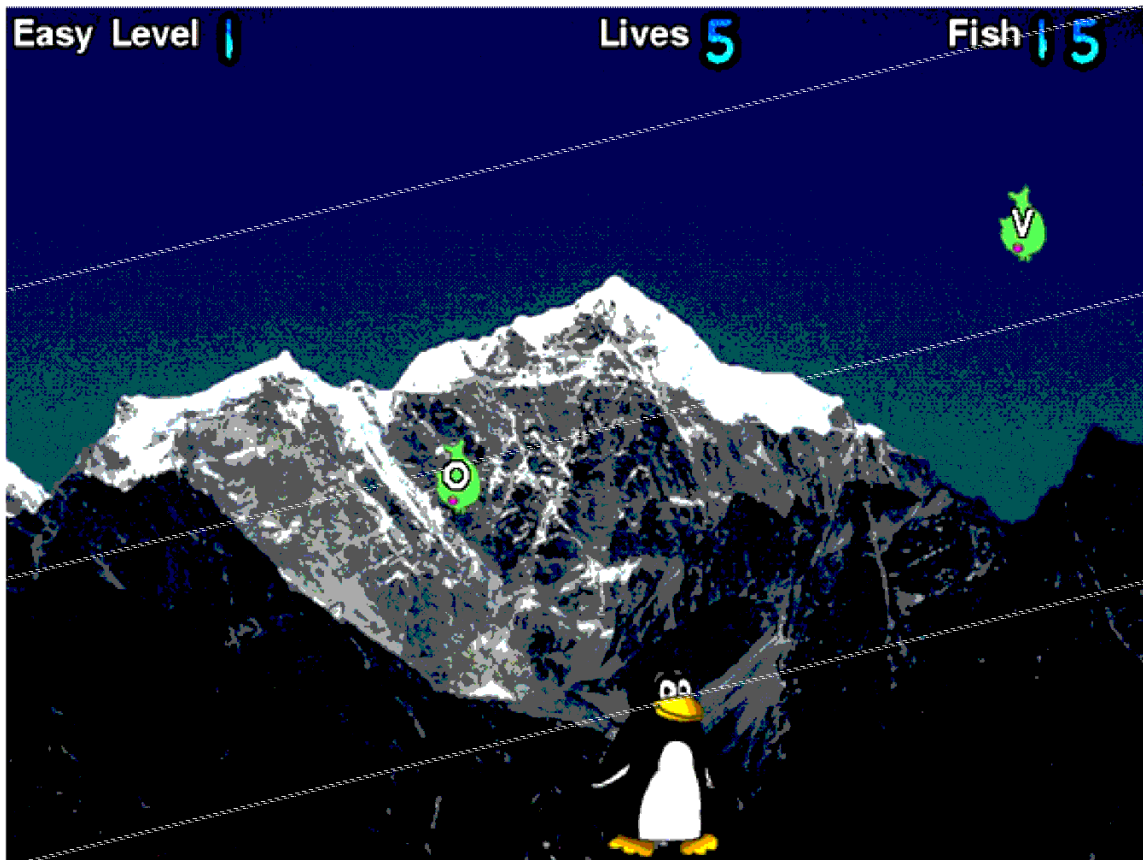

Click on Fish Cascade then you will get the below screen
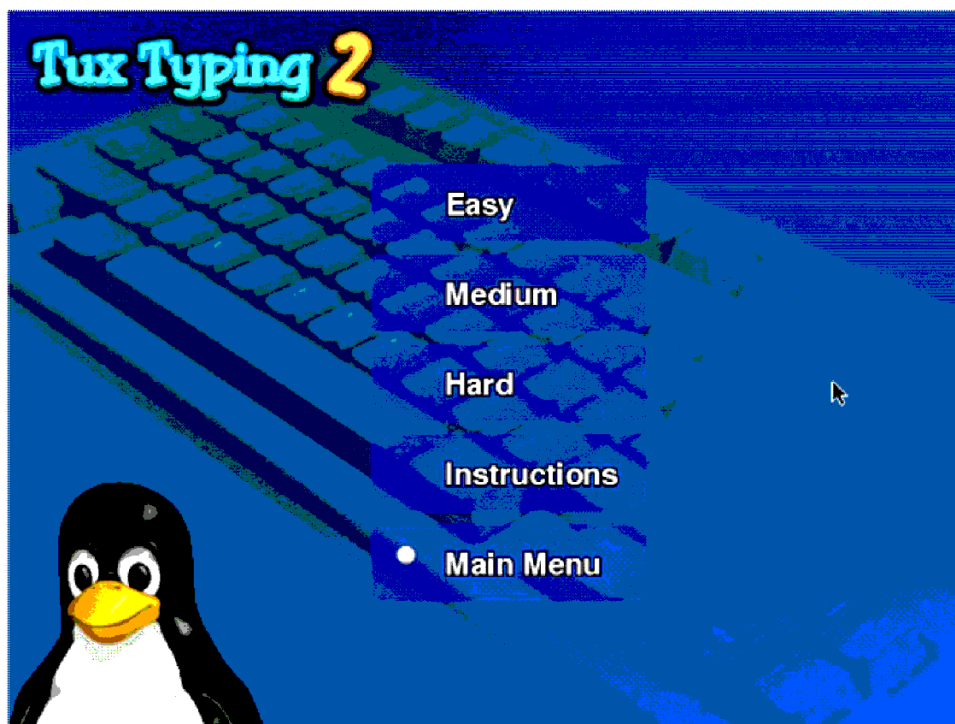
Select the level by clicking on Any one from the above list Example Easy
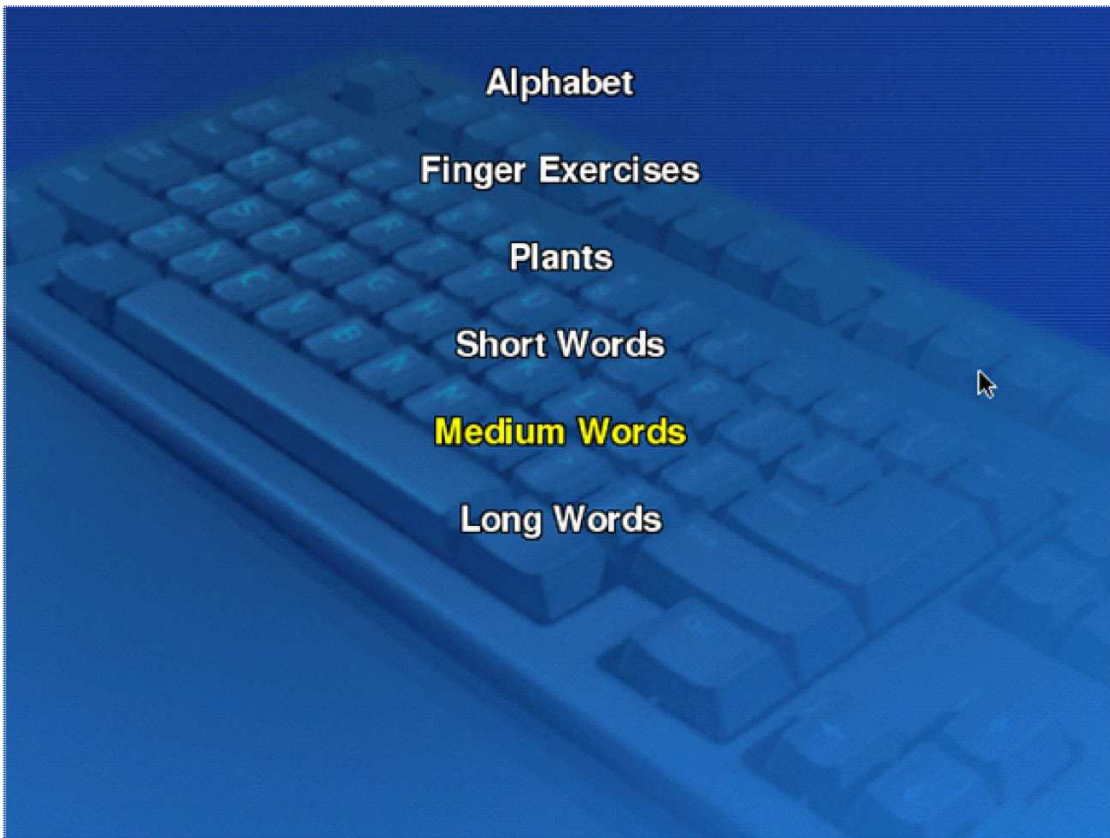
Select Alphabet if you want to start the game

Then the game starts, start typing the letter which is there inside the fish
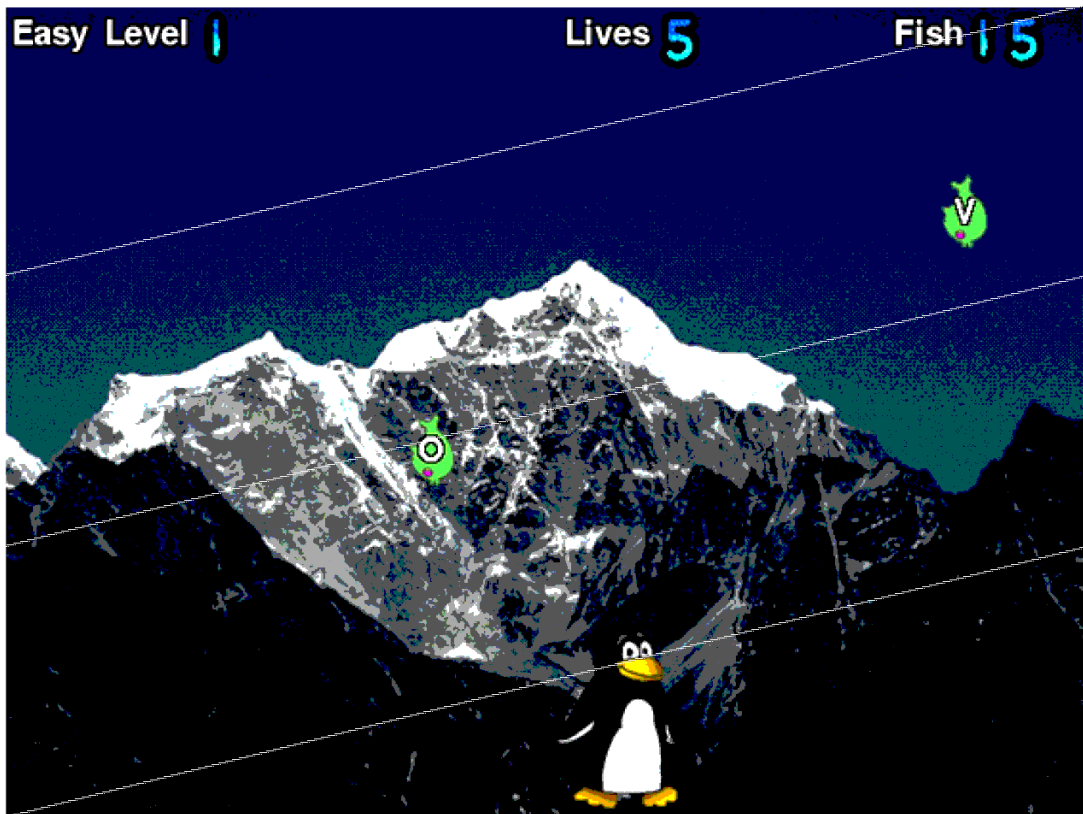
Then the game starts, start typing the letter which is there inside the fish
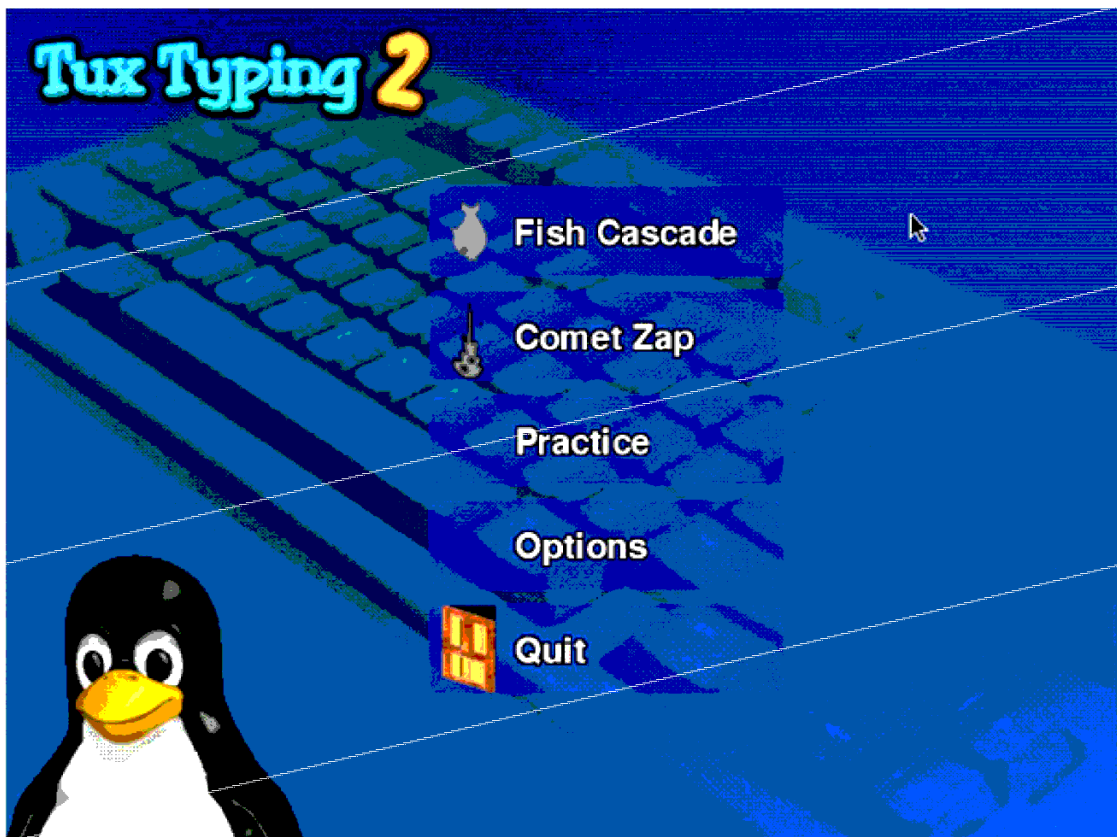
Select Practice if you want to practice typing then you will get the below screen

Start practicing the typing it will show you which figure need to be used while typing

Press ESC key to quit from Tux typing or Click Quit text

Summery:

In this chapter we have learnt

About Typing Tutor

Usage of Typing Tutor

Interface of Typing Tutor.

