

01

Central Processing Unit



Have you seen the Central Processing Unit?

Yes, I have.

What is the Central Processing Unit?
Where is it located?

CPU can't be observed from the outside.



- Computer is like a kitchen in a hotel, and the Central Processing Unit is like a chef in that kitchen.
- As a chef prepares food, the Central Processing Unit processes data in the computer and converts them into information.
- As the food preparation speed depends on the speed of the chef, the speed of the computer depends on the speed of the Central Processing Unit.
- A dual-core processor is like having a kitchen with two chefs preparing two meals, so two things can be prepared at the same time.



1.1

Let's identify the Central Processing Unit

The Central Processing Unit – (CPU) can be identified as a digital circuit that processes data according to given instructions. Whatever task performed by the computer, in all such instances, the Central Processing Unit runs in the background.

The main function of the processor is to execute instructions stored in a computer programme. That is, it gets data and processes them according to given instructions.



Figure 1.1 - Central Processing Unit

While the Central Processing Unit can't be observed from the outside, it is positioned (fixed) on the motherboard, inside the system unit.

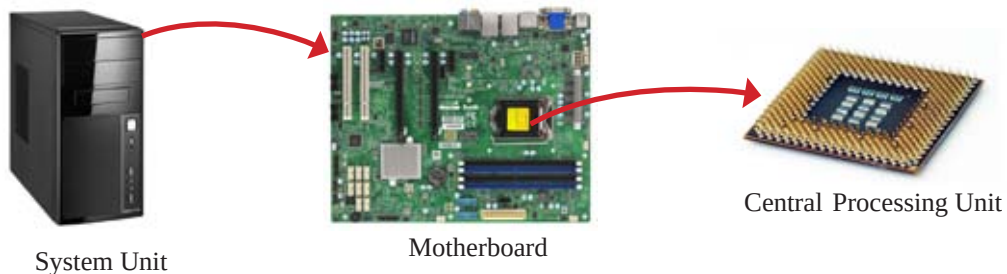


Figure 1.2 - Location of the Central Processing Unit



1.2

Let's identify the Components of the Central Processing Unit

The Central Processing Unit consists of three main components.

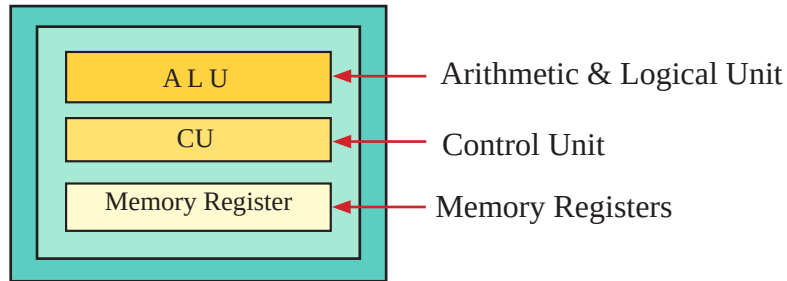


Figure 1.3 - Main components of the Central Processing Unit

1.2.1

Arithmetic and Logical Unit

Mathematical and logical functions are performed in the Arithmetic and Logical Unit. The functions of this unit can be further divided into two main sub-functions.



Mathematical calculations such as addition, subtraction, multiplication and division.

Eg : $2 + 3 = 5$



Logical operations such as comparison of two numbers.

Eg : $3 > 2$

1.2.2

Control Unit

The Control Unit communicates between manipulates and controls the hardware connected to the computer. It also performs tasks such as controlling input and output data, ensuring that data is sent to right place at the right time and being alert whether relevant signals are successfully received.



1.2.3 Memory Registers

It temporarily stores data and instructions that are being used by the Central Processing Unit. The storage capacity of the memory registers is very low when compared with other memory devices like hard disk. However its data access speed is very high.



Activity 1 - see Workbook 1.1

1.3 Let's learn about the evolution of Central Processing Unit

The Central Processing Unit of a computer system can be divided into four generations based on the electronic technology used to manufacture it.

1. First Generation (vacuum tubes)
2. Second Generation (transistor)
3. Third Generation (integrated circuit)
4. Fourth Generation (microprocessor)

While the above classification of the Central Processing Unit is a simple classification only for your understanding in grade 7, in many cases, the evolution of the Central Processing Unit has been shown in different generations in diverse ways too.

First Generation
Duration (time period)
1940-1956

Electronic technology used: Vacuum tube
Power consumption: A large amount of vacuum tubes (about 18000) were used and they emitted a lot of heat was required. A cooling system to control the heat. So, it led to a heavy power consumption.
Size of the computer : As large as a room
Execution speed: Measured in millisecond
Cost : It cost a lot for production and maintenance
e.g.: ENIAC, UNIVAC, EDVAC



Figure 1.4 - Some vaccume tubes

Figure 1.5 - A computer of the first generation



Second Generation

Duration
(time period)
1956 – 1963

Electronic Technology used: Transistor

Power consumption: Less power consumption when compared with the first generation computers.

Size of the computer : Smaller size when compared with the first generation

Execution speed: Measured in micro second

Cost : It costs a lot for purchasing

e.g.: IBM 7030, CDC 1604



Figure 1.6 - Some transistors



Figure 1.7 - A computer of the second generation

Third Generation

Duration
(time period)
1964 – 1971

Electronic Technology used: Integrated circuit

Power consumption: Less power consumption when compared with the second generation

Size of the computer : Smaller size when compared with the second generation

Execution speed: measured in Nano second

Cost : It cost less for purchasing when compared with the second generation

e.g.: IBM 360, CDC 6600



Figure 1.8 - An integrated circuit



Figure 1.9 - A computer of the third generation

Fourth Generation

Duration
(time period) from
1971 to date

Electronic Technology used: Microprocessor

Power consumption: Less power consumption when compared with the third generation

Size of the computer : Smaller size when compared with the third generation

Execution speed: MIPS – Million of Instructions Per Second and picosecond.

Cost : It costs less for purchasing when compared with the third generation

e.g.: Modern computers that are in use.



Figure 1.10 - A microprocessor



Figure 1.3 - Some computers of the fourth generation



mille second 1 = 0.001 second

micro second 1 = 0.000001 second

nano second 1 = 0.000000001 second

pico second 1 = 0.000000000001 second



Speed of the Central Processing Unit

Speed of the Central Processing Unit also known as clock speed is the number of instructions executed in a second. The unit used to measure the speed of the Central Processing Unit is hertz (Hz).

In modern computers, the unit megahertz (MHz) or gigahertz (GHz) is used to measure the speed of the Central Processing Unit.



Kilo hertz 1 Kz = 1000 Hz

Mega hertz 1 Mz = 1000 000 Hz

Giga hertz 1 Gz = 1000 000 000 Hz



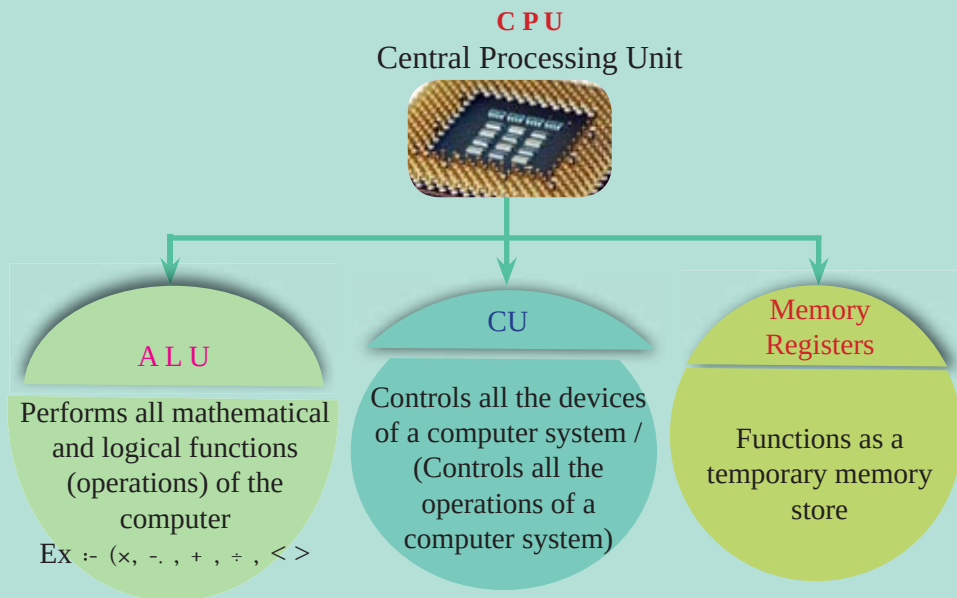
Activity 2 - see Workbook 1.2



Summary

- ★ (CPU) can be considered as the brain of the computer.
- ★ There are two main components of the Central Processing Unit.
 - Arithmetic and Logical Unit (ALU)
 - Control Unit (CU)

Additionally, memory registers too belong to the Central Processing Unit.



- ★ Speed of the Central Processing Unit increased gradually with the evolution of the computer.
- ★ Computer can be divided into four generations based on the electronic technology used in the Central Processing Unit.
 1. First Generation (vacuum tubes)
 2. Second Generation (transistors)
 3. Third Generation (integrated circuits)
 4. Fourth Generation (microprocessors)



02 Operating System



How do you work with the computer?



Ah... That's why an operating system is there as a mediator.

Operating system...? What is that?

2.1 Let's learn about the Operating System

The operating system is a software. This software is necessary to fulfil the tasks using a computer. Many tasks are such as controlling hardware and software and providing a user interface are performed by it.

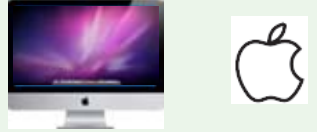


- Provides a user interface to work easily with the computer.
- Controls the functions of the Central Processing Unit (CPU)
- Manages the computer memory efficiently.
- Controls the activities related to storage devices.
- Performs the tasks related to processing files and folders correctly.
- Helps to protect the computer through usernames and passwords.
- Manages the hardware.

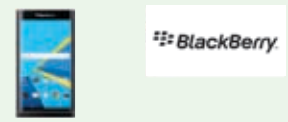


2.2 Different Types of Operating Systems

Some examples for operating systems used in computers.

Microsoft DOS (MS DOS)	
Microsoft Windows	
Apple Macintosh or Mac OS	
Operating systems produced using Linux	
Ubuntu	
Fedora	

Some examples for operating systems used in mobile phones.

Android Used in smart mobile phones	
iOS or iPhone OS Used in Apple mobile phones such as iPhone, iPad, iPod	
Blackberry OS Used in Blackberry mobile phones	
Windows Mobile OS Used in mobile phones like Lumia, HTC	

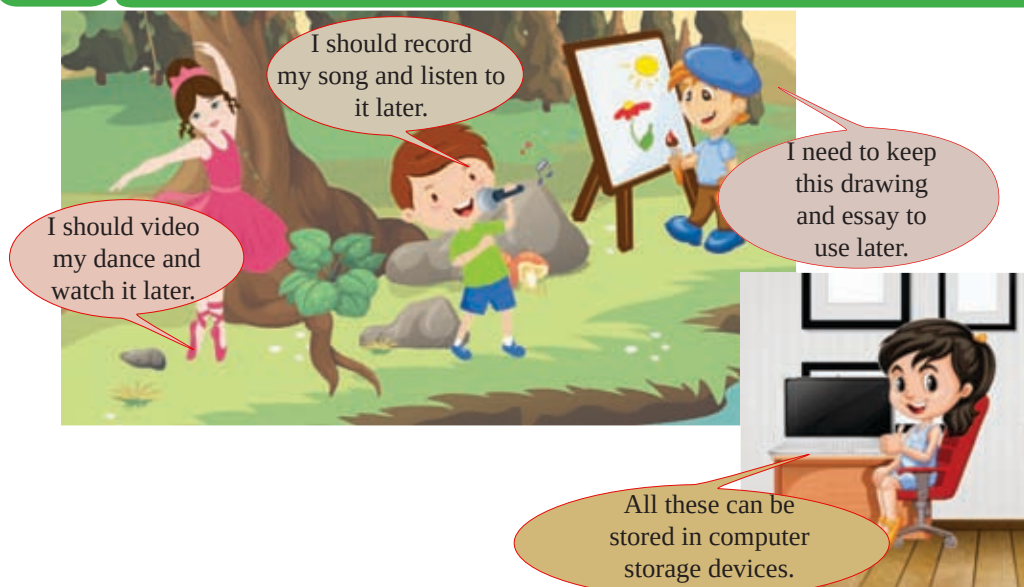




Activity 1 - see Workbook 1.1

2.3

Computer Storage Devices



Data and information are in different forms such as documents, photos, videos, animations, voices and sounds.

That data and information can be stored in computer storage devices. Similarly, computer programmes which give instructions to the computer can be stored too.

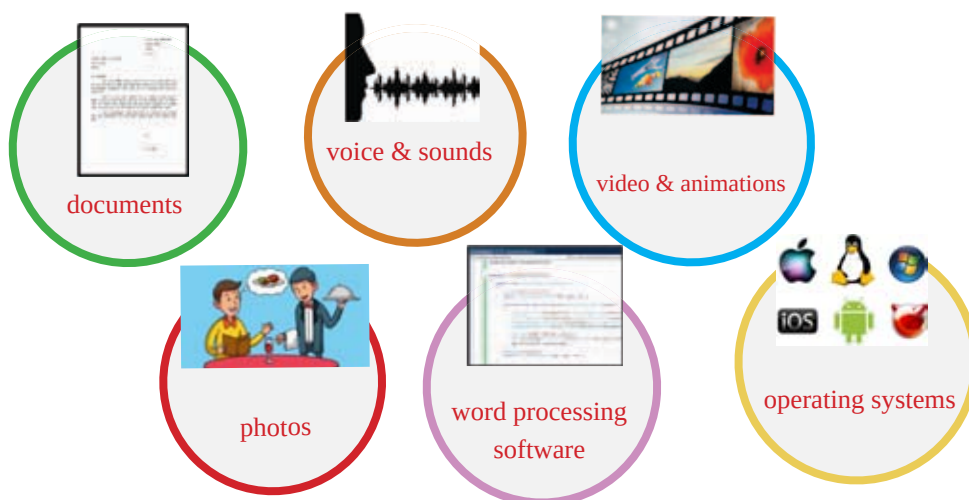


Figure 2.1 - Examples for data, information and programmes that can be stored in storage devices



Earlier, stone inscriptions and
ola leaves were used to
permanently store information.
Now, we use papers

In computers, storage
devices are used to store
information.

Then, how to store
information in a
computer?



Computer Storage Devices

Devices which are used to store data, information and programmes that belong to computer are known as computer storage devices.

Computer storage devices can be divided into several parts, according to their manufacturing technology.

1. Magnetic Media Devices. Eg: Hard Disk
2. Optical Media Devices Eg: Compact Disk
3. Solid State Media Devices Eg: Pen Drive

Functions and technology of each of the above media devices are different.

2.3.1 Magnetic Media Devices

Magnetic tapes, floppy disks and hard disks are known as magnetic media devices. They consist of a magnetic surface or a magnetic tape.

• Hard Disk

The hard disk consists of a magnetised platter and a moving metal head. There are two different types of hard disks, internal hard disks and external hard disks.



Magnetised platter and
metal head



A large amount of data can be stored permanently in the internal hard disk. It is a magnetic media device which is in the system unit. The external hard disk is a portable storage device. It can be chosen in various capacities such as 500 GB, 1 TB, 2 TB.



hard disk



portable external hard disk

- **Magnetic Tapes**

A magnetic tape is a thin plastic tape covered with a magnetic substance. It is used for recording sounds, images or computer data etc. The magnetic tape which was used often in the past has now become obsolete.



Magnetic Tape

- **Floppy Disk**

A floppy disk is a magnetic media device that can be used to store small files. It contains a capacity of 1.44 MB. It is used to carry data because it is an external storage device. But is becoming obsolete.

At present, there are disks which are produced by using the same technology used to produce the floppy disks such as zip disks and jazz disks. The capacity of these disks is greater than that of the floppy disks. But they are not used often.



floppy disk
1.44 MB



zip disk
250 MB



jazz disk
2 GB

2.3.2 Optical Media Devices

In optical media devices, data is read and written by laser beams. Optical disks are of several types. They all are portable.

- **CD - Compact Disks**

There are two types of disks such as recordable (CD-R) and rewritable (CD-RW). The capacity of these disks are 650MB and 700MB.



Compact Disks
CD-R and CD-RW



- Digital Versatile Disks (DVD)

They are of two types; DVD-R (data can be written once) and DVD - RWC (rewritable). The capacity of these disks are 4.7 GB, 8.5 GB, 15 GB and 30 GB.



**Digital Versatile Disks
DVD-R and DVD-RW**

- Blue Ray Disks

In these disks, data can be stored on several levels as 25 GB on each level.



blue ray disks

2.3.3 Solid State Media Devices

Solid state media devices are a type of device which write and read data electronically at a high speed. As they do not have moving parts as in hard disks and compact disks to write and read data, they are known as solid state media devices.



**Solid state Drrive
(SSD drive)**



Pen Drive



Memory Card

Figure 2.2 - Examples for Solid state divices media



Activity 2 : See Workbook 2.2



2.4

Let's Learn about File and Folder

There are a lot of different types of files in a computer, aren't there?



Yes, you can group them and store in folders.

What are folders?

File



myself.doc



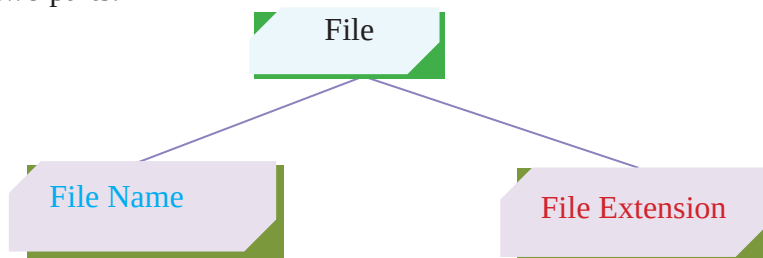
Folder

myfiles

2.4.1

What is a File?

A file is anything that is saved in the computer such as a letter, a song or a photo. A file has two parts.



File name : Used to identify the file.

File Extension : Used to indicate the application software of the file.

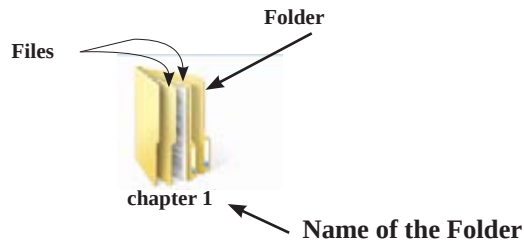
ဥပမာ: sportmeet.docx

File name File Extension

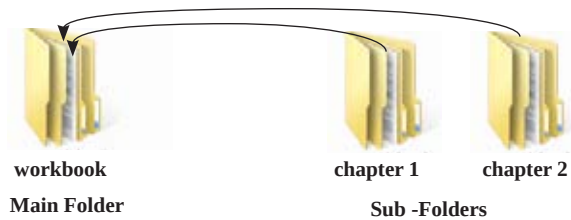
This is a file named 'sportmeet', created by a word processing software.



2.4.2 Let's learn about Folder



The place where files are stored is a folder. They are used to store files that are related to each other. It helps to keep files in order and to retrieve them easily and fast.



2.5 Let's create and edit a Folder

Creating a Folder

The methods used to create a folder can be different according to the operating system. Figure 2.3 shows one such method.

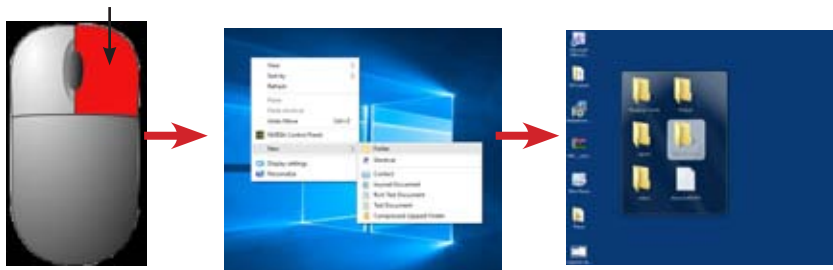


Figure 2.3 - Steps of creating a folder



Activity 3 : See Workbook 2.3



Saving Files in a Folder

Files created should be saved to reuse them later. To save a file, save or Save As commands are used.

When saving a file for the first time, despite the window selected, Save As command window will open.

