INFORMATION COMMUNICATION TECHNOLOGY
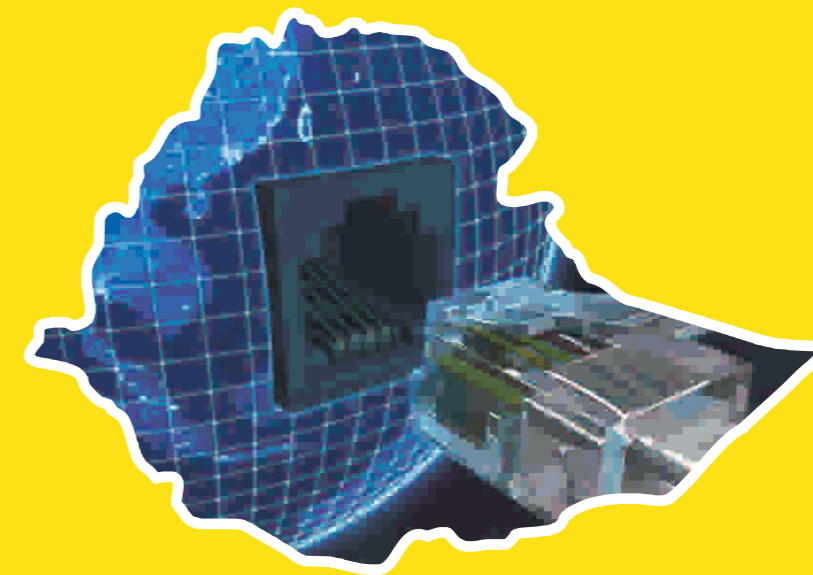
TEACHER GUIDE

GRADE 10

Federal Democratic Republic of Ethiopia
Ministry of Education

INFORMATION COMMUNICATION TECHNOLOGY

TEACHER GUIDE

GRADE 10

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INTRODUCTION TO THE TEACHER GUIDE

A perfect guide for an ICT teacher is one that provides support to the teacher to engage the students in joyful learning. Information and Communication Technologies (ICTs) refer to the possibilities offered by the convergence of data processing techniques, electronic media, and telecommunications, a convergence that has become evident over the past few years.

ICTs are grouped under two categories: *traditional* and *new*. Traditional ICTs are radio, television, and fixed line telephones etc., which have been gradually ingrained in the daily habits and lives of people and communities. New ICTs consist of computers and specific data processing applications accessible through those computers (e-mail, Internet, Word processing, and other data processing applications).

New ICTs are now found on the development agenda of African countries like Ethiopia, and strategies have been gradually implemented to integrate them into the development process. Many countries have initiated significant reforms in the telecommunications sector: privatizing companies, liberalizing and ending national monopolies in this sector.

This Teacher Guide will help the teachers to:

- explain how Information and Communication Technology (ICT) has the potential to make a real improvement to teaching and learning in schools.
- demonstrate a wide variety of ways in which ICT can be used to enhance learning, offering a fresh burst of inspiration for them *i.e.*, the busy school teachers.
- take a structured approach, ensuring that the students can be guided progressively through all the contents in order to achieve the required standards for achieving Qualified Teacher Status, and also to continue their development in ICT to an advanced level.
- analyze all the common ICT tools and explain how they can exploit these tools for effective learning.
- explore how students can learn with ICT, how their skills develop, and how these skills can aid their learning.
- provide a framework for planning, analyzing and evaluating teaching with ICT.
- use Internet, educational trips and other aids to support classroom teaching.
- prepare additional activities and assessments for the students.
- offer a range of innovative tasks, resources and methods of assessment.
- use key ideas, skills and techniques of ICT in other curriculum areas.

The guide also provides some suggested websites that have additional content for the teacher.

INTRODUCTION TO ICT

(6 PERIODS)

UNIT OUTCOME

Students will be able to:

- understand the components of ICT;
- recognize the major system unit components;
- recognize the major motherboard components.

SUGGESTED LESSON PLAN

Sub-units	Number of Periods
1.1 Basics of ICT	2
1.2 Computer System	4

STRUCTURE OF THE UNIT

1.1 Basics of ICT

In this sub-unit, we will learn about basics of ICT. The topics to be learnt are:

- Revision
- Components of ICT
- Characteristics of valuable information

1.2 Computer System

In this sub-unit, we will learn about computer system. The topics to be learnt are:

- Major system unit components
  - Motherboard, power supply, Hard disc, CD drive and Floppy drive
- Major motherboard components
  - CPU, RAM, ROM, Slots, Chips and CMOS battery
- Memory capacity and computer speed

REVIEW OF THE UNIT

- ICT refers to technologies that provide access to information through telecommunications. It focuses primarily on communication technologies. This includes the Internet, wireless networks, cell phones, and other communication media.
- An ICT system is a set-up consisting of hardware, software, data and the people who use them. It commonly includes communications technology, such as the Internet.
- The Internet is a worldwide system of interconnected computer networks.
- A computer network is a number of computers linked together to allow them to share resources. The two main types of network are Local Area Network (LAN) and Wide Area Network (WAN).
- The main components of ICT are computer and communication networks.
- The characteristics of valuable information are: relevant, up-to-date, accurate, meet the needs of the user, easy to use and understand, worth the cost, reliable.
- Computer is an electronic device that can accept, store and process data under the control of a set of instructions.
- The System Unit is also called a case. It is a box that houses the motherboard (into which

processor and RAM chips are plugged), power supply, as well as secondary storage devices—floppy disk drive, hard disk drive, and CD or DVD drive.

- The motherboard, or system board, is the main circuit board in the system unit.
- The most fundamental part of a motherboard is the microprocessor chip or the Central Processing Unit (CPU). It is often referred to as the "brain" of the computer.
- Memory capacity means the amount of program instructions and data that can be stored on it.
- Computer speed means the speed of the CPU.

ROLE OF THE STUDENTS

In this unit, the students are supposed to have an introduction to ICT. The activity based method should be followed to understand the subject matter which is the best way of better understanding of the subject matter. ICT has the potential to transform learning in and beyond the classroom. Some of the perceived benefits to learners are:

- They can access enormous amounts of information quickly;
- They can work at their own pace;
- Special needs, both remedial and extension, can be offered during the same lesson;
- Course material can be offered simultaneously in different languages;
- They can access quality material irrespective of their geographical location;
- Academic courses can be offered asynchronously;
- They can interact with peers and experts outside the classroom, town, and/or country;
- ICT can offer simulations where the student can experiment by changing the variables;
- ICT offers a host of different tools to demonstrate learning suitable for divergent and different intelligences; and,
- Young students can easily accept the technology.

ADDITIONAL CLASS ACTIVITIES FOR GIFTED STUDENTS OR SLOW LEARNERS

ACTIVITY 1.1: Label the Computer Hardware

Students in their class will choose the word that best describes the picture and write the word in the blank.

scanner   tower case   monitor   mouse   digital camera   printer
keyboard   trackball   speakers

1. _____ 2. _____ 3. _____

4. _____ 5. _____ 6. _____

7. _____ 8. _____ 9. _____

ACTIVITY 1.2: Hardware on the Inside of Computer

Students in their class will read the clues below to answer the question "What am I?". Fill in the blank with the correct answer from the box.

1. .... I connect computers and allow them to talk to each other.

2. .... I wake up the computer and remind it what to do.

3. .... I am the brain of the computer.

4. .... I have a very good memory. I can read, but I cannot write.

5. .... Information in the computer is stored on my magnetic cylinders.

6. .... I can read and write, but if you turn off the computer, I forget everything.

7. .... I hold all of the other circuit boards.

8. .... I get electricity into the computer.

9. .... I handle the graphics that are displayed on the monitor.

10. .... Other hardware, like the keyboard or monitor, plugs into me.

CPU	BIOS	power supply	hard drive	modem
ROM	video card	motherboard	RAM	port

ANSWERS TO TEXTBOOK ASSESSMENT

Assessment 1.1

Fill in the Blanks

1. Information and Communication Technology

2. telecommunications

3. hardware, software, data

4. Internet

State Whether True or False

1. True

2. False

3. False

4. False

5. True

Answer the Following

1. The main components of Information and Communication Technology (ICT) are computer and communication networks.

   An ICT system is a set-up consisting of hardware, software, data and the people who use them. It commonly includes communications technology, such as the Internet.

   ICT and computers are **not** the same thing. Computers are the *hardware* that is often part of an ICT system.

   ICT systems are made up of some or all of the parts shown in the following figure. Various devices are used for input, processing, output and communication.
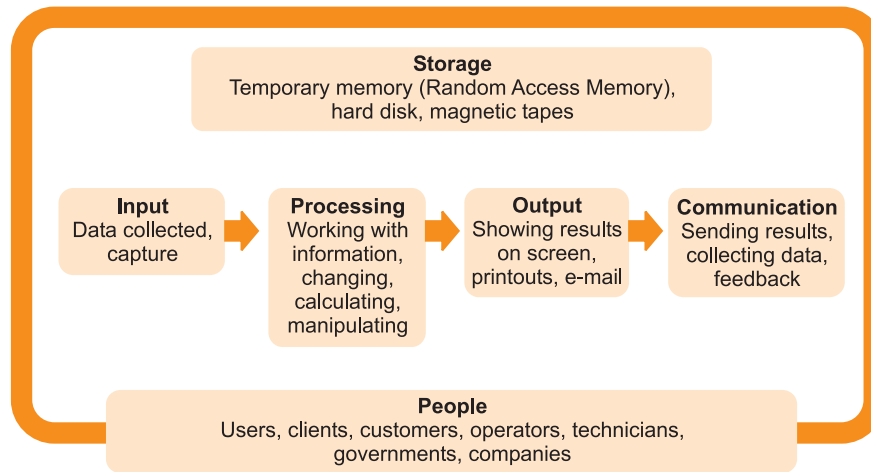
Fig. 1.1: ICT systems can be made of some or all of the parts shown

Some components of ICT are explained below:

Computer: A computer is an electronic device that converts meaningless data into meaningful information. We can find applications of computers in many fields all over the world.

Internet: The Internet is a worldwide system of interconnected computer networks.

Intranet: An intranet is a network that works like the Internet but is only available within a particular organization, not to the public.

Network: A computer network is an interconnection of one or more computers, situated at separate geographical regions to share hardware and software resources.

The two main types of network are Local Area Network (LAN) and Wide Area Network (WAN).

Local Area Network (*LAN*): A LAN covers a small area such as one site or building, *e.g.,* a school or university campus.

Wide Area Network (*WAN*): A WAN covers a large geographical area. Most WANs are made from several LANs connected together.

2. The characteristics of valuable information are given below:

Accurate. Accurate information is free from error.

Complete. Complete information contains all of the important facts.

Economical. Information should be relatively inexpensive to produce.

Flexible. Flexible information can be used for a variety of purposes, not just one.

Reliable. Reliable information is dependable information.

Relevant. Relevant information is important to the decision-maker.

Simple. Information should be simple to find and understand.

Timely. Timely information is readily available when needed.

Verifiable. Verifiable information can be checked to make sure it is accurate.

Suggested Activity

Refer to sub-unit 1.1 of the Student Textbook for doing the activity.

ANSWERS TO REVIEW QUESTIONS

Fill in the Blanks

1. Computer
2. system unit
3. laser
4. Random Access Memory (RAM)
5. data, instructions

State Whether True or False

1. False
2. True
3. False
4. True
5. True

Multiple Choice Questions

1. (*d*)   2. (*a*)   3. (*a*)   4. (*c*)

Match the Following

1. (*b*)   2. (*c*)   3. (*d*)   4. (*a*)

Answer the Following

1. The major components of the system unit are:

    (*i*) The processor chip (CPU)

   (*ii*) Memory chips

  (*iii*) Motherboard with power supply

  (*iv*) Secondary storage devices—floppy disk drive, hard disk drive and CD or DVD drive.

2. The functions of the system unit and its components are given below:

    (*i*) *System unit*: It is also called a case that houses the motherboard (into which processor and RAM chips are plugged), power supply, as well as secondary storage devices—floppy disk drive, hard disk drive, and CD or DVD drive.

   (*ii*) *Motherboard*: The primary function of the motherboard is to serve as the base upon which a computer's components are built.

  (*iii*) *Power supply*: It converts AC to DC to run the computer.

  (*iv*) *Hard disks*: Hard disks allow data to be held in the form of magnetised spots.

    (*v*) *CD-ROM drive*: It uses laser technology to read data from optical disks.

  (*vi*) *Floppy drive*: It stores data on removable 3.5 inch diameter disks.

3. The major components of the motherboard are given below:

    (*i*) Central Processing Unit (CPU)

   (*ii*) Random Access Memory (RAM)

  (*iii*) Read Only Memory (ROM)

  (*iv*) Slots

    (*v*) Chips

  (*vi*) CMOS battery.

4. The functions of the motherboard components are:

    (*i*) *CPU*: It executes and stores program instructions that process or manipulate data into information.

   (*ii*) *RAM*: It temporarily stores program instructions and data.

  (*iii*) *ROM*: It stores fixed start-up instructions.

  (*iv*) *Slots*: The motherboard has expansion slots— for expanding the PC's capabilities—which give you places to plug in additional circuit boards, such as those for video, sound and communications (modem).

    (*v*) *CMOS Battery*: This is a battery that contains the time, date, hard disk and other configuration settings in the CMOS (Complementary Metal Oxide Semiconductor) memory. CMOS batteries are small and attached directly to the motherboard.

5. *Memory Capacity*

   Memory capacity is the maximum or minimum amount of memory a computer or hardware device is capable of having or the required amount of memory required for a program to run.

   The storage capacity of a computer is measured in bytes. The hierarchy of byte memory capacity is as follows:

    (*i*) *Bit.* It is the smallest unit of memory. A bit has the value 0 or 1. This is determined by NO voltage or HIGH voltage.

   (*ii*) *Bytes.* One byte means 8-bits.

  (*iii*) *Kilobyte.* Kilo means one thousand, so a kilobyte (KB) is approximately one thousand bytes. Actually, a kilobyte is 1,024 bytes.

  (*iv*) *Megabyte.* Mega means one million, so a megabyte (MB) is approximately one million bytes (1,048,576 bytes, or 1,024 KB or 1,024 × 1,024 bytes, to be exact). Most personal computers have hundreds of megabytes of RAM.

(*v*) *Gigabyte.* Giga means one billion. A gigabyte (GB) is actually 1,073,741,824 bytes or 1,024 MB (*i.e.*, 1,024 × 1,024 × 1,024 bytes). The storage capacity of a hard drive in modern personal computers is often many gigabytes.

(*vi*) *Terabyte.* One trillion bytes (actually, 1,099,511,627,776 bytes) is a terabyte (TB).

Computer Speed

When we refer to the speed of a computer, we are talking about the speed of CPU. The microprocessor (CPU) is the "brain" of a computer. One of the most important things about CPUs is speed. The speed of CPU is measured in Hertz or Hz, *i.e.*, number of operations that can be done per second. Nowadays, we usually use Giga-Hertz or GHz (*e.g.*, 2.8 GHz, 3.06 GHz) because the CPUs are too fast to be measured in Hz.

Because of the extremely high speed of CPU, computers can do millions of operations in a very short time.

Heat is released when CPUs run. High temperature, however, decreases the performance of CPU. You, therefore, need a fan to cool down the CPU.

Suggested Activities

Find the advertisements in the computer magazines or newspapers. Take help of your ICT teacher and the computer suppliers near you, for doing the activities.

Answers to Student Textbook Activity 1.2

(*i*) System unit   (*ii*) Motherboard

(*iii*) Hard disk   (*iv*) RAM

(*v*) Keyboard   (*vi*) Microprocessor chip

(*vii*) CD/DVD drive   (*viii*) Floppy

(*ix*) Printer

ALTERNATIVE TEACHING APPROACHES, ENRICHMENT MATERIAL

The ICT teachers can use Internet, charts, worksheets, models, go for educational field trips and subject experts can be called for seminars to enrich the teaching level and in turn help the students in learning ICT.

ADDITIONAL QUESTIONS

1. Define ICT.
2. Define computer network. What is the difference between LAN and WAN?
3. List the characteristics of valuable information.
4. List the major components of computer system and identify their functions.
5. What are the measuring units of computer memory?
6. What is difference between RAM and ROM?

APPLICATION SOFTWARE

(14 PERIODS)

UNIT OUTCOME

Students will be able to:

- understand the application of word processing, and presentation software;
- apply word processing, and presentation software packages for different purposes;
- recognize the major features of desktop publishing;
- know how to organize, format and publish various types of publication.

SUGGESTED LESSON PLAN

Sub-units	Number of Periods
2.1 Key Features of Word Processing	3
2.2 Key Features of Presentation Software and Techniques	3
2.3 Desktop Publishing	8

STRUCTURE OF THE UNIT

2.1   Key Features of Word Processing

In this sub-unit, we will learn about key features of word processing. The topics to be learnt are:

- Revision
- Tables and pictures in word processor
- Word processing activities

2.2   Key Features of Presentation Software and Techniques

In this sub-unit, we will learn about key features of presentation software and techniques. The topics to be learnt are:

- Revision
- Presentation software and techniques activities

2.3   Desktop Publishing

In this sub-unit, we will learn about desktop publishing. The topics to be learnt are:

- Load publisher and starting new document
- Exploring the publisher window
- Editing a page
- Brochure building
- Business cards
- Folded card publishing

REVIEW OF THE UNIT

- Word processing is the most widely used computer application.
- When you are using the 'Save As' option, make sure that you do not overwrite the existing copy of the file.
- Tables provide you an easier and effective method of arranging the data in rows and columns.

- Presentation software uses graphics, animation, sound and data or information to make visual presentations.
- The PowerPoint Help feature is used to display information on PowerPoint.
- We can apply interesting transitions and sounds to a presentation. A transition is how one slide is removed from the screen during a presentation and the next slide is displayed.
- Presenting a slide show is the most useful view of PowerPoint. It is used to display the slides in a desired sequence.
- The major features of desktop publishing are: Templates, Wizard, Text Frames, Borders and Page Tabs.
- A brochure is an effective means to provide information about your company's products and services. MS-Publisher's brochure feature allows you to design a customized brochure with text and graphics.
- A business card contains essential information. The information on a business card needs to be clear and precise. The fonts should be clear and large enough to read.

ROLE OF THE STUDENTS

In this unit, the students are supposed to learn the basic concepts of Word Processing, Presentation Software and Techniques. The activity based method should be followed to understand the subject matter which is the best way of better understanding of the subject matter.

Now the students are already familiar with different type of technologies which can be used by them to support and enhance learning. They know that these resources can help schools to plan for technology that will have a positive impact on their achievements. Application software is available for different tasks. For example, word processing promotes communication skills, presentation software promotes presentation skills, and desktop publishing promotes typographical and printing skills of students. So, it is important for the students to consider how these electronic technologies differ and what characteristics make them useful in learning other subjects.

ADDITIONAL CLASS ACTIVITY FOR GIFTED STUDENTS OR SLOW LEARNERS

ACTIVITY 2.1: How to Add a Graphic Image in a Publication Using MS-Publisher 2007?

In groups, the students will explain and demonstrate how to add a graphic image in a publication using MS-Publisher 2007.