Teacher Activity

Conduct Lab exercise and make students to practice Typing Tutor.

Student Activity

Students need to complete three exercises each using Typing Tutor.

Microsoft Windows

Learning Objectives

At the end of this chapter, you will be able to understand;

- Understand Windows as an operating system
- Use of mouse
- Identify the desktop and its components
- Customise the taskbar
- Use the Help feature of Windows
- Turnoff the computer

Windows as an Operating System

You know that an operating system is the program that manages all the other programs in a computer. Hence, an operating system is very important for a computer. It also manages the various devices of the computer. Windows is a popular operating system for PCs. It acts as an interface between the user and the hardware, that is, it accepts the instructions from the user and sends it to the hardware.

What is an Interface?

Consider the following situation.

Suppose you have to make a child understand how an elephant looks like. You can do this in two ways.

Option 1 - You can explain about its colour and enormous size. Then, you can describe the physical features such as the tusks, the long trunk, the tail etc.

Option 2 – You can show a picture of an elephant.

In the case of Option 1, the child may not understand how an elephant looks like in spite of all the explanation. However, in the case of Option 2, the child will understand quickly and clearly about the appearance of an elephant. Option 2 is a simpler and easier method than Option 1. As the saying goes, a picture is worth a thousand words.

Similarly, a user can interact with the computer using text or graphics. The means by which the user interacts or communicates with the computer can be referred

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to as user interface. The 'friendlier' a user interface is, the faster it can be learnt and used.

The two types of user interface are:

Command User Interface (CUI) – A Command User Interface (CUI) uses text to help a user give instructions, that is, the user has to type the instructions through the keyboard. Interacting with the computer using a Command User Interface (CUI) is similar to option 1 in the above example. For example, MS-DOS and UNIX are operating systems that use a Command User Interface.

Graphical User Interface (GUI) – A Graphical User Interface (GUI) uses illustrations, rather than text, to help the user interact with an application. GUI allows the user to interact easily with the computer typically by using a mouse to make choices from menus or groups of icons. The mouse is commonly used in a GUI to point and select options. Interacting with the computer using a Graphic User Interface (GUI) is similar to option 2 in the above example. For example, Windows98, Windows ME, Windows XP, Windows 2000 etc. are operating systems that use a Graphical User Interface.

Starting Windows

When you start a computer, the operating system also starts automatically.

To start a computer:

1. Switch on the power supply.

2. Press the Power button on the system unit.

Wait for a few seconds for the system to get ready to accept your instructions. When the system is ready, you will see an arrow on the screen [ ]. This arrow is called the mouse pointer.

Mouse Basics

The mouse is the most often used input device. A mouse can be used to perform five major actions.

    ⭕   Moving   ⭕   Clicking   ⭕   Double Clicking

    ⭕   Clicking and Dragging ⭕   Right Clicking

Moving: When you move the mouse, the mouse pointer moves in the corresponding direction on the screen. While moving the mouse, do not press any of the buttons.

Clicking: The action of pressing a mouse button is called clicking. But, the term click generally refers to *left-click*. Clicking an object will select it for an operation.

Double-clicking: Clicking the mouse twice quickly is called *double-click*. When you double-click an item on the desktop, a rectangular area with a frame is displayed on the screen. This is called as a *window*.

Clicking and dragging: Moving the mouse while keeping the left mouse button pressed is called *clicking and dragging*. This is mainly used to select a particular item and moving the item to some other location. For this, you have to click that particular item and drag the mouse. Release it when you have reached the desired location.

Right-clicking: When you click the right mouse button, it is called *right-click*. Right clicking an object will display a menu. This menu is also called as a Context-Sensitive menu because the options displayed in the menu will differ based on the object that you right-click.

Mouse Cursors

While working in Windows, the shape of the pointer or cursor changes according to the task or location. Some of the common mouse cursors are given in Table 5.1 along with their descriptions.

TABLE - 6 : Common mouse cursors

Cursors	Description
⬈	This is the usual mouse pointer on the screen.
⏳	This pointer is displayed when the system is busy performing a task.
✛	This pointer is displayed when you are moving a window
I	This pointer is displayed when you are selecting text.
↔	This pointer is displayed when you increase or decrease the width of a window.
↕	This pointer is displayed when you increase or decrease the height of a window

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The Windows Desktop

The large area on the screen that can be seen immediately after Windows is started is called the **desktop**.Just as you keep frequently used items such as pen, eraser and notebooks on your desk, frequently used computer applications are placed on the initial screen of Windows in the form of icons to enable easy access. Hence, the first screen of Windows is called desktop. The desktop can thus be defined as the on-screen work area on which windows, icons, menus and dialog boxes appear.

The Taskbar

The desktop also contains the Taskbar (refer Figure 5.2). The Taskbar is the narrow band at the bottom of the screen. On the left corner of the Taskbar is the *Start* button. When you click the *Start* button, the *Start* menu appears. You can start an application using the *Start* menu.

Next to the *Start* button is the Quick Launch Toolbar. It contains icons that allow you to open some commonly used Internet-related applications. It also has an icon called *Show Desktop*. In case you have one or more windows that have occupied the desktop completely, you can select this icon to see the desktop.

The taskbar has the system tray on the right. The date and time are displayed in the system tray. The taskbar will show the names of all the programs that are currently running.

Quick Launch Toolbar   **Systems Tray**

The Start Menu

To open the start menu you need to click the *start* button on the taskbar. The start menu contains many options using which you can work with windows. The start menu helps you to start programs, open files; get help on Windows , search for files, etc.

Some commands on the start menu have right-facing arrows. This means that there is a submenu present under these options. Placing the cursor on these arrows will display submenus.


The start menu also has options such as My Computer, My Documents, My Recent Documents, My Pictures and My Music.

○ **My Documents** - When you create a new document, it is saved in the My Documents folder by default.

○ **My Recent Documents** – This option lists the files that were opened recently. You can open a file present in the My Recent Documents by clicking the respective icons in the submenu that appears.

○ **My Pictures** – By default, picture files are stored in this folder.

○ **My Music** – By default, music files are stored in this folder.

○ **My Computer** – It is the most important and frequently used option. It helps in accessing the drives, folders and files in the computer.
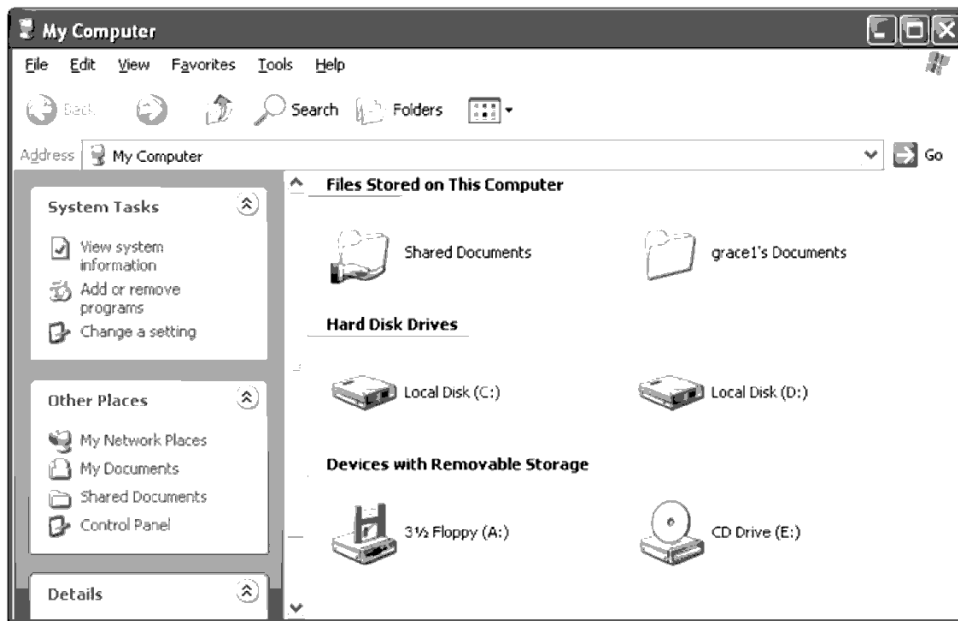
○ **My Network Places** – This option enables you to access other computers on the network. You can get information about files and folders on other machines. This option is also used to share files and folders over the network.

○ **Control Panel** – This option has many special tools that can be used to change the way Windows looks and behaves. It is also used to customise the appearance and functionality of your computer. For example, the Mouse option in Control Panel is used to change the standard mouse pointers to animated pointers.
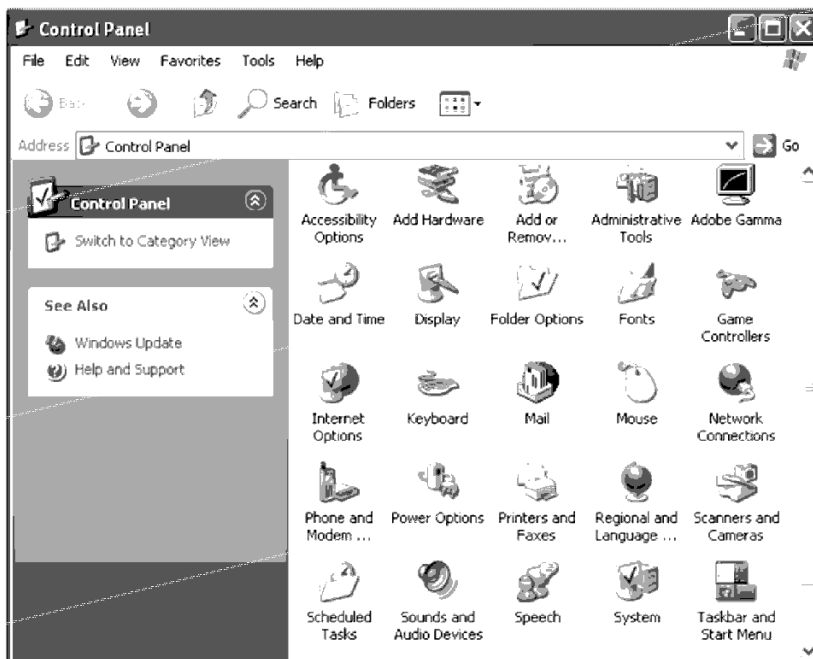
- **Printers and Faxes** – This option is used to add printers and faxes to your computer. It can also be used to change the settings of the printer.

- **Help and Support** – This option provides information on the various Windows topics. You can select from the topics listed on the Help window and get information on them. You can also type the required topic in the Search text box and search for it.

- **Search** – This option is used to search for files and folders on your computer. If you want to search for a file, you need to type the name of the file in the text box and click the Search button. The searched files will be listed in the right side of the window. In the Search Results window, there are many categories under which you can search for files. This categorisation makes the search easier. For example, the 'Picture, music, and video' option is used to search for music and video files.

- **Run** – The Run option enables you to open a program or folder. In the run dialog box, type the name of the program or folder in the Open combo box and click the OK button. For example, if you want to open the WordPad application, you can type 'WordPad' in the Open combo box area and click the OK button. The WordPad window opens.
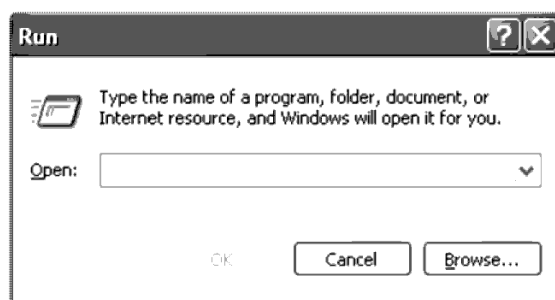
Changing the Properties of the Taskbar

Usually, the taskbar appears at the bottom of the desktop. But, you can move it to any side of the desktop.