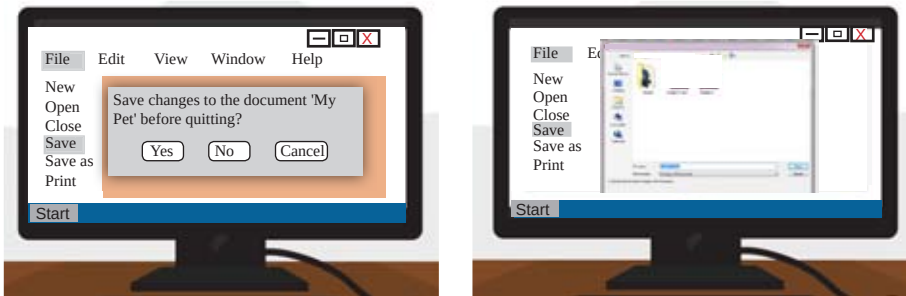


Figure 2.4 - Saving a file

After selecting the folder in which the file is to be stored, by giving the save command, the file is stored in the folder.

Opening a created Folder

The folder can be opened by taking the cursor on to the folder and double clicking on it.



Figure 2.5 - Opening a file

Coping and Moving a Folder

A folder can be copied or moved to another location. It can be internal location or an external storage device.

First, take the cursor to the location of the folder and select it.



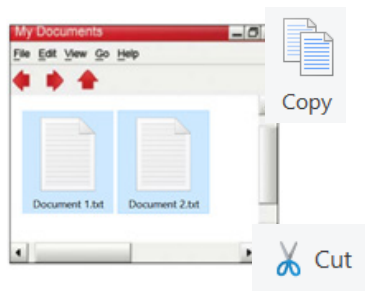
To Copy

Step 1

- First, select the Copy command in the tool bar or the Copy command shown when the right button of the mouse is clicked.

Step 2

- Then, go to the location where it should be pasted and select Paste command.



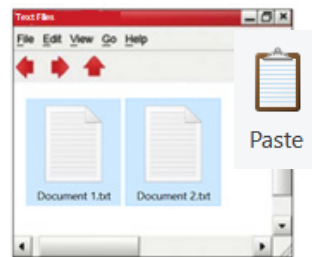
To Move

Step 1

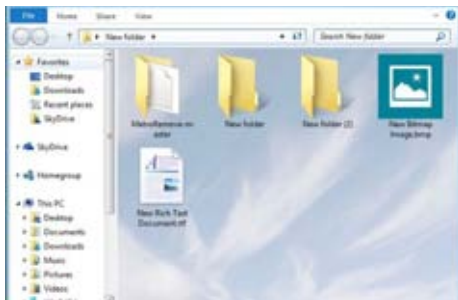
- First, select the Cut command in the tool bar or the Cut command shown when the right button of the mouse is clicked.

Step 2

- Then, go to the relevant location and select Paste command.



Changing the Name of a Folder



Step 1

To change the name of a folder, take the mouse pointer on to the folder, Then select Rename command after clicking the right button of the mouse.

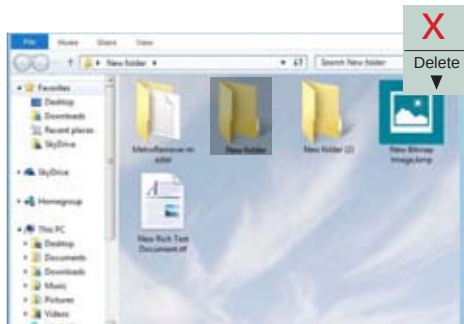
Step 2

Type the required name.



Deleting a Folder

Delete temporarily



Step 1

Select the folder that needs to be deleted.

Step 2

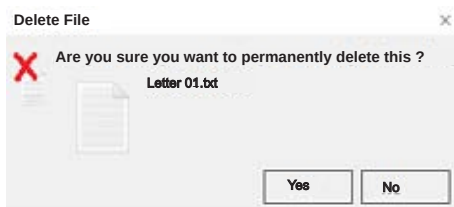
Press the Delete button on the keyboard.



Important

- ★ If you delete a folder that is in an internal location such as in a hard disk, it is deleted temporarily. That means, it can be retrieved when needed.
- ★ If you delete a folder that is in an external storage device such as a pen drive, it is permanently deleted. It cannot be retrieved again.

Delete Permanently



Step 1

To delete a file or a folder permanently, press Shift and Delete keys together.

Step 2

Select Yes command in the dialog box.



Activity 4 : See Workbook 2.4



2.6

Let's identify the Characteristics of a File and a Folder

There are characteristics in a file or a folder such as size, type and date modified. When the mouse pointer is taken on to the relevant file or folder and when right button is clicked a menu is displayed. Select the Properties command and you can see these characteristics.

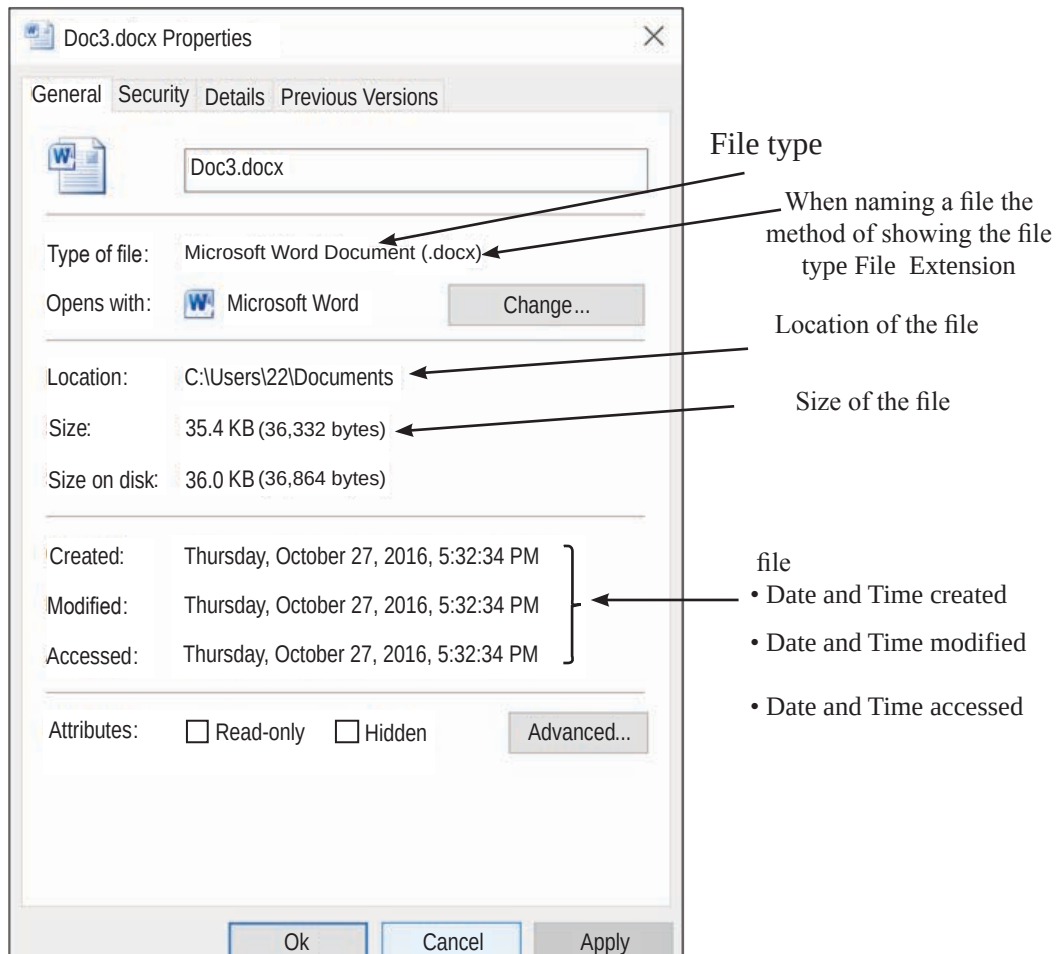


Figure 2.5 - Identifying the characteristics of a File



Summary

- ★ The operating system is the main software in a computer that enables communication between man and the computer and that controls the computer hardware and other software.
- ★ Operating systems like Microsoft Windows, Apple Macintosh, Linux are used in computers and operating systems like Android, IOS, Blackberry OS, Windows Mobile OS are used in mobile phones.
- ★ Data in various forms such as documents, photos, videos, animations, voice and sounds as well as programmes that give instructions to the computer are stored in computer storage devices.
- ★ Storage devices can be divided into three categories according to the technology used. They are magnetic media devices such as hard disks optical media devices such as compact disks and solid state media devices such as pen drives.
- ★ Several managements activities such as creating files and folders, editing, saving, copying and moving can be performed.



03



Security of the Computer System

Children ...
do you know how to protect our
computers?

By locking the
computer laboratory

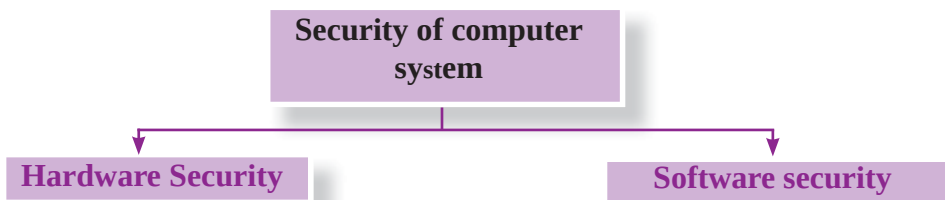
By locking
the system unit

Well..., all your
answers are about the physical
security of computers.

As you know, a computer system
has both hardware and software components.
We should protect both of them.

3.1 Let's protect Computer System

It is essential to have adopted various prior protective measures for the safety and the durability of computers. The security of the computer system can be divided into two parts.



3.2

Let's protect Computer Hardware

Computer Hardware

Any physical component of a computer that you can touch and see is called hardware. It has a definite shape. As there are hardware devices outside of a computer, there are hardware devices inside the system unit too.

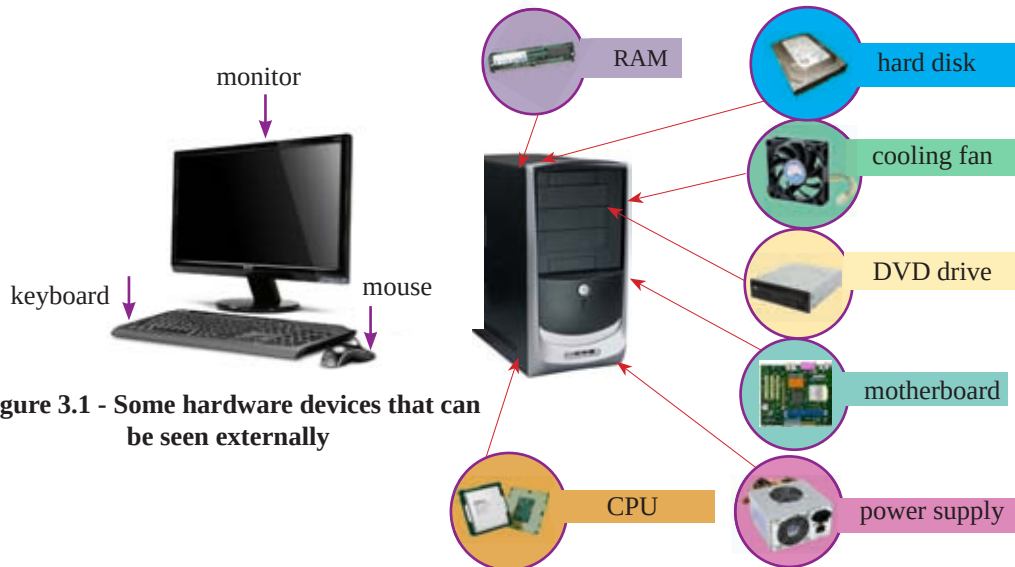


Figure 3.1 - Some hardware devices that can be seen externally

Figure 3.2 - Some hardware devices inside the system unit



Exercise 1: See Workbook 3.1

3.2.1

Possible Hardware Security Issues

Some main factors that may cause physical damage to hardware devices;

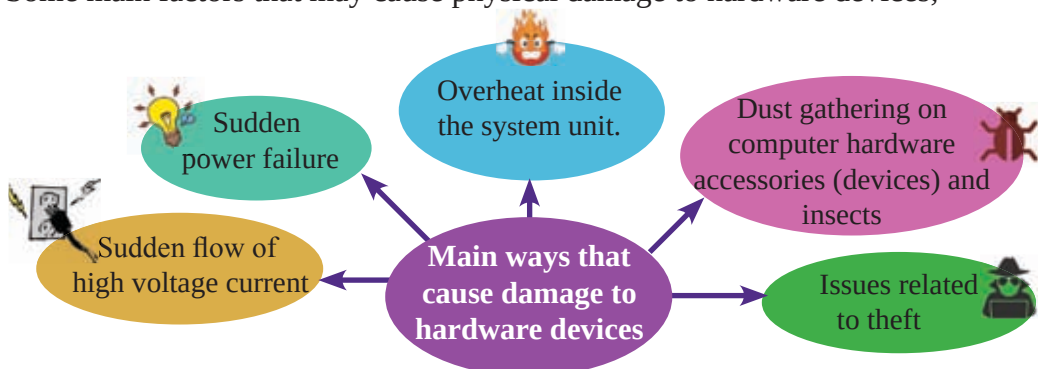
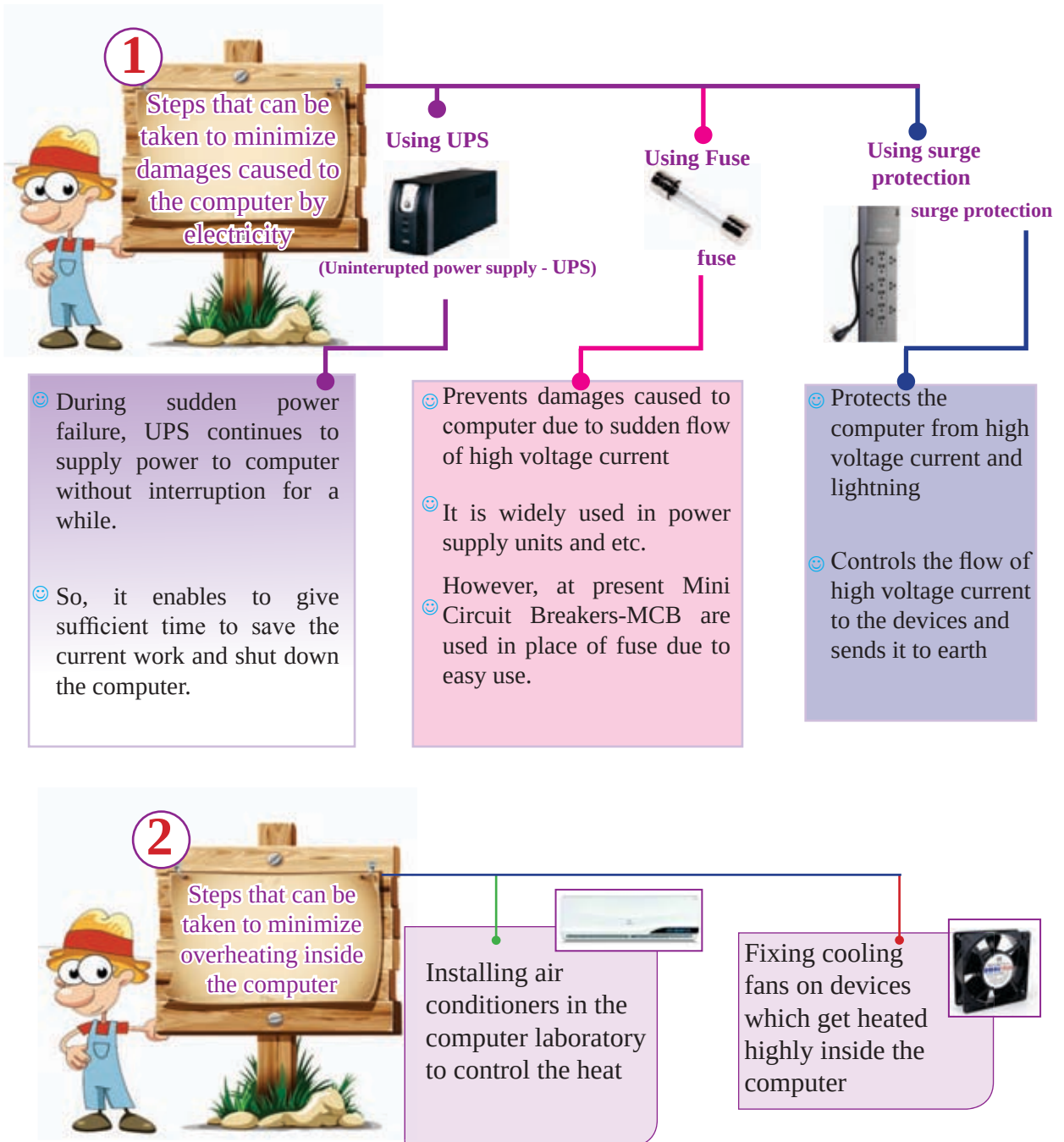


Figure 3.3 – Some ways that cause damage to hardware devices



3.2.2

Precautionary Methods to protect Physical Components of a Computer





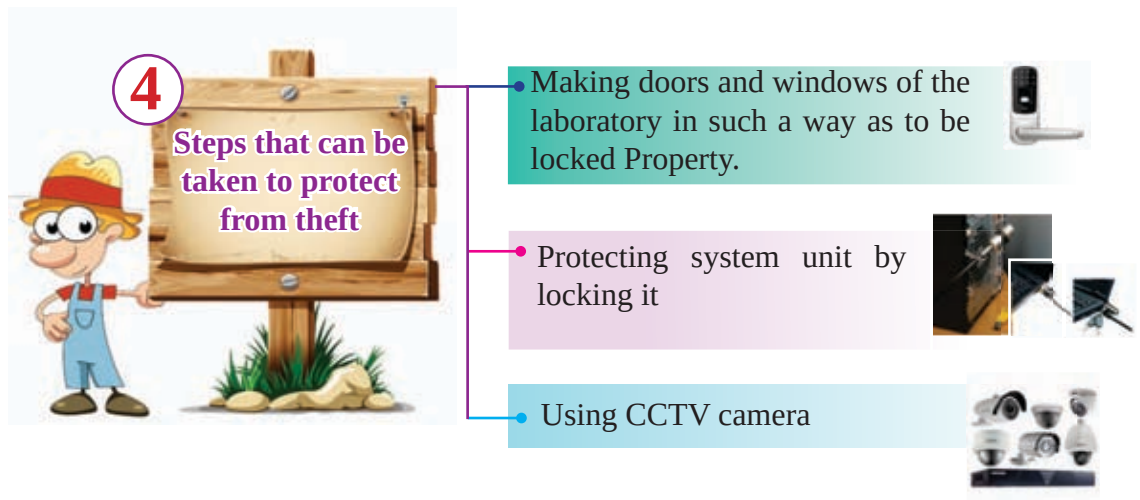
It is essential to keep the computer laboratory clean and tidy in order to protect it from physical harm such as dust gathering, high moisture and insects' menace. For that, some steps that we can follow can be shown as follows.



Figure 3.4 – Some steps that can be taken to protect the computer from physical harm

- By entering the lab without footwear, the computer lab can be kept free of sand and dust.
- Dust gathering on computer circuits (devices) can be prevented by cleaning all the computers in the lab at least once in every three months.
- Taking food in the lab can attract insects like ants to the food particles fallen on the ground
- Moisture in the laboratory may cause short circuit.





Exercise 2 : see Workbook 3.2

3.3

Let's protect Computer Software Components

Computer Software

Data and information in the computer and programmes used for various tasks come under the category of software.

Example:

Operating System
Word processing software
Files containing documents
Files containing pictures / images



3.3.1 Possible Software Security Issues

Some instances that may cause possible threat to software are mentioned below.