Adding a Graphic Image

We know that a picture is worth thousands of words. Artwork in a publication can express our feeling in a nice way. In electronic form, a piece of artwork is called a *graphic image*. Publisher provides us thousands of pieces of clip art. Artwork can also be scanned into the computer, purchased separately, or created using drawing programs.

To add a graphic image in a publication, perform the following steps:

1. Open the publication in MS-Publisher.
2. Click the *graphic image placeholder*, and then press *F9* to Zoom.
3. Click *Insert* on the *Menu Bar*, point to *Picture*, then click the location of the saved image.
4. Click the *Look in list arrow*; locate your file, then click *Insert* (see Fig. 2.1).
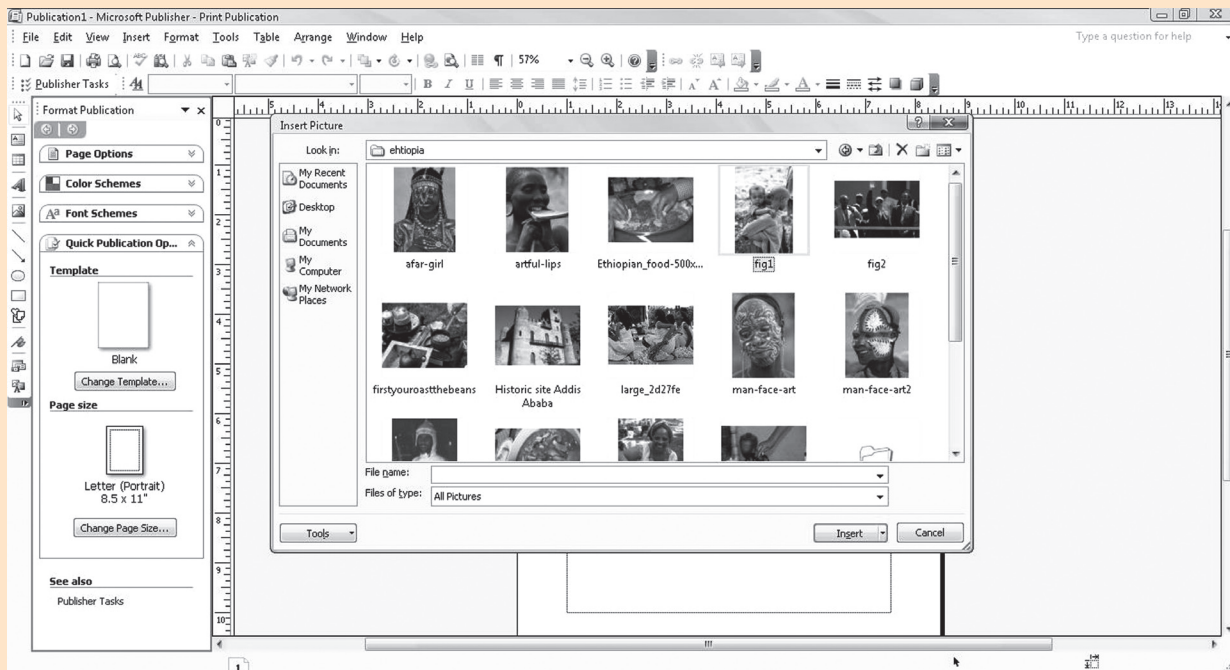
Fig. 2.1: Selecting the image to be inserted

5. If necessary, place the pointer over the handles of the image so that it can be resized.

6. While dragging the frame, lines move on the Horizontal and Vertical rulers to guide the actions, and the outline of the image changes in size. Figure 2.2 shows an inserted image.
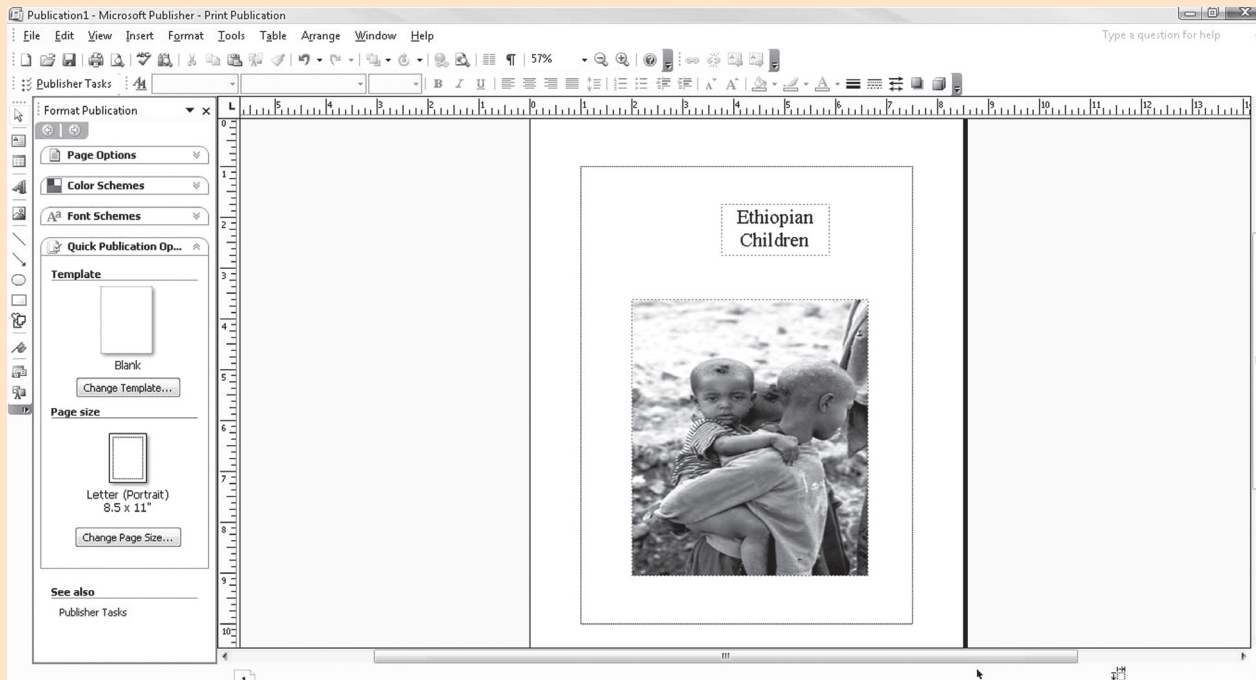
Fig. 2.2: An inserted graphic image in a publication

note   To keep the image in the same location, but larger, press and hold the *Shift* key while dragging the frame's edge.

ANSWERS TO TEXTBOOK ASSESSMENTS

Assessment 2.1

Fill in the Blanks

1. MS-Word
2. Table
3. formatting
4. picture

State Whether True or False

1. False
2. True
3. True
4. False

Answer the Following

1. *Importance of Word Processing*: Word processing is by far the most widely used computer application because it is used for communication, our most common activity. Word processing is used to write, edit and format memos, letters, reports, manuscripts, contracts, and every imaginable type of documents. No matter what the information is, or what form it takes, the chances are it was initially composed and written using a word processing program.

   A word processor is software which provides a graphical user interface with better capabilities than a text editor does. The main advantage of a word processor is that it provides WYSIWYG (What You See Is What You Get) interface which helps you make changes quickly and easily.

   The main features of today's word processing packages are:

   (*i*) Creating Documents

   (*ii*) Editing Documents

   (*iii*) Formatting Documents with the Help of Templates and Wizards

   (*iv*) Printing, Faxing or E-Mailing Documents

   (*v*) Saving Documents

2. *Editing and saving of a Word document*: MS-Word provides editing tools for editing of documents. After editing is over, the document must be saved for future use.

   To edit and save a document in MS-Word 2007, perform the following steps:

   (*i*) Start MS-Word 2007.

   (*ii*) Open an existing typed document or create a new document. Decide how you want to edit your document.

   (*iii*) Now you can insert or delete text as per need. To insert or delete text, move the insertion point to certain locations without erasing the text through which it passes. To insert text, position the insertion point in the desired location and then type the text. To delete text, you need to press the Backspace or Delete key.

   (*iv*) For Spell Checking, click *Review* tab, click *Spelling & Grammar* button in *Proofing* group. Ignore or change as needed. Click *OK* when the entire document has been spell checked.

   (*v*) Click *Save* button and type document name (in case it is a new document). Click *Save* or press *Enter* key.

3. *Formatting a document*: Formats are used to make a document both more attractive and easier to read. All word processing programs have built-in format settings known as defaults, which are designed so we can easily override them.

   To format a document in MS-Word 2007, perform the following steps:

   (*i*) Start MS-Word 2007.

   (*ii*) Open an existing typed document or create a new document.

   (*iii*) Click *Home* tab. Now use the different buttons to format the document as per need.

   On the *Home* tab, the *Clipboard*, *Styles* and *Editing* groups as well as the other buttons on the *Font* group and *Paragraph* group can be used for formatting a document.

   (*iv*) Click *Insert* tab for inserting Tables, Pictures, applying Header and Footer etc. in the document as per need.

   (*v*) Click *Save* button and type document name (in case it is a new document). Click *Save* or press *Enter* key.

4. *Inserting Table in Word Processing Document*: MS-Word offers a set of commands for creation, modification and formatting of tables.

To insert a table in a document using MS-Word 2007, perform the following steps:

(*i*) Open the document in which the table is to be inserted.

(*ii*) Click *Insert* tab.

(*iii*) Click *Table* button.

(*iv*) Drag in grid to select the desired number of columns and rows.

(*v*) Click *OK*.

(*vi*) Now fill the table as per your requirement.

(*vii*) *Save* and *Close* the document.

Inserting Pictures in Word Processing Document: In a document, clipart or pictures are used to make it effective. MS word supports many popular picture formats, for example, .wmf (Window Meta Files). You can insert pictures from the disk as well as clipart from the clipart gallery of MS OFFICE. You can also insert downloaded pictures or pictures taken by your web cam or digital camera, into your documents.

To insert a picture in a document using MS-Word 2007, perform the following steps:

(*i*) Open a document.

(*ii*) Click the *Insert* tab.

(*iii*) Select the *Picture* option from *Illustrations* panel.

(*iv*) On clicking this button the *Insert Picture* dialog box will appear. Select the desired picture and click *Insert* button.

(*v*) The selected picture will be inserted in the document at the insertion point.

(*vi*) Save and close the document.

Suggested Activities

Refer to sub-unit 2.1 of the Student Textbook for doing the activities.

Assessment 2.2

Fill in the Blanks

1. Presentation software
2. Editing
3. *New*
4. placeholder or container

State Whether True or False

1. False	2. True
3. True	4. False

Answer the Following

1. *Key features of presentation software*: Some important key features of Presentation Software are:

(*i*) *Insert Slide Feature* allows us to insert slide anywhere in the presentation, at the beginning, middle or end.

(*ii*) *Deletion of Inserted slides*: Any slide of the presentation can be removed.

(*iii*) Allows cut and paste slides in any order.

(*iv*) Allows animations and/or sounds manipulations on objects in the slide.

(*v*) Simple Find and Replace, and text editor features.

(*vi*) *Good font specifications* allows us to change and use different font faces, styles, and effects.

(*vii*) Additional features for slide allows footnotes, cross references, advanced navigation system, headers, and footers.

(*viii*) *Good layout management system* presets or Customized layout designing.

(*ix*) Spell checkers and dictionary support.

(*x*) Allows the slide show of the presentations.

2. *Creating a Presentation*: To create a presentation in PowerPoint 2007 you can either use a predefined template or create it from scratch. Creating from scratch is useful if you are not sure how you want your presentation to look.

To create a presentation in PowerPoint 2007, perform the following:

Open PowerPoint, a blank presentation is immediately created.

Or

(*i*) Click the *Office Button*. A menu appears.

(*ii*) Click *New*.

(*iii*) In the *Blank and recent* under category select Blank Presentation.

(*iv*) Click *Create*.

The new presentation will default to the name of Presentation1, Presentation2, Presentation3 etc. (the number increments each time you create one).

To rename it click the *Office Button*. Click *Save*, and type in the desired name into the *File Name* box. Click *Save* or press (*Ctrl + S*) on the keyboard.

Now, you are ready to start adding to your presentation.

3. *Inserting slides using PowerPoint*: To insert a slide in a presentation, perform the following steps:

(*i*) Open PowerPoint.

(*ii*) Click *Open* button on Quick Access toolbar.

(*iii*) At Open dialog box, double-click desired presentation.

(*iv*) Click *Home* tab.

(*v*) Click *New Slide* button in the *Slides* group.

Deleting slides using PowerPoint: To delete a slide from a presentation, perform the following steps:

(*i*) Open PowerPoint.

(*ii*) Click *Open* button on Quick Access toolbar.

(*iii*) At *Open* dialog box, double-click desired presentation.

(*iv*) Right-click the slide that you want to delete, and then click *Delete Slide*.

note
To select multiple sequential slides, click the first slide, and then hold down SHIFT while you click the last slide that you want to select. To select multiple non sequential slides, hold down CTRL while you click each slide that you want to select.

4. *Preparing and presenting a slide show*: For preparing a presentation keep in mind the following basic guidelines:

(*i*) Determine the main purpose of the presentation.

(*ii*) Determine the output.

(*iii*) Show one idea per slide.

(*iv*) Maintain a consistent design.

(*v*) Keep slides easy to read and uncluttered.

(*vi*) Determine printing needs.

Let us assume that you have already created a presentation. To present a slide show, perform the following steps:

(*i*) Click the *Open* button on the Quick Access Toolbar. If the *Open* button does not display on the Quick Access Toolbar, click the *Customize Quick Access Toolbar* button that displays at the right side of the toolbar and then click *Open* at the drop-down list.

(*ii*) At *Open* dialog box, double-click desired presentation.

(*iii*) Click *Slide Show* tab.

(*iv*) Click *From Beginning* button or *From Current Slide* button.

(*v*) Run the presentation by clicking the left mouse button at each slide. At the black screen, click the left mouse button again.

(*vi*) Press *Esc* to exit the slide show.

Suggested Activities

Refer to sub-unit 2.2 of Student Textbook for doing Activity 2.

ACTIVITY 1: Produce a Time-line for Important Events in the History of Ethiopia Prepare and Present a Slide Show.

In groups, the students will prepare presentations and demonstrate the slide show in the class.

First of all prepare a presentation on "Time-line Ethiopia". We can add transitions (a transition is how one slide is removed from the screen during a presentation and the next slide is displayed) and sounds with options in the *Animations* tab. To start the Slide Show, perform the following steps:

1. Start PowerPoint.

2. Click on *Office Button*. A menu appears.

3. Click *New*. Select the appropriate file name and press *Enter* key or Double-click on the file. The desired file will be opened.

4. Click the *Slide Show* tab.

5. Click the *From Beginning* icon in the *Start Slide Show* command group or press F5 key. PowerPoint displays the first slide of your presentation (see Fig. 2.3)
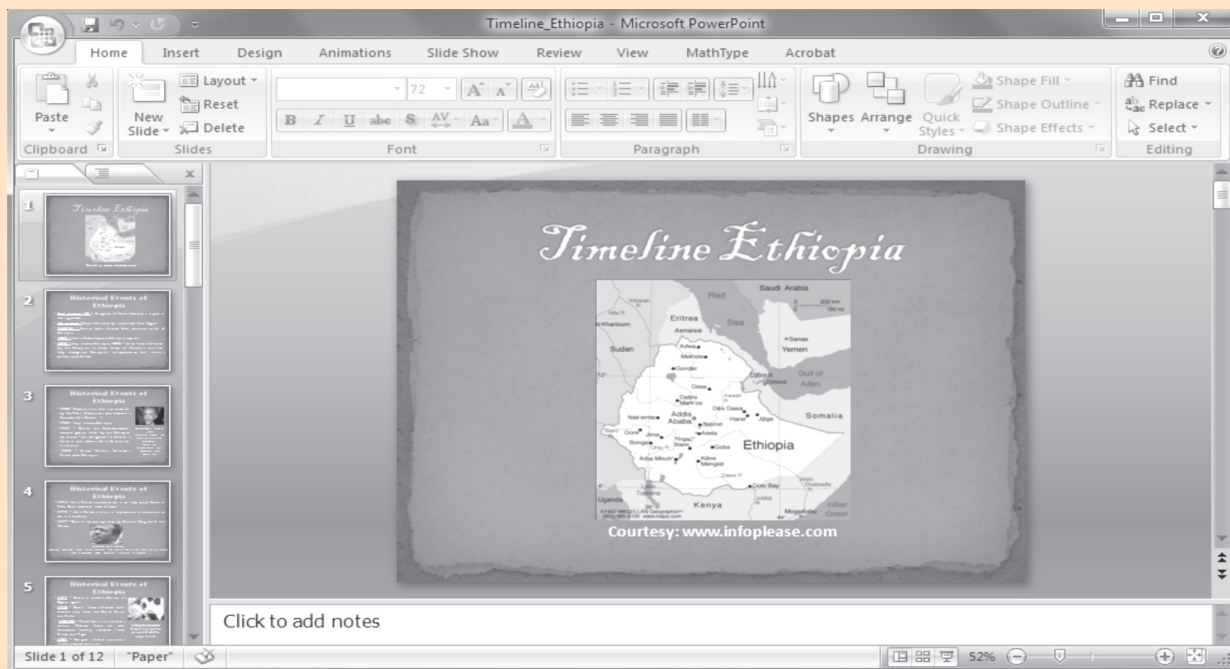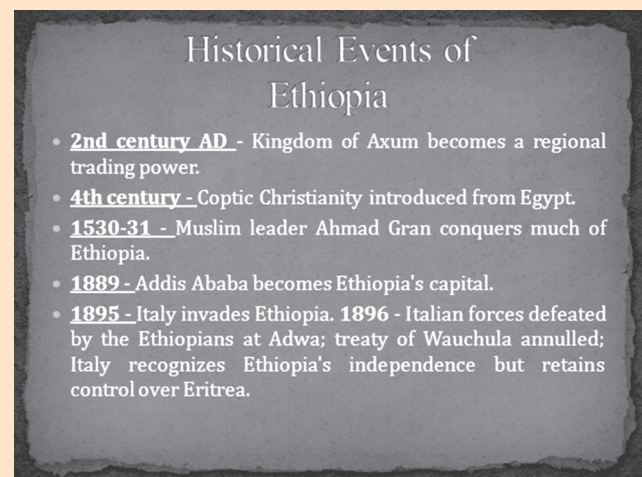

Fig. 2.3: Getting ready for presenting a Slide Show

6. Run the presentation by clicking the left mouse button at each slide. At the black screen, click the left mouse button again.

The slides in the presentation are shown below:

Slide 1

Slide 2

Slide 3

Historical Events of Ethiopia

- **1930** - Zawditu dies and is succeeded by Ras Tafari Makonnen, who becomes Emperor Haile Selassie I.
- **1935** - Italy invades Ethiopia.
- **1941** - British and Commonwealth troops, greatly aided by the Ethiopian resistance - the arbegnoch - defeat the Italians, and restore Haile Selassie to his throne.
- **1952** - United Nations federates Eritrea with Ethiopia.