For example, to move the taskbar to the left side of the desktop:

1. Place the mouse pointer anywhere on the empty space on the Taskbar.

2. Click the left mouse button

3. Drag the taskbar to the left end of the desktop.

4. Release the left mouse button

The width of the taskbar can also be adjusted.

For example, to increase the taskbar width:

1. Place the mouse pointer on the border of the taskbar.

A double-headed arrow (↔) appears.

2. The moment you see the double-headed arrow, press the left mouse button.

3. Drag the border to the desired width.

4. Release the left mouse button.

Suppose you want to view a picture full screen on your monitor and the taskbar is hiding it. The taskbar can be hidden from the user's view briefly.

To hide the taskbar:

1. Place the mouse pointer anywhere on the empty space on the taskbar.

2. Click the right mouse button. A pop-up menu appears.

3. Click the *Properties* option.

The *Taskbar and Start Menu Properties* dialog box appears .

A dialog box is a type of window that asks for additional information from the user about a task that needs to be completed.

4. Select the *Auto Hide* check box.

Check boxes are boxes that are used to select or clear options. You can select an option by clicking the small white square to the left of the option. A tick mark appears in the square to indicate a selected option. You can clear an option by clicking the square again. In case there are multiple check boxes, you can select as many options as you want.

The *Auto Hide* option gets selected.

5. Click the *Apply* button.

6. Click the *OK* button.

The taskbar is hidden from your view. When you place the mouse pointer over the location where the taskbar was present, the taskbar re-appears. When you move the mouse pointer away, the taskbar gets hidden again. To make the taskbar appear permanently, clear the *Auto Hide* check box in the *Taskbar and Start Menu Properties* dialog box.
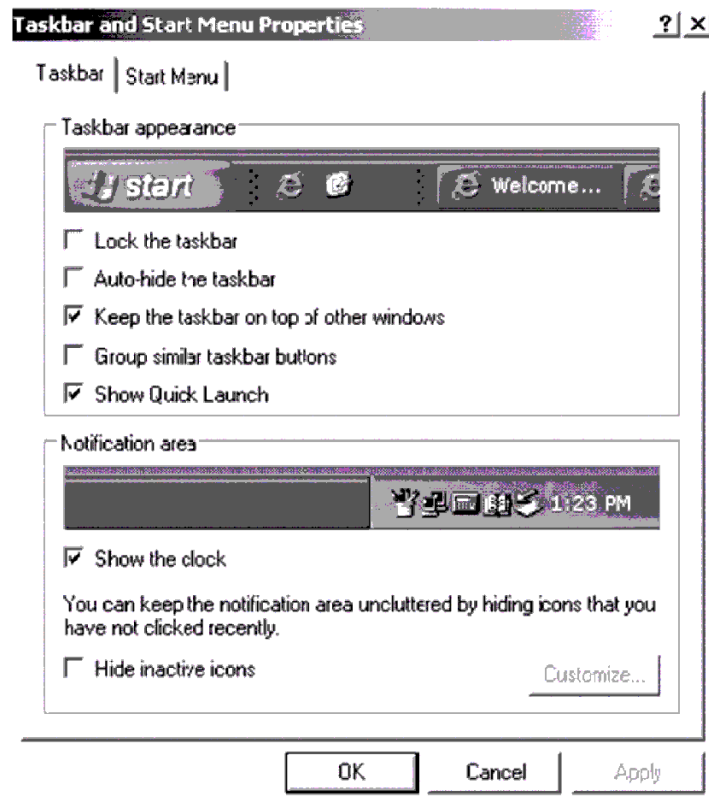
Clock and Calendar

The clock is displayed on the right hand side of the taskbar. You can change the date and time by opening the clock. You can also view the calendar for any year starting from 1980.

To open the clock, double-click the place where the time is displayed in the system tray. The *Date/Time Properties* dialog box appears as shown in the below.

You can change the date by clicking the appropriate date on the calendar in the *Date* section. You can change the time by typing it or by clicking the buttons of the spinner box in the *Time* section. After making the changes, you can save it by clicking the *OK* button. If you do not want the changes, click the *Cancel* button.

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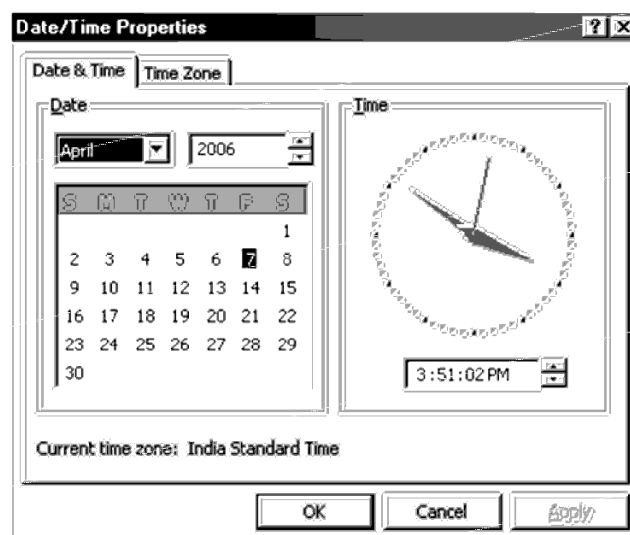
Using the Help Feature

Windows has a feature called Help that enables you to get assistance on how to use the Operating system.

To access the *Help* feature:

1. Click the *Start* button.

2. Click *Help and Support* option.

The *Windows Help and Support Center* dialog box appears
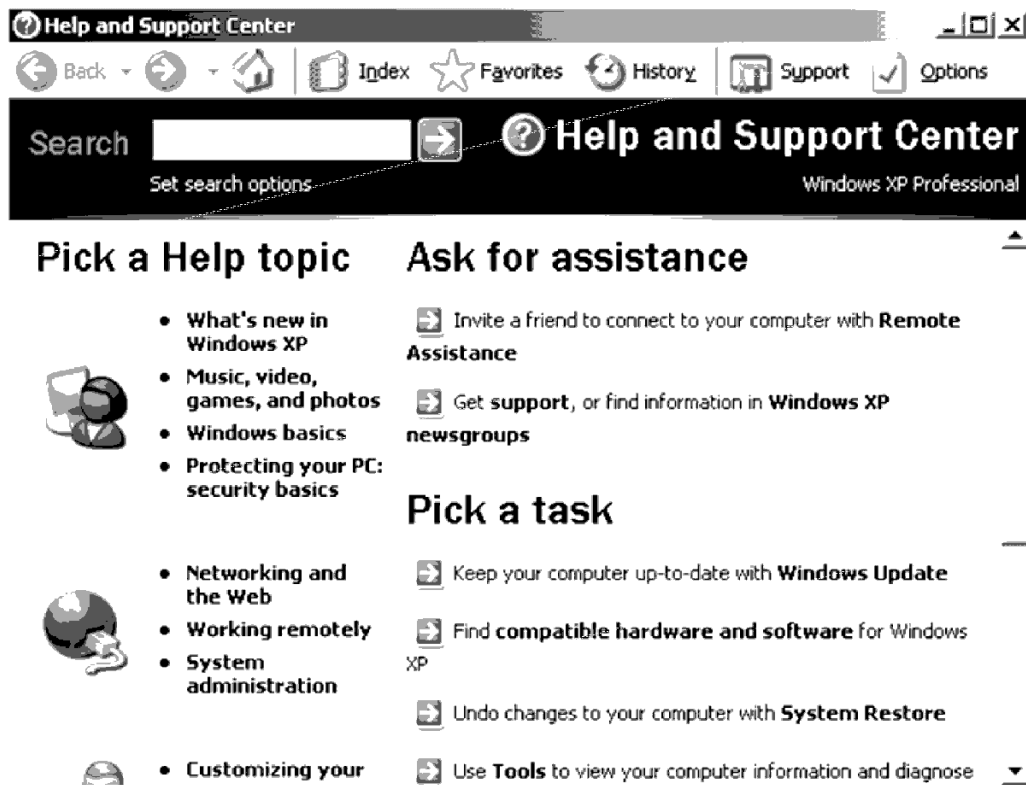
The left pane of the dialog box has three tabs:

○   The Contents tab – Displays a list of topics on which help is available.

○   The Index tab – Enables you to search for a specific word or phrase by typing the first few letters of the word.

○   The Search tab – Enables you to search for the occurrence of a particular word or phrase.

You can select the topic on which you want help from the left pane and the related contents are displayed on the right pane.

Summary :

○   Windows is an operating system software with a Graphic User Interface.

- The mouse can be used to perform five actions – click, double click, move, click and drag and right click.

- The large area on the screen that can be seen immediately after Windows gets loaded is called the desktop.

- The small pictures on the desktop are called icons.

- A menu contains a list of commands or options.

- The menu that appears when you click the right mouse button is called a pop-up menu.

- The Taskbar has the *Start* button on the left side and the clock on the right hand side.

- The taskbar can be moved to any side of the desktop. It can also be hidden.

- The Help feature of Windows enables you to get assistance on the Operating system.

- The Search tab – Enables you to search for the occurrence of a particular word or phrase.

Teacher Activity

Teacher need to demonstrate the components of desktop.

Show the components of Control panel

Explain launching a application.

Student Activity

1. Open Control panel and observe the components of control

2. Observe the components of Windows desktop

3. Turn On and Shut Down the Windows.

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Objectives

In this chapter you will be able to understand;

O   Start the Paint application

O   Draw a picture

O   Erase a drawing

O   Save and create a file

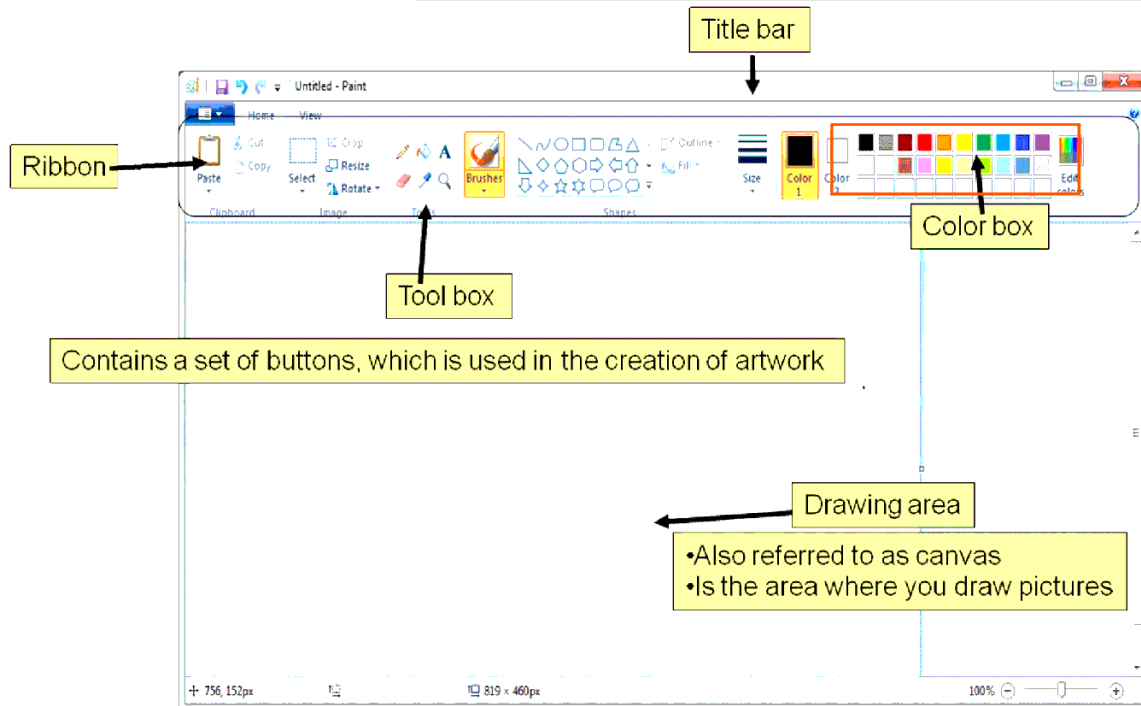**What is paint?**

Paint is a software application used to:

O   Draw pictures

O   Edit pictures

O   Colour pictures
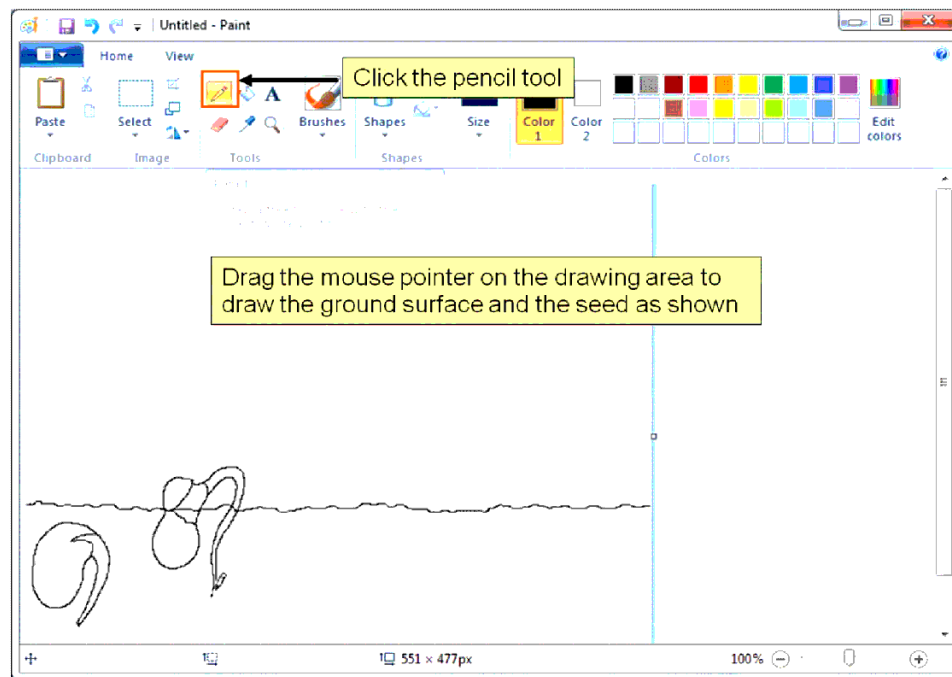
Starting Paint
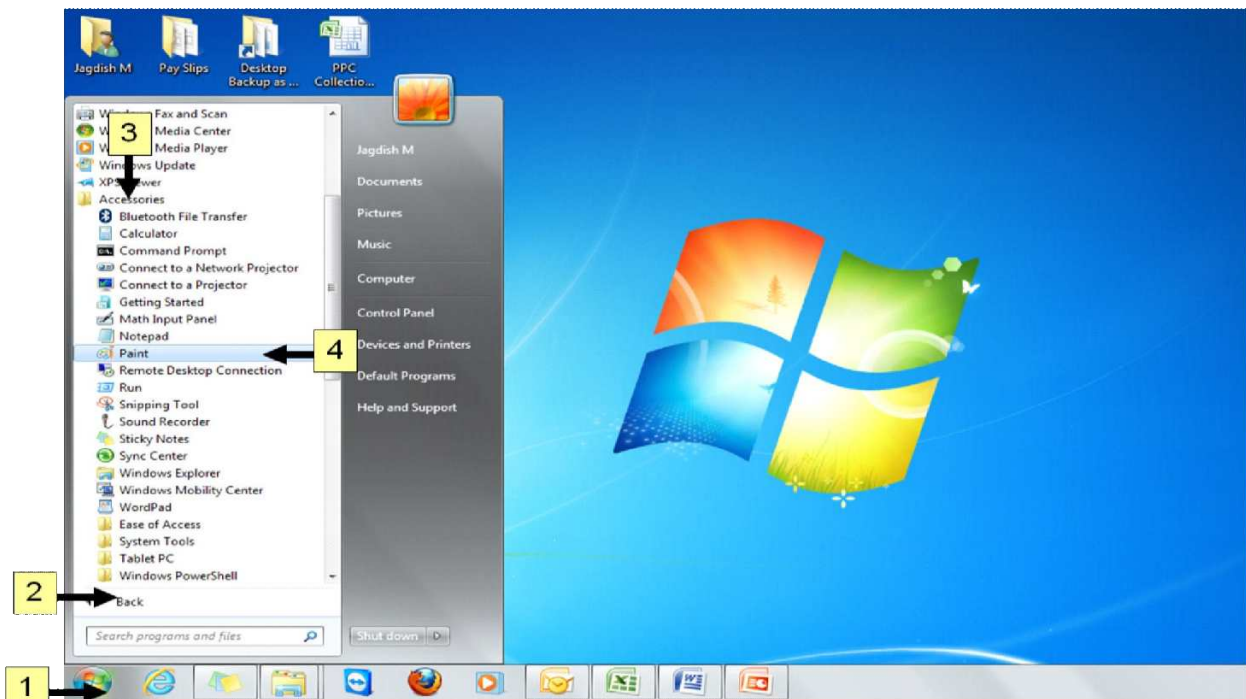
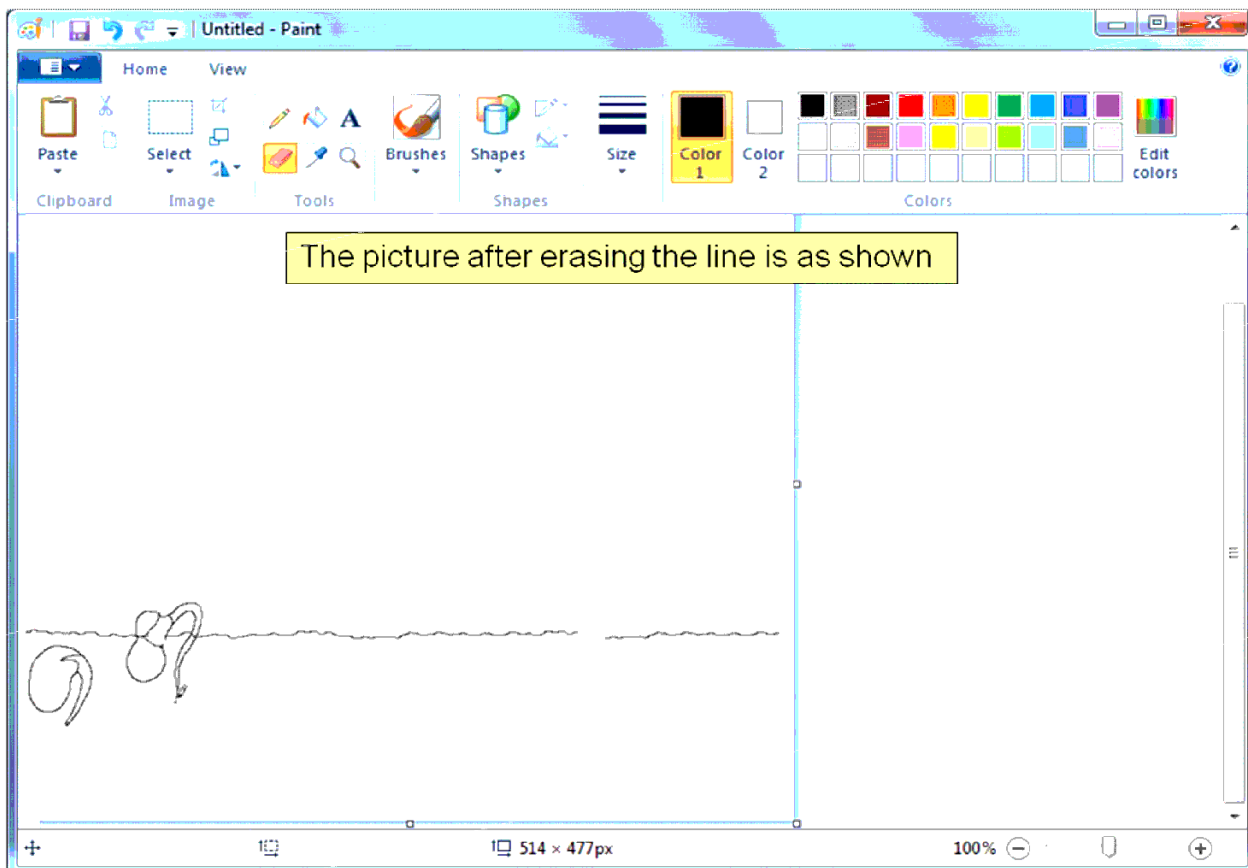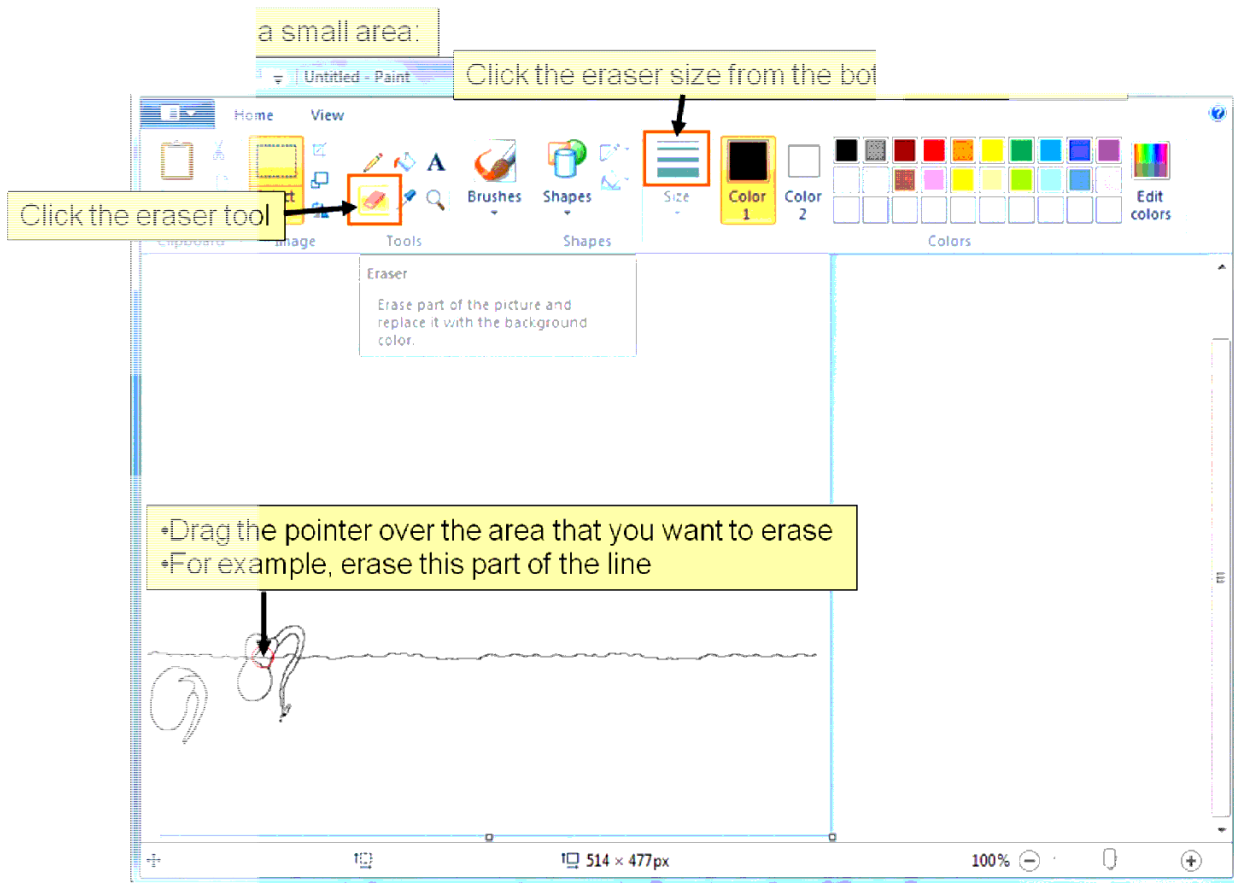**Components of the Paint Interface**