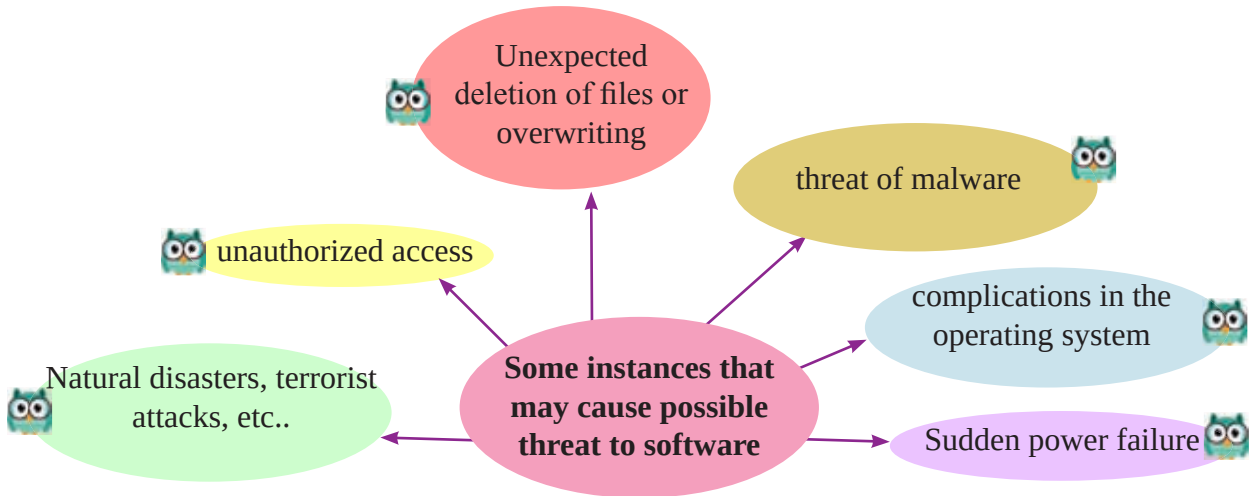


Figure 3.4 – Some instances that may cause possible threat to software

3.3.2 Precautionary methods to protect Software Components of a Computer

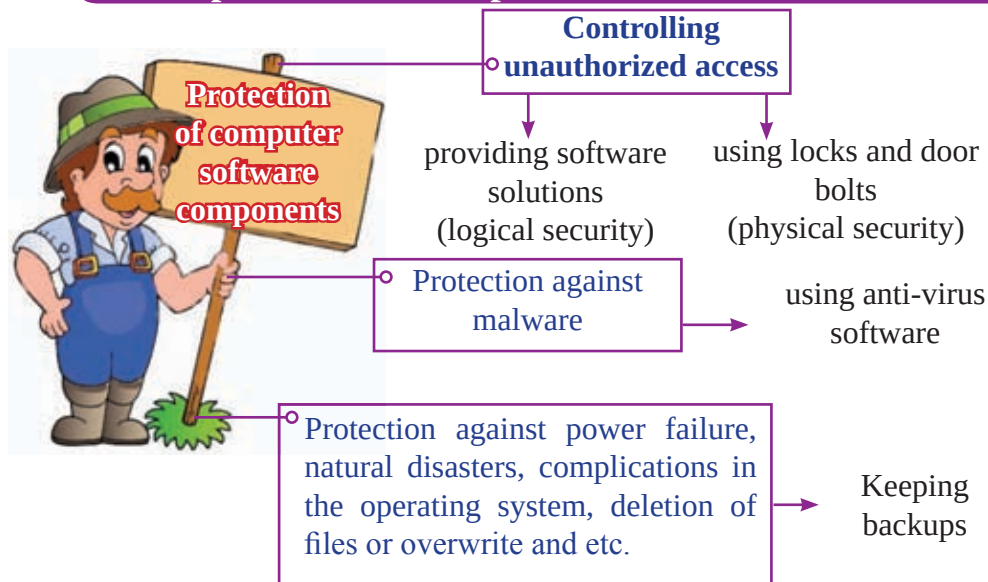


Figure 3.5 – Some steps that can be taken to protect software components



Exercise 3 : see Workbook 3.3





Providing Protection against Malware

Malware is a main factor that can cause a threat against the security of computer software.

What is malicious software (malware)?

Malicious software can be defined as any man-made software or part of a software that functions against the requirements of the computer user and designed to intentionally cause damage to

- software installed in the computer
- data, information stored in the computer
- computer networks
- and perhaps computer hardware devices as well.



There are several types of malware. Some of them are hybrid in nature, that is, they take different forms. From time to time they operate in different forms.

For example,

A malware that behaves as a computer virus at a time, behaves as a Trojan horse at another time.

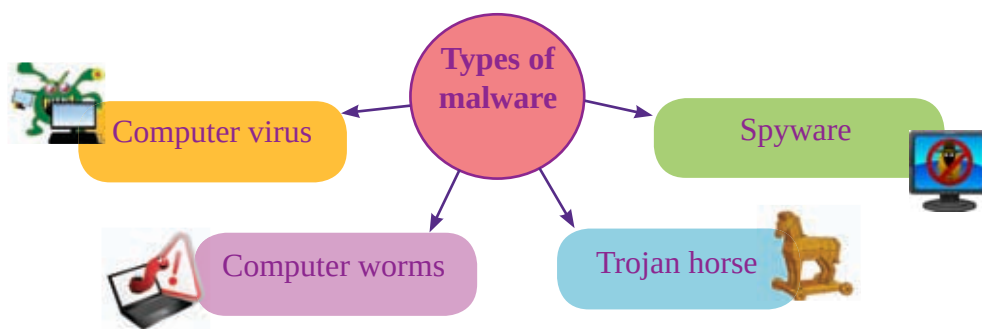


Figure 3.6 – Some types of malware



1. Computer virus

A computer virus is a main malicious software that gains entry to computer software and files and which is capable of replacating itself and designed to spread from computer to computer through portable devices. It can delete or modify data / information and it can corrupt software as well.

2. Computer worms

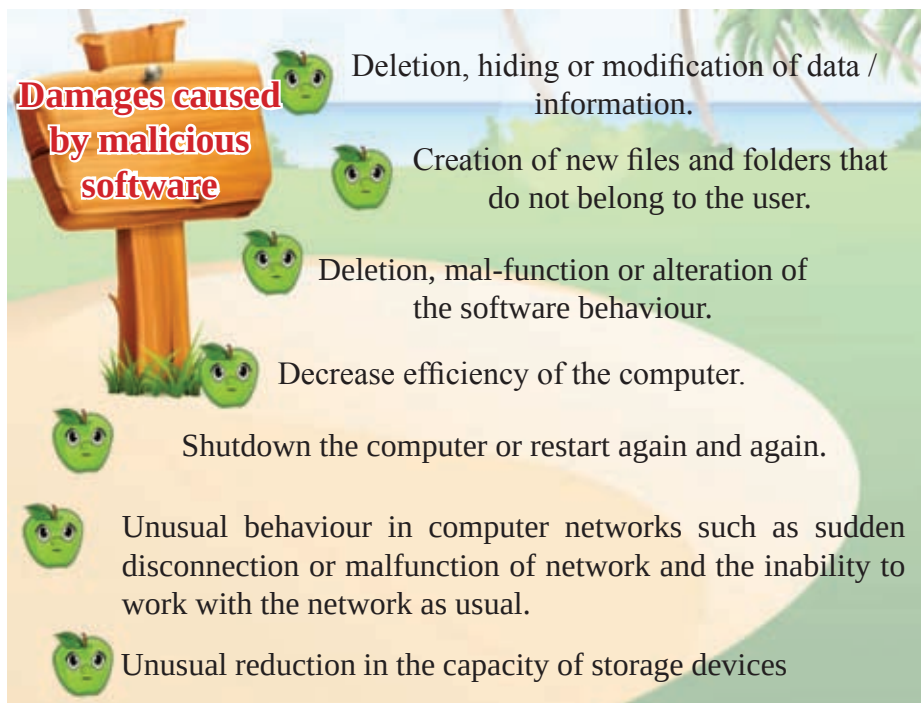
It causes damages similar to those of viruses. However, the main difference is that it spreads across computer networks or internet without the support of a host program or any human interaction.

3. Trojan horse

While it seems a useful software at first sight, it will cause damage to the user secretly once he begins to use it.

4. Spyware

It is a malicious software that secretly collects data about a person's computer usage, internet usage and etc., and sends them to the relevant party without his knowledge. Data and information too can be provided to the other party secretly through this software.



**Possible solutions to
avoid or minimize
the harm caused by
malware**



Install an antivirus software and update it regularly.



Open an external storage device only after scanning it for possible viruses.



Activate firewall and make right settings.



If using internet, always access secure websites only.



Do not open black listed websites shown by antivirus software.



Do not click on pop-ups that suddenly appear on the screen.



Do not open suspicious emails or attachment.



For daily use, normally maintain a Limited User Account which can allow only a limited number of tasks.



Update all software installed in the computer including the operating system



Use only the original copy of licensed software. Use of pirated software may lead to the spread of malicious software.



Exercise 5 : see Workbook 3.5





Keeping Backups

Keeping backups can be defined as a process of keeping copies of software components.

Copies kept as backups can be used in case the original copy is misplaced or damaged. Several storage techniques can be applied to keep backups.

eg:

- Compact disks (CD)
- Digital Video Disks (DVD)
- external hard disks
- Different location in the same computer (another folder or another drive)



Access Control

Providing software solutions for access control

It means the methods and services provided by several software to control access to computer and safeguard its resources.

- Using strong and difficult to guess password
- Creation of suitable user accounts
- Encryption

By following the above mentioned methods, not only access to computer can be controlled but also data and information can be protected from sudden loss.



Encryption is another way of protecting data. Encrypted data cannot be read and understood even if it falls into wrong hands. This method is adopted especially when sensitive data is to be communicated.



Use of physical locks for access control

The computer system, data and information stored in the computers and software are protected by using devices and methods that are in the form of hardware in this method.

For this, following methods are used.

1. Keeping the computer at a secure place.

It is advisable to keep the computer that contains sensitive and valuable data, information at a secure place, so that it will be protected from thieves and unlawful entry of people.

2. Use of CCTV cameras and alarms

Tasks such as monitoring movements when necessary, provision of automatic urgent messages are done by this system.

3. Use biometric passwords

At present, finger prints and voice recognition methods are widely used to access computer systems and to open doors of the computer laboratory.



Unlike a conventional password, using biometric passwords is somewhat a modern method. Permission to access the system is granted only after recognizing authorized person's identity through finger prints, voice, face or iris.



Figure 3.7 Use of biometric passwords in mobile phones and laptop computers



Exercise 5 : see Workbook 3.5

Summary

- ★ When providing security to the computer system, both hardware and software components should be given equal attention.
- ★ Some possible hardware security issues;
 - sudden power failure
 - flow of high voltage current
 - overheating inside the computer system
 - dust gathering on computer hardware and insects menace
 - theft menace
- ★ For the protection of hardware, precautionary methods such as,
 - minimizing harm caused to the computer by electricity
 - minimizing overheating inside the computer
 - protecting computer from physical damage
 - protecting from thievescan be used.
- ★ Some possible software security issues;
 - attack of malware
 - unauthorized access
 - sudden power failures
 - natural disaster, terrorism etc.,
 - complications in the Operating System
 - unexpected deletion of files, or overwrite
- ★ For the protection of software, precautionary methods such as,
 - providing protection against malware
 - keeping backups
 - access controlcan be used.



04

Word processing



I have to prepare a letter. Do you know how to prepare a letter using a computer?

Is there any word processing software in your computer?

Word processing software? What's that?



4.1

Let's identify Word Processing

Composing, editing (manipulating) and/or storing a text based document in any style is called word processing.

A word processor can be any tool from a simple pencil to a complicated computer software.



Exercise 1 : see Workbook 4.1



History of Word Processing

Composing letters and documents started a long time ago. It started with writing using objects such as leaves, stone chips and skin and developed so rapidly as to use a computer software to prepare a document by now.



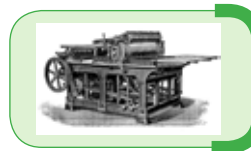
Writing using various objects that were available in the environment.
(leaves, skin, stone chips etc..)



Invention of paper and composing books by copy writing manually



Use of wood blocks and clay blocks for printing



Invention of the printing machine



Invention of the manual typewriter

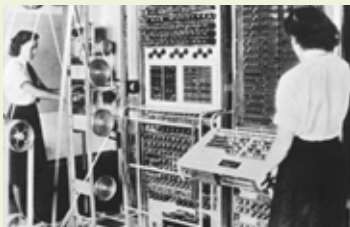


Invention of the electric/electronic typewriter



Use of computer for word processing

Special landmarks in the use of computer for word processing



Invention of the first computer for word processing (Decade 1960)



Creation of the first word processing programme (1979)



4.2

Let's learn about Word Processing Software

Word processing software can be defined as a computer programme capable of creating a document, editing its content, modifying (formatting) its colour or style and sometimes printing it in different styles.

Examples for word processing software



Microsoft Office Word



Open Office Writer



Corel Word Perfect



iWork Pages



Libre Office Writer

Benefits of using a Word Processing Software

Benefits of a word processing software

-  **Creating a document**
-  **Saving (storing) for future retrieval**
-  **Printing a document**
-  **Search text in the document**
-  **Word Count**
-  **Display spelling & grammar errors and give a chance for correction**
-  **Formatting (editing) of document**
-  **Printing a several copies**



Exercise 2 : see Workbook 4.2



4.3

Let's learn about the Keyboard

It is essential to know how to use a keyboard when preparing a document with a word processing software. By practising to use the computer keyboard correctly, computer typing can become very easy and more efficient.

Typical Keyboard

The keys in the keyboard can be divided into several groups based on the function.



Figure 4.1 Key arrangement on a typical keyboard

Control Keys

These keys are used alone or in combination with other keys to perform certain actions. The most frequently used control keys are Ctrl, Alt and Esc.

Character Keys

These keys are used to type in letters, numbers, punctuation marks and symbols when preparing a document.

Function Keys

The function keys are used to perform a specific task. The functionality of these keys may differ from programme to programme.

Navigation Keys

These keys are used for moving around on a webpage and for editing text. They include the arrow keys, Home, End, Page Up, Page Down, Delete and Insert keys.



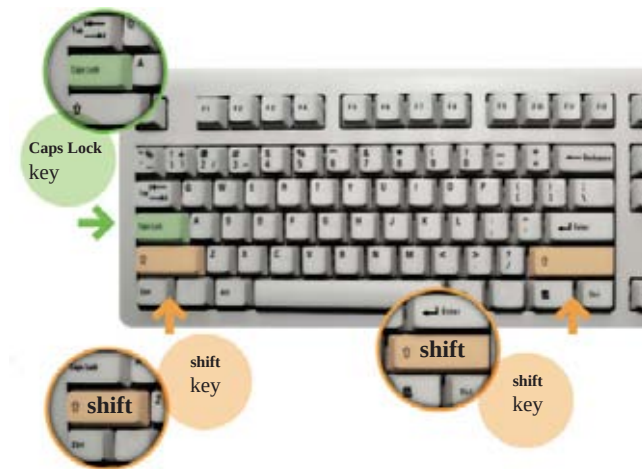
Numeric Keypad

The numeric keypad is used to enter numbers quickly.

How the keys are arranged in a typical keyboard is shown in Figure 4.1. It is also known as QWERTY keyboard considering the design for alphabets. In some cases, keyboards that are slightly different from this type of keyboard are also available.

Use of Caps Lock key

When the Caps Lock key is pressed once capital letter's are typed. When it is necessary to type normal letters, press the caps lock key again.



- Press Caps Lock key once space , C, D
- Press Caps Lock key again space a, c, d

Use of Shift Key

There are two shift keys on the right and left sides of the keyboard. When letter keys are pressed while keeping the shift key pressed, English capital letters are typed. Similarly when other keys are pressed while keeping the shift key pressed, the symbol on the top of the key is typed.

	+		→	A
	+		→	?



Space bar – It is used to create an empty space between two words. If pressed once, a single space is created and if pressed twice, two spaces are created and so on.

eg:-

Pressing once Thank you
Pressing twice

Thank you

Tab key – It creates a somewhat big space between two words. Pressing the tab key once creates a single space and pressing it twice creates two spaces and so on.

eg:

Pressing once Thank you
Pressing twice

Thank you

Enter key – Pressing the enter key once, moves the cursor down to the next line.

eg:

Pressing once Thank

you

Arrow keys – It moves the cursor up, down, left or right on the screen.

Backspace key – When pressed once, it deletes any character, space, number or any other object to the left of the cursor. (cursor's current position)



Exercise 3 : see Workbook 4.3

4.4

Let's use the Keyboard correctly

Sitting with the correct posture



As you learned in Grade 6, computer typing can be more successful, when you sit with the correct posture in front of the computer. Improper sitting will cause pain in the hands, neck, back and in other joints.

Placing the Keyboard in the right place



When sitting for typing, it is essential to keep the body right in front of the space bar of the keyboard. So that, it will enable the user to manipulate all the keys in the keyboard more conveniently.

Refrain from keeping the wrist or palm on the table



It is to be noted that while typing on the keyboard, both hands should be raised above the keys of the keyboard. (hands should not touch the keyboard or the table). So that, it will prevent numbness and pain in the fingers. Typing with the habit of resting the palm or wrist on the table may cause prolonged pain or injury in the fingers in the long run.



Pressing the keys softly



Normally it is sufficient to press a key softly to type any character, number or symbol. Pressing a key with force is an unwanted action. By doing so, fingers may experience inconveniences and the keys in the keyboard may wear out sooner as well.

Giving rest to both hands while not engaged in typing



While working on the computer, it is essential to give a rest to both hands in circumstances where you are not engaged in typing. In such occasions, both hands can be kept freely on the table or the lap.



Exercise 4: see Workbook 4.4

4.5

Let's create a Document using the Keyboard

Before creating a document, it is necessary to know how to use a computer keyboard correctly

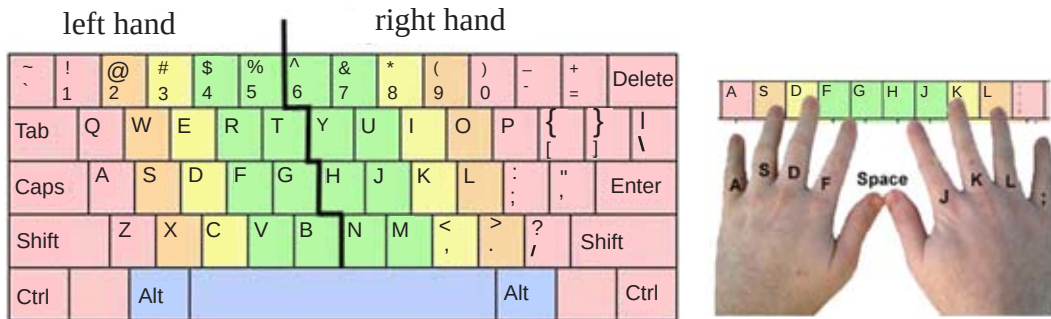


Before creating a document, one should have a good understanding about how hands should be kept on the keyboard and manipulate keys.



It is essential to follow the measures given below in order to gain correct computer keyboard skills.

- While starting typing is started, keep the left hand fingers on keys A, S, D and F and right hand fingers on keys J, K, L.



- Use fingers of both hands and always start typing having placed both hands on the correct row of the keyboard.(as shown in the picture)



- Use appropriate keys for the appropriate fingers.





Touch typing

The act of typing quickly and accurately without looking at the keys is called touch typing.

4.6 Use of typing Tutor Software

There are a lot of benefits in learning touch typing. For this, use of a typing tutor software can be shown as the most suitable and the easiest way (method) to learn touch typing.

So, you can search and find several software by browsing the internet.

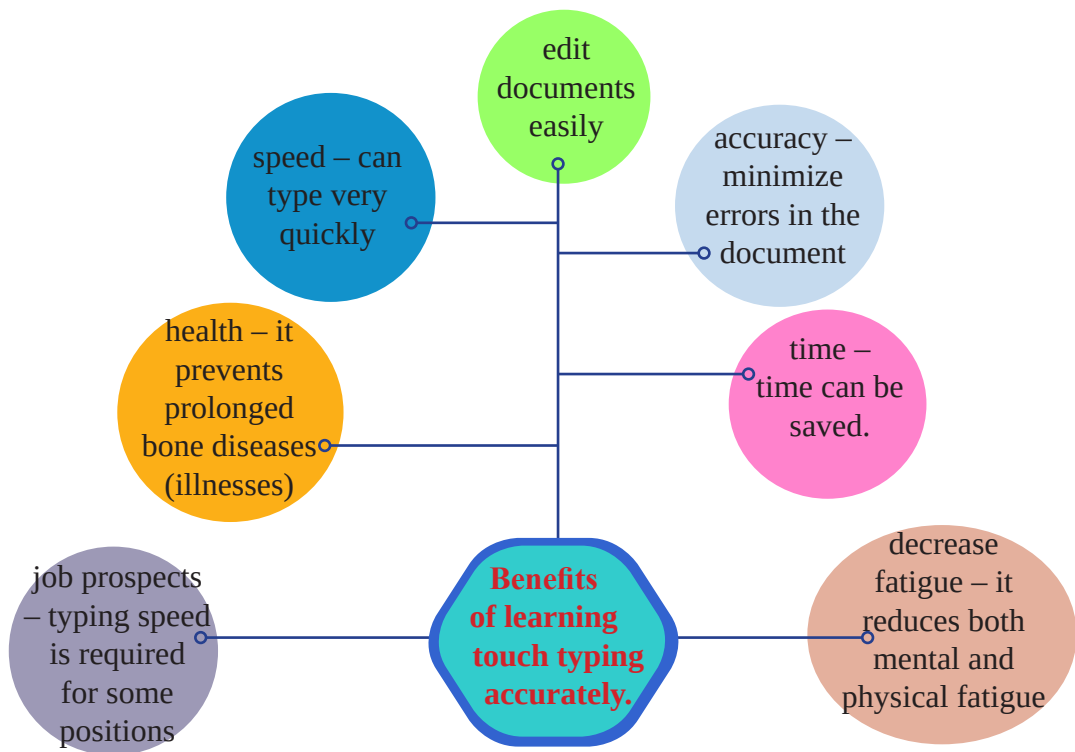


Figure 4.2 Some benefits of learning touch typing accurately



Exercise 5: see Workbook 4.5



Meanwhile, some examples for typing tutor software that can be downloaded freely from the internet and their web addresses (URLs) are shown below.