HAILE SELASSIE – Lion of Judah
Emperor of Ethiopia and god to the Rastafarian movement
Born in 1892
Became king in 1928, emperor in 1930
Died in 1975

Slide 3

Slide 4

Historical Events of Ethiopia

- **1974** - Haile Selassie overthrown in military coup. General Teferi Benti becomes head of state.
- **1975** - Haile Selassie dies in mysterious circumstances while in custody.
- **1977** - Benti killed and replaced by Colonel Mengistu Haile Mariam.

MENGISTU HAILE MARIAM

Slide 4

Slide 5

Historical Events of Ethiopia

- **1977** - Somalia invades Ethiopia's Ogaden region.
- **1978** - Somali forces defeated with massive help from the Soviet Union and Cuba.
- **1984-85** - Worst famine in a decade strikes; Western food aid sent; thousands forcibly resettled from Eritrea and Tigre.
- **1987** - Mengistu was elected as president under a new constitution.

1984-85 FAMINE
Almost one million people died after crops failed

Slide 5

Slide 6

Historical Events of Ethiopia

- **1988** - Ethiopia and Somalia sign a peace treaty.
- **1991** - Ethiopian People's Revolutionary Democratic Front captures Addis Ababa, forcing Mengistu to flee the country; Eritrea establishes its own provisional government pending a referendum on independence.
- **1993** - Eritrea becomes independent following referendum.
- **1994** - New constitution divides Ethiopia into ethnically-based regions.
- **1995** - Negasso Gidada becomes titular president; Meles Zenawi assumes post of prime minister

Slide 6

Slide 7

Historical Events of Ethiopia

- **1999** - Ethiopian- Eritrean border clashes turn into a full **2000** June - Ethiopia and Eritrea sign a ceasefire agreement which provides for a UN observer force to monitor the truce and supervise the withdrawal of Ethiopian troops from Eritrean territory.
- **2000** November - Haile Selassie buried in Addis Ababa's Trinity Cathedral.
- **2000 December** - Ethiopia and Eritrea sign a peace agreement in Algeria, ending two years of conflict.

WAR WITH ERITREA
Tens of thousands perished in a conflict over disputed borders

Slide 7

Slide 8

Historical Events of Ethiopia

- **2002 April** - Ethiopia, Eritrea accept a new common border, drawn up by an independent commission, though both sides then lay claim to the town of Badme.
- **2005 April** - First section of Axum obelisk, looted by Italy in 1937, is returned to Ethiopia from Rome.
- **2005 December** - International commission, based in The Hague, rules that Eritrea broke international law when it attacked Ethiopia in 1998.

Slide 8

Slide 9

Slide 10
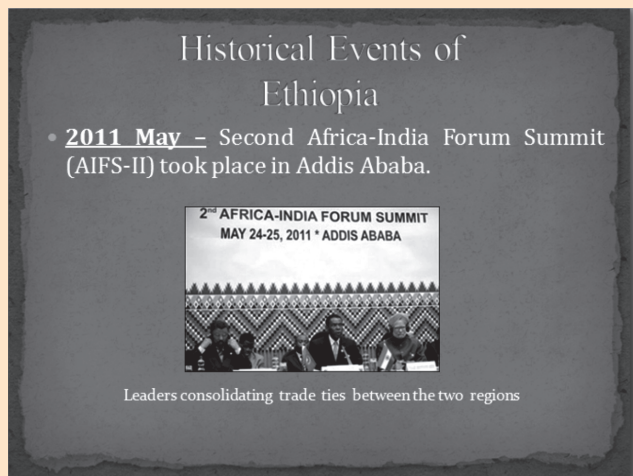
Slide 11

Slide 12

Fig. 2.4: Slide Show

7. Press *Esc* to exit the Slide Show.

ANSWERS TO REVIEW QUESTIONS

Fill in the Blanks

1. DTP (Desktop Publishing)
2. Getting Started
3. Templates
4. objects

State Whether True or False

1. True
2. False
3. True
4. False

Multiple Choice Questions

1. (*a*)   2. (*c*)   3. (*d*)   4. (*c*)

Match the Following

1. (*b*)   2. (*a*)   3. (*d*)   4. (*c*)

Answer the Following

1. Suppose we are having MS-Publisher 2007 installed on the computer. To start Microsoft Office Publisher 2007, perform the following steps:

   Click *Start* → *All Programs* → *Microsoft Office* → *Microsoft Office Publisher 2007*.

We see the *Getting Started* window, from which we can start a new publication or open an existing one.

The major features of desktop publishing are listed below:

(*i*) Templates   (*ii*) Wizard

(*iii*) Text Frames   (*iv*) Borders

(*v*) Page Tabs

2. *Organizing various types of publications using DTP*: Generally we create the publications of one to four pages long, which is the length specified by most Publisher design and layout templates. However, we can create longer publications, either by inserting pages in a template-based publication or by creating a publication from scratch.

To produce a publication that will contain a lot of content, we can save time by planning its design before we start creating it. The decisions to be made for printed publications are based on the quantity we need to produce, the quality we want to achieve, and the amount of money we want to invest. For a printed publication, we need to consider the following:

(*i*) Color

(*ii*) Physical size and format

(*iii*) Production method

The other design considerations are applicable to all types of publications, whether intended for printing or for electronic distribution. For any publication, we will need to consider the following:

(*i*) Basic layout

(*ii*) Text design

(*iii*) Page types

(*iv*) Static information

If we want to create a custom design, page layouts, a font scheme, or a color scheme, it must be done first so that when we flow content into the publication, it immediately appears in its final format. By properly organizing a publication, we can quickly identify and handle content issues as they arise.

Formatting various types of publications using DTP: The appearance of the publications helps convey their message. We can apply our own formatting to any part of a publication to get exactly the look we want. The Formatting toolbar is used to apply various formats to publications. We can do the following:

(*i*) Format Text

(*ii*) Apply Schemes

(*iii*) Insert Symbols

(*iv*) Format Paragraphs

(*v*) Create Paragraph Styles

(*vi*) Format Text Boxes

(*vii*) Insert Shapes etc.

Publishing various types of publications using DTP: The *Publisher Tasks* task pane has options for common Publisher features associated with creating, distributing, and following up. The *Distributing your publication* section includes options for mailing, publishing, and distributing your publications.

3. To create and format a brochure from a template using MS-Publisher 2007, perform the following steps:

Select Design

(*i*) Start Publisher and click *Brochures* under *Popular Publication Types*.

(*ii*) Now scroll down to *Classic Designs* and click *Blends*. This brings up some additional options.

Select Format

(*i*) Under *Page size*, click the *4-panel* option (say).

(*ii*) Check the *Include customer address* checkbox.

(*iii*) Click the *Create* button available at the bottom on right side. You will see the brochure layout.

(*iv*) Now make sure that *Brochure Options* is selected in the *Format Publication* pane.

(*v*) Click the *Change Template* button.

(*vi*) Click *Order form* in the *Form* drop-down arrow under *Options*.

(*vii*) Click the *OK* button. This adds a mail-back form on the back of the brochure.

(*viii*) Save the brochure as *My Brochure* in the *Practice Publisher Files* folder.

(*ix*) Close the brochure.

4. *Creating business cards using DTP*: To create business cards using MS-Publisher 2007, perform the following steps:

(*i*) Start MS-Publisher 2007.

(*ii*) Click on *Business Cards* in the heading *Publication Types* on the *Getting Started with Microsoft Office Publisher 2007* page.

(*iii*) The main part of the window displays a variety of designs for the business card. Have a good look at each, and select your favourite.

(*iv*) The right hand column has a number of options for your business card. You can customize it with a different color scheme, and a different font scheme.

(*v*) Now look for the *Business information* drop down box. If this is the first time you have created a business card, your only option will be *Create new….*

Select *Create new…* and a dialog box will appear for you to enter your business card information.

(*vi*) Enter the details and click *Save*.

(*vii*) If you are satisfied with all your decisions, click *Create* in the bottom right hand corner of the screen.

Printing a business card: To print a business card, perform the following steps:

(*i*) Open the business card document that you wish to print.

(*ii*) In the *Business Card Options* task pane, under *Copies per sheet*, click *One* or *Multiple*.

(*iii*) Load the printer with the paper that you wish to print on.

(*iv*) On the *File* menu, click *Print*. The *Print* dialog box appears.

(*v*) In the *Print* dialog box, choose the printer that you wish to print to. Make sure that the correct orientation and size are selected.

(*vi*) Click *OK*.

Suggested Activities

Refer to sub-unit 2.3 of the Student Textbook for doing Activities 1, 2, 3, 5 and 6.

ACTIVITY 4: Explain and Demonstrate How to Create or Open Business Card, Add a Logo and Design a Business Card

To create or open a business card, add a logo and design a business card, perform the following steps:

1. Start MS-Publisher 2007.

2. In the *Publication Types* list, click *Business Card*. In the center pane, click the design you want.

3. In the right pane, under *Customize*, select the *Color scheme*, *Font scheme*, and *Business Information* (click *Business Information* arrow and then click *Create new* to open *Create New Business Information Set* dialog box, fill the details and click Save). Under *Options*, select the *Page size* and check *Include logo*. Click *Create*.

4. The logo appears on your business card, if you have selected one; otherwise double-click in the *Logo Picture* box on the business card to open the *Insert Picture* dialog box. Select the logo of your choice and click *Insert*.

5. Now drag the logo to the area of the business card you want.

6. Save the business card.

ALTERNATIVE TEACHING APPROACHES, ENRICHMENT MATERIAL

The ICT teachers can use Internet, charts, worksheets, models, go for educational field trips and subject experts can be called for seminars to enrich the teaching level and in turn help the students in learning Application Software.

ADDITIONAL QUESTIONS

1. What are the uses of Application Software?

2. What is word processing software? Give its importance.

3. What are salient features of MS-Word? Give its advantages and disadvantages over typed documents.

4. Give the steps to insert a slide in the presentation.

5. What are the main uses of desktop publishing software?

6. How will you create a Greeting or Invitation card using DTP? Explain.

INFORMATION AND COMPUTER SECURITY

(4 PERIODS)

UNIT OUTCOME

Students will be able to:

- understand and become aware of copyright issues;
- recognize national and international laws on copyright.

SUGGESTED LESSON PLAN

Sub-unit	Number of Periods
3.1 Information and Computer Security	4

STRUCTURE OF THE UNIT

3.1 Information and Computer Security

In this sub-unit, we will learn about basics of Information and Computer Security. The topics to be learnt are:

- Software copyright
- National and international laws on copyright
- Protection
  - ❑ Use of password

REVIEW OF THE UNIT

- Information and computer security risks arise from the intentional or unintentional misuse of computers, network resources as well as the Internet.
- Copyright is the exclusive legal right that prohibits the copying of intellectual property without the permission of the copyright holder.

- Copying others is called plagiarism. It involves using the work of others and presenting it as one's own.
- Unauthorized intrusion is the use of a computer or network without permission.
- Your online accounts, computer files, and personal information are more secure when you use strong passwords to help protect them.

ROLE OF THE STUDENTS

In this unit, the students are supposed to learn the basic concepts of Information and Computer Security. The activity based method should be followed to understand the subject matter which is the best way of better understanding of the subject matter.

Information security means protecting information and information systems from unauthorized access, use, modification, inspection, recording or destruction etc. *Computer security* focuses on ensuring the availability and correct operation of a computer system without concern for the information stored or processed by the computer. Students will be able to understand about software copyright, recognize that the use of others is not proper. They will also be familiar to national and international laws on copyright, protection of information and computer using passwords.

There are certain things, the students should know and certain tools they need to have in order to avoid misuse of e-mail, unauthorized intrusion etc. The students must clearly know their roles and responsibilities that are essential to the implementation of the Information and Computer Security.

ADDITIONAL CLASS ACTIVITY FOR GIFTED STUDENTS OR SLOW LEARNERS

ACTIVITY 3.1: Why is the Computer Security important?

In groups, the students will discuss about importance of computer security, in their class.

Computer Security

It is the process of preventing and detecting unauthorized use of your computer. Preventive measures help us to stop unauthorized users (also called "intruders") from accessing any part of our computer systems. Detection helps us to determine whether or not someone attempted to break into our systems, if they were successful, and what they may have done.

Importance of Computer Security

Computers are used for everything from learning, shopping, and communicating with others through e-mail. Students must know that computer security is very important while learning as well.

Intruders (also called hackers, attackers, or crackers) may not care about our identity. Often they want to gain control of our computers so they can use these to launch attacks on other computer systems. Even if we have a computer connected to the Internet only to play the latest games or to send e-mail to friends and family, our computer may be a target.

The intruders always keep on discovering new strategies in computer software to exploit others. Moreover, the complexity of software makes it increasingly difficult to thoroughly test the security of computer systems. Also, there are many websites on the Internet that make people learn how to hack computers (see Fig. 3.1).

Fig. 3.1: A website for learning hacking (www.gohacking.com)

There are many software applications which have default settings that allow other users to access our computers. We must keep on changing the settings to be more secure. For example, the chat programs that let outsiders execute commands on our computers or web browsers that could allow someone to place harmful programs on our computers that run when we click on them.

So, in conclusion we can say that computer security is most important for every computer user, including students in particular.

ANSWERS TO REVIEW QUESTIONS

Fill in the Blanks

1. punishable
2. Copyright
3. copyright laws
4. password

State Whether True or False

1. True
2. False
3. True
4. True

Multiple Choice Questions

1. (*d*)
2. (*d*)
3. (*b*)
4. (*a*)

Match the Following

1. (*c*)
2. (*a*)
3. (*d*)
4. (*b*)

Answer the Following

1. *Copyright*: It is the exclusive legal right that prohibits the copying of intellectual property without the permission of the copyright holder. Figure 3.2 shows the copyright symbol.

Fig. 3.2: Copyright symbol

Copyright relates to ownership of an original work. An original work can be in various forms—text, image, audio recording, video recording, computer software, website, etc.

Copyright automatically belongs to the author(s) or creator(s)—but it may also be assigned to a third party, for example, a publishing house. The copyright owner(s) has/have the exclusive rights to prevent any third party from doing any of the following without permission:

(*i*) Copy the work

(*ii*) Communicate copies of the work to the public

(*iii*) Perform a drama or play, a piece of music or a song before the public

(*iv*) Make derivative works

2. *Software Copyright*: Computer software is considered a literary work, *i.e.*, books, computer programs, e-mails, and databases, etc. It is protected by copyright laws. Unauthorized copying of computer software is not allowed. This applies regardless of whether the original copies of the software have been purchased on a medium such as a CD-ROM or DVD, or downloaded from the Web.

The software user must check the terms and conditions on the packaging of the software or in accompanying documentation—which may be in printed or electronic format.

Software developers must ensure that they have a written agreement with the software users. In other words, they must protect their software using copyright.

Dangers of Copying Others: Plagiarism is copying others' work and presenting it as your own. Some dangers of copying others' work are:

(*i*) It does not show that you understand the topic you have presented.

(*ii*) It just shows you can cut and paste.

(*iii*) It makes the software ineligible for free maintenance updates in some cases.

(*iv*) There is always the risk of installing malicious code on your computer.

(*v*) It affects the rights of others.

(*vi*) It affects the social and economical development of all countries.

3. Copyright law aims to prevent people from taking credit for and profiting from other peoples' work. Ethiopia is not short of laws against copyright infringement. Software copyright law is something that affects anyone who uses a computer. It is not uncommon for a person or business to face civil or even criminal proceedings for software copyright infringement.

At present, it is a complex area of law that is not widely understood in some countries.

National Laws

In Ethiopia, copyright is a critical issue which requires serious attention and collective responsibility. The problem is now very big and forces the artists, the government and the society to realize its impacts and find its solutions. Ethiopia has enacted laws for the protection of literary works through copyright. The copyright law provides protection for the following:

(*i*) Written works

(*ii*) Phonographs and cinematographic films

(*iii*) Theatre and musical pieces

(*iv*) Television and radio works for publication

(*v*) Paintings

(*vi*) Sculpture and architecture

(*vii*) Maps

(*viii*) Speeches and

(*ix*) Literary work

International Laws

While there is no single international copyright law, many countries have agreed to international rules for protecting intellectual property from copyright infringement, piracy and counterfeiting.

Some international laws are given below:

(*i*) Berne Convention for the Protection of Literary and Artistic Works

(*ii*) EU Copyright and Neighbouring Rights

(*iii*) International Copyright Law

(*iv*) WIPO Copyright Treaty

4. *Copy Protection*: It refers to the techniques used for preventing the reproduction of software usually for *copyright* reasons. Copy protection may include measures that are not digital.

Anything that is your original work is automatically copyrighted. However, that does not stop some people from using your materials without your permission. So, we must have measures to protect our work from being copied by others.

Use of Password: Your online accounts, computer files, and personal information are more secure when you use strong passwords to help protect them. Short, easy-to-remember passwords can be easily cracked using simple techniques, and may compromise the security of your website or client data.

Remember the following points for creating strong passwords:

(*i*) Use a strong password.

(*ii*) Passwords should be eight or more characters in length.

(*iii*) Do not use common information in your password.

(*iv*) Remember to change your passwords frequently.

(*v*) Never communicate a password to anyone.

Suggested Activities

Refer to sub-unit 3.1 of the Student Textbook for doing activities 1, 2, 4 and 5.

ACTIVITY 3: Work Collectively with Others and use Password Appropriately

In small groups, students will discuss "How to work collectively with others and use password appropriately?"

Password

A password is a secret series of characters that enables a user to access a file, computer, or program.

On the multi-user systems, each user must enter his or her password before he/she can use the computer. Some data files and programs may also require a password. Figure 3.3 shows *Email* and *Password* boxes for an e-mail account on Google.

Fig. 3.3: Password is must for accessing an e-mail account

Any unauthorized user cannot have access to a password protected computer. When a user enters a password, the computer system does not display the characters on the computer screen, as others might see it.

Working Collectively and Using Password Appropriately

In schools or organizations, students/people work on computers collectively. Figure 3.4 shows the students working collectively on computers. (Courtesy: *www.flickr.com*)

Fig. 3.4: Students working collectively on computers

Ideally, the password should be something that nobody could guess. Generally, most of the people choose a password that is easy to remember, such as their name or their initials. This is one reason it is relatively easy to break into most computer systems.

Keep your passwords in a secure place, and out of plain sight. **Do NOT give your password or user name to ANYONE**. **Not even people you trust.** Do not share them on the Internet, over e-mail, or on the phone. Your Internet Service Provider (ISP) should never ask for your password.

Some hackers may try to figure out your passwords to gain access to your computer. To make it tougher to crack:

   (*i*) Use a **strong password**, that is, use a password that has at least eight characters and include numbers or symbols. The longer the password, the tougher it is to crack. A 12-character password is stronger than one with eight characters.

  (*ii*) Scan your computer using multiple programs in order to provide a wider base of protection.

 (*iii*) Use a firewall (hardware/software).

 (*iv*) Avoid common words: some hackers use programs that can try every word in the dictionary.

(*v*) Do not use a word that is currently newsworthy as passwords.

(*vi*) Do not use your personal information, your login name, or adjacent keys on the keyboard as passwords.

(*vii*) Change your passwords regularly (at a minimum, every 90 days).

(*viii*) Do not use the same password for each online account you access.

Creating a Strong Password from a Pass Phrase

On some computers we can use a pass phrase, that is, a phrase with spaces. These are the most secure types of log-ins. If the computer does not support phrases, then we can create a secure password from a phrase.