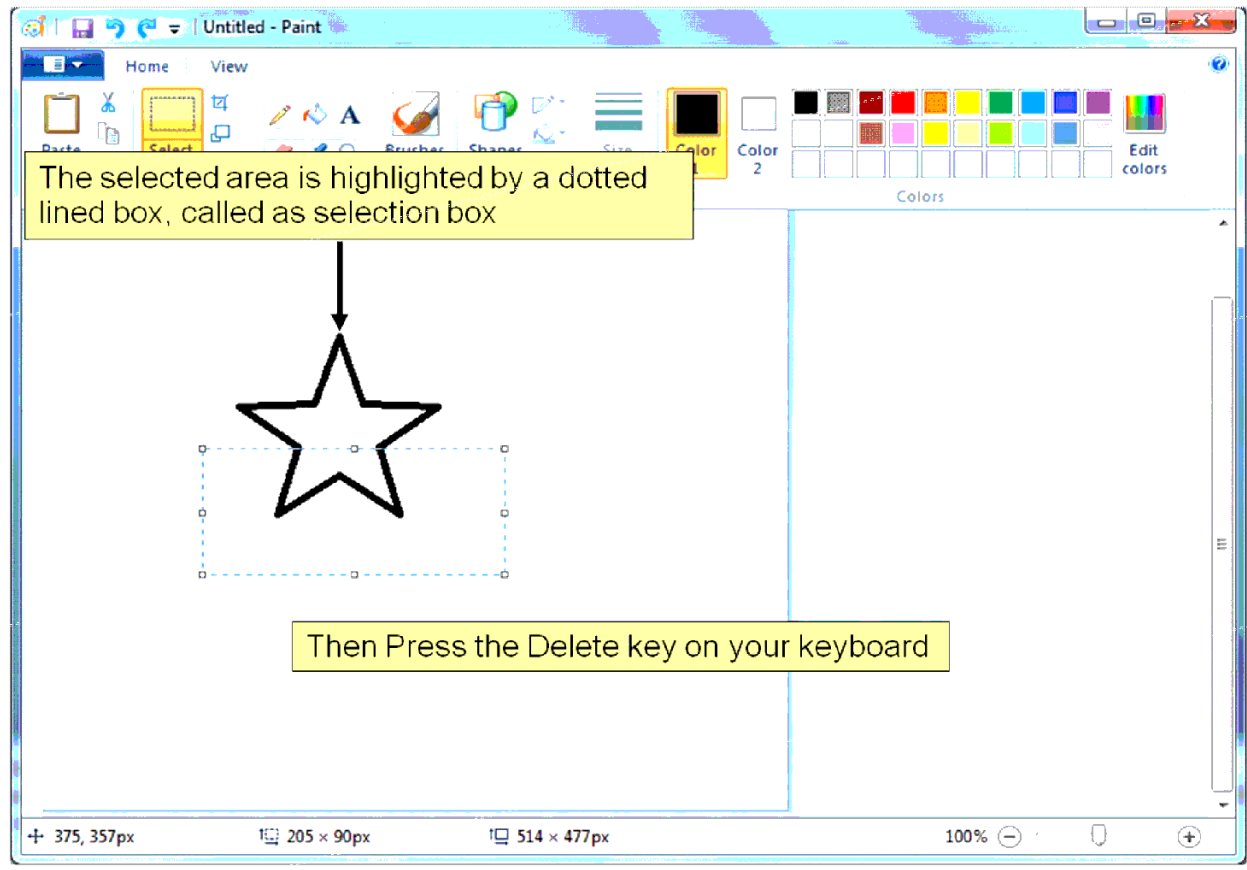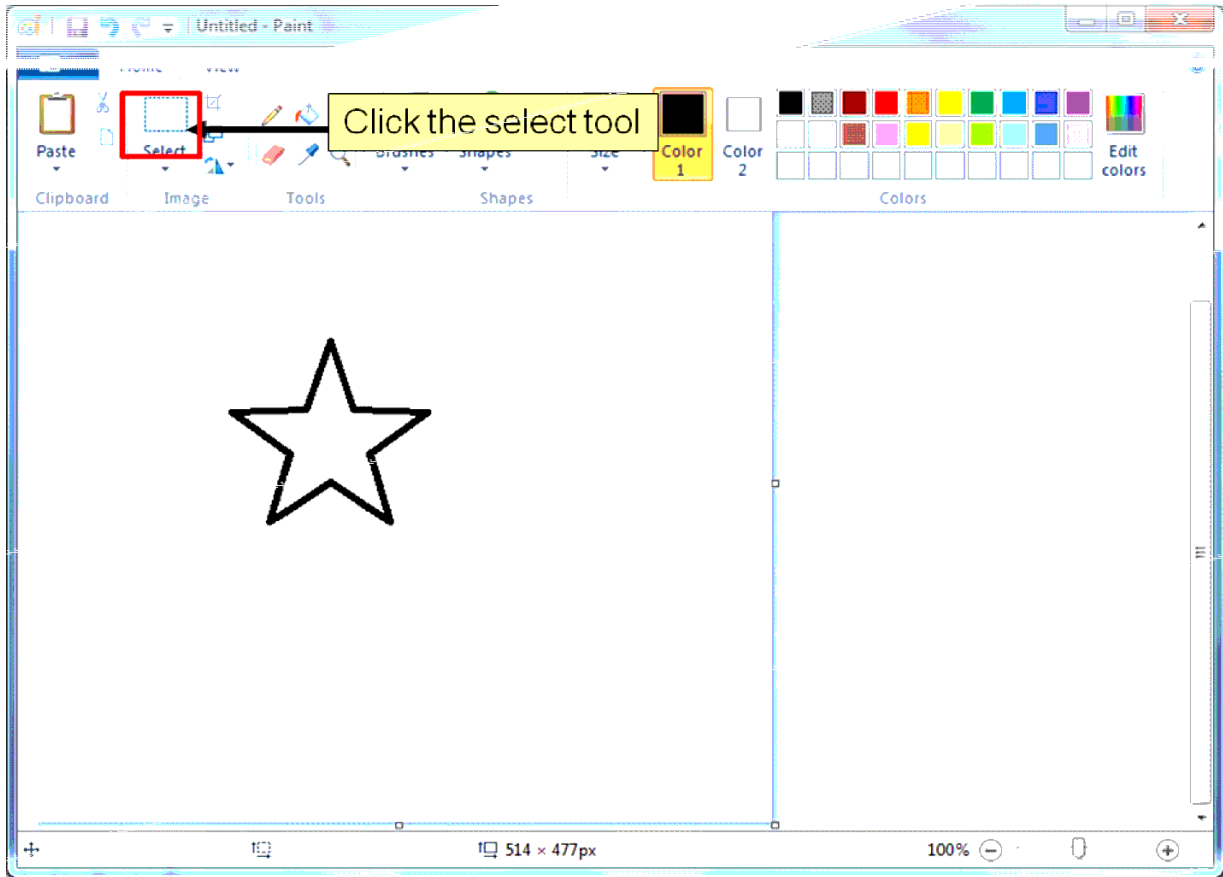**Drawing a freeform picture**

To resize the drawing area:

Point to the bottom right corner of the drawing area.

⭕ You can also point to the centre of the bottom or right side of the drawing area The mouse pointer changes to ⬊ ↕ ↔ respectively. These are called resize handles.

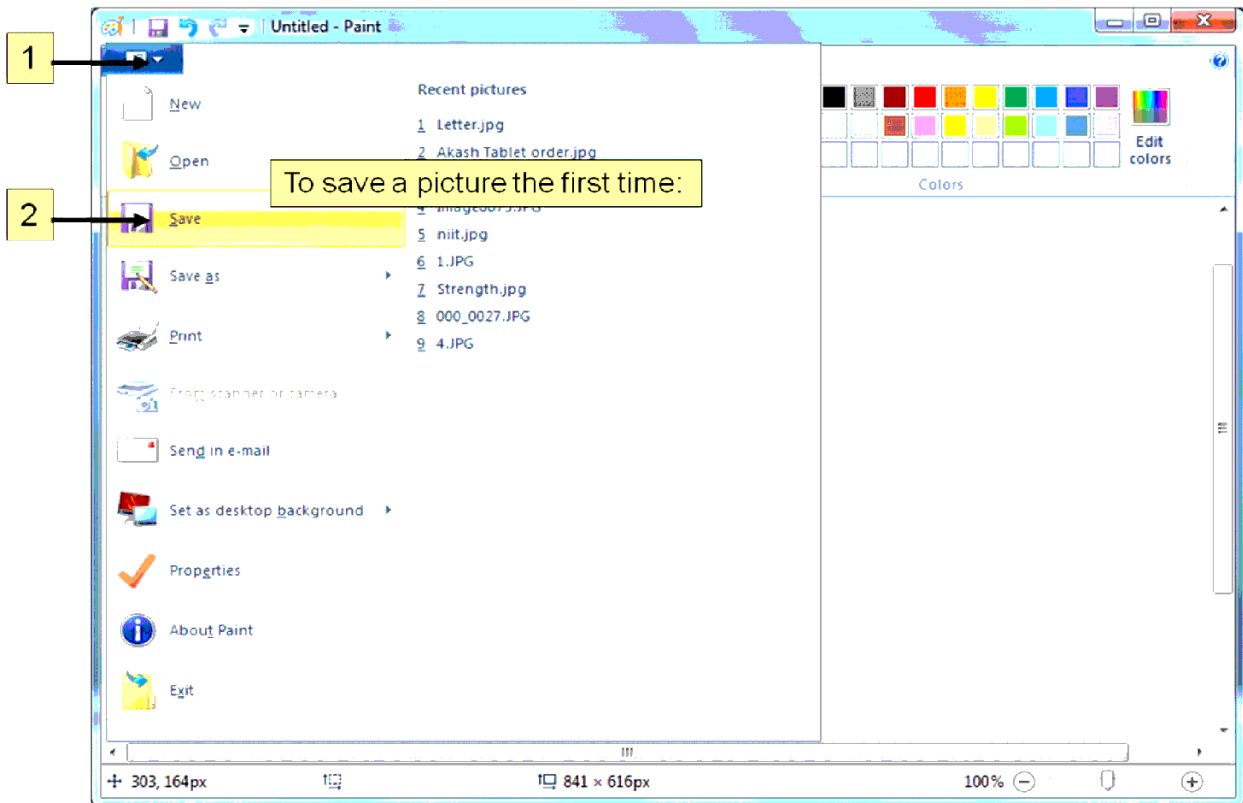⭕ Drag the resize handle forward or backward to increase or decrease the size of the drawing area.

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Erasing the Drawing

a small area:

Untitled - Paint

Click the eraser size from the bot[tom]

Click the eraser tool

Eraser

Erase part of the picture and replace it with the background color.

•Drag the pointer over the area that you want to erase
•For example, erase this part of the line

514 × 477px   100%

The picture after erasing the line is as shown

514 × 477px   100%

To erase a large area:

Click the select tool

The selected area is highlighted by a dotted lined box, called as selection box

Then Press the Delete key on your keyboard

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To save a picture

To save a picture the first time:

The **Save As** dialog box appears

Type the file name Seed Germination in the File name box
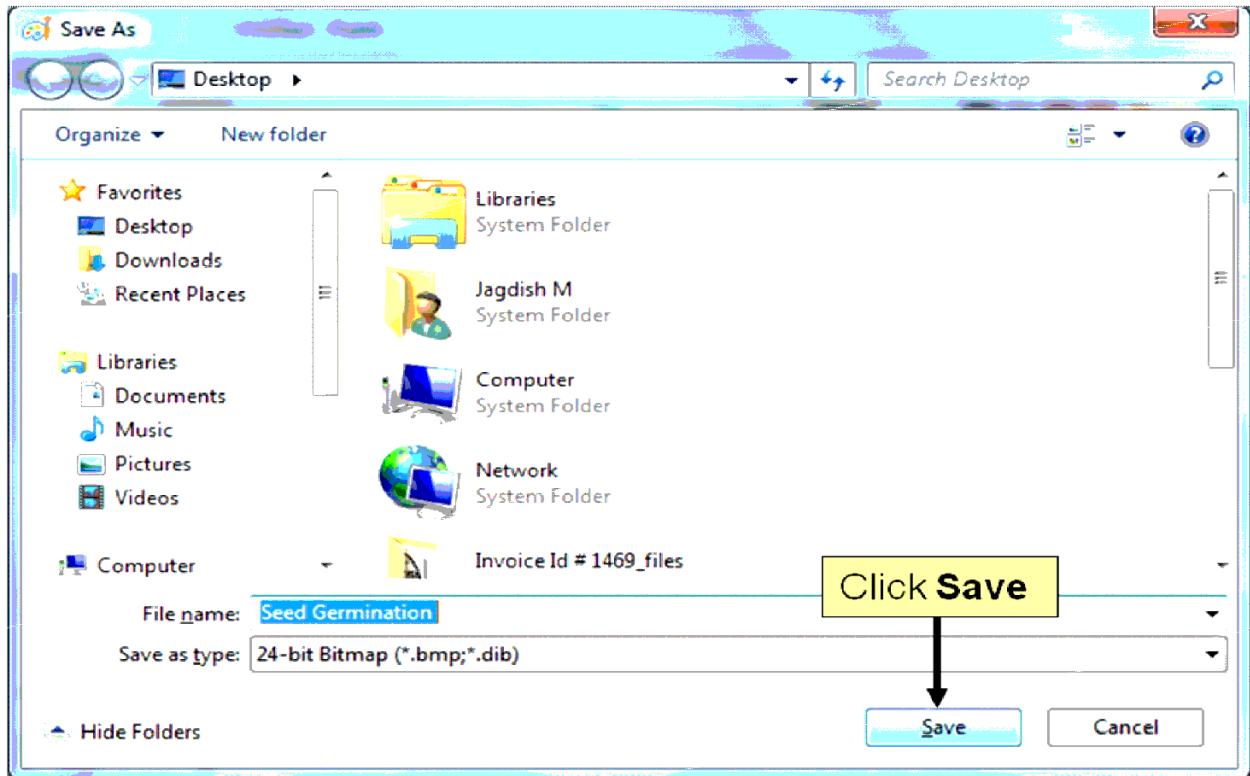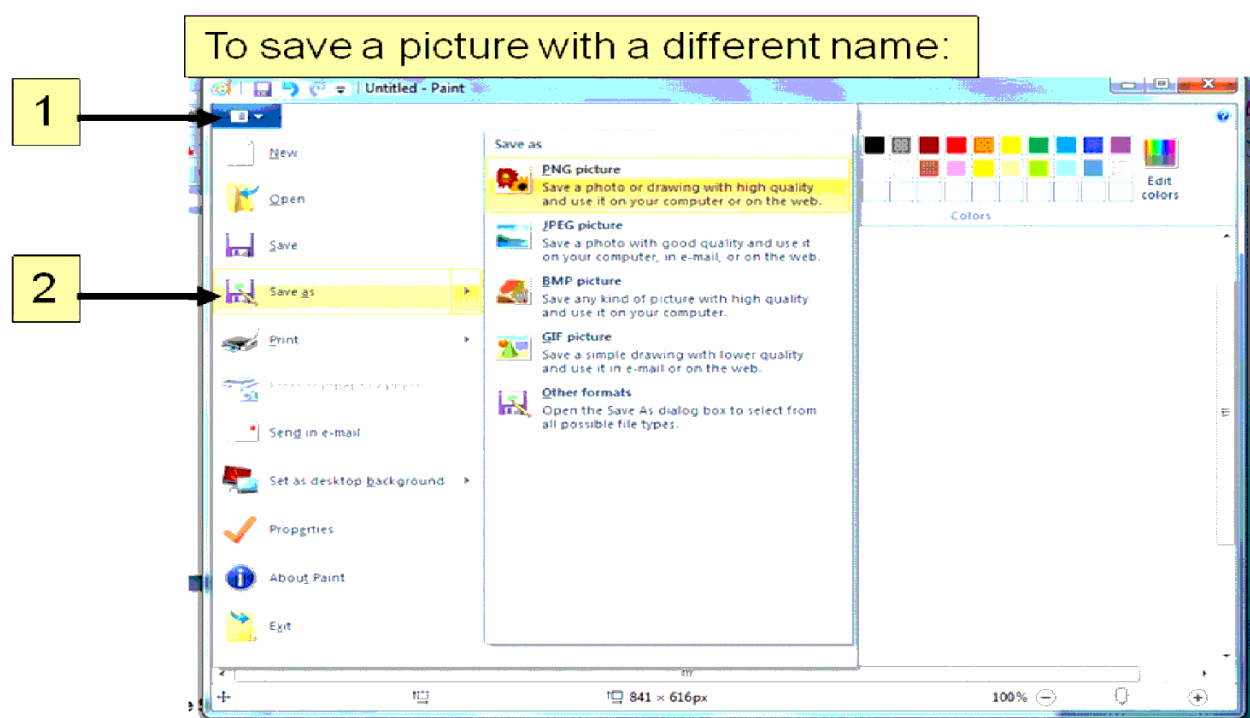
A *dialog box* is a type of window displayed to gather information from the user to complete a specific task