Software	Downloadable web address
Rapid Typing Tutor 	http://www.rapidtyping.com/downloads.html
TIPP10 	https://www.tipp10.com/en/download/getfile/4/
Typefaster 	http://www.typefastertypingtutor.com/



Exercise 6 : see Workbook 4.6



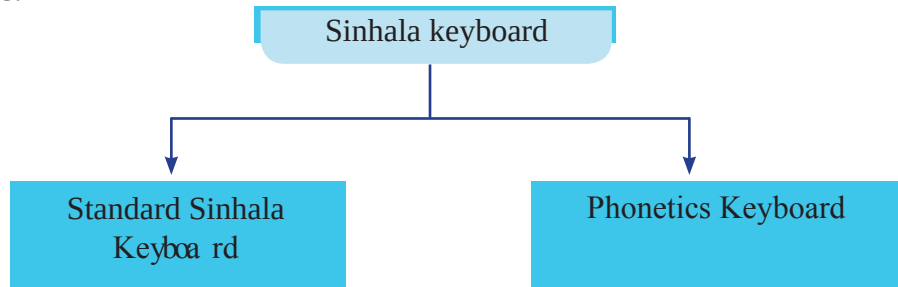
Basically the keyboard has been produced for English language. However, various techniques have been introduced into this keyboard for different nationals to type (in) their own language through this keyboard. In our country, Sinhala and Tamil keyboards are widely used.



Using Sinhala and Tamil Keyboard

Using Sinhala keyboard

Sinhala keyboards can be seen in two types based on the manner of entering Sinhala letters.



Sinhala characters can be entered to the computer both by character keys located in the keyboard and by phonetics keys too.

• Use of Standard Sinhala Keyboard

In this model, it is essential to remember the location of keys on the keyboard. This Sinhala keyboard is used (operated) in present computers and other data communication devices as well. This model is used in Unicode system too.

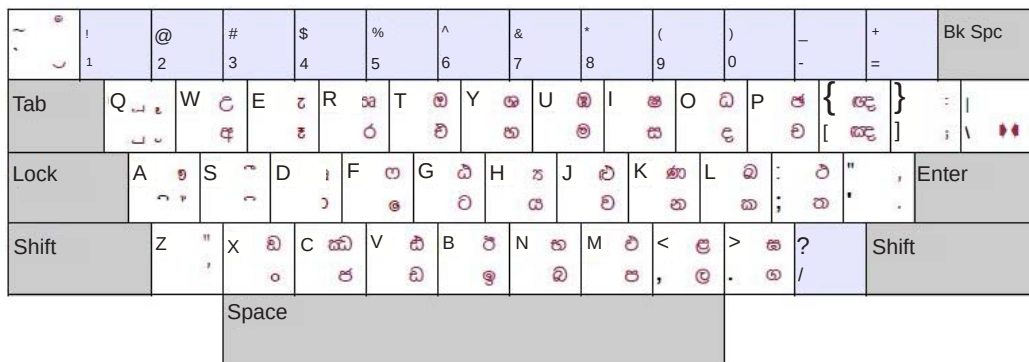


Figure 4.3 – Standard Sinhala Keyboard (Wijesekara Sinhala Keyboard)

• Phonetics Keyboard

This is somewhat an easy method and the keyboard can be used according to Sinhala sounds (based on Sinhala sound). Therefore it is not necessary to know the location of the appropriate letters. You can send SMS messages in mobile phone using this method. Therefore, you are already familiar with this method.



~ `	! 1	@ 2	# 3	\$ 4	% 5	^ 6	& 7	* 8	(9	) 0	- _	+ =	Bk Spc
Tab	Q ට්	W ඩ්	E ඩ්	R ඩ්	T ඩ්	Y ඩ්	U ඩ්	I ඩ්	O ඩ්	P ඩ්	{ ඩ්	}	
Lock	A ට්	S ට්	D ට්	F ට්	G ට්	H ට්	J ට්	K ට්	L ට්	:	"	,	Enter
Shift	Z ට්	X ට්	C ට්	V ට්	B ට්	N ට්	M ට්	<	>	/	?	Shift	
Space													

Figure 4.4 - Sinhala Phonetics Keyboard

Use of Tamil Keyboard

Unicode keyboard is mostly used when typing in Tamil letters.



Figure 4.5 - Tamil Phonetics Keyboard



To read a letter prepared by using Unicode font, it is not necessary to have installed Unicode font in the computer of the user. However, to read a letter prepared by using a font other than Unicode font, the relevant font should have been installed in the computer of the user (user's computer).

The Unicode font is an open source software. So it can be downloaded freely from the internet.

In addition to Unicode font, several other fonts such as FMBindumathi, FMAbhaya etc.. can be used to type in Sinhala letters while several other fonts such as Bamini, Kalaham etc., can be used to type in Tamil letters.





Exercise 7 : See Workbook 4.7

Summary

- ★ Creation of letters and documents needed in day to day life easily is called word processing.
- ★ Skill to use the keyboard correctly is essential in word processing through the computer.
- ★ The keyboard that we use normally (day to day) is identified as QWERTY keyboard.
- ★ The QWERTY keyboard can also be used for other languages such as Sinhala and Tamil.
- ★ The Typing Tutor software can be used to practice the use of keyboard correctly.





5.1

Decomposing the Problems

A problem can be simple or complex according to its nature. It is rather difficult to perceive and understand a complex problem when compared with a simple problem. It is essential to understand a problem thoroughly before going to solve it. So it will be easier to find a solution to a complex problem after decomposing it into smaller sub-problems.

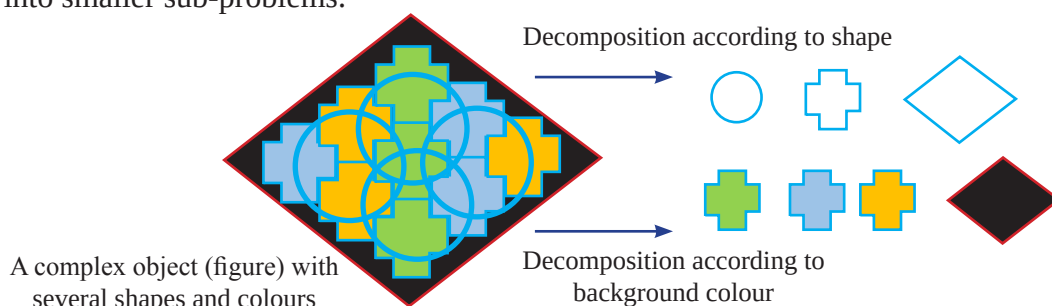


Figure 5.1 - Decomposition of a complex object

Likewise, a complex problem that seems difficult to solve at once can be broken into several smaller sub-problems as much as possible. Then these sub-problems can be solved easily one by one.

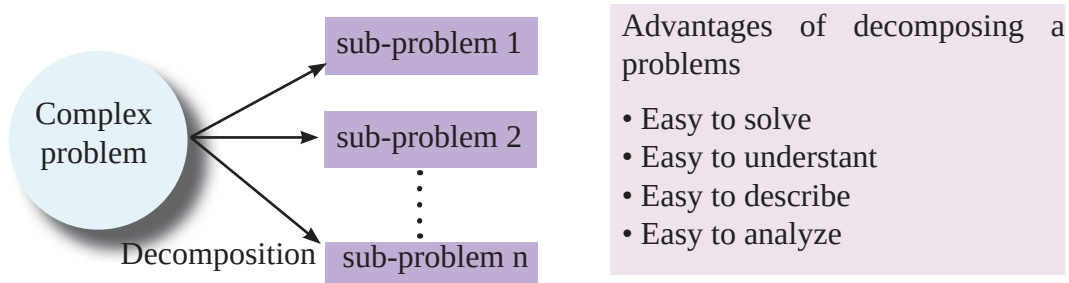


Figure 5.2 - Decomposition of a complex problem into sub-problems

eg:- In grade 06, you have learnt about the basic mathematical function which include addition, subtraction, multiplication and division of a whole number. Additionally in the first term of graded 07, you have learnt about solving sums when more than one mathematical functions are used with a whole number. Consider the following sum (Refer Figure 5.3).



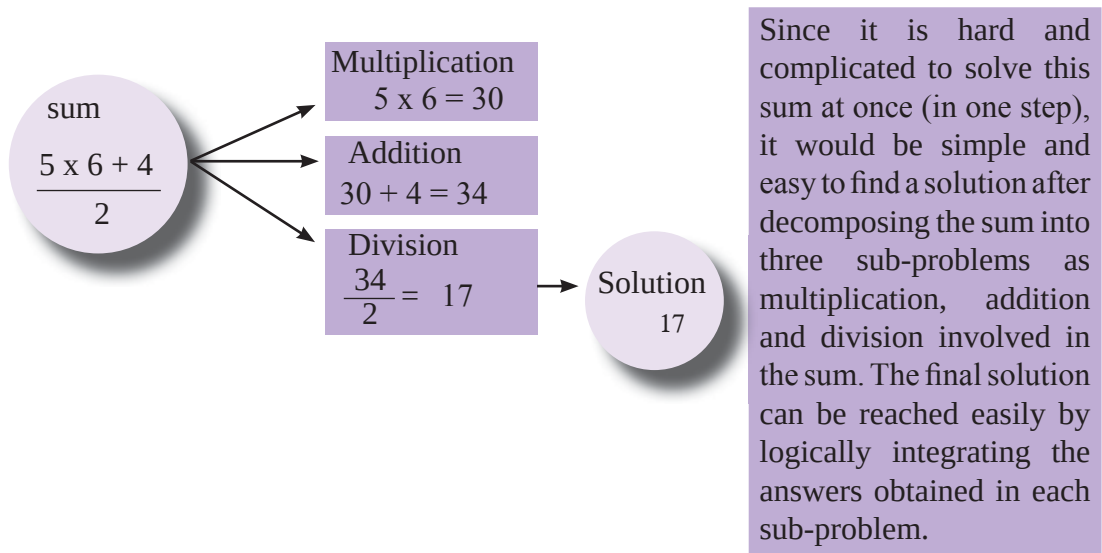


Figure 5.3 - Breaking a mathematical sum into sub-problems



Activity 1 : See Workbook 5.1

5.2 Use of Flow Chart to represent Algorithm

Symbols in flow chart to represent algorithm have been explained in grade six. An algorithm may include one or more control structures out of three. Three types of control structures are shown below.

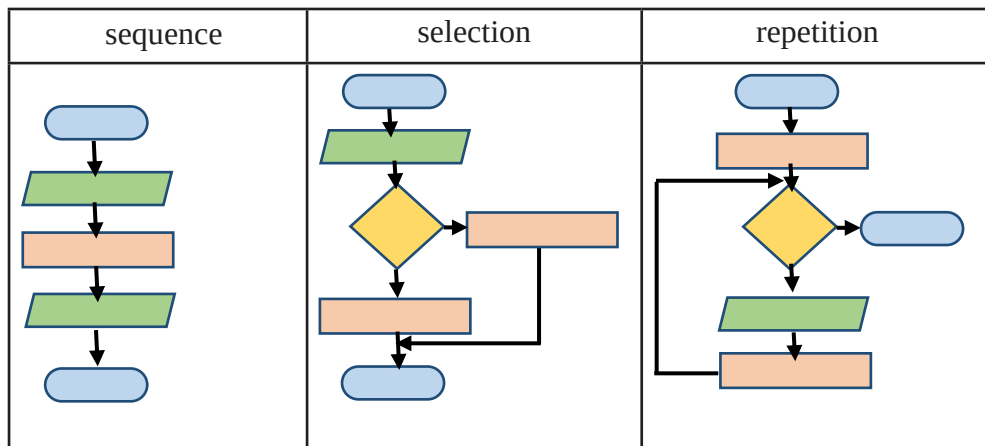


Figure 5.4 – Types of control structures shown in flow chart





Activity 2 : See Workbook 5.2

5.2.1

Sequence

Execution of instructions in an algorithm sequentially from top to the bottom is called sequence. Let's see how it is represented in a flow chart.



e.g. : Covering a textbook

Let's represent covering a textbook in a flow chart.

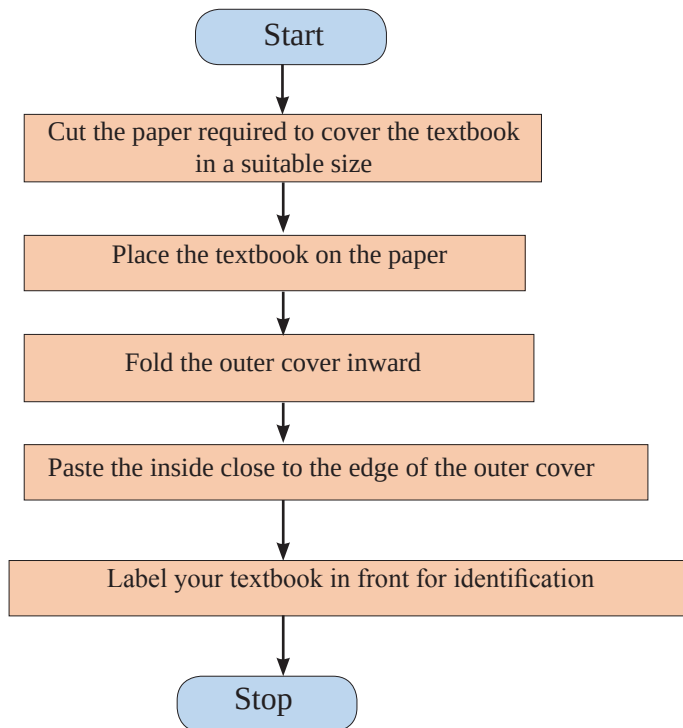


Figure 5.5 - Flow chart: Covering a textbook





Activity 3 : See Workbook 5.3

e.g. 2 :Finding the area and perimeter of a rectangle

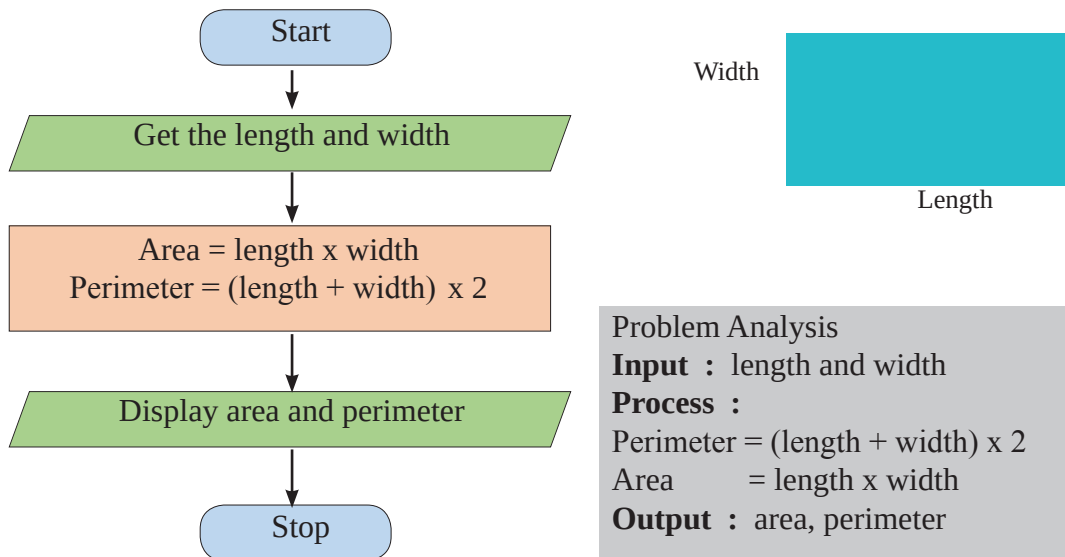


Figure 5.6 – Flow chart: Finding area and perimeter of a rectangle



Activity 4 : See Workbook 5.4

5.2.2

Selection

Here it is expected to make a making decision on which step to follow depending on the condition given by the algorithm. In a selection, the condition is checked first and the flow direction is chosen based on whether the condition is true or false.



For example, let's consider an instance where a ceiling fan is operated. When the switch is on, the ceiling fan operates if there is power. If there is no power, the ceiling fan does not operate.



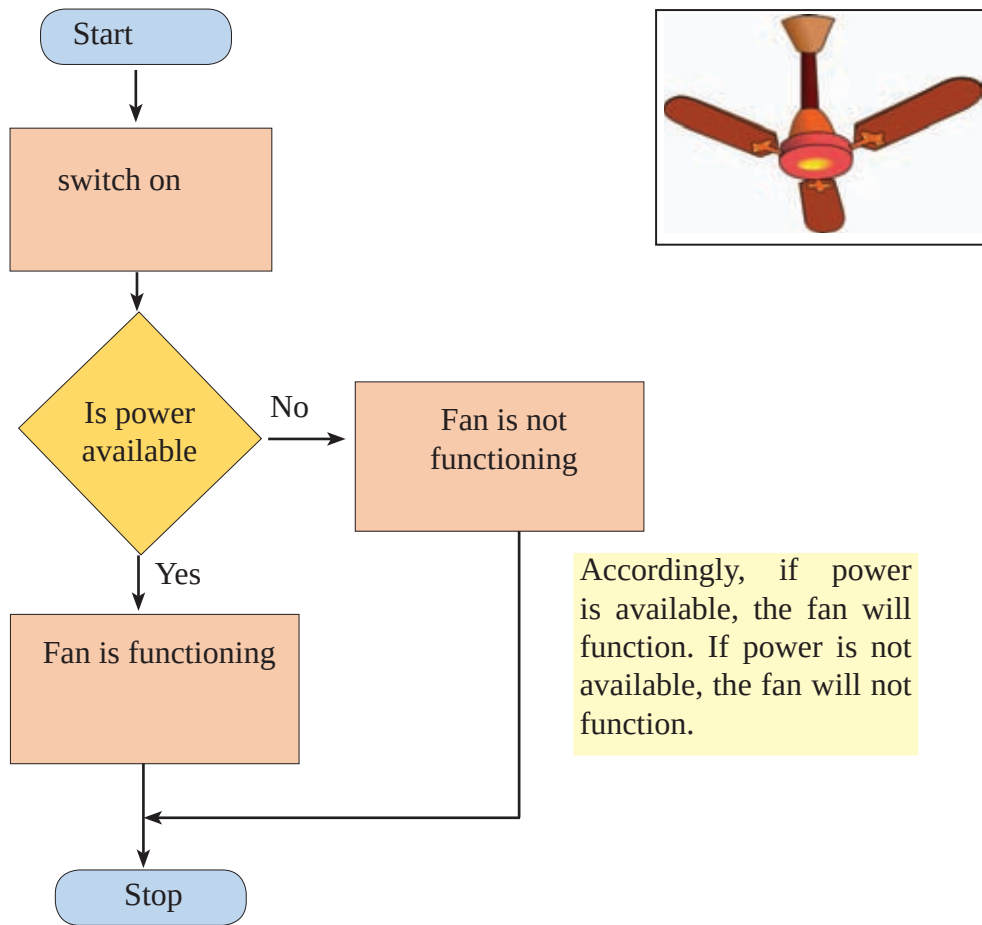


Figure 5.7 - Flow chart functioning of a font

5.2.3 Repetition

Execution of an instruction or several instructions in an algorithm repeatedly until a condition is satisfied is called repetition. A repetition will take place depending on whether a condition is satisfied or not satisfied. For example, natural water cycle is a process that takes place repeatedly.



As an example, do you know that since your childhood, you used to save money by using a till to put money? The one who is used to save money in a till, will always put money (again and again) repeatedly until the till fills. So, here the process of putting money is repeated until the condition that is 'till becomes full' is satisfied.