For example, "My sister Hana is 18 years old" as a password could be msHi18yo. You can make this more secure by replacing some characters with uppercase letters and adding numbers and punctuation, like this: msHi18Y0!. These types of passwords are often easier to remember and harder to crack.

ALTERNATIVE TEACHING APPROACHES, ENRICHMENT MATERIAL

The ICT teachers can use Internet, charts, worksheets, models, go for educational field trips and subject experts can be called for seminars to enrich the teaching level and in turn help the students in learning "Information and Computer Security".

ADDITIONAL QUESTIONS

1. Write a short note on impact of information and computer security on society.

2. What is copyright? Why is it important?

3. What are the usage of Digital Signature?

4. Define password. Which points must be taken care of while deciding a password?

5. What is cyber crime? Give examples.

APPLICATION SOFTWARE

(22 PERIODS)

UNIT OUTCOME

Students will be able to:

- know how to create charts and graphs in spreadsheet;
- apply spreadsheet for different applications;
- understand some common uses of database;
- recognize query, form and report in a database application.

SUGGESTED LESSON PLAN

Sub-units	Number of Periods
4.1 Key Features of Spreadsheets	8
4.2 Database Applications	14

STRUCTURE OF THE UNIT

4.1   Key Features of Spreadsheets

In this sub-unit, we will learn about basics of Key Features of Spreadsheets. The topics to be learnt are:

- Revision of spreadsheet
  - Definition of a chart
  - Creating a chart
    - Column chart, Bar chart and Pie chart
  - Change data in a cell
- Presenting data by chart
- Using spreadsheet to process data
  - Using custom formula

- Using if condition
- Using built-in functions(calculating using spreadsheet, Auto sum Σ, and other functions)
- More complex exercises using +, -,*, /
- Formatting Worksheet

4.2   Database Applications

In this sub-unit, we will learn about basics of Database Applications. The topics to be learnt are:

- Introduction to database
- Uses of database
- Common database applications
- Database terminology
- Designing a database structure
- Open an existing database
- Overview of a table
- Creating a table
- Add, edit, delete and sort records
- Overview of query
- Creating a query
- Overview of a form

- Creating a form
- Section of a form
- Adding data using form
- Formatting a form
- Main/Subforms
- Overview of a report
- Section of a report
- Adding controls to a report
- Formatting a report

REVIEW OF THE UNIT

- Spreadsheet is an application software, which allows us to perform quick and easy calculations on our stored data.
- Fill handle can be used for copying cells, copying formulae using relative references, generating series and generating auto lists.
- A chart is a graphical representation of the figures in a spreadsheet.
- IF function of Excel, is a conditional construct that displays one or the other value in a cell based on the condition applied.
- Excel has several built-in functions to make your work easy and fast. For example, SUM( ), MAX( ), RANK( ), etc.
- A table contains data about a particular topic. In a table, data is arranged in row and column format.
- A database is a collection of related data that is organized, so that it can easily be accessed, managed and updated.
- Databases are used in many applications, covering almost the entire range of computer software. For example, computerized library systems, ATMs, flight reservation systems and computerized inventory systems etc.
- *Query* is a database object, which is used for extracting data from one or more tables based on specific conditions.
- A *form* is a database object that you can use to enter, edit, or display data from a table or a query.
- *MS-Access 2007* has several report generation tools (Report tool, Report Wizard, Blank Report tool) that you can use to create both detail and summary reports quickly.

ROLE OF THE STUDENTS

In this unit, the students are supposed to learn the key features of Application Software (Spreadsheets and Database Application). The activity based method should be followed to understand the subject matter which is the best way of better understanding of the subject matter.

In Grade 9, students have already learnt spreadsheet software Microsoft Excel. Spreadsheets and database programs are beneficial to everyone in the field of ICT. It is very important that the students should be properly trained to use these applications for learning, problem-solving opportunities and the ability to meet today's technology standards.

Other subject teachers, who are new to the application software, should also work together with their students. It can provide a positive learning experience for everyone. The effective use of the technology also provides a sense of accomplishment.

ADDITIONAL CLASS ACTIVITY FOR GIFTED STUDENTS OR SLOW LEARNERS

ACTIVITY 4.1: Important Points Regarding Tables in a Database

In small groups, students will discuss about "Important Points Regarding Tables in a Database".

Table

A table acts as a placeholder for our data. It is the place where all the data is stored. A table is a named collection of records related to a single entity. It represents a single entity and stores the attributes of the entity in different fields.

Relational databases are constituted by one or more tables that contain the information in an organized form. Databases usually contain more than one table and each one will have a fixed number of fields.

Important Points Regarding Tables

While creating a table, make a picture of the entity in mind. Concentrate on the properties possessed by that entity. For example, if we want to create a table for students its fields can be Roll No, Name, Grade, Section, Marks, Address, and Phone No, etc. Each field of the table should represent a property of the entity in concern. Table 4.1 illustrates a student table.

Table 4.1: Students Table

Roll No	Name	Grade	Section	Marks	Address	Phone No
1	Hana	10	A	480	Addis Ababa	555555
2	Maru	10	A	402	Addis Ababa	333333
3	Abraham	10	B	375	Addis Ababa	222222
4	Beza	10	B	455	Addis Ababa	111111
…	…	…	…	…	…	…

We must understand some important points before creating tables. The points are:

1. In a table, each column or field must have a unique name. In other words, no two columns in a table can have same name.

2. Table names are normally plural.

3. Table and field names should be as brief as possible but also should clearly identify the subject of the table or the data in the field.

4. Avoid abbreviations and acronyms so far as possible as they can be cryptic to another user of the database.

5. Each column has a predefined data type that identifies the type of data to be input in that field.

6. A special field, which uniquely identifies a record in a table, is called the primary key. In a primary key column, no two records can have same values as in our class; no two students have same roll number, even if their names are same.

ANSWERS TO TEXTBOOK ASSESSMENT

Assessment 4.1

Fill in the Blanks

1. spreadsheet
2. 1,048,576; 16,384
3. Column
4. Formatting

State Whether True or False

1. True
2. True
3. False
4. False

Answer the Following

1. *Chart*: A chart is a graphical representation of the figures in a spreadsheet.

   Use of Charts: Charts help in easy understanding of complex or detailed data. These reflect information in such a way that it can be easily understood just by having a look at the chart.

2. MS-Excel 2007 supports various types of charts to display data in meaningful ways. When we

want to create a chart or change an existing chart, we can choose from a wide range of chart subtypes available for the different chart types.

The types of charts supported by Excel are given below:

(*i*) Column Chart

(*ii*) Bar Chart

(*iii*) Pie Chart

To insert a chart using MS-Excel 2007, perform the following steps:

(*i*) Open a worksheet having data to be charted or enter the data in a new worksheet.

(*ii*) Select the cells.

(*iii*) Click *Insert* tab.

(*iv*) Click *Column* or *Bar* or *Pie* button.

(*v*) Click desired chart type.

(*vi*) Move and/or resize the chart as required.

(*vii*) Apply design options.

(*viii*) Save the workbook.

3. *Built-in Functions in Excel*: Excel has several built-in functions to make your work easy and fast. There are many functions, grouped under various categories like: math and trigonometry functions, statistical functions, date functions, text functions, etc.

The four functions in Excel are explained below:

(*i*) SUM ( ): It adds all the numbers in a range of cells.

The syntax of SUM function is:

SUM(number1, number2, ...)

Here, number1, number2, ... are 1 to 255 arguments for which we want the total value or sum.

For example,

=SUM(2,6) will give the result 8.

(*ii*) AVERAGE( ): It returns the average (arithmetic mean) of the arguments.

The syntax of AVERAGE function is:

AVERAGE(number1, number2, ...)

Here, number1, number2, ... are 1 to 255 numeric arguments for which you want the average.

For example,

=AVERAGE(2,6) will give the result 4.

(*iii*) MAX( ): It returns the largest value in a set of values.

The syntax of MAX function is:

MAX(number1, number2, ...)

Here, number1, number2, ... are 1 to 255 numbers for which you want to find the maximum value.

For example,

=MAX(10,3,8,45) will give the result 45.

(*iv*) MIN( ): It returns the smallest number in a set of values.

The syntax of MIN function is:

MIN(number1, number2, ...)

Here, number1, number2, ... are 1 to 255 numbers for which you want to find the minimum value.

For example,

=MIN(10,3,8,45) will give the result 3.

4. *Formatting a Worksheet*: Formatting refers to the act of changing the appearance of data in cells. In MS-Excel, you can format text, format cells, adjust columns and rows and print worksheets.

To format text and numbers in a cell in a worksheet, perform the following steps:

(*i*) Open a worksheet. Type text or number in a cell (if it is a new worksheet).

(*ii*) Select the cell to be formatted.

(*iii*) Click *Home* tab.

(*iv*) In the *Font* group, click the *Font* group dialog box launcher button (or press *Ctrl + Shift + F*).

(*v*) The *Format Cells* dialog box opens.

(*vi*) Select the desired formatting options.

(*vii*) Click *OK*.

We can also use the other formatting tools on the Ribbon for formatting a cell.

Suggested Activities

Refer to sub-unit 4.1 of the Student Textbook for doing Activities 1, 2 and 3.

ACTIVITY 4: In Mathematics Compare the Growth of an Arithmetic Progression with a Geometric Progression

In small groups, the students in Mathematics will compare the growth of an Arithmetic Progression with a Geometric Progression.

Arithmetic and Geometric Progressions

Arithmetic Progression: A sequence in which each term differs from its preceding term by a constant is called an arithmetic progression, written as AP. Here, the constant difference is called the common difference of the AP. For example, 1, 3, 5, 7 is an AP having common difference 2.

Geometric Progression: A sequence, in which each term (non-zero) is obtained by multiplying its preceding term by a constant is called geometric progression, written as GP. Here, the constant is called the common ratio of the GP. For example, 2, 4, 8, 16 is a GP having the common ratio 2.

Comparing the Growth of an AP and GP

To compare the growth of an AP and GP, perform the following steps:

(*i*) Start MS-Excel 2007.

(*ii*) Open a worksheet.

(*iii*) Type the data for an AP and a GP (see Fig. 4.1). Select the range of cells containing the data to be charted. Here, we select A3:B6.

(*iv*) Click the *Insert* tab.

(*v*) In *Charts* group, click the *Column* button.

	A	B	C	D
1	A.P.	G.P.		
2				
3	1	2		
4	3	4		
5	5	8		
6	7	16		
7				
8				

Fig. 4.1: Worksheet having data for an AP and a GP

(*vi*) Click desired chart type. Excel graphs the data in a column chart and places the chart inside an object box in the centre of the worksheet (see Fig. 4.2). Now, we can compare the growth of both the progressions.
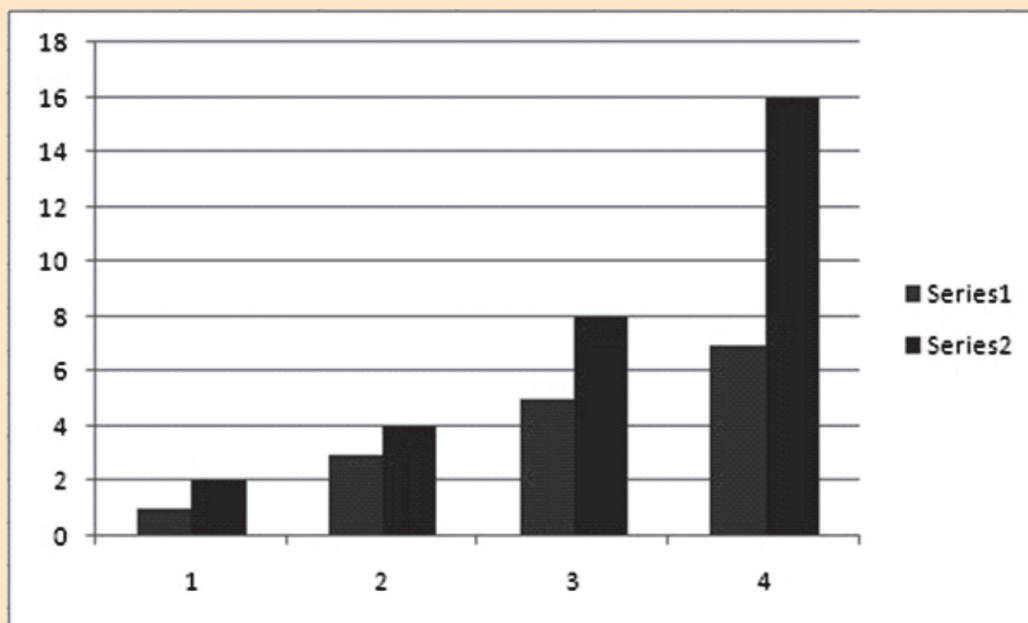

Fig. 4.2: Column chart showing the growth of an AP and a GP

(*vii*) Move and/or resize the chart as required.

(*viii*) Apply design options.

(*ix*) Save the worksheet.

So, by creating a column chart, we can observe the growths of an arithmetic progression and a geometric progression.

ANSWERS TO REVIEW QUESTIONS

Fill in the Blanks

1. table 　　　　　 2. Query
3. subform 　　　　4. Report

State Whether True or False

1. False 　　　　　2. True
3. False 　　　　　4. False

Multiple Choice Questions

1. (*c*) 　 2. (*b*) 　 3. (*d*) 　 4. (*b*)

Match the Following

1. (*b*) 　 2. (*a*) 　 3. (*d*) 　 4. (*c*)

Answer the Following

1. *Database*: A database is a collection of data arranged for easy and quick searching and retrieval.

For example, a database can contain data about all the students in a school, data about telephone numbers in a directory, data about all products in a manufacturing company, or data about weather conditions in an area or a city (say Addis Ababa).

Microsoft Office Access 2007 is one of the database creation and management programs.

The common uses of databases are:

(i) *Government*: The government uses a database to store records of people's data for different purposes, for example, census, income tax payments, etc.

(ii) *Business*: Today the business world depends on databases round the clock. Inventory, order processing, payroll, accounting, shipping and transportation routing are often

tracked within a main database that keeps the organization/company functioning.

(*iii*) *Educational Institutions*: From elementary schools/colleges to universities, educational institutions use the database to keep track of students' data. Specialized database packages for schools/colleges and universities are also available.

(*iv*) *Non-Profit Organizations*: Most of the charities and other non-profit groups use a database for keeping track of donations, volunteers, hours served in the community, clients helped and other information related to the organization.

(*v*) *Household and Family Management*: The database is very useful in household and family management for many individuals and families. Many individuals/families use a database to keep track of family birthdays, bills and expenses within a home; addresses of friends and relatives; movie/DVD collections; and other lists.

(*vi*) *Everyday Life*: Some departmental stores keep your information stored in a customer database. When you make a purchase, the sales clerk asks for your address or customer account number. These collections of data are used to send mailings of special offers, discounts and other deals.

2. (*i*) *Table*: A table in a database is a pre-defined format of rows and columns that define an entity. It is also called a relation. For example, *Employees Table*.

(*ii*) *Record*: A database record consists of one set of *tuples* in a table. In other words, a row of information in a table is called a record.

(*iii*) *Field*: A field is a single unit of data stored as part of a database record. Each record is made up of one or more fields, which correspond to the columns in a database table. Fields are often called *attributes*.

(*iv*) *Data Type*: A data type specifies the type of data that a column in a table represents in a database. For example, numeric, character or text, date, logical, etc.

(*v*) *Primary Key*: Every table should contain a field that uniquely identifies each record stored in it. This field is called the primary key of the table. Primary keys may consist of a single field or multiple fields in combination.

3. *Form*: A form is a database object that you can use to enter, edit, or display data from a table or a query. Forms are sometimes called "data entry screens".

Use of a form: Forms provide an easy-to-use format for working with the data, and you can also add functional elements, such as command buttons, to them. You can program the buttons to determine which data appears on the form, open other forms or reports, or perform a variety of other tasks.

Creating a form in Access 2007 using Design View:

(*i*) Start MS-Access 2007 and open the database to which you would like to add a new form. Select *Form Design* in *Forms* group from the *Create* tab on the Access ribbon.

This will open a blank form in *Design View*.

(*ii*) Make sure that the *Design* tab under *Form Design Tools* is open on the Access ribbon. Click on *Property Sheet*. This will open the *Property Sheet* panel.

(*iii*) In the *Property Sheet* window, click on the tab labeled *Data*. From the *Record Source* dropdown list, select the table that contains the fields you want to include in your form.

(*iv*) Click on the *Add Existing Fields* button on the Access ribbon. Now, in the right panel, you will see a list of all available fields from the table you have selected in Step (*iii*).

(*v*) Click on a field in the *Field List* panel that you wish to add to the form. Hold down the mouse key and drag the field to the position

on the form where you want it to be located. After placing the field, you can resize both the field label and content boxes by clicking and dragging the boundary boxes around the field name. Repeat this process for each field you want to add to the form.

At any time during this process, if you want to have an idea of how the final form will look, click on the *View* button on the Access ribbon and select *Form View*.

To return to your form design in order to make some changes, click *View* again and choose *Design View*.

(*vi*) When finished designing the form, click the *Save* icon in the *Quick Access Toolbar* (or click the *Office Button* and select *Save*). Enter a name for the form in the pop-up box that appears on the screen.

(*vii*) Click *OK*.

4. (*i*) *Creating a query*: A query in MS-Access 2007 is a request to display database information in a window format. The window, also called a data sheet view, shows any data from a table or form in a row-and-column format. In Access, a query can be created by using a wizard tool or by using the Design view.

    (*a*) Start MS-Access 2007 and open a saved table having data (create a table if it is not already available).

    (*b*) Click *Create* tab, and then click *Other*. Select *Query Wizard*.

    (*c*) The *New Query* dialog box opens. Choose *Simple Query Wizard* and *OK*.

    (*d*) Select *Tables/Queries* option under the query wizard. Choose the table that contains the data for the query.

    (*e*) Select the *Available Fields* tab to create the query. Add the required fields into the *Selected Fields* list. Choose fields such as "Name", "Grade", "Address", and "Phone Number" etc. Click *Next* when the fields have been chosen.

(*f*) Give the query list a name, then select *Finish* to complete the project. Access shows all of the contact records in row-and-column view. The fields that were specified in Step (*e*) will be shown.

(*g*) Close the query. The query automatically saves in Access 2007.

(*ii*) *Manipulating Access Controls*: To populate a form or a report in Access 2007, we use various objects called Windows controls or simply, controls. These are the objects a user of the database uses to interact with the product. The objects are available in the Ribbon when the form or report is in *Design View*. We can click *Design* on the Ribbon to access the controls. The controls are listed in the *Controls* section. For example, the *Logo* control is for inserting a picture in the form or report to be used as a logo.

For adding a control to a form or a report, we can click it and click the form or the report. Similarly, we can add different controls and as many as necessary. After adding a control to a form or report in *Design View*, to manipulate it, we will first select the control.

To select a control, on the form or report, simply click it. A control that is selected displays 8 handles around its body with the top-left handle thicker than the others. When a control is selected on the form or report, the *Properties window* shows only its characteristics. Now, we can only change the characteristics of the selected control.