The files created in Paint are saved with extensions that indicate the type of file, for example, *.bmp, .gif and .jpeg. .bmp* stands for bitmap images. *.gif* stands for Graphics Interchange Format. *.jpeg* stands for Joint Photographic Experts Group
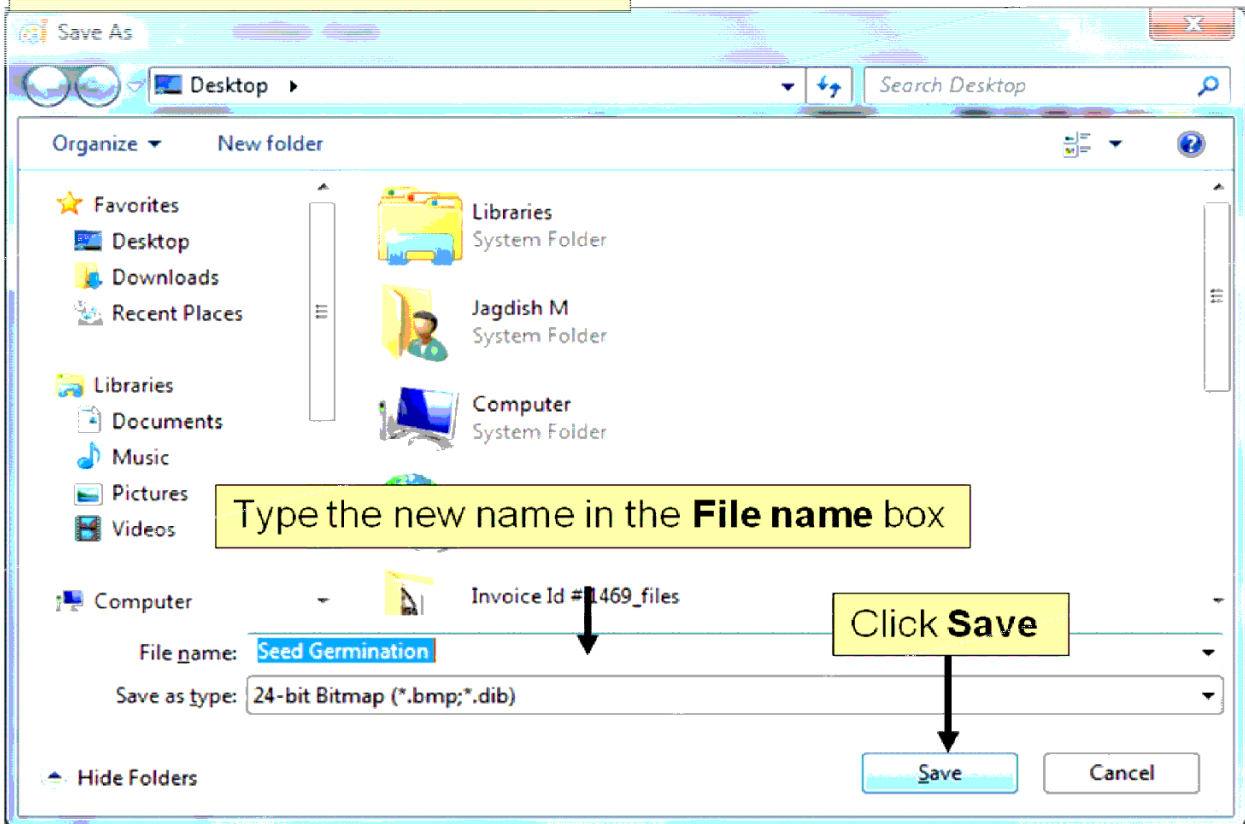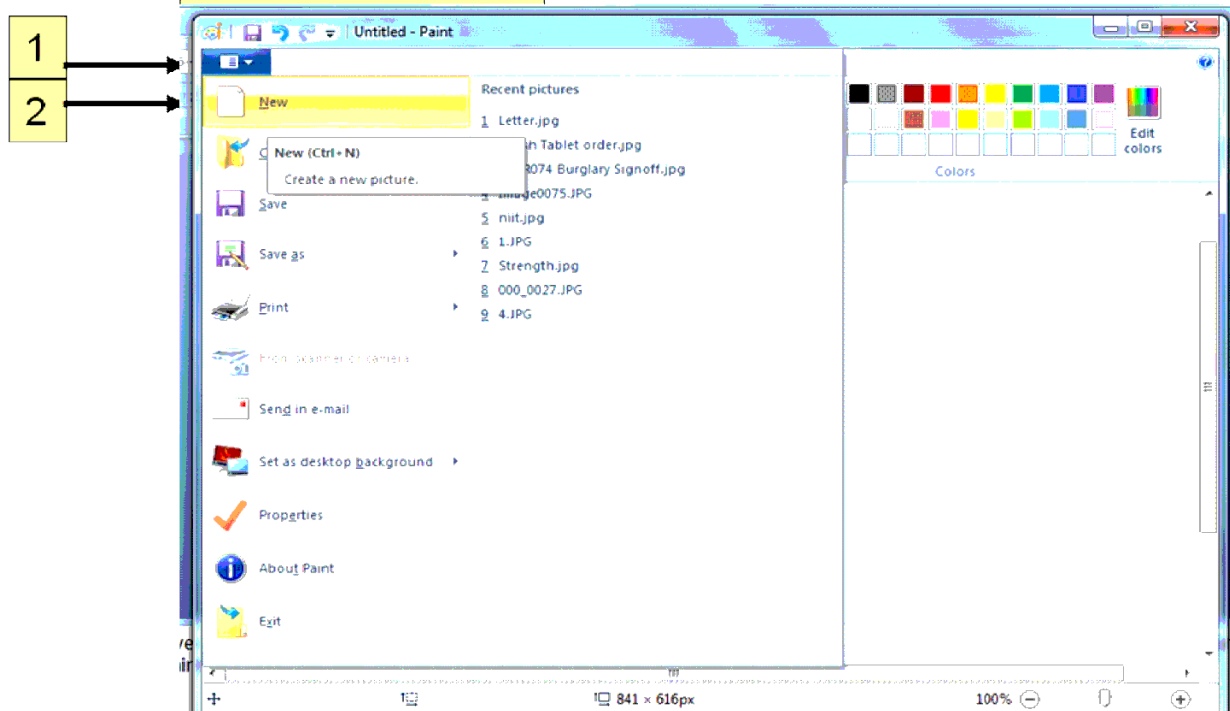

The Save As Command

Both Save and Save As commands can be used to save a new picture. However, only the Save As command can be used to save an existing picture with a different name.

The **Save As** dialog box appears

Type the new name in the **File name** box

Click **Save**

To create a new Picture

To create a new file:

Once you have created a picture and want to draw another one, you do not have to start the Paint application again. Instead, you can create a new file in Paint

If a picture is currently open and has not been saved, Paint displays a message prompting to save the picture

Paint

Do you want to save changes to Untitled?

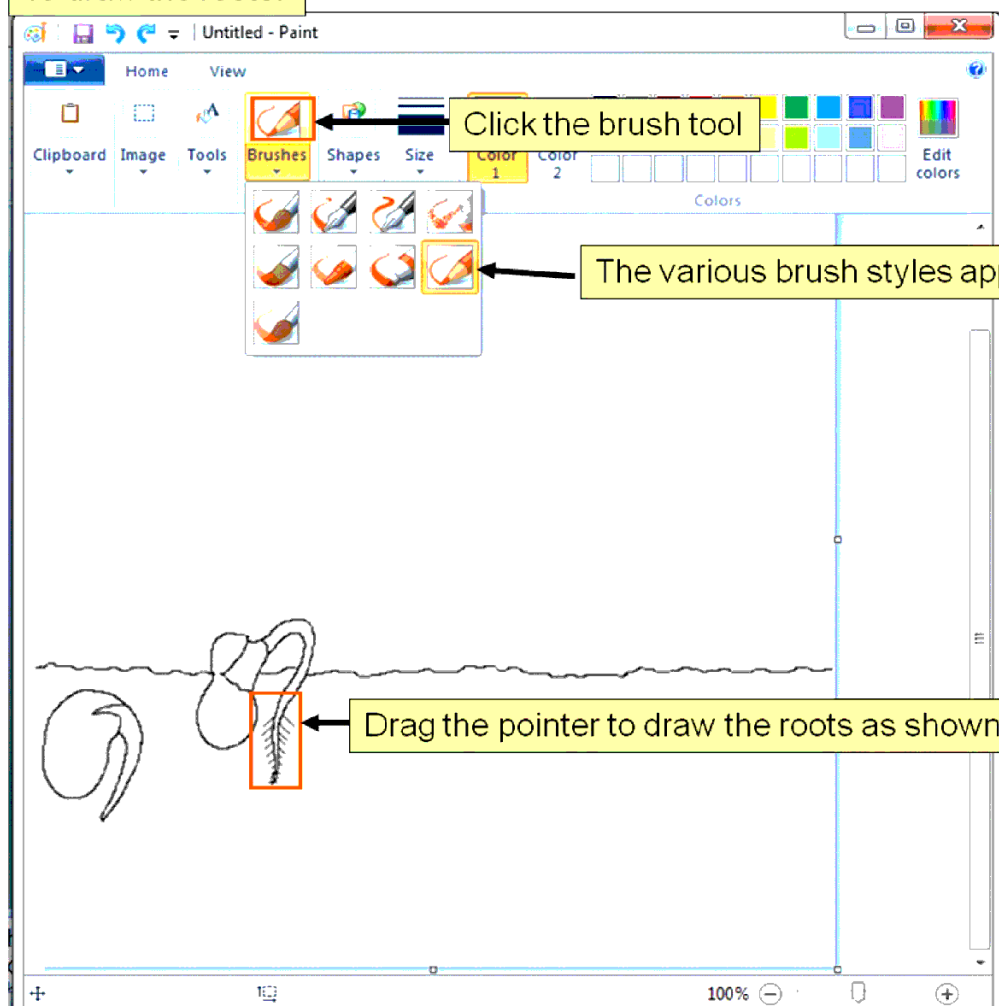Save   Don't Save   Cancel
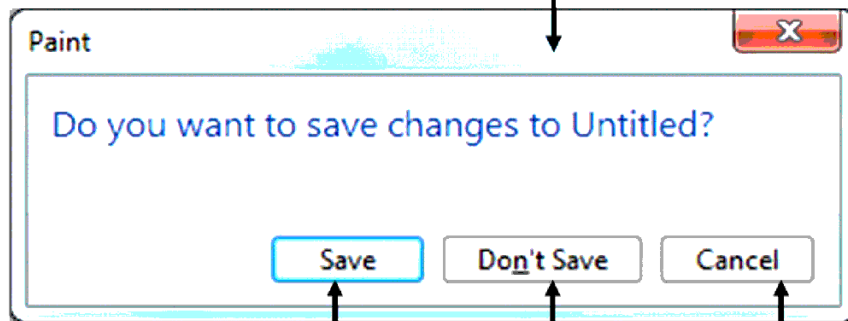
Click **Yes,** to save the picture