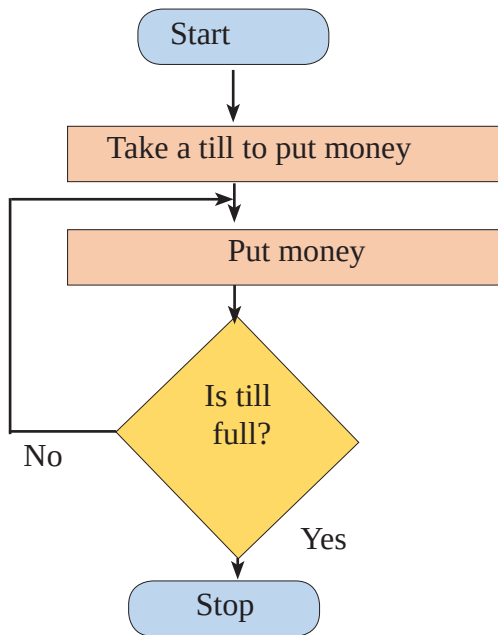
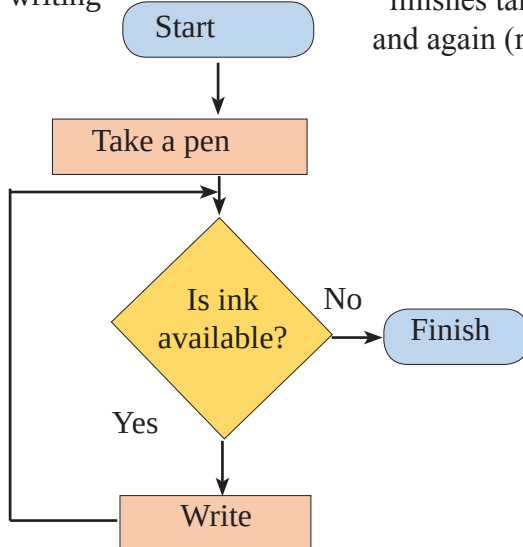


Figure 5.8 - Flow chart: Putting money into a till

Checking of condition for repetition can take place in two ways.

1. Check the condition before repetition starts.
2. Check the condition after functioning once.

Checking whether ink is available before writing



act of writing until ink finishes takes place again and again (repeated)

check whether ink is finished every time after writing

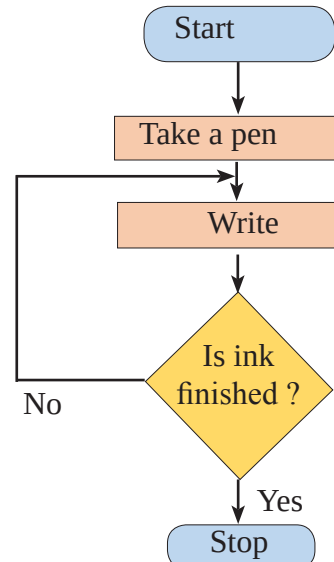


Figure 5.9 - Flow chart: Writing with a pen until ink finishes



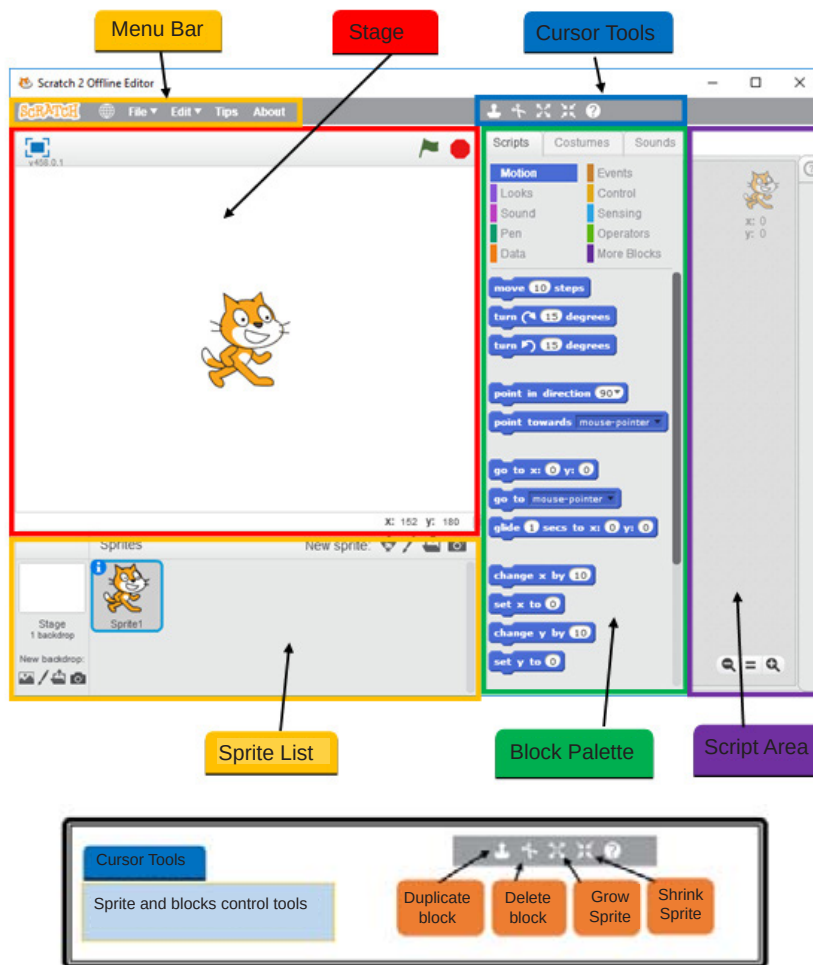
5.3

Introduction to Scratch Programming and Programme Development

Scratch which is a visual programme development software is an interactive, attractive and a simple programme with command blocks. This is a Free and Open Source Software (FOSS) and therefore it can be downloaded freely from the following website. <http://www.scratch.mit.edu>

5.3.1

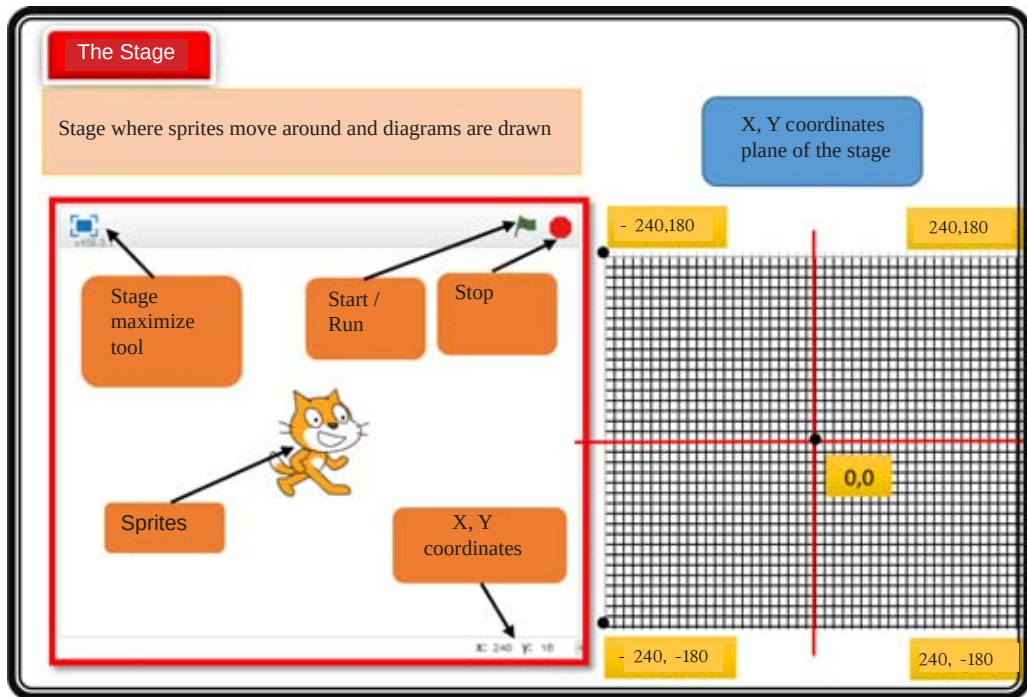
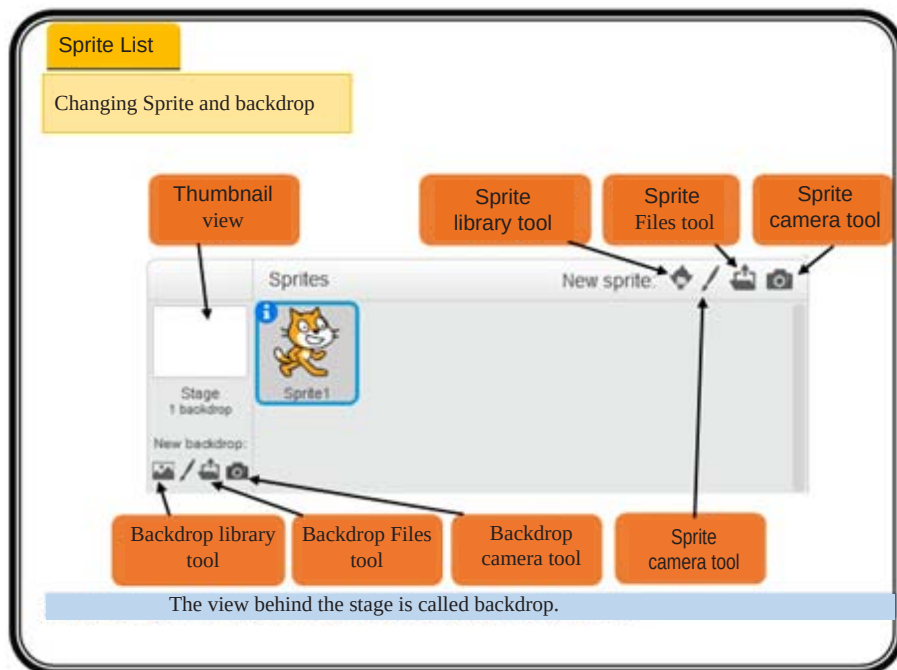
Scratch 2.0 introducing Interface with Visual Development Environment



Sprite and blocks control tools

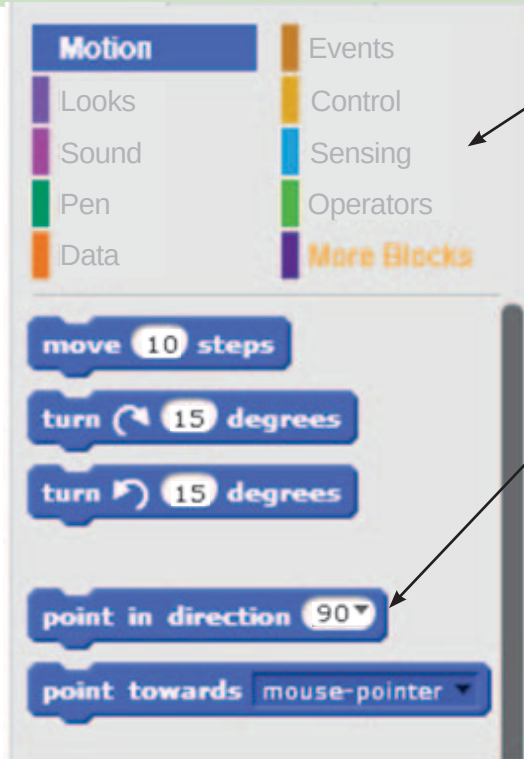
Note: All these interfaces are in Scratch 2.0 (version 2).





Blocks palette

Block and the classified tab within it



Blocks Tabs

The blocks categories are all colour coded and the relevant block is displayed under the relevant tab.

Blocks

A list of blocks that shows the action on the stage is displayed.



Script Area

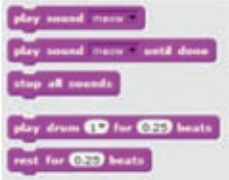
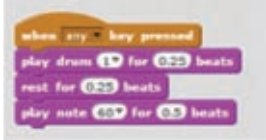
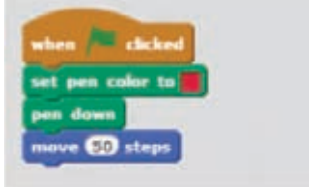
This is the area where you apply blocks and create (develop) programmes.



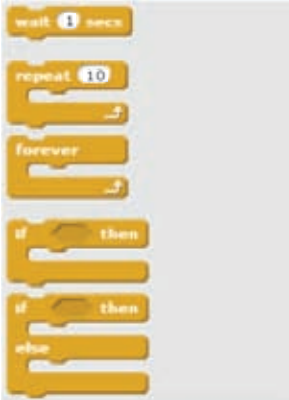
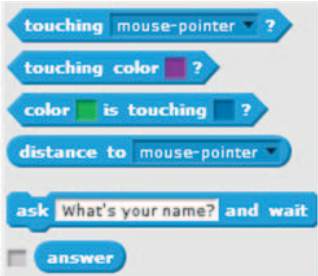
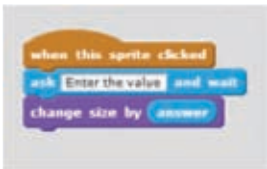
Creating a programme by dragging a block onto the ScriptsArea

Block classification	Block	Example
Motion Includes command blocks pertaining to move the sprite on the stage.		<p>Sprite moves 100 steps from the position 0, 0</p>
Looks Includes command blocks pertaining to communication among the Sprites.		<p>Sprite, after saying "Hello!, Can you win" thinks "No, I'm the winner"</p>



<p>Sound</p> <p>Includes musical instruments and basic notes to create sound and sound patterns</p>		 <p>When any key pressed drum sound is played and then “s” note is played</p>
<p>Pen</p> <p>Includes colour and tools needed to draw lines and various shapes on the stage.</p>		 <p>draws a line 50 units long in red colour</p>
<p>Data</p> <p>Includes command block pertaining to make a variable and assign value.</p>		 <p>Count variable value is changed by 1 and then the value is shown</p>
<p>Events</p> <p>Give instructions pertaining to the execution (running) of all other blocks</p>		 <p>When run tool (green flag) clicked, the total of variables a and b is shown</p>



<p>Control</p> <p>Includes command blocks with selection and repetition to control execution of other blocks(scripts)</p>		 <p>According to the input, only one output out of the two is displayed.</p>
<p>Sensing</p> <p>Receive input</p>		 <p>size of the sprite changes</p>
<p>Operators</p> <p>handles mathematical operations</p>		 <p>display the total of numbers from 1 to 10</p>



Activity 5 : See Workbook 5.5

5.3.2

Programs Development of Programmes

Follow the instructions given bellow to create a programme using scratch

- Run scratch software

- Double click on scratch icon

- Select types of command blocks under Script Tab

- Click on script tab and select block types

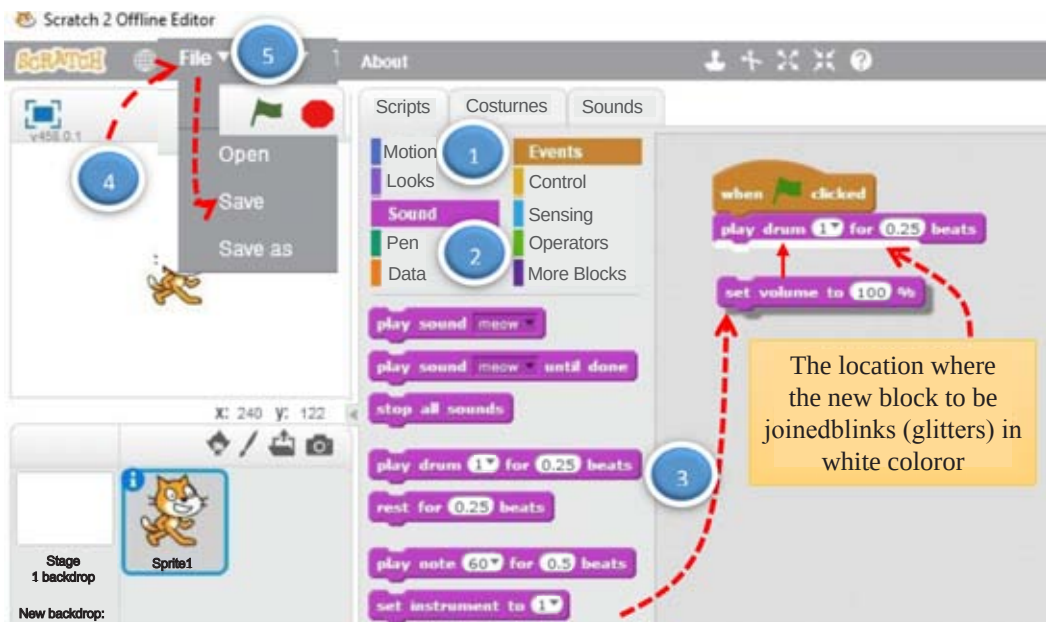
- Drag the command block and drop on Script Area

- Drag the blocks to script area

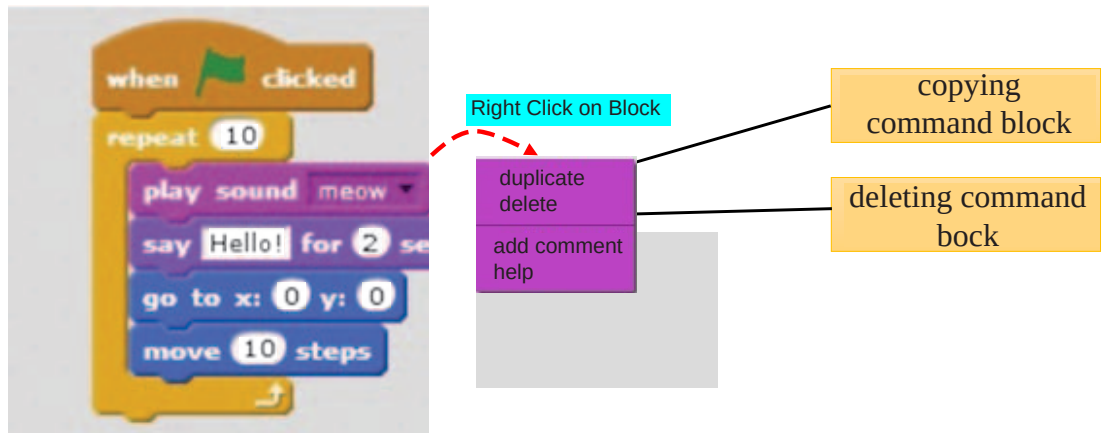
- Develop the programme

- Save as a file

- Run the programme



Managing Command Control Blocks



5.3.3 Development of programme with a Sequence

1. Playing basic notes with piano

Connect the control blocks (scripts) shown below sequentially. Then change the values of the control blocks as shown in the figure below. Run the programme and check the voice.

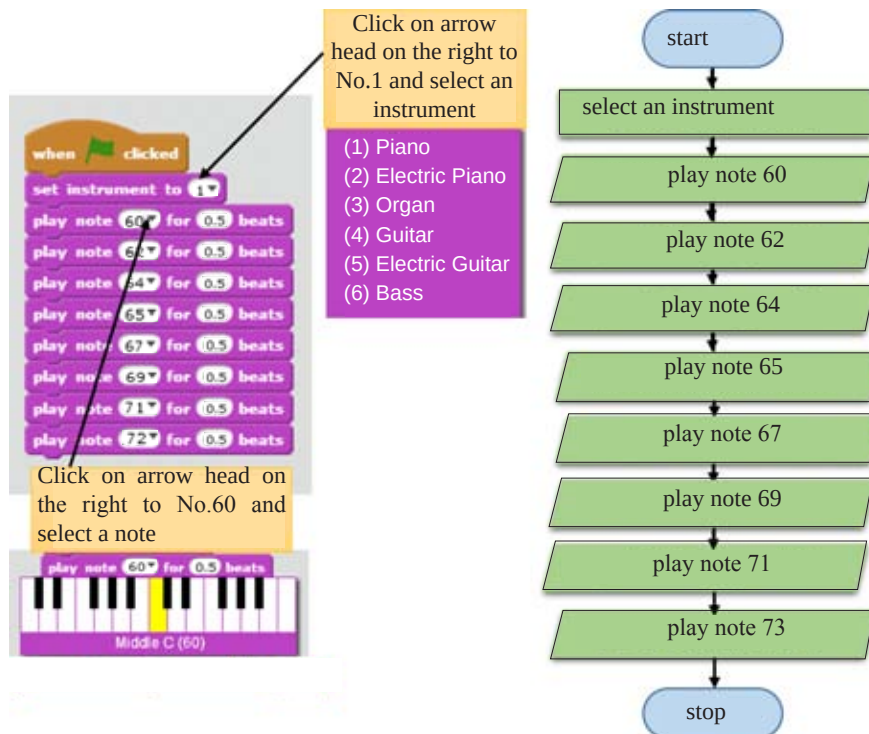


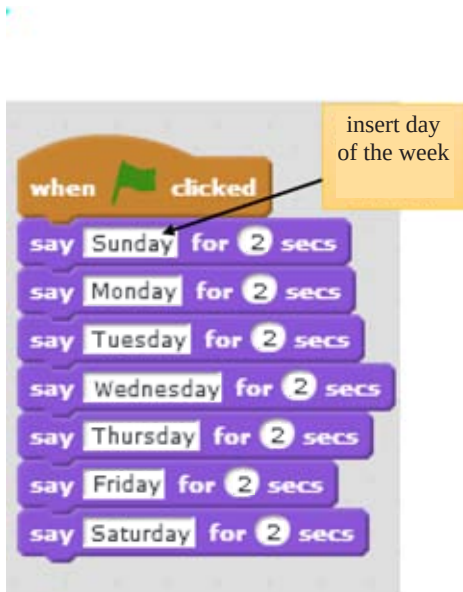
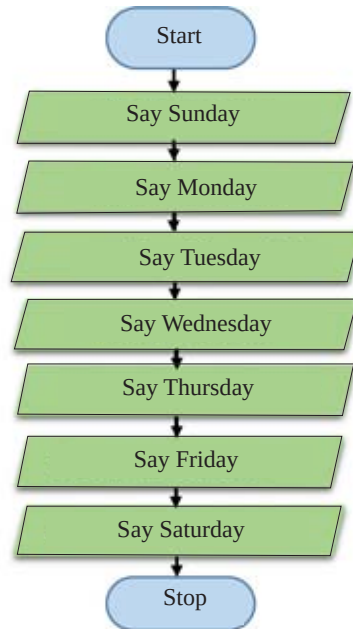
Figure 5.10 – Flow chart: Playing note





Activity 6 : See Workbook 5.6

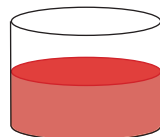
2. Expressing days of the week in order by Sprite



5.4 Use of a variable

In programming, variables are used to store a value in memory temporarily. Let's study the following activity to understand the nature of a variable.