To select more than one control, at random, click one, then press and hold *Shift*. While holding *Shift*, click each of the desired controls. After selecting the controls, release *Shift*. If we want to select all controls on the form or report, press *Ctrl + A*. If we select many controls, then the *Properties window* shows (only) the characteristics common to those controls. After selecting the controls,

we can change the common properties of the selected controls.

(*iii*) *Performing calculation in a form*: In Access 2007, we can use calculation controls to display the results of a calculation. A calculation control object containing a formula is created using a text box control object. It is not stored as a field; each time the form is opened the results are calculated dynamically. Display a form in *Design* view to add text box control objects.

To add Calculation Control Object to form, perform the following steps:

(*a*) Start Access. Open the form, for adding calculation, in Design view by right-clicking the form in the Navigation Pane, and then clicking *Design View*.

(*b*) On the *Design* tab, in the *Controls* group, click *Text Box*.

(*c*) Position the pointer where you want the text box to be placed on the form, and then click to insert the text box.

(*d*) Do one of the following:

  (*i*) Place the cursor in the text box, and then type an expression that calculates a total.

 (*ii*) Select the text box, press F4 to display the property sheet, and type the expression in the *Control Source* property box. To use the Expression Builder to create the expression, click

next to the *Control Source* property box.

(*e*) *Save* the form and then switch to *Form view* to check the results.

(*iv*) *Creating a subform*: To create a subform from an existing form, perform the following steps:

(*a*) Start *Access* and right click the form, to which you want to add a subform, in the Navigation Pane.

(*b*) Select *Design View*.

(*c*) Select the *Design* tab.

(*d*) Select *Subform/Subreport* in the *Controls* group. Before selecting any controls, make sure that *Use Controls Wizard* is selected.

(*e*) Click once on your form in the location you want to add the subform.

(*f*) Follow the subform wizard to add the subform.

(*g*) If you already have a form created that you want to use as your subform, drag it from the Navigation Pane to your opened form. The main form must be open in Layout View.

(*h*) Click on the *Finish* button to complete the *SubForm* wizard.

Suggested Activities

Refer to sub-unit 4.2 of the Student Textbook for doing Activities 2, 3, 5, 6 and 7.

ACTIVITY 1: Decide Three Own Database Structures

In small groups, the students will decide three own database structures.

Database

A database is a collection of interrelated data of a particular type. For example, a database can contain data about all products in a manufacturing company, data about all the students in a school or data about weather conditions in an area or a city.

The information stored in a database is contained in the form of one or more tables. Each table in a database will be designed to contain data about a specific entity. A table stores data in a row and column format.

Three database structures

Scenario 1: Here, we have to create a Player database. The purpose of the database is to store and retrieve the data promptly. The database contains two tables, the *Player Details* and *Team Details*. The Player Details table will contain fields, such as Player No, Team No, Player Name, and Goals Scored. The Team Details table will contain fields, such as Team No, Team Name, Coach Name and Ranking.

The Player Details table is shown below:

Table 4.2: Player Details

Player Id	Team Id	Player Name	Goals Scored

The Team Details table is shown below:

Table 4.3: Team Details

Team Id	Team Name	Coach Name	Ranking

Scenario 2: Here, we have to create a Telephone Directory database. The purpose of the database is to store and retrieve the data quickly. The database contains one table, the *Telephone Directory*. The table will contain fields, such as Customer Name, Address, and Telephone No. In this table, the data is arranged in the alphabetical order of customer names.

The Telephone Directory table is shown below:

Table 4.4: Telephone Directory

Customer Name	Address	Telephone No

Scenario 3: Here, we have to create a Product database. The purpose of the database is to store and retrieve the data promptly. The database contains one table, the *Product Details*. The table will contain fields, such as Product No, Product Name, Product Brand, Product Price, and Product Weight.

The Product Details table is shown below:

Table 4.5: Product Details

Product Id	Product Name	Product Brand	Product Price	Product Weight

ACTIVITY 4: Identify the options for creating a form such as Form tool, Split Form tool, Multiple Items tool, Form Wizard and Blank Form tool

In small groups, the students will identify the options for creating a form such as *Form* tool, *Split Form* tool, *Multiple Items* tool, *Form Wizard* and *Blank Form* tool.

Form

A form is a database object which allows fields and records to be presented in a different layout than the datasheet. It is used to enter, edit, view and print data. It provides a user-friendly interface between the user and the underlying table of data.

Creating a form

MS-Access 2007 has new tools to help you create forms quickly. It provides new form types and features that improve the usability of your database. Let us assume that you have already created a table and now you want to build a form to view or manipulate the data.

Creating form using Form tool

You can use the Form tool to create a form with a single mouse-click. When you use this tool, all the fields from the underlying data source are placed on the form. You can begin using the new form immediately, or you can modify it in Layout view or Design view to better suit your needs.

To create a form using *Form* tool, perform the following steps:

1. In the Navigation Pane, click the table that contains the data you want to see on your form.
2. Click *Create* tab.
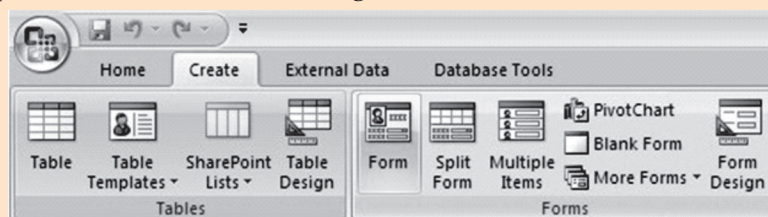3. In the *Forms* group, click *Form* button (see Fig. 4.3).

Fig. 4.3: Clicking Form button

Access creates the form and displays it in *Layout view*. In *Layout view*, you can make design changes to the form while it is displaying data. For example, you can adjust the size of the text boxes to fit the data, if necessary.

4. Close the form.

Creating form using Split Form tool

A split form in MS-Access 2007 gives you two views of the data at the same time—a Form view and a Datasheet view. These forms give you the benefits of both types of forms in a single form. For example, you can use the datasheet portion of the form to quickly locate a record, and then use the form portion to view or edit the record.

To create a form using Split Form tool, perform the following steps:

1. In the Navigation Pane, click the table that contains the data you want to see on your form.
2. Click *Create* tab.
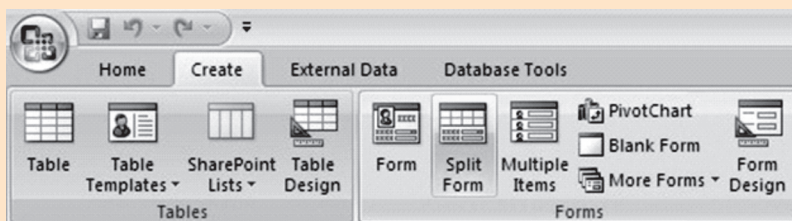3. In the *Forms* group, click *Split Form* button (see Fig. 4.4).

Fig. 4.4: Clicking Split Form button

Access creates the form and displays it in *Layout view*. In *Layout view*, you can make design changes to the form while it is displaying data.

4. Close the form.

Creating form using Multiple Items tool

To create a form using *Multiple Items* tool, perform the following steps:

1. In the Navigation Pane, click the table that contains the data you want to see on your form.
2. Click *Create* tab.
3. In the *Forms* group, click *Multiple Items* button (see Fig. 4.5).
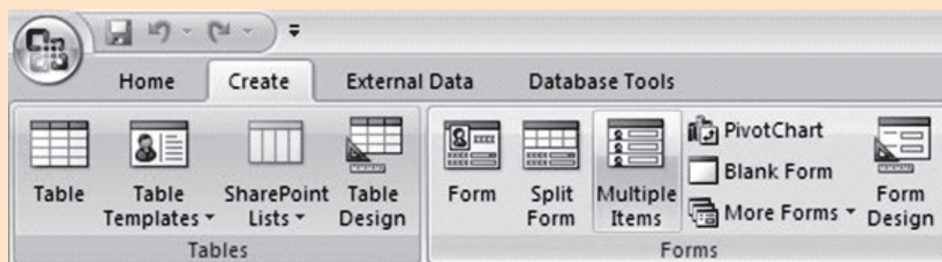

Fig. 4.5: Clicking Multiple Items button

Access creates the form and displays it in *Layout view*. In *Layout view*, you can make design changes to the form while it is displaying data.

4. Close the form.

> **note** The form created using the *Multiple Items* tool resembles a datasheet. The data is arranged in rows and columns, and you see more than one record at a time. However, a *Multiple Items* form gives you more customization options than a datasheet, such as the ability to add graphical elements, buttons, and other controls.

Creating form using Form Wizard

To be more selective about what fields appear on your form, you can use the Form Wizard instead of the various form-building tools previously mentioned.

To create a form using *Form Wizard*, perform the following steps:

1. Click *Create* tab.
2. In the *Forms* group, click *More Forms* button.
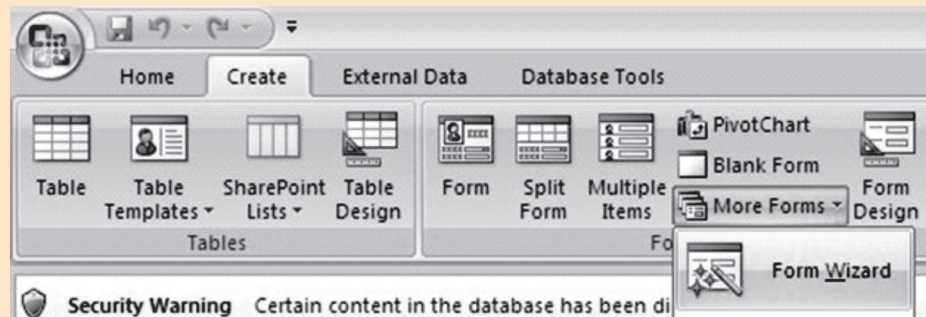3. Click *Form Wizard* at the dropdown list (see Fig. 4.6).

Fig. 4.6: Clicking Form Wizard button

4. Follow the directions on the pages of the *Form Wizard*.
5. Click *Finish*.
6. Close the form.

Creating form using Blank Form tool

If the wizard or the form-building tools do not fit your needs, you can use the *Blank Form* tool to build a form. This can be a very quick way to build a form, especially if you want to put only a few fields on your form.

To create a form using *Blank Form* tool, perform the following steps:

1. Click *Create* tab.
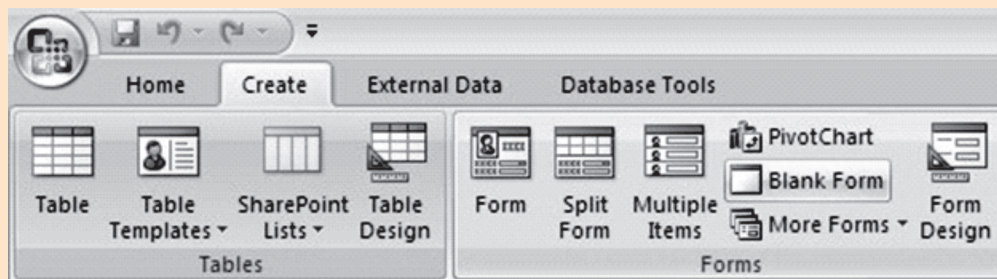2. In the *Forms* group, click *Blank Form* button (see Fig. 4.7).

Fig. 4.7: Clicking Blank Form button

3. Access opens a blank form in *Layout view*, and displays the *Field List* pane.
4. In the *Field List* pane, click the plus sign (+) next to the table that contains the fields that you want to see on the form.

5. To add a field to the form, double-click it or drag it onto the form. To add several fields at once, hold down *CTRL* and click several fields, and then drag them onto the form at the same time.

note The order of the tables in the Field List pane can change, depending on which part of the form is currently selected. If you are not able to add a field to the form, try selecting a different part of the form and then try adding the field again.

6. You can use the tools in the *Controls* group on the *Formatting* tab to add a logo, title, page numbers, or the date and time to the form (see Fig. 4.8)
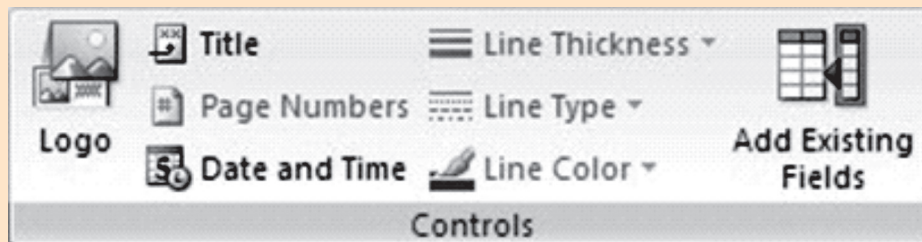

Fig. 4.8: Various tools in Controls group on the Formatting tab

7. If you want to add a wider variety of controls to the form, switch to *Design view* by right-clicking the form and then clicking *Design View*. You can then use the tools in the *Controls* group on the *Design* tab (see Fig. 4.9)
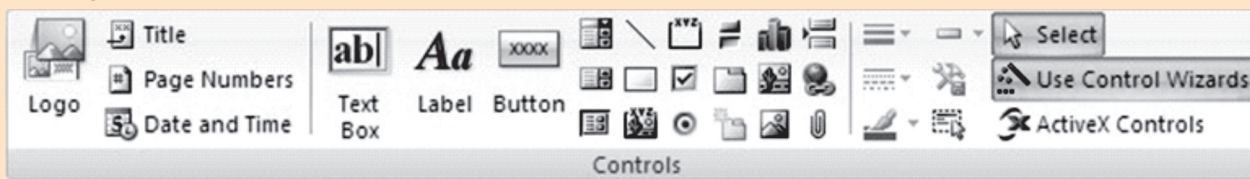

Fig. 4.9: Various tools in the Controls group on the Design tab

8. Close the form.

ALTERNATIVE TEACHING APPROACHES, ENRICHMENT MATERIAL

The ICT teachers can use Internet, charts, worksheets, models, go for educational field trips and subject experts can be called for seminars to enrich the teaching level and in turn help the students in learning "Application Software".

ADDITIONAL QUESTIONS

1. What do you mean by what-if analysis in Excel? How is it performed?

2. List the various types of charts supported by Excel. Give the use of charts also.

3. What are the different types of cell references used in Excel?

4. Explain the following built-in Excel functions:
   (*i*) AutoSum $\sum$ (*ii*) RANK
   (*iii*) IF

5. What is a database, and what are its benefits?

6. How will you design a database structure?

7. Discuss the following terms in content of a database system:
   (*i*) Table   (*ii*) Query
   (*iii*) Form   (*iv*) Report

USING INTERNET

(6 PERIODS)

UNIT OUTCOME

Students will be able to:

- understand the history and advantages of the Internet;
- recognize the use of browsers and search engines;
- know downloading and uploading files;
- understand how to design a simple webpage.

SUGGESTED LESSON PLAN

Sub-units	Number of Periods
5.1 Overview of the Internet	2
5.2 Definition of WWW	2
5.3 Planning and Developing Webpages	2

STRUCTURE OF THE UNIT

5.1 Overview of the Internet

In this sub-unit, we will learn about Overview of the Internet. The topics to be learnt are:

- Advantages and disadvantages
- Keywords and connectors
- Downloading and uploading files

5.2 Definition of WWW

In this sub-unit, we will learn about Definition of WWW. The topics to be learnt are:

- Webpage
- Website
  - ❑ Static and dynamic website
- Web server
- Web technology

5.3 Planning and Developing Webpages

In this sub-unit, we will learn about basics of Planning and Developing Webpages. The topics to be learnt are:

- Web design Guides (*e.g.*, Color, text, image, etc.)
- Purpose of a website
- Designing a web architecture
- Identify contents for the website

REVIEW OF THE UNIT

- Some advantages of the Internet are: Sharing and collecting Information, E-commerce, News, Advertisement, Communication, Formation of communities, Entertainment, online Learning, Services etc.

- *Downloading* is transmitting data from a remote computer to a local computer.
- The *World Wide Web* (*WWW*) or *the Web* is an interconnected system of Internet computers (called servers) that support specifically formatted documents in multimedia form—sounds, photos, and video as well as text.
- A computer with a domain name is called a website (site). Websites are of two types: *Static* and *dynamic* website.
- The purpose of a website influences the style, the website technologies required, the hosting costs and the budget required for it.

ROLE OF THE STUDENTS

In this unit, the students are supposed to learn the basic concepts of Information and Computer Security. The activity based method should be followed to understand the subject matter which is the best way of better understanding of the subject matter.

For students, technology, particularly the Internet, has assumed a substantial stake in their social and educational lives. Therefore, the way of using the Internet by students both at school and at home should be carefully observed. Action should be taken when necessary.

Students should have an access to various technologies (such as presentation software, Webpage production, word processing, database management, and desktop publishing software) to produce activities that demonstrate what they have learnt in particular areas of the curriculum. Internet can be very useful in learning various subjects.

ICT teachers can also use Internet technology (*e.g.*, an e-mail list) to connect with other teachers outside the school, district or country and compare successful strategies for teaching their students with technology. The ICT Clubs in the following schools in Addis Ababa, Ethiopia have made provisions of infrastructure that have enabled the students to connect to online global learning networks:

- Entoto Technical and Vocational School
- MENELIK II Secondary School
- Cistercian School
- Yekatit 12 Secondary School
- Addis Ababa Technical School

ADDITIONAL CLASS ACTIVITY FOR GIFTED STUDENTS OR SLOW LEARNERS

ACTIVITY 5.1: How can Teachers Catch Cheaters Using the Internet?

In groups, students will discuss about "How can Teachers Catch Cheaters Using the Internet?"

Web Searching

We must connect to the Internet for searching the information on the Web. For this, we need an ISP (Internet Service Provider), a browser and a search engine. Search engines like *Google* go through millions of possible results to provide us the information we need, all in about half a second.

The web enables the students "to cut and paste together reports or presentations that may have taken hours or days to write but have really been assembled in minutes with no actual mastery or understanding by the student".

Some useful search engines and good websites for searching are:

Google, AltaVista, Yahoo, MSN, Dogpile, HotBot, Bing, GotoTom, Vivisimo, and Scirus, etc. Figure 5.1 shows the search boxes of Google and Yahoo search engines.
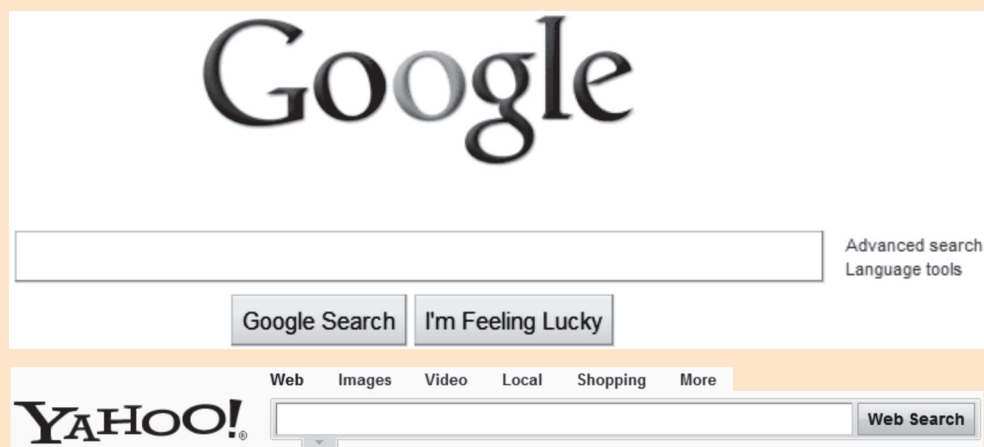
Fig. 5.1: Search boxes of Google and Yahoo search engines

How Teachers Catch Cheaters

We know that the Internet is the source of cheating. It is also a tool for detecting cheaters. There are various search programs which make it possible for teachers to locate texts containing identified strings of words from the millions of pages available on the web. Figure 5.2 shows some students using the Internet to submit their assignments.