Click **Cancel**, If you do not want to create a new file

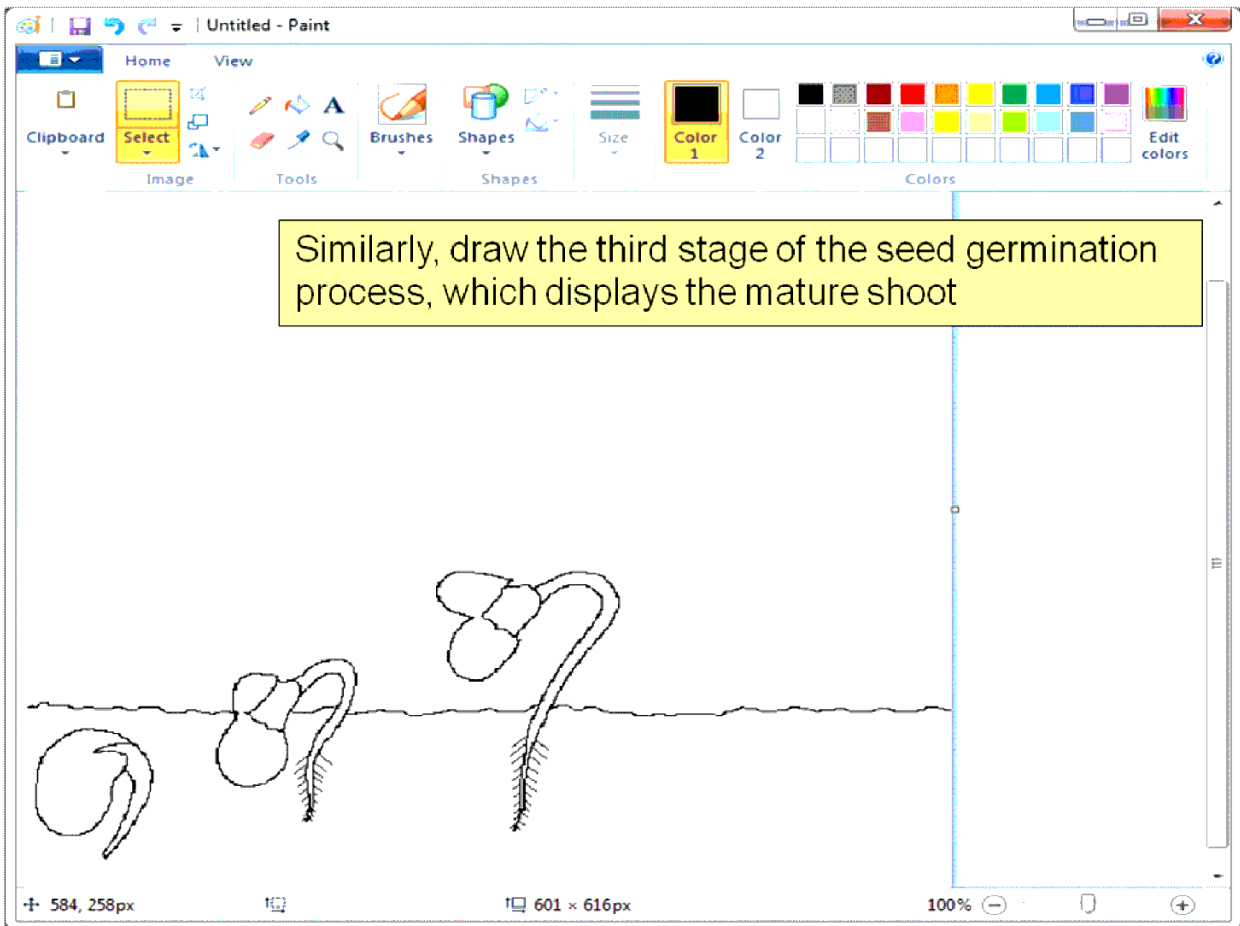Click **No,** to open a new Paint window without saving the picture

Drawing a Picture Using the Brush Tool

- In the picture depicting seed germination, you have drawn the ground surface and the seed with the pencil tool.

- Draw the roots for the young shoot using the brush tool.

To draw the roots:

Click the brush tool

The various brush styles appear

Drag the pointer to draw the roots as shown

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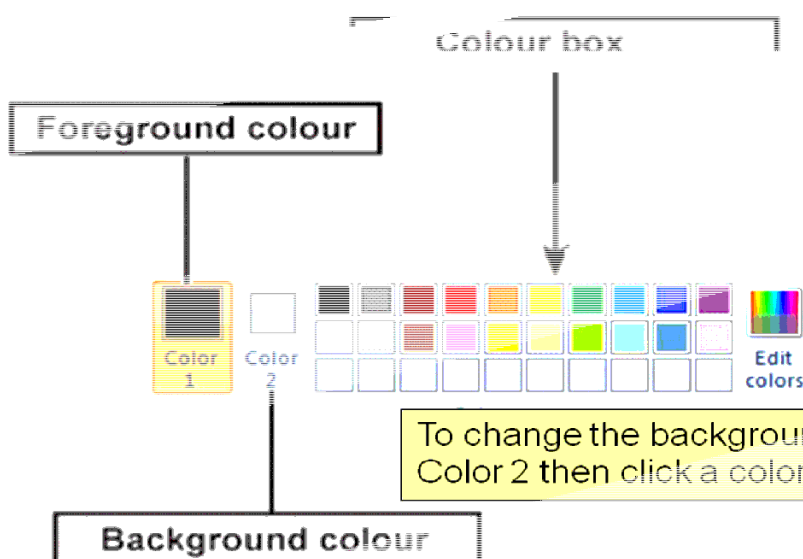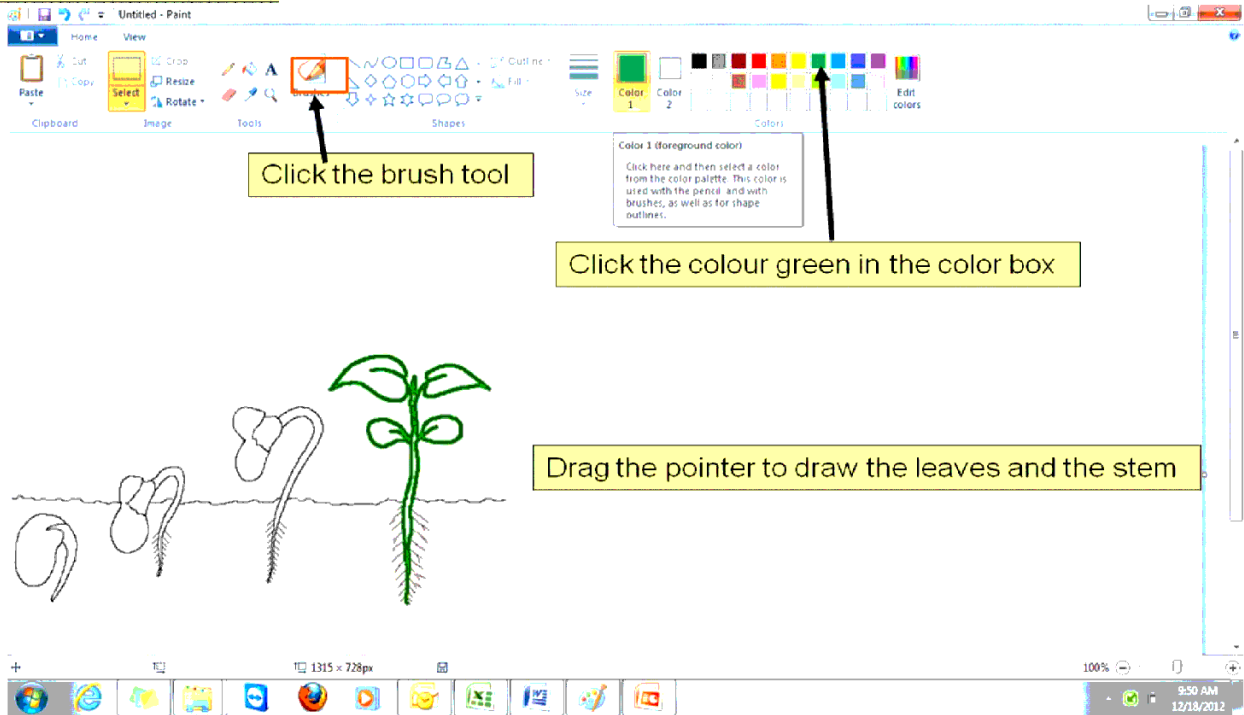Similarly, draw the third stage of the seed germination process, which displays the mature shoot

Setting Foreground and Background Colour

To change the foreground colour:
Click a colour in the color box

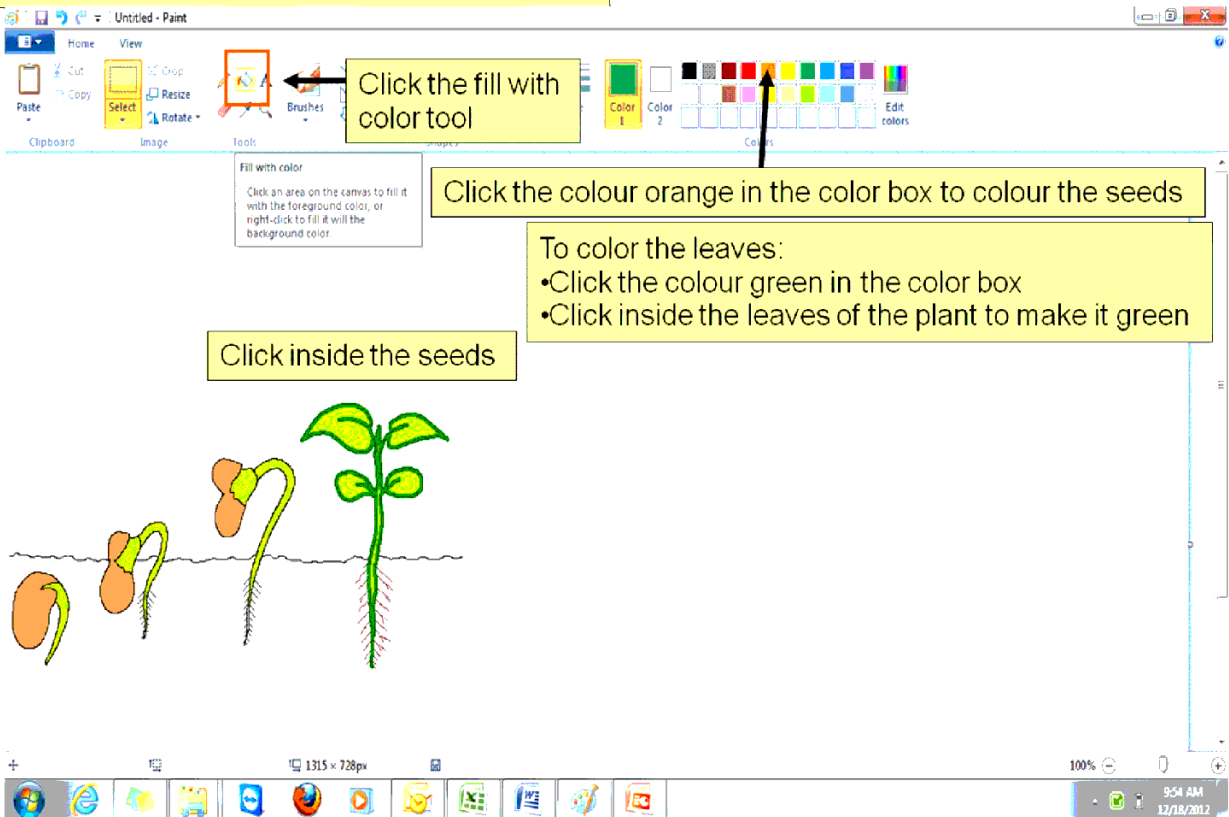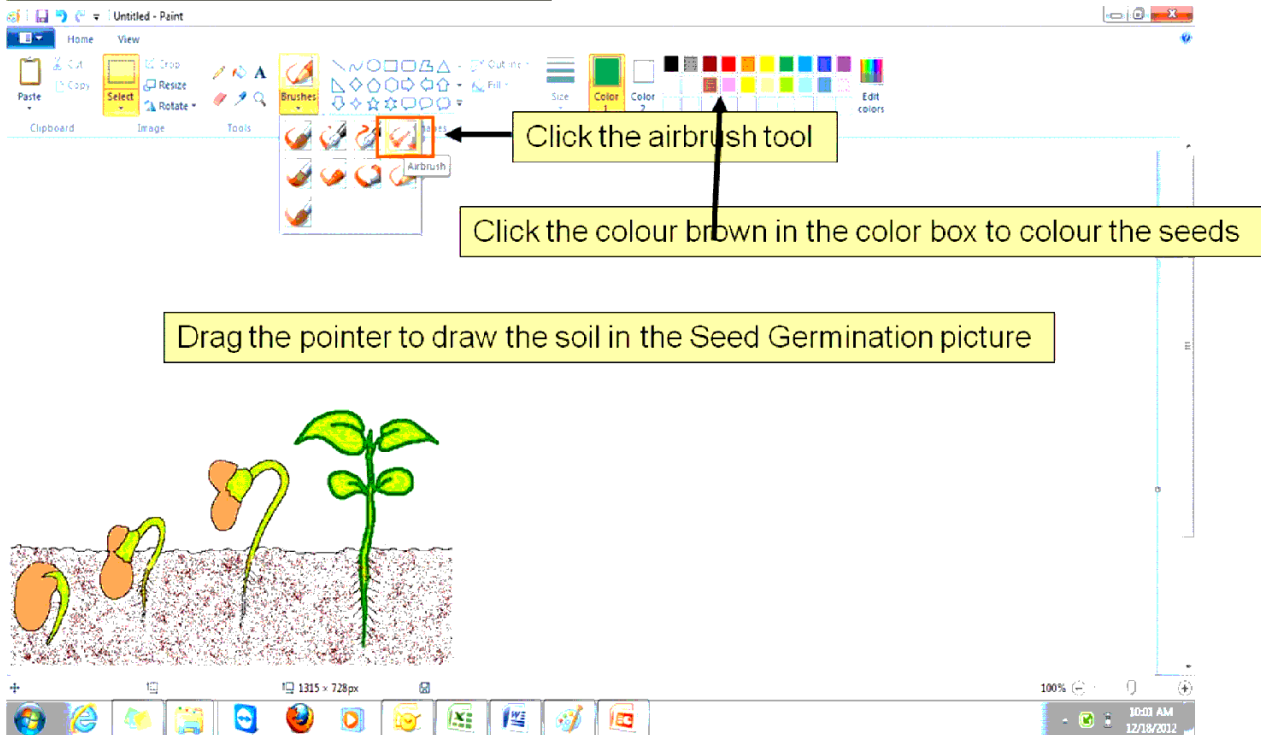To change the background color: Select Color 2 then click a color in the color box

To draw the leaves:

Click the brush tool

Click the colour green in the color box

Color 1 (foreground color)

Click here and then select a color from the color palette. This color is used with the pencil and with brushes, as well as for shape outlines.