Let's consider a situation where two types of coloured liquid have been poured into two separate glass vessels.



A vessel



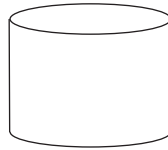
B vessel

Now let's consider changing liquid in A vessel into B vessel and liquid in B vessel into A vessel.



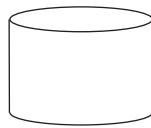
In this way, in order to change the liquid from one vessel to the other, it is necessary to have an extra vessel.

Let's name that vessel as C vessel.



C vessel

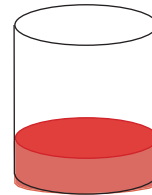
step 1 : Changing liquid in A vessel to C vessel



A vessel



B vessel

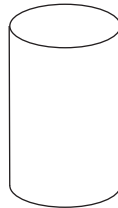


C vessel

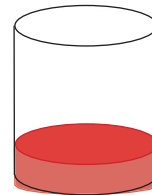
step 2 : Changing liquid in B vessel to A vessel



A vessel



B vessel

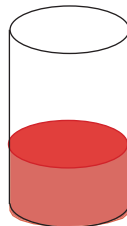


C vessel

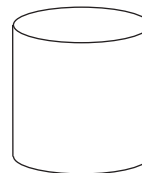
step 3 : Changing liquid in C vessel to B vessel



A vessel



B vessel



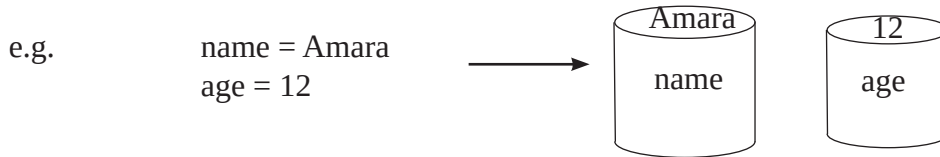
C vessel

As a vessel can store liquid, so a variable can store a value. The above vessels named as A, B and C can be considered as variables and the liquid poured into them can be considered as values of the variables.



Assign Values to Variables

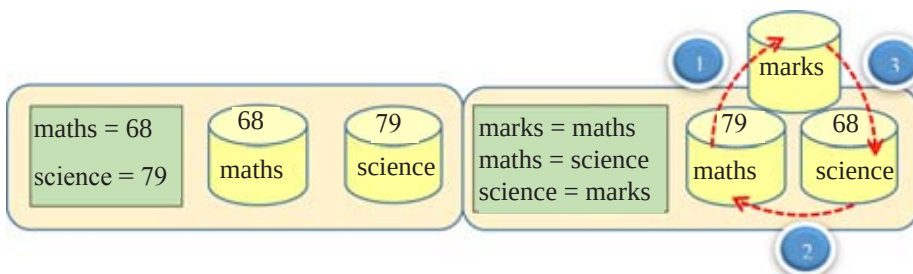
When assigning values to variables, variable name is written on the left to the equal sign and the value is written on the right to the equal sign.



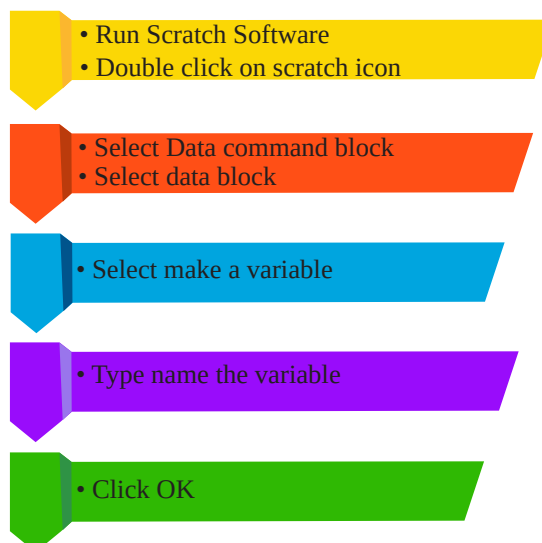
Changing values of variables

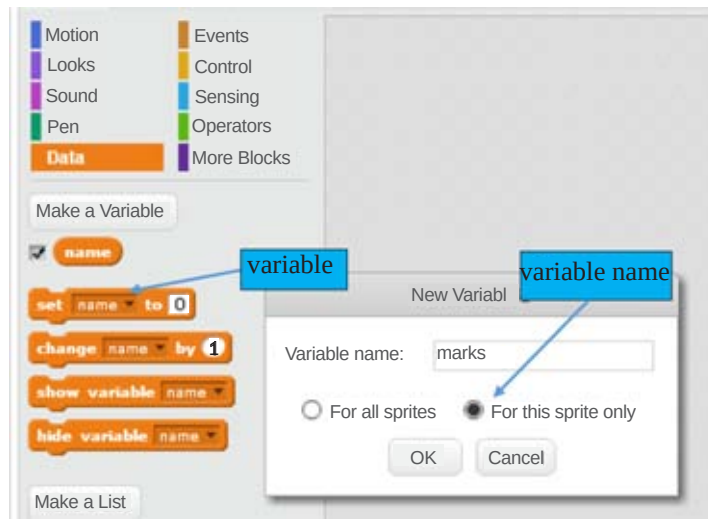
e.g.

Let's change the values of variables maths and science.

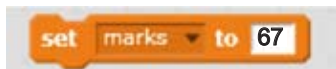


Building variable in scratch





assign value to a variable



(assign marks 67 to the variable marks)

change value of a variable



(change the value of the variable marks by 10)

5.4.1 Develop programme with variables

1. Multiplication of two numbers

Create two variables (n1, n2) to store values of two numbers and another variable to store the multiplication of the two numbers. Then join the control blocks shown below one by one sequentially in the given order. Change the value of control blocks as shown.



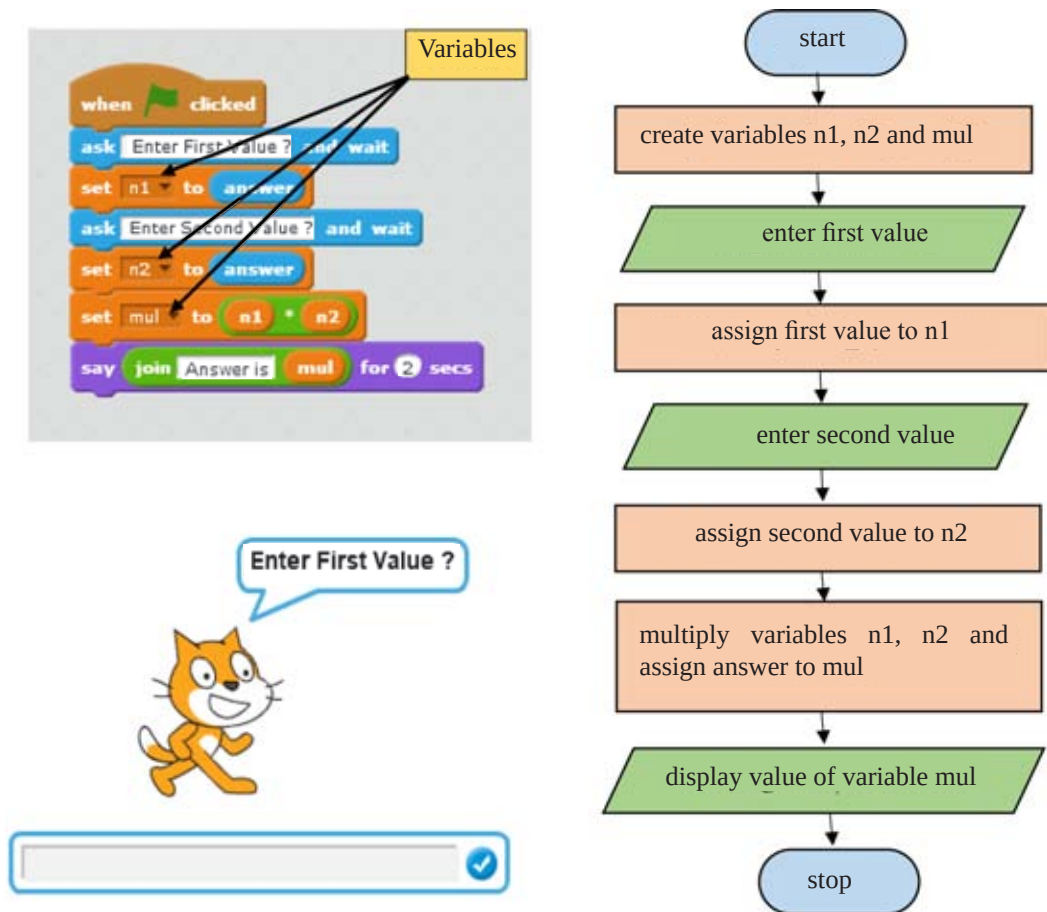


Figure 6.12 – Flow chart: Multiplication of two numbers



Activity 7 : See Workbook 5.7

2. Find Perimeter and Area of a Rectangle

The length and width of a rectangle is needed to find the perimeter and the area of that rectangle. Accordingly, four variables should be used in order to develop this programme. The length, width, perimeter and the area are shown as variables L, W, perimeter and area respectively.



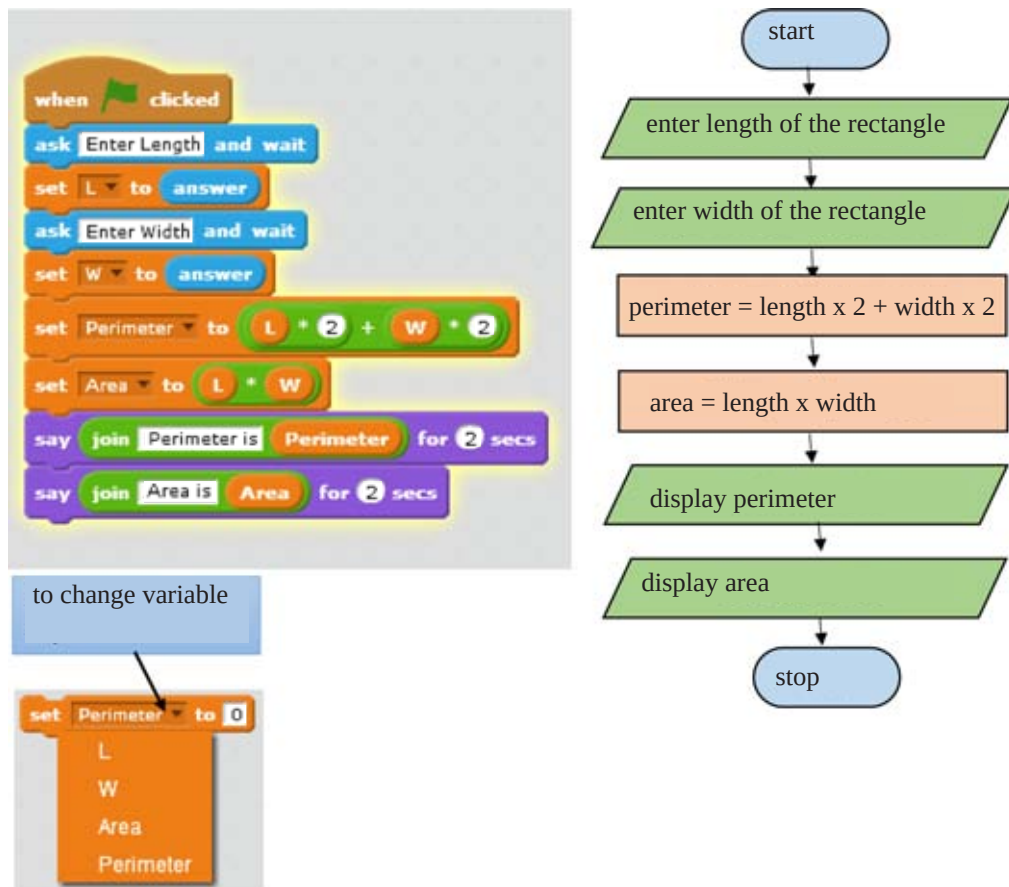


Figure 5.13 – Flow chart: Area and perimeter of a rectangle

3. Change the size of the Sprite from 10 to 100 at random

Develop the following programme to randomly change the normal size of the Sprite that we see. A value randomly chosen from one to ten is stored in the variable X. The size of the Sprite changes up to the value obtained by multiplying the value of variable X by 10. In addition, the colour too changes in proportion to the value of variable X.

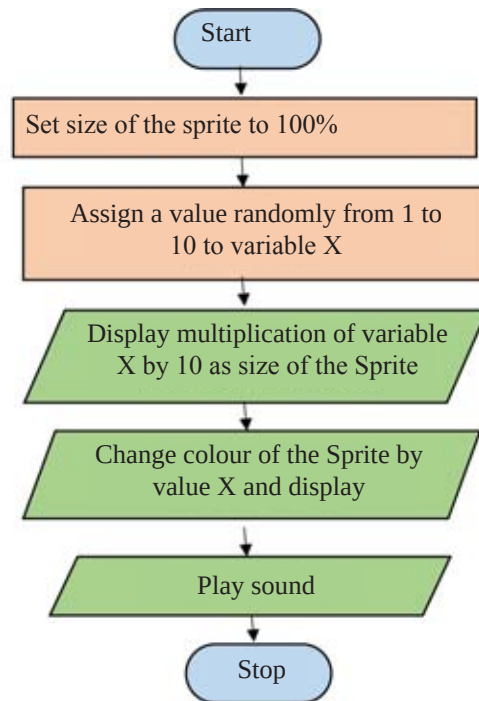


Figure 5.14 - Flowchart: Changing size of the Sprite

5.4.2 Bugs

Bugs may occur when developing a programme. Errors in a programme are called bugs, while the elimination of such bugs is called debug. In such a situation, unexpected problems are to be faced when a program with bugs run. Programmes with bugs may not run properly. Therefore before running a programme, bugs that may occur in that program should be eliminated.



Elimination of Bugs

Bugs may occur in such situations as change of order in the instructions (block), omission of instructions (block) or non-mentioning of correct variables and their values. Bugs in a programme can be eliminated by correcting bugs in the instructions(block) or arranging the order of the instructions (block) sequentially.

Let's compare the following programme with bugs and the programme without bugs developed to draw a rectangle with length and width 200 and 100 respectively.

Programme with bugs



Incorrect output

Programme without bugs



Correct output

correct

an instruction omitted

order changed

incorrect

The above programme on the left has been developed to draw a rectangle. However the expected output cannot be achieved due to bugs in the programme. Therefore there is a possibility to get an erroneous output. It is proved by the programme on the right that a correct output can be achieved after eliminating those bugs.





A program with bugs may not run properly. After eliminating the bugs, the programme can run properly.

Summary

- ★ Program development can be made easy by decomposing a complex problem
- ★ There are three control structures used to develop a programme. They are sequence, selection and repetition.
- ★ Execution of instructions (sequentially) step by step in an algorithm is called sequence.
- ★ Making decision as to which step to follow based on the condition given by the algorithm is called selection.
- ★ Flow direction in a flow chart is determined based on the condition of the flow chart.
- ★ Scratch open source programme can be used for visual programme development.
- ★ Command blocks are used in the development of Scratch program
- ★ Following command blocks can be used to display the decision
 - The block to be used to show steps to follow only if the condition becomes true



- The block to be used to show steps to follow if the condition becomes true or not



- ★ In programming, variable is used to store value in memory.
- ★ Error in a programme is called bug.
- ★ Elimination of bug in a programme is called debug.



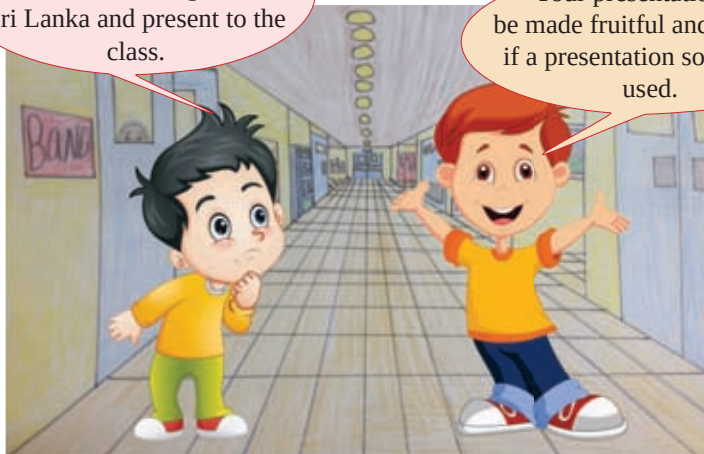
06

Presentation Software



Teacher asked me to find information on kingdoms of Sri Lanka and present to the class.

Your presentation can be made fruitful and attractive if a presentation software is used.



6.1

Let's learn about Presentation

Presentation is a method used to communicate information and ideas to a certain person or a group. There is more liveliness in this method than other methods because a quick interaction between the speaker and spectators takes place.

Electronic Presentation

Electronic presentation is a tool used to make a presentation attractive and fruitful.

Electronic Presentation like a book

An electronic presentation like a book. But it is not totally similar.

Why do you say so?





Activity 1 : See Workbook 6.1



- A book is composed of pages.
- Pages can be turned.
- Words, pictures are included in the book.
- Videos, songs, links cannot be included in books. Liveliness of them cannot be included in books.
- After a book is printed, changing the content is difficult.



- Presentation is composed of slides.
- Can move from slide to slide.
- Words, pictures, etc. are included in slides.
- Videos, songs, links can be included in a presentation. Liveliness of them can be included.
- Even after presenting several times, content of a presentation can be changed again and again.



Examples for Presentation Software



Microsoft
Powerpoint



Apple Keynote



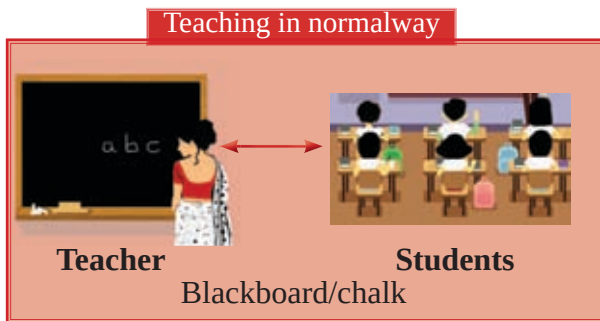
OpenOffice
Impress



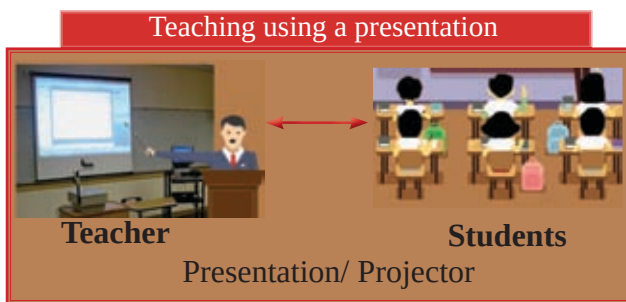
Corel Presentations



There are many advantages in an electronic presentation



- Should use so many words.
- More effort is needed to explain facts.
- More chances to change concentration.
- More effort should be made to acquire information.



- No need of using so many words.
- Less effort to explain facts.
- Less chance to change the concentration.
- Less effort to acquire facts.

6.1.1 Let's design a Presentation

In order to design a new presentation, presentation software in the computer should be opened.

Design a presentation using a blank presentation

When you open the electronic presentation software in the school computer, you will get a blank presentation as show in Figure 6.1.

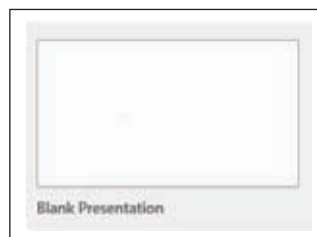


Figure 6.1- A blank presentation

When you click on that blank presentation, you will get blank slides which you need to prepare the presentation.