Fig. 5.2: Students using Internet for submitting assignments

A teacher can input passages from a student's material into a search program that scans the web for identical blocks of text. Indeed, some websites favored by teachers build a database of materials over time so that students cannot recycle work previously handed in by other students.

The search systems can lock on to a stolen phrase as short as eight words. These can also identify copied material even if it has been changed slightly from the original material.

> *note*
> The schools can use the plagiarism-detecting software to catch students cheating in their coursework. Students must be sensitised about the use of the online material and also how to formally credit and reference sources, rather than just picking chunks of text from the internet and passing it off as their own.

Useful Tip: Why is proper citation important?

References alert the readers to the resources that helped the student(s) in the work—the words, ideas, pictures, opinions, data and even methodologies of others. To incorporate sources properly, we need to keep track

of the facts and expert opinions gathered during the search process, and then use both in-text-citations and bibliographic citations to alert readers where they can find the resource. Regardless of format or style, the central goals of any citation remain the same: crediting the referred source (author/creator), and giving the readers/audience enough information (title, publisher, city, country, etc.) to locate the source. Failure to cite the source, or even failure to cite properly, is plagiarism. Whether intended or not, improper citation leads the reader to believe that we are taking credit for the work of another. (Courtesy: *stjohns.campusguides.com*)

ANSWERS TO REVIEW QUESTIONS

Fill in the Blanks

1. Internet
2. Keyword
3. Uploading
4. webpage

State Whether True or False

1. False
2. True
3. True
4. False

Multiple Choice Questions

1. (*d*)
2. (*c*)
3. (*a*)
4. (*b*)

Match the Following

1. (*d*)
2. (*a*)
3. (*b*)
4. (*c*)

Answer the Following

1. *Internet*: The Internet is the network of networks around the world. It is made up of thousands of smaller, national, regional, governmental, academic and commercial networks. It is a global network.

   Advantages of the Internet: The Internet provides many facilities to the people. Some advantages of the Internet are given below:

   (*i*) Sharing and collecting information

   (*ii*) E-commerce

   (*iii*) News

   (*iv*) Advertisement

   (*v*) Communication

   (*vi*) Formation of communities

   (*vii*) Entertainment

(*viii*) Online learning

(*ix*) Services

   Disadvantages of the Internet: Although Internet has many advantages but it also has some disadvantages. The main disadvantages of Internet are given below:

   (*i*) Virus threat

   (*ii*) Spamming

   (*iii*) Security problems

   (*iv*) Pornography

   (*v*) Filtration of information

   (*vi*) Accuracy of information

   (*vii*) Wastage of times

(*viii*) English language problems

2. When searching information, it is important to know about different types of searches. We can use keywords and connectors in a search on the Internet.

   Keyword Search: At the top of each portal's home page is a blank space into which you can type a keyword to locate the websites that offer the information you need. For example, if you want to search information about "*famous Ethiopian Restaurants*", then *Ethiopian Restaurants* is the keyword. This way you do not have to go through menu after menu of subject categories. The results of your keyword search will be displayed in a short summary of documents containing the keyword you typed.

   Searching Using Connectors: Most search sites use symbols called Boolean operators or connector words (AND, OR, NOT) between search terms to

make information searching more precise than is possible with just keyword searching.

AND is a connector that connects two or more search words and means that all of them must appear in the search results. Use AND to narrow your search. For example,

Ethiopian culture AND History

Both 'Ethiopian culture' and 'History' will be present in the search

OR is a connector that connects two or more search words and indicates that any of the two may appear in the results. Use OR to expand your search. For example,

Ethiopian culture OR History

Any one of 'Ethiopian culture' or 'History' will be present in the information.

NOT is a Boolean connector. When inserted before a word, it excludes that word from the results. For example,

Ethiopian culture NOT History

Search will contain 'Ethiopian culture' but not 'History'.

3. (*i*) *Webpage*: A webpage is a document on the *World Wide Web* that can include text, pictures, sound and video.

 (*ii*) *Website*: A computer with a domain name is called a website (site). For example,

 www.google.com

(*iii*) *Web Server*: A web server is a particular computer on the Internet that hosts websites, serving pages to viewers upon request.

(*iv*) *Web Technology*: Web technology is the technology related to *World Wide Web*.

4. *Uses of the WWW*: The Web is the most widely known part of the Internet. Some uses of the WWW are given below:

 (*i*) Web has the social value for all people. In other words, it enables human communication, commerce, and opportunities to share knowledge irrespective of their hardware, software, network infrastructure, native language, culture, geographical location, or physical or mental ability.

 (*ii*) It can be accessed by a number of different kinds of devices, for example, mobile phones, smart phones, PDAs (Personal Digital Assistants), interactive television systems, voice response systems, kiosks and even certain domestic appliances.

(*iii*) It is used as a communications tool and allows anyone from anywhere to share information, for example, blogs, wikis and social networking.

 (*iv*) It is a giant repository of linked data as well as a giant set of services that exchange messages, which one to use often depends on the application.

 (*v*) It has transformed the way we communicate with each other. In doing so, it has also modified the nature of our social relationships. People now "meet on the Web" and carry out commercial and personal relationships, in some cases without ever meeting in person.

5. Refer to Activity 5.1 of the Student Textbook.

Suggested Activities

Refer to unit 5 of the Student Textbook for doing Activities 1 to 5.

ACTIVITY 6: Describe how the Internet can be searched to find information and comment on how this information could be used by people

In groups, students will describe how the Internet can be searched to find information and comment on how this information could be used by people.

Selecting the Browser and Search Engine

The World Wide Web has more than 1 billion web pages. Moreover, the web is constantly changing; more sites are created and old ones are retired. We must select a browser (*e.g.*, Internet Explorer, Mozilla Firefox, Google Chrome etc.) and various kinds of search engines (or search tools, for example, *search.msn.com, www.ask.com* and *www.yahoo.com*) for searching information on the Internet.

The hyperlinks—words and phrases that appear as underlined or color text—that are references to web pages are used to connect to the web pages on the same website and other websites.

Most browsers have a similar look and feel. The web browser screen elements assist in searching information on the Internet and saving it for future use (if useful and it is saved). Here, we select Internet Explorer web browser and Yahoo! search engine for searching information on the Internet (see Fig. 5.3).

Starting Points for Finding Information

When we log on to a web portal (website that groups together popular features such as search tools, e-mail, e-commerce, and discussion groups; for example, Google, Yahoo!, Lycos, and AltaVista), we can do three things:

  (*i*) Check the home page for general information

 (*ii*) Use the directories to find a topic we want, and

(*iii*) Use a keyword to search a topic

Tips for Smart Searching

When we type a word or phrase into the *Search* box of the search engine, it gives many listings on a search topic (see Fig. 5.3).
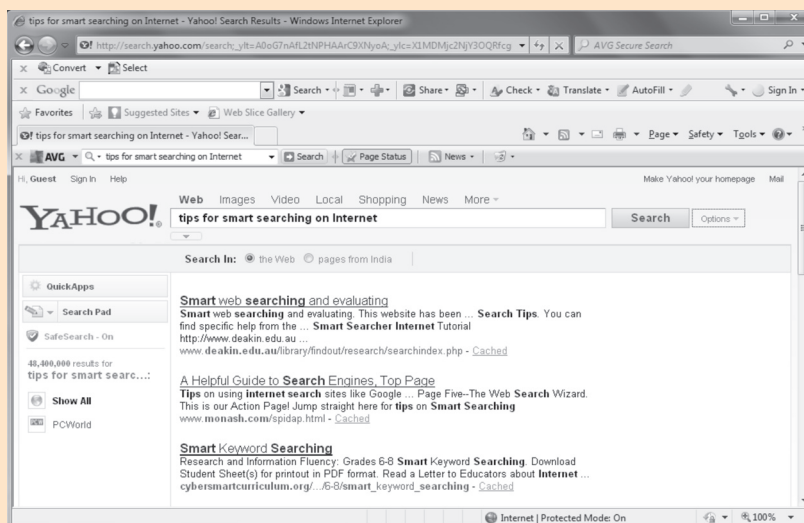

Fig. 5.3: Search results using Internet Explorer browser and Yahoo! search engine

So, it is essential for us to have a strategy for narrowing our search to save our time. Learning to distinguish quickly between commercials and real information is a big time saver. Once we learn to filter out the garbage, our searches will speed up.

Some tips for searching are:

   (*i*) Choose your search terms well, and watch your spelling

  (*ii*) Enclose "exact phrases" in quotation marks

 (*iii*) Put unique words first in a phrase

 (*iv*) Use operators—AND, OR, NOT, and + and – signs

   (*v*) Use wildcards

 (*vi*) Read the Help or Search Tips section

(*vii*) Try an alternate general search site or a specific search site

(*viii*) Do not worry about using capital letters

note Searching the Internet is a skill that comes with experience.

Evaluating What We Find and How it can be Used

It is always important to consider the quality of the information we use. It is very important to critically evaluate web resources, as there is no quality control on the Internet. So, the responsibility for assessing the merit of information lies with the information searcher. Table 5.1 illustrates some questions to ask ourselves when evaluating Internet sites:

Table 5.1: Important questions for evaluating Internet sites

Author	• Can we easily identify the author of the Webpage or site? • Does the author give their affiliations, credentials or reason for publishing the information?
Type of Information	• Look at the URL or address. Where did the document originate? • Is the information scholarly, governmental, from a private business or association, or an advertisement? • Do other reputable Internet sites point to this one?
Purpose	• Is the author making an argument for personal gain, offering an opinion, giving a factual report or relaying a personal observation? • For whom is the site intended?
Sources	• Is the information from original research, experiments, observation, interviews, books or documents? • Are references provided?
Timeliness	• When was the material published? • Has the content been updated recently?

If we cannot find the answer to these questions, that may be reason enough not to use a particular website or resource.

If the searched information from a website is used for an assignment, make sure to record the address or URL of the site and the date upon which you visited it. This information is essential to accurately cite the resource in a bibliography. (Courtesy: *www.deakin.edu.au*)

ALTERNATIVE TEACHING APPROACHES, ENRICHMENT MATERIAL

The ICT teachers can use Internet, charts, worksheets, models, go for educational field trips and subject experts can be called for seminars to enrich the teaching level and in turn help the students in learning "Using Internet".

ADDITIONAL QUESTIONS

1. Describe the downloading and uploading of files.
2. Write a short note on WWW.
3. Who is responsible for effective working of the Internet?
4. List some webpage design software package.
5. What is netiquette, and why is it important?
6. What is a cookie?

UNIT 6

CONTROL AND LEARNING WITH LOGO

(6 PERIODS)

UNIT OUTCOME

Students will be able to:

- understand the LOGO language;
- recognize techniques in programming using the LOGO language.

SUGGESTED LESSON PLAN

Sub-unit	Number of Periods
6.1 Control and Learning with LOGO	6

STRUCTURE OF THE UNIT

6.1 Control and Learning with LOGO

In this sub-unit, we will learn about Control and learning with LOGO. The topics to be learnt are:

- Using variables
- Using Recursive Procedures

REVIEW OF THE UNIT

- LOGO is one of the simplest and easiest computer languages.
- A LOGO procedure is a set of LOGO commands which are given to perform a particular task.
- Variables are used for making a procedure more flexible.

- Recursion is the process where a procedure repeats itself.

ROLE OF THE STUDENTS

In this unit, the students are supposed to learn the basic concepts of "Control and learning with LOGO". The activity based method should be followed to understand the subject matter which is the best way of better understanding of the subject matter.

In Grade 9, the students have learnt the LOGO Primitives to draw a variety of shapes and also have written procedures including Repeat and Random. Now, they are ready to learn and write advanced LOGO procedures. They will use variables in writing procedures.

Recursion is a procedure in which we can call a procedure within itself. Students will learn to write recursive procedures to draw figures of various shapes and growing sizes.

ADDITIONAL CLASS ACTIVITY FOR GIFTED STUDENTS OR SLOW LEARNERS

ACTIVITY 6.1: Draw a Pinwheel, a Figure like Fig. 6.1, Using LOGO Procedure(s)
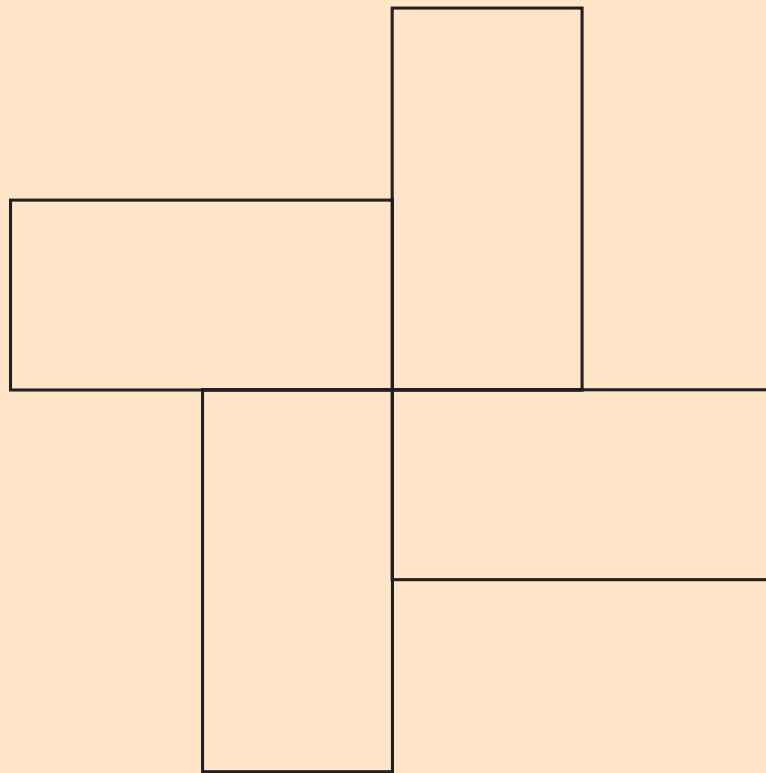
Fig. 6.1: Pinwheel

In groups, the students will write LOGO procedure(s), to draw pinwheel and explain in the class.

TO RECTANGLE :L :B

; Procedure RECTANGLE to draw rectangle

   HT;   Hide Turtle

   REPEAT 2 [FD :L RT 90 FD :B RT 90]

END

TO PINWHEEL :L :B

; Procedure PINWHEEL to draw pinwheel

   ; Calls procedure RECTANGLE

   REPEAT 4[RECTANGLE :L :B RT 90]

END

Now type the following in Command Input Box and press *Enter* key to run the procedure PINWHEEL:

PINWHEEL 200 50

The following output will be shown on the screen:
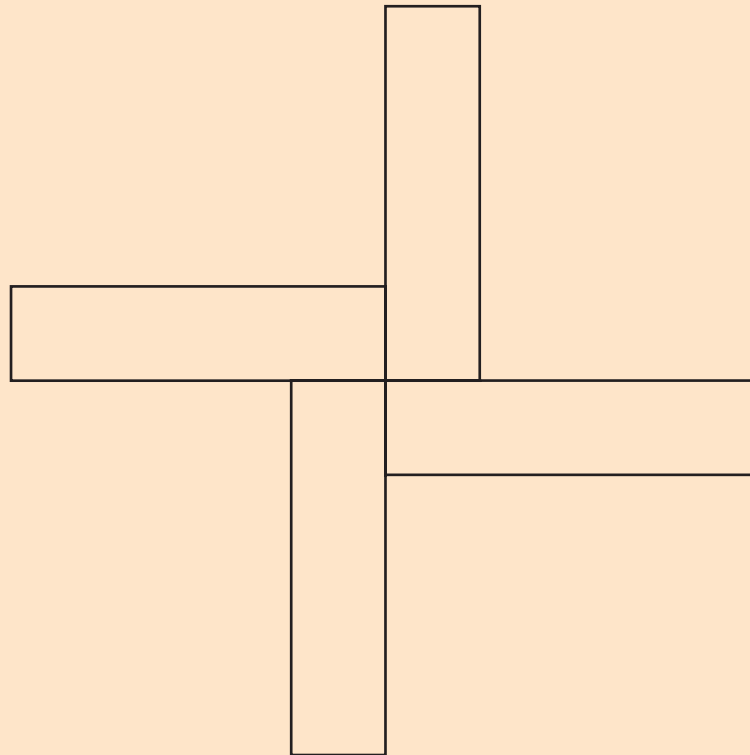
ANSWERS TO REVIEW QUESTIONS

Fill in the Blanks

1. primitives
2. variable
3. recursive
4. BYE

State Whether True or False

1. False
2. True
3. False
4. True

Multiple Choice Questions

1. (*a*)
2. (*c*)
3. (*b*)
4. (*d*)

Match the Following

1. (*c*)
2. (*d*)
3. (*a*)
4. (*b*)

Answer the Following

1. *Using variables in writing procedures in LOGO*: In LOGO, variables can be "attached" to the procedure names. Variables are used for making a procedure more flexible. A : (colon) is used before a variable in LOGO procedures. LOGO keywords must not be used as variables.

The following examples illustrate the use of variables in writing procedures:

Example 1: The following procedure will draw a square which lets the user enter a length for the side.

TO SQUARE :LEN ; LEN is side length

; Procedure SQUARE

    CS ; Clear Screen

    REPEAT 4 [FD :LEN RT 90]

    HT ; Hide Turtle

END

Example 2: The following procedure will draw a rectangle which lets the user enter the length and breadth.

TO RECTANGLE :L :B

; Procedure RECTANGLE

   CS ; Clear Screen

   REPEAT 2 [FD :L RT 90 FD :B RT 90]

   HT ; Hide Turtle

END

2. The following procedure uses variable R to draw circles:

TO CIR :R ; R is the radius of circle

; Procedure CIR has one variable :R

   CS ; Clear Screen

   CIRCLE :R; Draw circle

   HT ; Hide Turtle

END

3. This procedure will take values for variables SIZE and ANGLE as input, and it will recursively create a spiral pattern, stopping when the sides reach 400 long.

4. In LOGO, recursive procedures are those procedures which can call themselves. Consider the following examples:

TO COUNTUP :NUM :LIMIT

; Procedure COUNTUP to count up by 2

   IF :NUM > :LIMIT [STOP]

   PRINT :NUM

   ; Recursive call

   COUNTUP :NUM + 2 :LIMIT

END

TO COUNTDOWN :NUM

; Procedure COUNTDOWN

   IF :NUM < 0 [STOP]

   PRINT :NUM

   ; Recursive call

   COUNTDOWN :NUM – 3

END

Suggested Activities

Refer to sub-unit 6.1 of the Student Textbook for doing the activities.

ALTERNATIVE TEACHING APPROACHES, ENRICHMENT MATERIAL

The ICT teachers can use Internet, charts, worksheets, models, and subject experts can be called for seminars to enrich the teaching level and in turn help the students in learning "Control and learning with LOGO".