Drag the pointer to draw the leaves and the stem

Using the Fill with Color Tool

To colour the picture with the fill with color tool:

Click the fill with color tool

Fill with color

Click an area on the canvas to fill it with the foreground color, or right-click to fill it with the background color.

Click the colour orange in the color box to colour the seeds

To color the leaves:
•Click the colour green in the color box
•Click inside the leaves of the plant to make it green

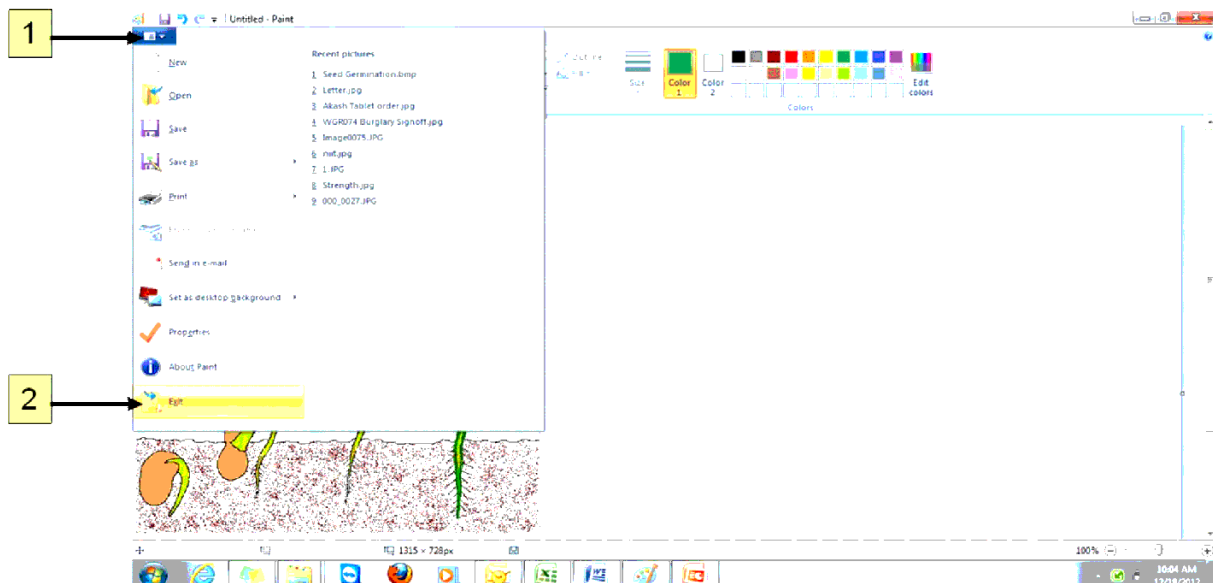Click inside the seeds

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When you color a picture with the *fill with color* tool, the picture should not have any breaks in its outline. Otherwise, the color spreads to the rest of the drawing area

To spray colour using the airbrush tool:

Click the airbrush tool

Click the colour brown in the color box to colour the seeds

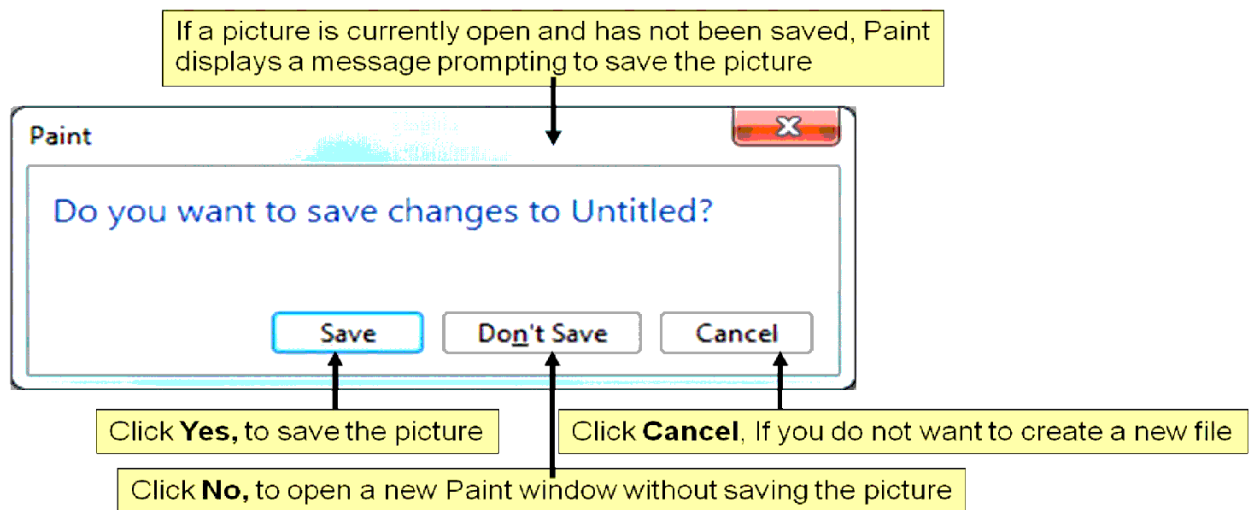Drag the pointer to draw the soil in the Seed Germination picture

To exit paint:

1

2

If a picture is currently open and has not been saved, Paint prompts you to save the picture.

Click **Yes** to save the picture, and then exit Paint. Click **No** to exit Paint without saving the picture. Click **Cancel** to continue working with the Paint.

Alternatively, click the button in the upper right-hand corner of the Paint window to close the Paint application.

If a picture is currently open and has not been saved, Paint displays a message prompting to save the picture

Paint

Do you want to save changes to Untitled?

Save   Don't Save   Cancel

Click **Yes,** to save the picture

Click **Cancel**, If you do not want to create a new file

Click **No,** to open a new Paint window without saving the picture

Teacher Activity

Show paint and its tools, Demostrate a picture drawing?

**Student Activity**

## I.   Choose the correct Answers

1.   Which part of the Paint interface displays a set of buttons that can be used for drawing pictures?

   a.   Color box

   b.   Menu bar

   c.   Status bar

   d.   Toolbar

2.   Which one of the following tools in the Paint toolbox can be used to draw a freeform line or colour a picture?

   a.

   b.

   c.

   d.

3. Which one of the following commands is used to save the picture with a different file name?

    a.   Save

    b.   Save As

    c.   New

    d.   File

Start Paint and draw the following figures with the pencil and brush tools.

Use the fill with color tools to color the picture. Save the picture as Tree
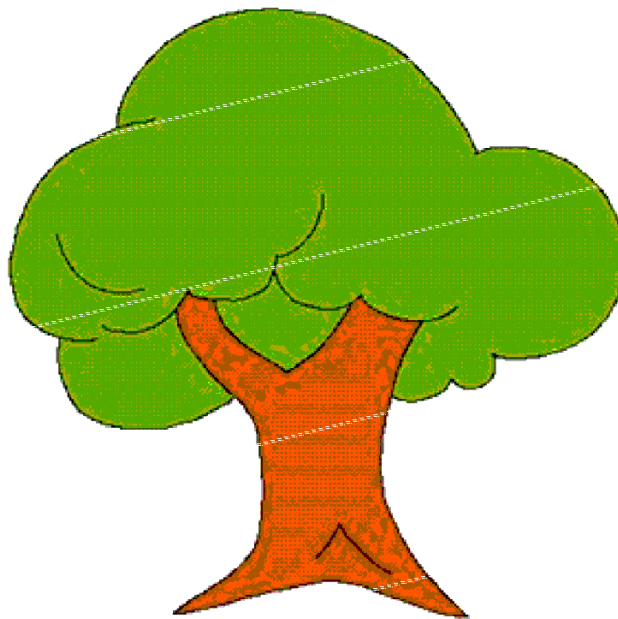
Draw the picture of the sun rising over a hilltop with the pencil and eraser tools as shown in the figure.
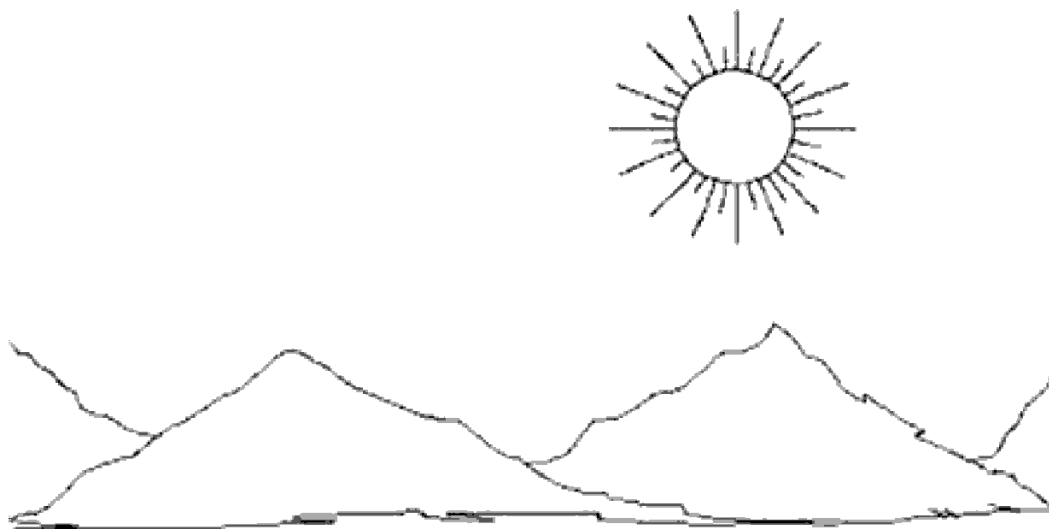
Learning Objectives

In this chapter you will be able to understand;

- What Internet is?

- Uses of Internet

- Features of Internet

Understanding Internet

The word "Internet" exactly means "network of networks". The Internet is consisting of thousands of smaller regional network spread throughout the worldwide. It connects billion users in across the world wide.

The Internet referred as a physical part of the global network. It is a giant collection of cables and computers. No one "owns" the Internet though there are companies that help out to manage different parts of the networks that tie everything together. There is no single governing body that controls what happens on the Internet. The networks within different countries sponsor the finance and manage according to local procedure.

There are many definitions for internet but the meaning is the same as shown below

Definition: The series of interconnected networks allowing communication of data surrounded by millions of computers worldwide.

Definition: A global communication network that allows computers worldwide to connect and exchange information.

Definition: A worldwide system of computer networks, a network of networks in which users at any one computer can get information from any other computer

"The internet is used mainly for communication, to gather information, education, entertainment, current affairs, online learning, commerce, publishing etc."

In the usage of internet publishing means it is not just used for organization or business, anyone can create their own websites and publish their information or files on the World Wide.

By means of the Internet, hundreds of thousands of people around the world are making information accessible from their homes, schools, and workplaces.

2.2 Uses of Internet

The Internet is a global collection of computer networks, help with each other to exchange data using a common software standard. Internet users can share information in a variety of forms.

○ The user can connect easily through ordinary personal computers and share the knowledge, thoughts by making the use of an internet

○ We can send electronic mail (E-mail) to family members and friends with accounts on the Internet which is similar to sending letters by post. The E-mail can be sent within a minute no matter where they are without waiting for some procedures like postal stamps.

○ We can post information that can be accessed by others and can update it frequently.

○ We can access multimedia information that includes video , audio, and images

○ We can learn through Web-Based Training and Distance Learning on internet

2.3 Features of Internet

2.3.1 Geographic sharing:

The geographic sharing of the internet continues to spread, around the world and even beyond. A main feature of the Internet is that once you have connected to any part of it, you can communicate with all of it.

2.3.2 Architecture:

The architecture of internet is most ever communication network designed. The failure of individual computers or networks will not have an effect on its overall reliability. The information will not change or destroy over time or while transferring in between sites.

2.3.3 Universal Access:

It is easy to access and make the information like text, audio, video and also accessible to a worldwide people at a very low price. The access to the internet is same to everyone no matter where they are. You can connect to any computer in the world and you can go to many excited places without leaving your chair

Summary :

In this chapter you have learnt about

- ❍   Internet
- ❍   Uses of Internet
- ❍   Advantages of Internet.

Teacher Activity

Show few websites using the Internet Explorer to the children.

Example:

www.indianchild.com