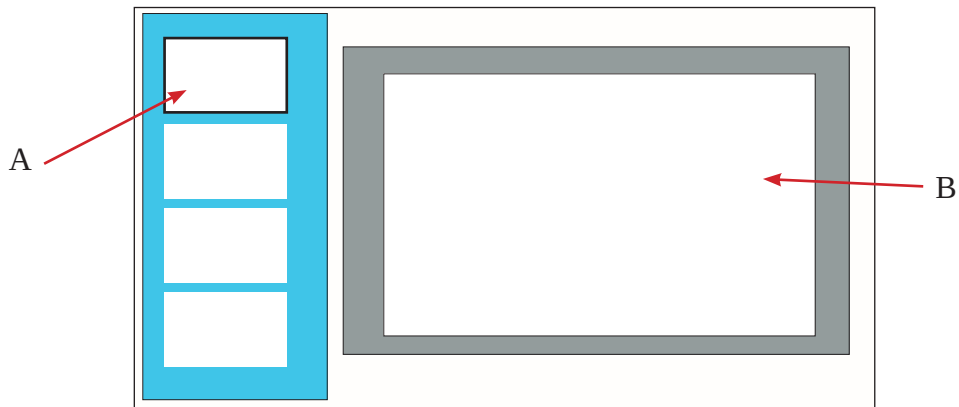


Figure 6.2 - A Presentation window

The Slide in Figure 6.2 A indicates a slide related to the content which is open on the slide pane (In Figure 6.2 B indicates a slide pane) is highlighted, Eg: The content of the slide indicated by A in Figure 6.2 is displayed on slide pane.

Start designing presentations using presentation models provided by Presentation Software

You will get blank slide when you open the presentation software, to be designed. Or if you wish, you can select from pre-designed slide templates which have being saved. They are designed with various shapes, colours, designs.



Figure 6.3 - Some presentation templates

If the slide matches your need, one of the slides can be selected.

After opening a presentation, it appears as shown in Figure 6.4.



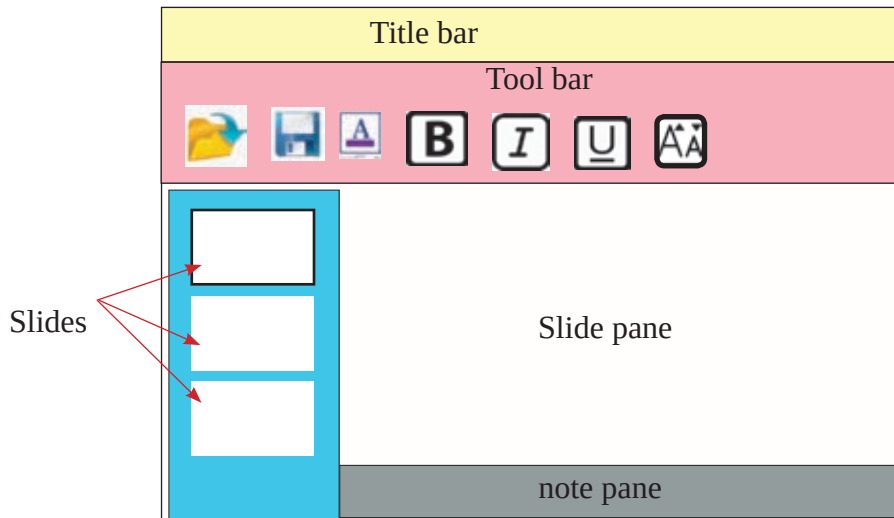


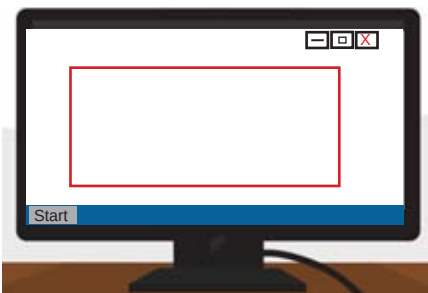
Figure 6.4 - Basic features of a Presentation window

Your presentation can be prepared using tools in the tools bar. The prepared presentation can be saved in any place for reuse when needed.



Activity 2 : See Workbook 6.2

6.1.2 Closing Presentations



To close a presentation, the mark X which appears on the right hand side should be clicked.

If the presentation was not saved, a dialog box relevant to save it will open.



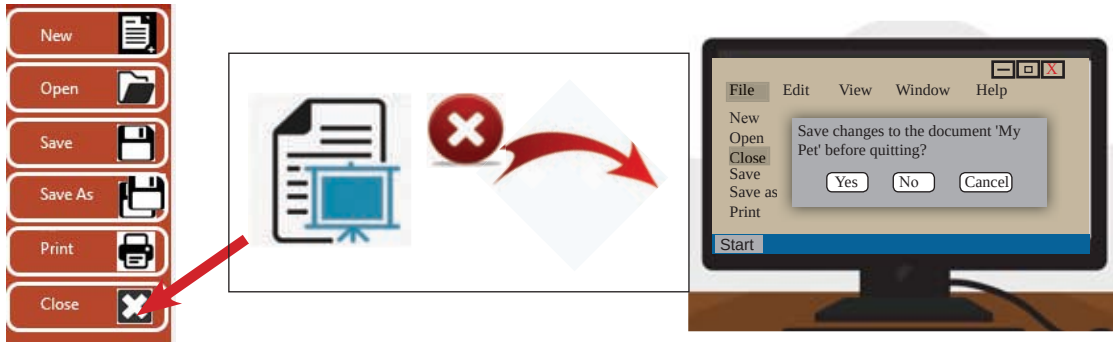


Figure 6.5 - Close a Presentaion

If you want to save the presentation select **Yes** command. If not, select **No** command.



Activity 3: See Workbook 6.3

6.1.3 Saving a Designed Presentation

After designing a presentation, it should be saved in the computer for late use.



Figure 6.6 - Save a Presentation

It is good to use a name of your own to save it rather than using a common name given by the presentation software. It helps to find it easily among the other files.





Activity 4: See 6.4 Workbook

6.1.4 Opening a Saved Presentation

There are several ways to follow in opening a presentation.

- Select the name of the presentation using presentation software.
- Click twice on the presentation file.



Figure 6.7 - Open an existing Presentation



Activity 5: See Workbook 6.5



There are several slides which can be used in preparing a presentation.

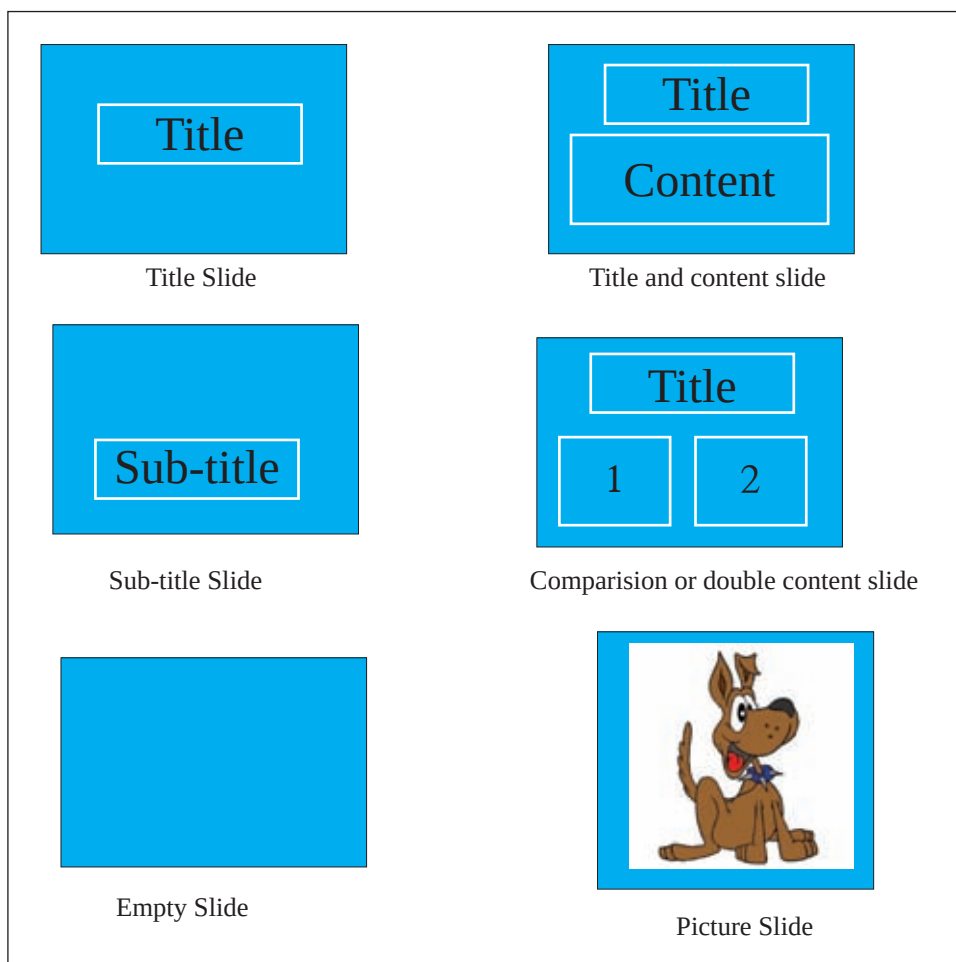


Figure 6.8 - Examples for types of slide

In addition to these, different slides can be used using a blank slide according to the need.



Activity 6 : See Workbook 6.6



6.3

Designing a Slide

Understanding about how to insert texts and pictures to a slide, how to draw sketches using shapes and add multimedia and tables to a slide is needed to design a slide.

6.3.1

Including Words and Word Art

There is a sepecific place in a slide to include words in a slide. It is shown as dotted lined boxes on a slide.



Space provided to insert text

Figure 6.9 - Space Provided to insert text

Following tools should be used to prepare letters as needed.

Change the font colour	
Size of the font	
Bold the font	
Italicize the font	
Underline	



Activity 7 : See Workbook 6.7

6.3.2 Inserting Pictures to a Slide

Presentation software facilitates inserting pictures to a slide.



Figure 6.10 - Insert pictures to a slide

There are two ways to insert pictures.

One way is to copy a saved picture and paste it on the slide. The other way is using clip art provided by presentation software.

Clip Art is a type of pre-designed images



Activity 8 : See Workbook 6.8

6.3.3 Inserting Shapes

We can insert shapes like circles, squares, as well as triangles lines, arrows, shapes for flow charts and stars in to presentation slides.



Figure 6.11 - Inserting shapes to a slide



Activity 9 : See 6.9 in Workbook



6.3.4

Inserting Multimedia to a Slide

Video and audios can be inserted to a slide. It makes the presentation more interesting rather than inserting pictures.

Inserting saved audios in the computer is allowed. Some presentation software allows to record audios at the time it is being designed. There are presentation software which provide library facilities with pre-recorded sounds.



Figure 6.12 - Insert multimedia to a slide



Activity 10 : See Workbook 6.10

6.3.5

Inserting Tables in to a Slide

Table designing tools are provided in presentation software.

Tables drawn in Ms words or Ms excel can be inserted in presentation slides.



Figure 6.13 - Inserting tables in a slide

Table can be drawn giving the number of rows and columns needed. Even after designing changes can be done.

Insert table	
Number of columns	<input type="text" value="3"/>
Number of rows	<input type="text" value="5"/>
<input type="button" value="OK"/>	





Activity 11 : See Workbook 6.11

6.4

Using Slide Designs

Slide designs are given in order to design the background of slides colourful and attractive. When slide designs are used, it is possible to change the size of the slide to fit to the screen or to standard sizes to suit the screen size.



Figure 6.14 - Several Slide designs

Background and colour of letters should match. It is better if the font or the content can be highlighted with a background. In slide designs font colour and backgrounds are suitably designed. Therefore, by using slide designs in a presentation no extra time is wasted to match font colour and background.



Activity 12 : See Workbook 6.12

6.5

Slide Transition

Slide transition can be used to move from slide to slide. The objective of this is to make it attractive. But if it is designed in a way which takes more time, it would be tiresome for the audience.

There are methods to control speed, select slide transition type and making selected sounds in transition in presentation software.



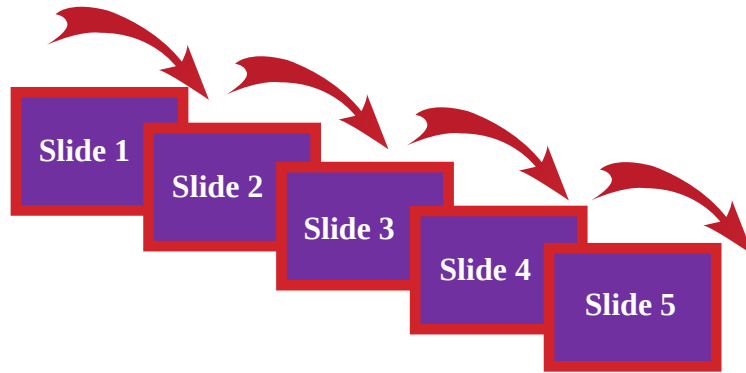


Figure 6.15 - Slide transition



Activity 13 : See Workbook 6.13

6.6

Deleting, Coping, Moving and Hiding of Slides

In order to delete, copy, move or hide, a slide the particular slide should be selected. Using a suitable Slide view provided by the presentation software to select slides is easy. The slide view presents slides in an organized way.



Figure 6.16 - A Normal slide view



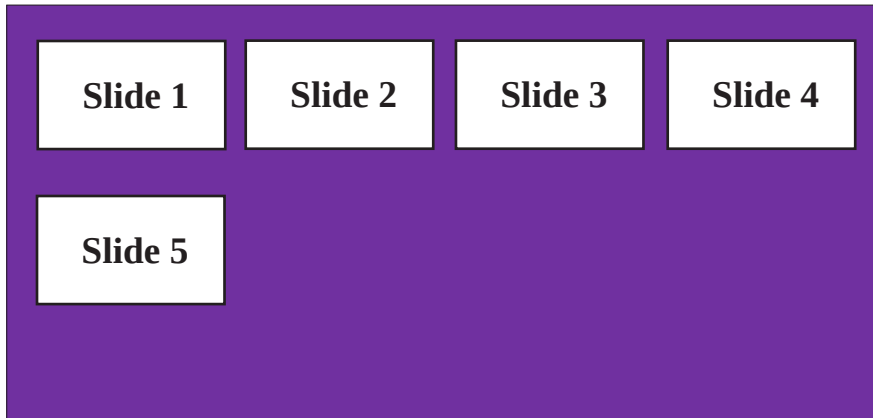


Figure 6.17 - Slide sorter view



Activity 14 : See Workbook 6.14

Deleting Slides

Deleting slides can be done using the following methods.

- Using the delete key on the keyboard
- Using the back space key on the keyboard

For this, relevant slide should be selected using the mouse head.

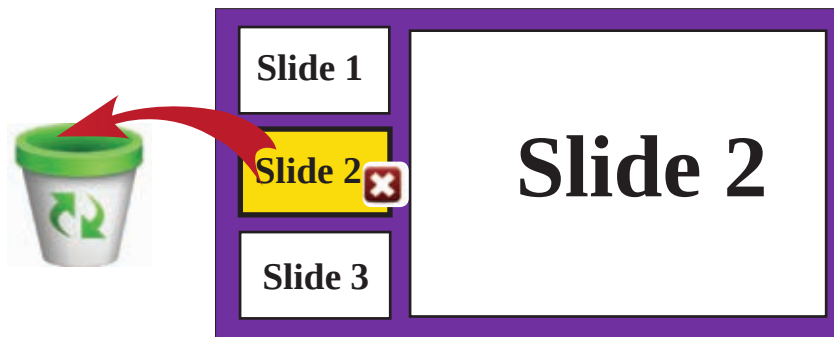


figure 6.18 - Deleting Slides



In addition to this, you can use other methods provided by the software to delete slides. (Your teacher will guide you).

You can delete multiple slides at once.



Activity 15 : See Workbook 6.15

Coping Slides

You may need to use a slide of a presentation more than once. Or else you may need to design another slide using none slide. You will have to change a copy of a slide in doing so.

If you want to copy the slide, you can copy and paste the slide by the facilitiy provided by presentation software.

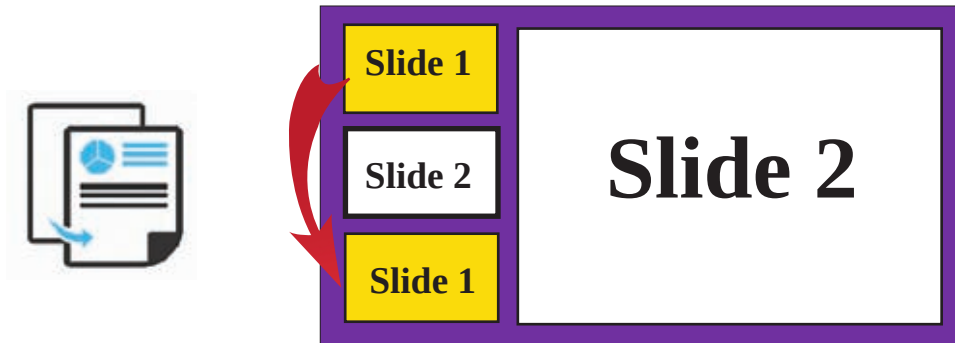


Figure 6.19 - Copying Slides

For this you have to take the mouse pointer to the relevant slides. There you have to click paste command from the tools bar or the menu you get when you right click the mouse.



Activity 16 : See Workbook 6.16



Moving Slides

It is not necessary to prepare slides in the same order you want to present. Presentation software allows to change the order after designing. For that, you have to move slides.

To move a slide, selected slide should be dragged and dropped in the relevant place. You can cut and paste the slide too. For this, you can use cut and paste command in tools bar or in the menu you get when you right click the mouse.

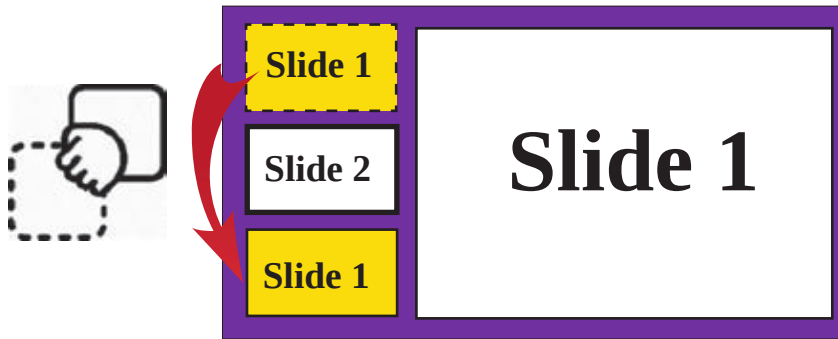


Figure 6.20 - Moving Slides



Activity 17 : See Workbook 6.17

Hiding Slides

You may not need to show all the prepared slides in a presentation. You can hide a slide without deleting in such a situation. When a slide is hidden, it does not appear but you when need you can prepare it in such way that it can be seen.

For this you have to select hide slide command in the menu bar of file menu or in the menu you get when the mouse is right clicked.



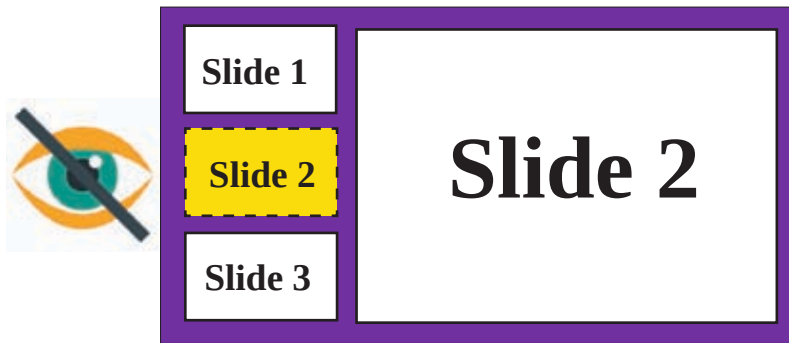


Figure 6.21 - Hiding Slides



Activity 18 : See Workbook 6.18



Summary

- ★ Presentation software is a software that can make presentations attractively by using words, images, pictures and sounds.
- ★ Presentations can be made using blank slides or pre-designed presentation slide templates. To open, save and close presentations, open save and close buttons are provided respectively in the software.
- ★ When inserting slides to the presentation, special types of slides are provided. Topic slide, topic and content, sub-heading slide, comparison or double content slide, empty slide, image slide are examples for different types of slides.
- ★ When inserting text into a presentation, different tools are provided to change the font colour, change the font size, to bold, to italic and to underline.
- ★ Images, shapes, video sound tracks and tables can be inserted to the slides. In a presentation, to change from slide to slide. attractive slide change methods are provided by many presentation software.
- ★ When using presentation software, deleting, copying, moving and hiding of slides can be done.