ADDITIONAL QUESTIONS

1. What is a procedure? What are the rules for writing a procedure in LOGO?

2. Write a LOGO procedure to draw the following figure:
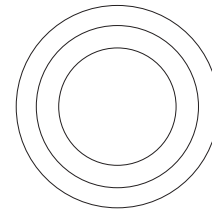
3. What is recursion? Write a recursive procedure GROW in LOGO to draw the following figure:
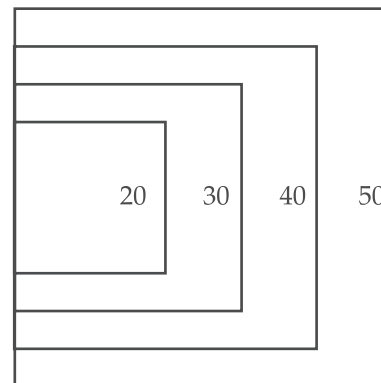
4. Write a recursive LOGO procedure COUNTUP to count up from 1 to a given number N.

5. Write a LOGO procedure to draw a petal of a flower and use it in another LOGO procedure to draw a flower containing 12 petals.

GRADE 10
MINIMUM LEARNING COMPETENCIES (MLCs)

S.No.	Units	Minimum Learning Competencies (MLCs)
1.	**Introduction to ICT**	• Identify ICT components • List characteristics of valuable information • Name major components of system unit • Identify function of the system unit components • Name components of motherboard • Identify function of the motherboard components • Identify memory and speed of computer equipments
2.	**Application Software**	• Apply what they have learned about word processing in grade 9 to real activities uncounted in the study of other curriculum subjects in grade 10 • Apply what they have learned about presentation software and techniques in grade 9 to real activities uncounted in the study of other curriculum subjects in grade 10 • Open the desktop publishing program • Identify screen elements of desktop publishing • Identify the major features of desktop publishing • Organize, format and publish various type of publication • Create brochure effectively • Format brochure as required • Create a business card effectively • Print the card in appropriate paper size • Create a Greeting or Invitation card
3.	**Information and Computer Security**	• Explain about copyright issues • Recognizes that the use of others' property is not correct • Describe the dangers of copying others • Recognize the social impact like misuse of e-mail, unauthorized intrusion and deleting and manipulating others' data

S.No.	Units	Minimum Learning Competencies (MLCs)
4.	**Application Software**	• Use the function of the Fill handle • Apply different effects to a cell and its contents • Create different types of charts • Identify the difference between absolute and relative cell reference • Use some built-in functions to calculate totals and averages • Identify that computations using built-in functions can be done accurately and quickly • Compute rank • Format text and numbers in the cell of a worksheet • Apply what they have learned about spreadsheet in grade 9 to real activities uncounted in the study of other curriculum subjects in grade 10 • Define the key terms in a database system • Create different types of Query using Query design view • Explain the use of a form • List and explain options for creating a form • Identify the difference between methods of creating a form • Create a form using design view • Identify sections of a form • Identify access controls and explain their usage • Perform calculation in a form • Create sub form • Prepare a report
5.	**Using Internet**	• Describe the development of the internet • List the advantages of the internet • Use keywords and connectors in a search • Explain the differences between webpage and website • List some uses of the WWW • Locate information contents • Plan and develop a webpage
6.	**Control and Learning with LOGO**	• Use variables in writing procedures • Create a recursive procedure

GRADE 10 SYLLABUS

INTRODUCTION

In the long term, the students entering Grade 9 will have good practical IT skills. They will be familiar with the major facilities of the most widely used applications, and be able to decide which application to use to fit a certain purpose.

In Grade 9, the students will briefly cover the development of computers and communications technology. Then they will study three areas in greater depth: desktop publishing, database application and finally networks and communications. By the end of Grade 9, students will be able to use a desktop publishing package effectively to produce a variety of documents such as brochures, visiting cards and newsletters.

In Grade 10, they will continue the work on databases and will be able to interrogate a database and produce reports.

The assessments for both Grades 9 and 10 will be more complex and longer than previous assessments, and they will require more time spent in the computer laboratory.

After finishing Grade 10 the students will take the National Examinations. Those who pass the examination will either join a Preparatory School or will follow the Technical and Vocational stream of their choice. This could be Information Technology. In either case, students who have completed Grade 10 will have excellent IT skills which will serve them well in their future studies.

In the short term, the Grade 9 syllabus will be taught in the first year of implementation, followed by the Grade 10 syllabus a year later. After 4 years, new Grade 9 students will have covered Grades 5–8.

UNIT 1: INTRODUCTION TO ICT

(6 PERIODS)

Unit Outcome: Students will be able to:

- understand the components of ICT;
- recognize the major system unit components;
- recognize the major motherboard components.

Competencies	Contents	Suggested Activities
• Identify ICT components. • List characteristics of valuable information.	**1.1 Basics of ICT** • Revision • Components of ICT • Characteristics of valuable information	• Students should identify the components of Information and communication technology such as computer, communications networks, and Know-how. • Students should discuss in group about the characteristics of valuable information.

• Name major components of system unit.
• Identify function of the system unit components.
• Name components of motherboard.
• Identify function of the motherboard components.
• Identify memory and speed of computer equipments.
	1.2 Computer System
	• Major system unit components
	  – Motherboard, power supply, Hard disk, CD drive and Floppy drive
	• Major motherboard components
	  – CPU, RAM, ROM, Slots, Chips and CMOS battery
	• Memory capacity and computer speed
		• Demonstrate and explain the function of major components of the system unit.
		• Demonstrate and explain the function of major components of a motherboard.
		• Students should understand about the memory capacity such as hard disk, secondary storage device, RAM and computer speed etc.

ASSESSMENT

The teacher should assess each student's work continuously over the whole unit and compare it with the following description, based on the specific objectives, to determine whether the student has achieved the minimum required level.

Students at Minimum Requirement Level

A student working at the minimum requirement level will be able to: Identify ICT components, List characteristics of valuable information, name major components of system unit, identify functions of system unit and motherboard components and name components of motherboard.

Students Above Minimum Requirement Level

Students working above the minimum requirement level should be praised and their achievements recognized. They should be encouraged to continue working hard and not become complacent.

Students Below Minimum Requirement Level

Students working below the minimum requirement level will require extra help if they are to catch up with the rest of the class. They should be given extra attention in class and additional lesson time during breaks or at the end of the day.

UNIT 2: APPLICATION SOFTWARE

(14 PERIODS)

Unit Outcome: Students will be able to:

- understand the application of word processing, and presentation software;
- apply word processing, and presentation software packages for different purposes;
- recognize the major features of desktop publishing;
- know how to organize, format and publish various types of publication.

Competencies	Contents	Suggested Activities
• Apply what they have learned in grade 9 to real activities uncounted in the study of other curriculum subjects in grade 10.	**2.1 Key Features of Word Processing** • Revision • Tables and pictures in word processor • Word processing activities	• Students should do the following activities e.g. – Writing a letter to a prospective employer. – Creating a personal C.V. – Keeping a logo of personal performance in physical education. – Producing a descriptive article on photosynthesis or similar biological process. – Writing a report on a chemical experiment. – Writing a report on a Physics experiment. – Writing a piece about irrigation and water distribution in Ethiopia.
• Apply what they have learned in grade 9 to real activities uncounted in the study of other curriculum subjects in grade 10. • Open the desktop publishing program.	**2.2 Key Features of Presentation Software and Techniques** • Revision • Presentation software and Techniques activities **2.3 Desktop Publishing** • Load publisher and starting new document	• Produce a time–line for important events in the history of Ethiopia, • Students should do the following activities. IT teacher will liase with subject teachers to promote active learning in groups. E.g. in geography, groups of students will prepare a presentation on a geographical topic such as global warming or land erosion in Ethiopia. • Students should prepare and present a slideshow. • Students should load, open, and save files the same way to other application. • Explain and demonstrate the main screen elements of desktop publishing program.

Competencies	Contents	Suggested Activities
• Identify screen elements of desktop publishing. • Identify the major features of desktop publishing. • Organize, format and publish various types of publication. • Create brochure effectively. • Format brochure as required. • Create a business card effectively. • Print the card in appropriate paper size. • Create a Greeting or Invitation card.	• Exploring the Publisher window • Editing a page • Brochure building • Business cards • Folded card publishing	• Students should create textbox and edit content, insert word art and edit style, insert picture, insert auto shapes, and formatting objects. • Explain the purpose of brochure and demonstrate the steps in designing an A5 size brochure with 4 sides of text/images. • Creating or opening brochure, Adding text, format text, inserting picture and choosing text flow around the picture, Copying, moving, rotating, resizing, filling with color, or deleting an object, Inserting and deleting pages, Creating page boarder and Print preview and printing. • Explain and demonstrate the purpose of a business card. The business card contains essential information. The information on a business card needs to be clear and precise. The fonts should be clear and large enough to read. • Explain and demonstrate how to create or open a business card, add a Logo, and design a business card. • Explain and demonstrate designing Greetings and Invitation Cards. • Students should Create or open the greeting card or invitation.

ASSESSMENT

The teacher should assess each student's work continuously over the whole unit and compare it with the following description, based on the specific objectives, to determine whether the student has achieved the minimum required level.

Students At Minimum Requirement Level

A student working at the minimum requirement level will be able to: Apply Word processing for different document preparation, Apply presentation software and Techniques for presenting with slide show, Identify the major features of desktop publishing, Organize, format and publish various type of publication, Create brochure effectively, Format brochure as required, Create a business card effectively and Create a Greeting or Invitation card.

Students Above Minimum Requirement Level

Students working above the minimum requirement level should be praised and their achievements recognized. They should be encouraged to continue working hard and not become complacent.

Students Below Minimum Requirement Level

Students working below the minimum requirement level will require extra help if they are to catch up with the rest of the class. They should be given extra attention in class and additional lesson time during breaks or at the end of the day.

UNIT 3: INFORMATION AND COMPUTER SECURITY

(4 PERIODS)

Unit Outcome: Students will be able to:

- understand and aware of copyright issues;
- recognize national and international laws on copyright.

Competencies	Content	Suggested Activities
• Explain about copyright issues. • Recognize the use of others is not proper. • Describe the dangers of copying others. • Recognize the social impact like misuse of e-mail, unauthorized intrusion and deleting and manipulating others' data.	**3.1 Information and Computer Security** • Software copyright • National and international laws on copyright • Protection – Use of password	• Students should understand why software needs to have a copyright law. • Discuss how copying affects the right of others and the development of countries in terms of different aspects—social and economical. • Work collectively with others and use password appropriately. • Discuss rights and wrongs of indiscriminate copying and software piracy. • Students should identify the impact of unauthorized intrusion, manipulating or deleting others' data and prevent misuse of e-mail and its social impact.

ASSESSMENT

The teacher should assess each student's work continuously over the whole unit and compare it with the following description, based on the specific objectives, to determine whether the student has achieved the minimum required level.

Students at Minimum Requirement Level

A student working at the minimum requirement level will be able to: Explain about copyright issues, Describe the dangers of copying others and Recognizes the use of others is not proper and how to protect.

Students Above Minimum Requirement Level

Students working above the minimum requirement level should be praised and their achievements recognized. They should be encouraged to continue working hard and not become complacent.

Students Below Minimum Requirement Level

Students working below the minimum requirement level will require extra help if they are to catch up with the rest of the class. They should be given extra attention in class and additional lesson time during breaks or at the end of the day.

UNIT 4: APPLICATION SOFTWARE

(22 PERIODS)

Unit Outcome: Students will be able to:

- know how to create chart and graphs in spreadsheet;
- apply spreadsheet for different application;
- understand some common uses of database;
- recognize query, form in and report in a database application.

Competencies	Contents	Suggested Activities

• Use the function of the Fill handle.
 	
• Apply different effects to a cell and its contents.
 	
• Explain the use of a chart.
 	
• Create different types of charts.
 	
• Identify the difference between absolute and relative cell reference.
 	
• Use some built-in functions to calculate totals and averages.
 	
• Identify that computations using built in functions can be done accurately and quickly.
 	
• Compute rank.
 	
• Format text and numbers in the cell of a worksheet.
	4.1 Key Features of Spread Sheets
	
	• Revision of spread sheet
	   ○ Definition of a chart
	   ○ Creating charts,
	     – Column chart, Bar chart, and Pie chart
	   ○ Change data in a cell
	• Presenting data by chart
	• Using spreadsheet to process data
	   – using custom formula
	   – using if condition
	   – using built-in functions (Calculating using Spreadsheets, Auto sum $\sum$, and other Functions)
	   – More complex exercises using $+, -, *, /$
		• Students should master introductory parts of spreadsheet by revising the grade 9 main contents.
		
		• Explain the use of charts.
		
		• Demonstrate how to create the listed charts by using the chart wizard.
		
		• Explain and demonstrate how to compute rank using the rank function taking a given numerical item as an example
		
		• Students should do the following activities:
		
		IT Teacher will liaise with subject teachers particularly Mathematics, Science and Geography to promote active learning in groups.
		
		E.g., in Mathematics compare the growth of an arithmetic progression with a geometric progression.

Competencies	Contents	Suggested Activities
• Apply what they have learned about spread sheet in grade 9 to real activities uncounted in the study of other curriculum subjects in grade 10	• Formatting worksheet	
• Explain what database is and some common uses of database. • Define the key terms in a database system. • Create different types of Query Using Query design view. • Explain the use of a form for creating a form. • List and explain options for creating a form. • Identify the difference between methods of creating a form. • Create a form using design view. • Identify sections of a form • Identify Access controls and explain their usage. • Manipulate Access Controls. • Perform Calculation in a form. • Create sub form. • Prepare a report.	**4.2 Database Application** • Introduction to database • Uses of database • Common database application • Database Terminology • Designing a database structure • Open an existing database • Overview of a table • Creating a table • Add, edit, delete and sort records • Overview of query • Creating a query • Overview of a form • Creating a form • Section of a form • Adding data using form • Formatting a form • Main/sub forms • Overview of a report • Sections of a report • Adding controls to a report • Formatting a report	• Students should identify some uses of database and define the key terms. • Explain and demonstrate common database applications and terminology used in database like table, records, fields, data type and primary key. • Students should decide three own database structure. • Students should add, edit and delete and sort records. • Explain about query in general and the different types of query and demonstrate methods of creating query. • Demonstrate the steps required to create different types of query using query design view. • Ask students to create a table named student in design view having id, name, father name, sex, age and phone number as fields. Based on the table let them create a select query based on a given criterion. • Explain about the database object form, its primary use, and demonstrate the steps required in creating form in design view. • Students should identify the options for creating a form such as Auto form, Form Wizard and Form design view. • Explain and demonstrate sections of a form in database. • Students should perform calculation in a form and be able to create a sub form: • Students should perform report by formatting.

ASSESSMENT

The teacher should assess each student's work continuously over the whole unit and compare it with the following description, based on the specific objectives, to determine whether the student has achieved the minimum required level.

Students At Minimum Requirement Level

A student working at the minimum requirement level will be able to: Explain the use of a chart, Create different types of charts, Apply spreadsheet for different purposes, Explain what database is and some common uses of data base, Define the key terms in a data base system, Create different types of Query Using Query design view, Explain the use of a form, Create a form using Design view, Manipulate Access Controls, Perform Calculation in a from and Create sub form.

Students Above Minimum Requirement Level

Students working above the minimum requirement level should be praised and their achievements recognized. They should be encouraged to continue working hard and not become complacent.

Students Below Minimum Requirement Level

Students working below the minimum requirement level will require extra help if they are to catch up with the rest of the class. They should be given extra attention in class and additional lesson time during breaks or at the end of the day.

UNIT 5: USING INTERNET
(6 PERIODS)

Unit Outcome: Students will be able to:

- understand the history and advantages of the internet;
- recognize the use of browsers and search engines;
- know downloading and uploading files;
- understand how to design a simple web page.

Competencies	Contents	Suggested Activities
• Describe the development of the internet. • List the advantages of the internet. • Use keywords and connectors in a search.	**5.1 Overview of the Internet** • Advantages and disadvantages • Keywords and connectors • Downloading and uploading files	• Explain the brief history of the Internet. • Advantages of the internet considering how it affects our lives today. • Describe, with examples, how to select a keyword. • Describe, with examples, the use of connectors for searching and demonstrate how to search for information using keyword(s).
• Explain the differences between Webpage and Website.	**5.2 Definition of WWW** • Webpage • Website – Static and dynamic website • Web server • Web technology	• Explain how pages belong to a person, organization or government. One day they might have their own web page!
• List some uses of the WWW. • Locate information contents. • Plan and develop a Webpage.	**5.3 Planning and Developing WebPages** • Web design Guides (e.g. Color, text, image, etc) • Purpose of a website • Designing a web architecture • Identify contents for the website	• Definition of a URL. • Demonstrate locating information contents. • Explain and demonstrate how to incorporate the features of the designs into a webpage. • They should describe how the internet can be searched to find information and should comment on how this information could be used by people.

ASSESSMENT

The teacher should assess each student's work continuously over the whole unit and compare it with the following description, based on the specific objectives, to determine whether the student has achieved the minimum required level.

Students At Minimum Requirement Level

A student working at the minimum requirement level will be able to: Describe the development of the internet, List the advantages of the internet, Use keywords and connectors in a search, List some uses of the WWW, Design a simple Webpage and Implement the webpage.

Students Above Minimum Requirement Level

Students working above the minimum requirement level should be praised and their achievements recognized. They should be encouraged to continue working hard and not become complacent.

Students Below Minimum Requirement Level

Students working below the minimum requirement level will require extra help if they are to catch up with the rest of the class. They should be given extra attention in class and additional lesson time during breaks or at the end of the day.

UNIT 6: CONTROL AND LEARNING WITH LOGO
(6 PERIODS)

Unit Outcome: Students will be able to:

- understand the LOGO language;
- recognize techniques in programming using the LOGO language.

Competencies	Content	Suggested Activities
• Use variables in writing procedures • Create a recursive procedure	**6.1 Control and Learning with LOGO** • Using variables • Using recursive procedures	• Students should create circles with a variety of radii. • Students should create rectangles with varying lengths of sides. • Students should produce a simple snowflake outline. • Students should have full version of logo language.

ASSESSMENT

The teacher should assess each student's work continuously over the whole unit and compare it with the following description, based on the specific objectives, to determine whether the student has achieved the minimum required level.

Students At Minimum Requirement Level

A student working at the minimum requirement level will be able to: Use variables in writing procedures and create a recursive procedure

Students Above Minimum Requirement Level

Students working above the minimum requirement level should be praised and their achievements recognized. They should be encouraged to continue working hard and not become complacent.

Students Below Minimum Requirement Level

Students working below the minimum requirement level will require extra help if they are to catch up with the rest of the class. They should be given extra attention in class and additional lesson time during breaks or at the end of the day.

GLOSSARY

A

Absolute Reference: Commonly used in spreadsheet applications, it is a formulated cell reference that will not adjust when used to calculate the sum of specific cells.

Access: A database program which is a part of the Microsoft Office suite of programs.

Address Book: In e-mail, list of regular contacts' addresses held in the e-mail software.

AI (Artificial Intelligence): It is the branch of computer science concerned with making computers behave like humans.

Alignment: Positioning of text according to the margins and baseline.

Analog: It is any fluctuating, evolving, or continually changing process that represents data by measurement of a continuous physical variable.

Animation: The display of a sequence of images in a computer program or on a Webpage to give the impression of movement.

Application Software: A program that is designed to perform specific tasks.

ASCII: American Standard Code for Information Interchange. It is pronounced (as-kee).

Attachment: An attachment can be a file of almost any kind—a document file, an image file, a sound file or a video clip—that we can add, *i.e.*, attach, to an email.

B

Backup: To copy files or data to a second source or media so as to safeguard it.

Bandwidth: A measurement of how much data (bits per second) can be sent through a connection.

BCD: Binary Coded Decimal.

Binary: A basic numbering system consisting of 1s and 0s.

Bit (Binary DigIT): It is the smallest unit of processing of computerized data in terms of 1s or 0s.

Blog: (Slang term for a Weblog) A blog is a personal journal that can be accessed publicly and allow people to comment on the previously posted comments.

Bluetooth: A wireless networking technology using radio waves that enables user to send data and voice signals between devices over short distances.

BMP (pronounced "bimp"): Microsoft Windows image file format this is the only graphics format where compression actually enlarges the file.

Booting: Starting a computer by loading the operating system into memory.

Broadband: A general term used to describe a high-speed connection to the Internet.

Browser: Software program that allows the user to find and read encoded information in a form suitable for display especially on World Wide Web.

Byte: A combination of 8 bits to represent computer data transfer or data storage measurement.

C

Cell: Intersection of a row and column in a worksheet.

CD-ROM (Compact Disc Read-Only Memory): A durable and low cost circular optical storage device widely used to store large amounts of information.

Clipart or Clip Art: A collection of image files that can be embedded or inserted into Web pages, word-processed documents, PowerPoint presentations, etc.

Compiler: A type of system software that translates a source program usually written in a high level language into a machine language.

Computer: An electronic device that can accept, store and process data under the control of a set of instructions.

Computer Laboratory: A special place where computers are kept to operate.

Computer Program: A set of instructions that the computer carries out to perform a given task.

Copy, Cut and Paste: Techniques of duplicating or removing data from one place and inserting it elsewhere.

Copyright: New technologies have raised all kinds of new issues relating to copyright—mainly because it has become so easy to copy materials from a variety of digital sources.

CPU (Central Processing Unit): A processor on an IC chip (called a microprocessor) that serves as the 'brain' of the computer.

Cursor: A movable, blinking symbol that indicates the position on a computer screen where user action is needed.

D

Data: A collection of raw facts and figures or a raw input which when processed or arranged makes meaningful output.

Database: A structured collection of data that can be used for a variety of purposes.

Data Communications: The moving or sharing of encoded information between two or more data sources using an electronic medium.

DBMS (Database Management System): Application software which enables the storage, modification, retrieval, and querying of data in a database.

Debug: To test a program and remove all the bugs (errors).

Desktop: The primary display screen of a graphical user interface, on which various icons represent files, groups of files, programs, which can be moved, accessed, added to, deleted, etc., on a real desk.

Desktop Publishing (DTP): Application software for laying out text, graphics and pictures in order to produce a professional-looking publication.

Digital: A system that defines data in a discrete, non-fluctuating (*i.e.*, non-analogue), numerical digits, specially 1s or 0s.

Directory: An organizing unit in a computer's file system for storing and locating files. In a hierarchical file system, directories can contain subdirectories as well as files.

Distribution List: Also called a mailing list, is a collection of e-mail addresses that allows you to e-mail multiple people at one time.

Domain Name System: An addressing system in which abbreviations are used to indicate the type of organization or entity instead of whole name, for example, .edu for educational institution.

Downloading: It means transmitting data from a remote computer to a local computer, as from a website to your own PC.

DVD: Digital Versatile Disc or Digital Video Disc.

Dynaset: Set of records returned by a query.

E

E-Commerce: Buying and selling or business transaction conducted on the Internet.

E-Mail: Stands for Electronic Mail. This is a system of relaying messages across the Internet, from one Internet user to another.

Encryption: A system of coding that helps prevent access to private information on computer networks or on the Web.

EPROM: Erasable Programmable Read-Only Memory ("ee-prom"). It is a memory chip whose contents can be erased by a mechanism using ultraviolet light and reprogrammed for other purposes.

F

Flash Player and Flash Professional: Software produced by Adobe for the development and viewing of animated and interactive sequences on the Web.

Firmware: A microprogram stored in read-only memory (ROM), designed to implement a function that had previously been provided in software.

Folder: An alternative word for a directory and which has become more common since the introduction of Windows.

Forms: Used to provide an easy to use interface for user to enter, view and modify data in a table.

Format: The arrangement of data for computer input or output, such as the number and size of fields in a record or the spacing and punctuation of information in a report. It is also to prepare a disk for reading and writing.

Format Painter: Helps to copy the format that has been applied to text and apply it to another.

Freeware: This is a shortened version of Free Software. Programmers offer their work without wanting pay in return.

FTP (File Transfer Protocol): A software protocol for exchanging information between computers over a network.

G

Gigabyte (GB): 2 to the 30th power (1,073,741,824) bytes. One gigabyte is equal to 1,024 megabytes.

GIGO: It is an acronym that stands for Garbage In, Garbage Out.

Google: A popular search engine.

GUI (Graphical User Interface): A program interface that takes advantage of the computer's graphics capabilities to make the program easier to use. Well-designed graphical user interfaces can free the user from learning complex command languages.

H

Hacker: A person who spends his/her time trying to gain access to information stored on other people's computers all around the world.

Hardcopy or Hard Copy: Printed output from a computer, as opposed to output on screen.

Hardware: The physical equipment used in a computer system, such as the CPU, peripheral devices and memory.

Home Page: The initial page of a site on the World Wide Web.

HTML: Hypertext Markup Language. It is a collection of structuring and formatting tags used to create Web pages.

HTTP (Hyper Text Transport Protocol): The standard protocol for transferring hypertext documents on the World Wide Web.

Hyperlinks: A word or graphic display on one web page that allows a computer to shift to another related web page.

Hypertext: A method of storing data through a computer program that allows a user to create and link fields of information at will and to retrieve the data non-sequentially.

I

Icon: A picture or symbol to represent a command on a computer screen.

IC: Abbreviation for Integrated Circuit.

ICT: Information and Communication Technology

IDE (Integrated Development Environment): A programming environment integrated into an application.

Information: Meaningfully organized data.

Input: Anything that goes into a computer in order to be processed and/or stored.

Input Device: A device that allow people to put data into the computer in a form that the computer can use. For example, keyboard.

Internet Explorer: A browser produced by the Microsoft Corporation and supplied together with the Windows operating system.

IT (Information Technology): The development, implementation, and maintenance of computer hardware and software systems to organize and communicate information electronically.

Integrated Circuit (IC): A circuit of transistors, resistors, and capacitors constructed on a single semiconductor wafer or chip, in which the components are interconnected to perform a given function.

Interface: This is any type of point where two different things come together. Most often, the term is used to describe the programs between you and your computer like Windows, UNIX and others. What you see on the screen is the interface between you and what your computer is doing.

Interpreter: It translates and executes source program, written in high level language, statement-by-statement.

Internet: The Internet is a network of networks all of which use the same set of communications protocols.

Intranet: A private network for communications and sharing of information that, like the Internet, is based on TCP/IP but is accessible only to authorized users within an organization. An organization's intranet is usually protected from external access by a firewall.

ISP (Internet Service Provider): A company that provides access to the Internet.

J

JAVA: A high-level programming language developed by Sun Microsystems.

Joystick: A device that looks a bit like a gear lever in a car. This is connected to a computer and is used mainly for controlling the cursor in fast action games.

JPEG (pronounced "J-Peg", stands for Joint Photographic Experts Group): It is an image format that allows for compression when stored.

K

Keyboard: An input device which is used to enter information which the computer displays or processes.

Kilobyte (KB): This is about a thousand bytes of space. In reality, it is two to the 10th power or 1,024 bytes.

L

LAN (Local Area Network): A network that links together computers and peripheral equipment within a limited area, such as a building or a group of buildings.

Language Processor: Software that converts a high level language or assembly language code into machine understandable form.

Laptop Computer: A computer that is light and can easily be carried around.

Laser Printer: A type of printer that produces high-quality output at a reasonable speed.

LCD (Liquid Crystal Display): A method of displaying readings continuously using a liquid-crystal film, sealed between glass plates that changes its optical properties when a voltage is applied.

Linker: A program specifically designed to combine or link together a large number of programs forming a single executable instruction set for these programs that can be loaded into the systems memory for quick execution.

Login: To attach to a computer using the user's ID.

LOGO (Logic Oriented, Graphics Oriented): A high level programming language specifically designed for its ease of use and graphics capabilities.

M

Mainframe: Second largest computer available after the supercomputer.

Megabyte (MB): About a million bytes of space. Actually it is 2 raised to the 20th power or 1,048,576 bytes of space.

Memory: Internal storage areas in the computer.

Microcomputer: A category of computer that is generally used for personal computing, for small business computing, and as a workstation attached to large computers or to other small computers on a network.

Microprocessor: An integrated computer circuit that performs all the functions of a CPU.

Microsoft Office: A suite of programs produced by Microsoft Corporation, comprising a Word-processor (Word), a Spreadsheet (Excel), a Presentation Program (PowerPoint), an Email package (Outlook), a Database

program (Access), and a Desktop Publishing package (Publisher).

MODEM: Stands for MOdulator and DEModulator. It is a device that changes data from digital (computer language) to analog (phone line language) and then back again.

Motherboard: The main circuit board of a microcomputer.

Monitor: The screen on which output from a computer is displayed.

Mouse: A pointing device that is used by moving it around on the desk and pressing (clicking) a button.

MPEG (Motion Picture Experts Group): A format to make, view, and transfer both digital audio and digital video files.

MS-Access: Database application software, provided by Microsoft.

MS-Excel: Spreadsheet application software, provided by Microsoft.

MS-PowerPoint: Presentation software, provided by Microsoft.

MS-Word: Word processing application software, provided by Microsoft.

Multimedia: The integration of two or more types of information (text, images, audio, video, animation, etc.) in a single application.

N

Nanosecond: A billionth of a second. Many computer operations, such as the speed of memory chips, are measured in nanoseconds. Nanosecond is often abbreviated as ns.

Navigation: It is the process of finding the way, *i.e.*, navigating, around a series of menus within a computer program or finding the way around the World Wide Web by means of a browser.

Netiquette: The rules of etiquette that apply when communicating over computer networks, especially the Internet.

Network: A system containing any combination of computers and its peripherals, used to transmit or receive information.

Newsgroup: An online discussion community found on the USENET system. These groups cover thousands of different topics of information and are offered free of charge.

Node: In networks, a processing location. A node can be a computer or some other device, such as a printer.

Notebook Computer: A type of Laptop Computer, but lighter and thinner—and therefore easy to carry around.

O

Offline: Not connected to a computer or network of computers.

Online: Connected to a computer or network of computers, especially the World Wide Web.

Operating System: A system software program that works as a bridge between computer hardware and the user. Operating systems perform basic tasks, such as recognizing input from the keyboard, sending output to the display screen, keeping track of files and directories on the disk, and controlling peripheral devices such as disk drives and printers.

Outlook: A popular e-mail program, part of the Microsoft Office suite of programs.

Output: Anything that comes out of a computer after being processed.

Output Device: A device that translates information processed by the computer into a form that humans can understand.

P

PDA (Personal Digital Assistant): A handheld device that combines computing, telephone/fax, and networking features and serves as an organizer for personal information.

PDF (Portable Document Format): A technology developed by Adobe and was designed to capture all of the elements of a printed document and place it in a single image file.

Pen Drive: A secondary storage device that can be used to easily transfer files between USB-compatible systems.

Peripheral: Any external device attached to a computer.

Pixel: The smallest element of an image that can be individually processed in a video display system.

Plotter: A computer output device that draws images on paper using a pen.

Portal: A Webpage, website or service that acts as link or entrance to other websites on the Internet.

Printout: Anything produced on a printer after being processed by a computer program.

Primary Key: A set of one or more values in a database that uniquely identifies a record in a table.

Primitives: The LOGO commands are known as 'Primitives'.

Procedure: The sequence of actions or instructions to be followed in solving a problem or accomplishing a task. It may be used at one or more points in a computer program.

Processor: A device that processes programmed instructions and performs tasks. The speed at which the CPU processes information internally is measured in MegaHertz (MHz) and GigaHertz (GHz). 1 GHz is equal to 1,000 MHz.

Programmable Read-Only Memory (PROM): A special memory chip that is blank when first purchased. It can be written to by the user by using a special hardware program. Once the data is written to it, it cannot be erased or changed.

Protocol: A set of rules governing the format of messages that are exchanged between computers.

Public Domain: Material that is copyright free, whose copyright has expired, or which cannot be copyrighted.

Q

Query: Used to retrieve information on a certain condition from a database.

R

RAM (Random Access Memory): A volatile computer memory available to the user for the temporary storage and manipulation of data.

Relative Reference: The default reference in a spreadsheet package.

Reports: Used to present data in a printed format.

Resolution: A measure of the number of pixels or small dots displayed on a computer display screen, printer or scanner.

ROM (Read-Only Memory): A memory in which program instructions, operating procedures, or other data are permanently stored, generally on electronic chips during manufacture, and that ordinarily cannot be changed by the user or when power is switched off.

Router: A device in a network that handles message transfers between computers.

S

Scroll Bar: A widget found in graphical user interface and used to show and control which portion of a document is currently visible in a window. A window may have a horizontal or, vertical scroll bar, or both.

Scanner: A device used to convert hard copy, *e.g.*, a printed page, photograph or photographic negative, into a form that can be stored on a computer.

Screen Saver: A moving picture or pattern that appears on the screen when you have not used the mouse or keyboard for a specified period of time.

Scroll: To move up and down or from side to side through a document or a Window to view or access all of its contents.

Search Engines: A computer program that searches documents, especially on the World Wide Web, for a specified word or words and provides a list of documents in which they are found.

Serial Port: A port or interface that can be used for serial communication, in which only 1 bit is transmitted at a time. Most serial ports on personal computers conform to the RS-232C or RS-422 standards.

Server: This is a mainframe computer that serves the other computers attached to it.

Sheet Tab: In spreadsheet applications, this refers to a tab at the bottom of a worksheet that acts as a means to identify or access different sheets within a workbook.

Slide Show: Used to display the slides in a desired sequence.

SMS (Short Message Service): A popular wireless service that is used for sending and receiving short messages up to a maximum of 160 characters. The service is used for text messaging between cell phones that are on a GSM (Global System for Mobile) network.

Source Code: Program code written in a high level language.

Social Networking: A term applied to a type of website where people can seek other people who share their interests, find out what's going on in their areas of interest, and share information with others.

Source data: Data for which the chart is prepared.

Software: The set of instructions used to direct the operation of a computer, as well a documentation giving instructions on how to use them.

Spam: The disruptive unwanted messages, especially commercial messages posted on a computer network or sent as e-mail.

Spreadsheet: A document which helps to organize data in rows and columns that intersect to form cells.

Supercomputer: High-capacity computer with thousands of processors that is the fastest calculating device ever invented.

Switch: In networks, a device that filters and forwards packets between LAN segments.

Syntax: Grammatical rules and structural patterns governing the ordered use of appropriate words and symbols for issuing commands, writing code, of a programming language.

System: A combination of the hardware, software, and firmware. A system typically consists of components (or elements) which are connected together in order to accomplish a specific function or set of functions.

System Software: It is a set of master programs that keeps the computer system working.

T

Task bar: The bar that contains the start button and appears by default at the bottom of the desktop.

TCP/IP: Acronym for Transmission Control Protocol/Internet Protocol, the suite of communications protocols used to connect hosts on the Internet.

Technology: It is the usage and knowledge of tools, crafts, techniques, or systems, or methods of organizations.

Terabyte (TB): 2 to the 40th power (1,099,511,627,776) bytes.

Toolbar: A row or rows of buttons on a display screen that are clicked on to select various functions in a software application or web browser.

Topology: In networking, this refers to the physical or logical arrangement of a network.

Touch-sensitive Screen: A display screen which enables the computer to react to the touch of a finger.

Transistor: A semiconductor device that amplifies, oscillates, or switches the flow of current between two terminals by varying the current or voltage.

Trojan: A type of computer virus that is loaded into an unsuspecting users system via a host program such as a free game.

Turtle: A triangular shape pointer used in LOGO that helps in drawing figures.

Twitter: A microblogging facility that allows users to post very short texts (maximum 140 characters) containing snippets of information about what they are doing at a given moment, news items, links to websites or comments on events.

U

UNICODE: Binary coding scheme that uses 2 bytes (16 bits) for each character. It allows almost all the written languages of the world to be represented using a single character set.

Uploading: It means transmitting data from a local computer to a remote computer, as from your PC to a website you are constructing.

UPS (Uninterruptible Power Supply): It is a backup power unit that provides continuous power when the normal power supply is interrupted.

URL (Uniform Resource Locator): A protocol for specifying addresses on the Internet. It is an address that identifies a particular file on the Internet, usually consisting of the protocol as http, followed by the domain name.

User: Someone attached to a server or host.

User-friendly: Mainly used to describe software. Software that is easy to use and offers guidance if the user does silly things is described as user-friendly.

Utility Program: A program developed to run within an Operating System to perform a specific service.

V

Videoconferencing or Video Conferencing: A computer-based communications system that allows a group of computer users at different locations to conduct a "virtual conference" in which the participants can see and hear one another as if they were in the same room participating in a real conference.

Virus: A program or piece of code that is loaded onto your computer without your knowledge and runs against your wishes.

W

W3C (World Wide Web Consortium): An international non-profit organization which acts as a resource centre for the World Wide Web, and is active in setting technical standards.

WAN (Wide Area Network): A network in which computers are connected to each other over a long distance, using telephone lines and satellite communications.

WAV: Stands for WAVeform sound format. Microsoft's format for encoding sound files.

Webcam: A camera connected to a computer and linking it to the Internet.

Web page or Webpage: A single, usually hypertext document on the World Wide Web that can incorporate text, graphics, sounds, etc.

Web server: A computer that runs specific software to serve web pages to the Internet.

Web site: A connected group of pages on the World Wide Web regarded as a single entity, usually maintained by one person or organization and developed to a single topic or several closely related topics.

Wizard: A utility that provides guided sequence to perform complex task easily and quickly.

Wifi: Wireless Fidelity, also known as wireless networking, a way of transmitting information without cables that is reasonably fast and is often used for laptop computers within a business or school campus instead of a Local Area Network (LAN) that uses cable connections.

Word Processor: Software that processes textual matter and creates organized documents.

Workstation: The computer attached to the Internet.

WWW (World Wide Web): Series of servers or computers that are interconnected through hypertext.

WYSIWYG: What You Say Is What You Get.

X

XML (eXtensible Markup Language): It is a markup language, not limited to Web documents.

Y

YouTube: A website to which we can upload our own video clips and view video clips uploaded by others: http://www.youtube.com.

Z

Zip Disks: The disks with a special high-quality magnetic coating that have a capacity of 100, 250 or 750 megabytes.

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