Nimal what is called as internet?

A computer network that consists of a large number of inter-connected computers.



7.1

Let's learn about the Internet

A network that consists of two or more computers can be considered as a computer network. The internet is an extra-large network with a large number of such computer networks. There are millions of computers on the internet.



Figure 7.1 - Computer Network

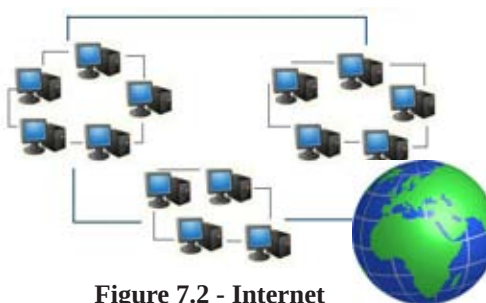


Figure 7.2 - Internet

At present, students can expand their knowledge by using resources like information, videos, images about any subject area by connecting to the internet.



They are many service rendered by the internet apart from providing educational knowledge. The ability to obtain information quickly on any incident in the world is one such service.

7.2

World Wide Web and Uniform Resource Location





A website is formed with many web pages. The world wide web is formed with many websites. There are millions of websites in the world wide web. The world wide web is also known as www.

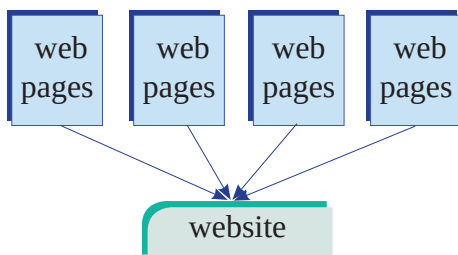


Figure 7.3 - How a website is created

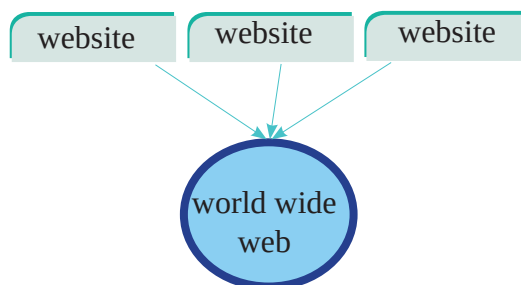


Figure 7.4 - How a world wide web is formed

7.3

Let's learn abouts Uniform Resource Locator



The uniform resource locator is the address used to identify one resource among the huge number of resources in the World Wide Web. The uniform resource locator is also known by its short name URL.

e:g: <https://www.moe.gov.lk>

Given above is the uniform resource locator or the address of the website of the ministry of Education.

With this website address, the Ministry of Education of Sri Lanka can be identified among many websites in the www.



7.3.1 Let's identify Secured and Unsecured Websites



In order to identify secured and unsecured websites separately different methods are used. The main two methods are given below.

The address of the website starts with https.

e:g:  <https://moe.gov.lk>

After logging in to a website  symbol is displayed on the address bar.

e:g:  <https://moe.gov.lk>

7.3.2 Video Conferencing



Video conferencing is known as conducting discussions using video technology on the internet between two persons or a two groups who are geographically located at a distance from each other.

Advantages of conducting video conferencing

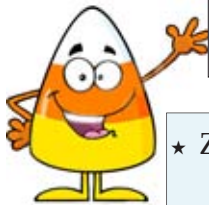
- The initial cost of conducting conferences can be minimized.
- There is no need to travel to the location of the conference and therefore there is no transport cost or waste of time.
- It can be quickly arranged.

What are the software and hardware required to conduct a video conference?

- A computer
- A web camera
- Internet connection and a software to conduct a video conference are required.



Examples for software used for video conferencing



★ Zoom



★ Skype



★ GoToMeeting



★ Webex



Activity 1 : See workbook 7.1

7.3.3

E-mail

Brother, I need to send this letter to one of my friends. Can you post it?

It's easy if you send an e-mail.

What is e-mail?

E-mail means an easy way of sending a letter on the internet.



E-mail is electronic letters which are electronically exchanged between two people or among several people who have an e-mail address. Many things such as letters, photos, videos and documents can be sent as messages through e-mail.

E-mail Account

First, a suitable service providing website should be selected to create an e-mail account. In most cases such websites provided free e-mail accounts.



The characteristics of E-mail

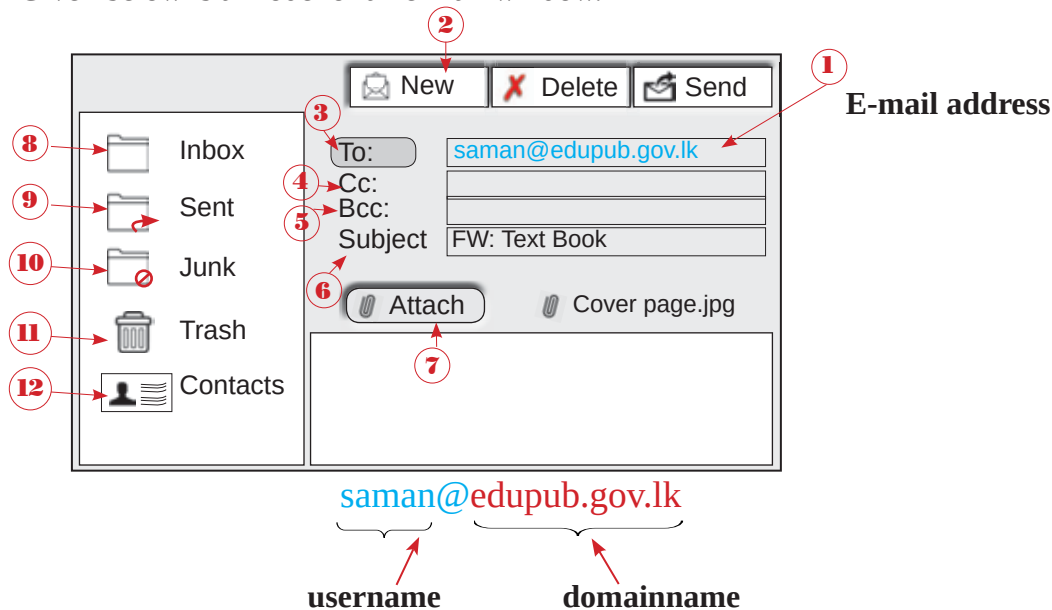


-  The ability to send copies of one e-mail message to several people at once.
-  When the letter couldn't be sent properly to the relevant e-mail account, it is notified with a reply message.
-  The ability to save e-mail addresses and retrieve them with the address book.
-  The time and date of the sent e-mail is automatically entered to the copy of the e-mail.
-  The ability to forward an e-mail message to another person.
-  The ability to attach data or information file easily into the e-mail (a photo, a document).



7.3.4 E-mail Window

Given below is a model of an e-mail window.



In the e-mail address saman@edupub.gov.lk, [saman](#) in the user name.

@ symbol is used to connect the username to the other part.

[edupub.gov.lk](#) after @ symbol is the domain name.

.lk means it is an e-mail address in Sri Lanka.

2 compose/new

A new e-mail window can be obtained by clicking on Compose or New after logging on to the e-mail account

3 To

Here, the e-mail address of the receiver is mentioned

5 Bcc (Blind Carbon Copy)

The e-mail addresses in this section are not visible to people whose e-mail addresses are in To and Cc. But all the addresses in To and Cc are visible to people whose e-mail addresses are in Bcc.

4 Cc (Carbon Copy)

The e-mail addresses of the people to which the copies of this letter should be sent, are mentioned.



Examples

- ★ E-mail address of Amara - amara@yahoo.com
- ★ E-mail address Nayana - nayana@gmail.com
- ★ E-mail address Meena - meena@yahoo.com

Given below are e-mail addresses mentioned in To, Cc and Bcc of an e-mail message created to send a greetings message.

To: amara@yahoo.com Cc: nayana@gmail.com Bcc: meena@yahoo.com

Here, Meena can see both e-mail addresses of Amara and Nayana. Nayana can only see the e-mail address of Amara. Similarly, Amara can only see Nayana's e-mail address.

6 Subject

Here, the topic related to the e-mail address is mentioned
Eg: Grade 7 student details)

7 Attachment

If there are files that should be attached to this e-mail address, it can be done by clicking on this tool.
Eg: photos, videos, sound tracks

8 Inbox

This contains the e-mail messages sent by other people. Unopened e-mail messages are shown in a dark colour. The person who has sent the message and to whom it has been sent can be seen.

9 Sent

E-mails sent by you are contained here.

10 Junk/Spam

Unnecessary or spam e-mails are contained here.

11 Trash

Deleted e-mails are temporarily stored here. If needed, emails in the folder can be deleted.

12 Contacts

This contains the e-mail addresses and contact information.



Activity 2 : See Workbook 7.2

7.4

Let's develop Webpages using HTML

Sister, our teacher told that she would teach us how to create web pages in the next lesson.



For that, first you must know what html is.

What's html ?



Html is the language used to create web pages.

7.4.1

HTML Codes

HTML (hyper text markup language) is the language used to create web pages. It has its own codes and a webpage is created by using these codes. Given below are several basic codes used in html.

<html>	- Beginning of a web page
<head>	- The first part of the web page
<title>	- The topic of a web page
<body>	- The part in which the items that should appear on a web page are shown
 	- Go to the next line (break line)
<h1>	- Get larger font for the heading (heading 1)
<h6>	- Get smaller font for the heading (heading 6)
<center>	- Centering the letters on the page
<p>	- Start a paragraph
<bgcolor >	- Use a background colour in the web page
<background>	- Use a background images in the web page
	- Use an image in the web page
<A href>	- Link another file to the web page
	- Change the font style
	- Bold the font
<i>	- Italicize the font
<u>	- Underline text

7.4.2 Let's create a Simple Web Page

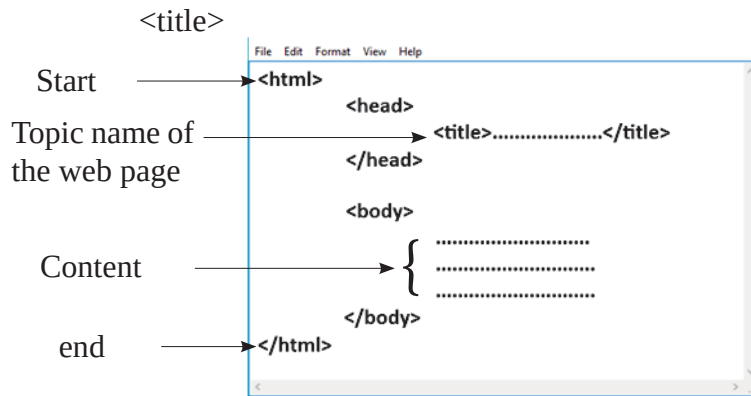
A simple text editing software could be used to enter html codes to create web pages.

E:g:. notepad



There are occasions where complex software is used to create web pages. Here, we will not focus on that.





Here, among the `<title>` codes, a suitable name for the web page should be used.

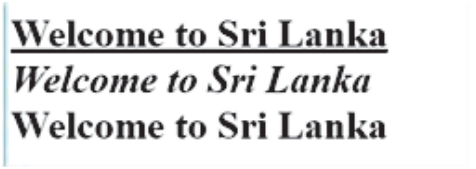
It appears on the title bar of the web page. Here what is mentioned in `<body>` _ `<body>` section is visible in the web page.

All codes should be written between '`<`' and '`>`' symbols. In most html codes, there is a beginning and an end. To indicate an ending code '`/`' symbol should be used.

e:g: `<title>` beginning end - `</title>`

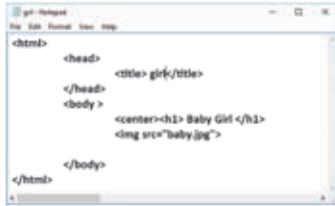
The following table contains examples of how html codes are used to create a web page. The first column indicates the use of html codes and the second command indicates how it is visible in the web page.

Usage of html codes	How it appears on the web page
center a line (center) <code><center></code> <pre> <html> <head> <title> welcome</title> </head> <body> <h1> Welcome to Sri Lanka </h1> <center><h1>Welcome to Sri Lanka </h1></center> </body> </html> </pre>	
change size of text <code><h1></code> <code><h2></code><code><h6></code> <pre> <body> <h1> Welcome to Sri Lanka </h1> <h2>Welcome to Sri Lanka </h2> <h6>Welcome to Sri Lanka </h6> </body> </pre>	

<p>add underline, italic and bold</p> <p><code><u>,<i>,</code></p>	
<p>change font colour and font style</p> <p><code></code> හා <code></code></p> <pre> <h1> Welcome to Sri Lanka </h1> <h1> Welcome to Sri Lanka </h1> <h1> Welcome to Sri Lanka </h1> <h1> Y%S ,xldjg idorfhka ms,s.uq </pre>	
<p>add background colour</p> <p><code><bgcolor></code></p> <pre> <body bgcolor="Gold"> <h1> Welcome to Sri Lanka </h1> <h1> Welcome to Sri Lanka </h1> </body> </pre>	
<p>insert a paragraph</p> <p><code><p></code></p> <pre> <body> <h1> Web browser </h1> <p> A web browser is a piece of software that enables the user to access web pages and web apps on the internet. There are a range of browsers available, and they are usually free to download and install. </body> </html> </pre>	<p>Web browser</p> <p>A web browser is a piece of software that enables the user to access web pages and web apps on the internet. There are a range of browsers available, and they are usually free to download and install.</p>
<p>insert a background image</p> <p><code><background></code></p> <pre> <head> <title> welcome</title> </head> <body background="baby.jpg"> <h1> Web browser </h1> </pre>	

insert a picture

``



change the height and width of a image

`<center><h1> Baby Girl </h1>`

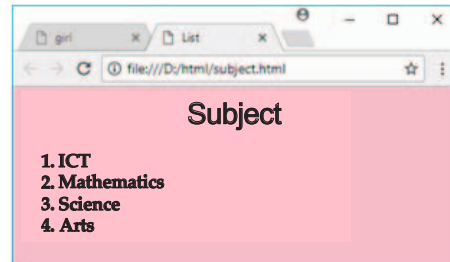
``



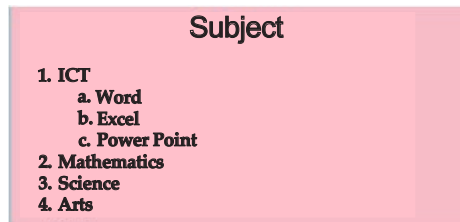
insert a numbered list

`<ol>`

```
<body bgcolor="pink" >
  <center><h1> Subject </h1></center><h3>
  <ol>
    <li>ICT
    <li>Mathematics
    <li>Science
    <li>Arts
  </ol>
```



```
<ol>
  <li>ICT
  <ol type="a">
    <li> Word
    <li> Excel
    <li> Power Point
  </ol>
  <li>Mathematics
  <li>Science
  <li>Arts
</ol>
```



<p>insert a bulleted list</p> <p></p> <pre> ICT word Excel Power Point Mathematics Science Arts </pre>	<p>Subject</p> <ul style="list-style-type: none"> • ICT <ul style="list-style-type: none"> ○ Word ○ Excel ○ Power Point • Mathematics • Science • Arts
<p>link an external web page, website or a file</p>	<p>Office package</p> <p>MS-Word MS- Excel MS- Power Point</p> <p>For mare information Click here</p>
<p>click on the 'click here' to open the internet. html web site.</p> <p><a href></p>	<pre> <body> office p ackage

 MS-Word
 MS-Excel
 MS-Power Point

 For mare information Click here </body> </pre>



Activity 3 : See Workbook 7.3

7.5

Let's use the Internet Safely and ethically

7.5.1

Let's use the Internet safely

We obtain different advantages by using the internet. However, we must use the internet safely and carefully.



Let's protect ourselves from hacking

Hacking is accessing data and information in a computer or in a computer network without permission.



-  Safeguarding the accounts on the internet by using usernames and passwords.
-  Protect the computer or the mobile phone used to enter the internet by using a username and a passwords.
-  Protect the files, folders and programmes by using passwords.

-  Encrypt the hard disk of the computer.
-  Service used to access internet should be protected by using a username and a password.
-  Keep back ups of data and information in the computer.
-  Update the facilities such as antivirus software used for safety.



Protection from Virus Attacks

A virus is a type of malware software. (Revise the facts you learnt about malware software in lesson three).



Computer viruses disrupt the activities in a computer. When a virus enters a computer, it duplicates the virus inside the computer. It reduces the efficiency of the computer. It also corrupts data and sometimes deletes them.



-  Install antivirus software and update it regularly.
-  If the internet is used, use safe websites.
-  Refrain from using black listed websites shown by antivirus software.
-  Refrain from clicking on pop-up windows.
-  Refrain from opening suspected emails and attachments.

Protection from Software Piracy

Amal what is software piracy



That is obtaining pirate copies of software which do not have the right to be copied by the user.

Software Piracy

Software piracy is copying or keeping duplicate copies or selling them without legal permission.

(Here, we have paid our attention to several measures that can be taken when using software)



-  Study the licence agreement before installing a software.
-  When buying a software, purchase them from a trusted company.
-  If you download a software, use the website of the production.
-  Obtain the help and advice of a knowledgeable person when purchasing, downloading or installing a software.

Cyber bullying

Cyber bullying is releasing false information which can make a person or an institution uncomfortable and that which can cause harassment and insult.

Ways in which cyber bullying can be caused



-  On websites such as Facebook, Instagram, Snapchat and Twitter.
-  By short messages sent via SMS.
-  Through instant messages : Applications and social media websites that provide instant message services.
-  By e-mails



Cyber bullying caused by posting insulting photos, making comments on them, uploading videos are categorized under unlawful crimes.

Stealing data which shows the identity of a person

When using the computer we may have to face hazards such as stealing data that indicate the personal identify of a person. If you use the internet, that risk is high.

Examples for data that indicate the identity of a person.

Name	Address
Telephone	Brithday

When the internet is used most of these stealings are done by accessing the computer or the tasks done by the user without his or her permission.

Examples for the misuse of data related to personal identity.

Obtain the information related to the computer and the user without permission and use them for frauds.

Misuse the infromation provided when entering websites.
e:g: Use for business aims without permission.



7.5.3

Precaution on Online Security

Precaution is important when working online using the internet. Several measures that can be taken are given below and they are already discussed under different topics.



Update the antivirus software installed in the computer.



Install the latest edition of the web browsers and update them regularly.



Set the settings as to turn on automatic updates so that new updates of malware software and operating systems (windows 8 and 10) are enabled in the computer.



Use a strong password: A password with at least eight letters should be used. Here it's better to contain simple letters, capital letters, numbers and special characters, (\$, *, #, @) eg: kanDY#4599



Protect the wifi router with a password to provide security to the internet connection.



Be careful about phishing attacks.



Phishing attacks are obtaining information on bank account details and e-mail account details by appearing to be trustworthy and cheating the users. To protect from those, we should refrain from clicking on suspected e-mail messages, pop-up messages and hyperlinks.



Activity 4 : See Workbook 7.4

Summary

- ★ The internet is a collection of networks formed by a large number of computer networks. By connecting to the internet, we can expand our knowledge by obtaining information on any subject area, and resources such as photos and videos.
- ★ Among the services provided by the internet, e-mails, video conferencing, world wide web, file sharing, search engine facilities and downloading videos, songs and photos are the most common.
- ★ The main service provided by the internet is world wide web.
- ★ The uniform resource locator is the method used to identify different resources in each web site separately.
- ★ A web browser is an application software used to make a web site visible on the computer screen.
- ★ Electronic mail or e-mail is a type of letters sent to a person or several people by a person who has an e-mail address by using the internet.
- ★ Software with which free e-mails can be created - Gmail, Yahoo Mail, Outlook Mail.
- ★ An email address is mainly divided into two parts; username and domain name.
- ★ E-mails can be divided into inbox, sent, draft, trash and spam.
- ★ HTML (hyper text markup language) is a basic language used to create web pages.
- ★ To change the font colour and style, < font colour>, and codes are used. To use a background colour <bg colour> code and to insert a picture < img src> code are mainly used.



- ★ Hacking is stealing information and data in a computer without permission.
- ★ Viruses duplicate in a computer. The memory time which is used to perform other activities is used for this and therefore the computer becomes slow.
- ★ Mainly viruses enter a computer through the internet, computer, networks, compact disks and USB drives.
- ★ Software piracy is obtaining unlawful copies of software which do not have the right to be copied by a user.
- ★ Cyber bullying is releasing negative and false information which can cause discomfort, harassment and insult to a person through social media, forums, computer games using digital tools.
- ★ Phishing attacks are obtaining information on bank account details and e-mail account details by appearing to be trustworthy and cheating the users.