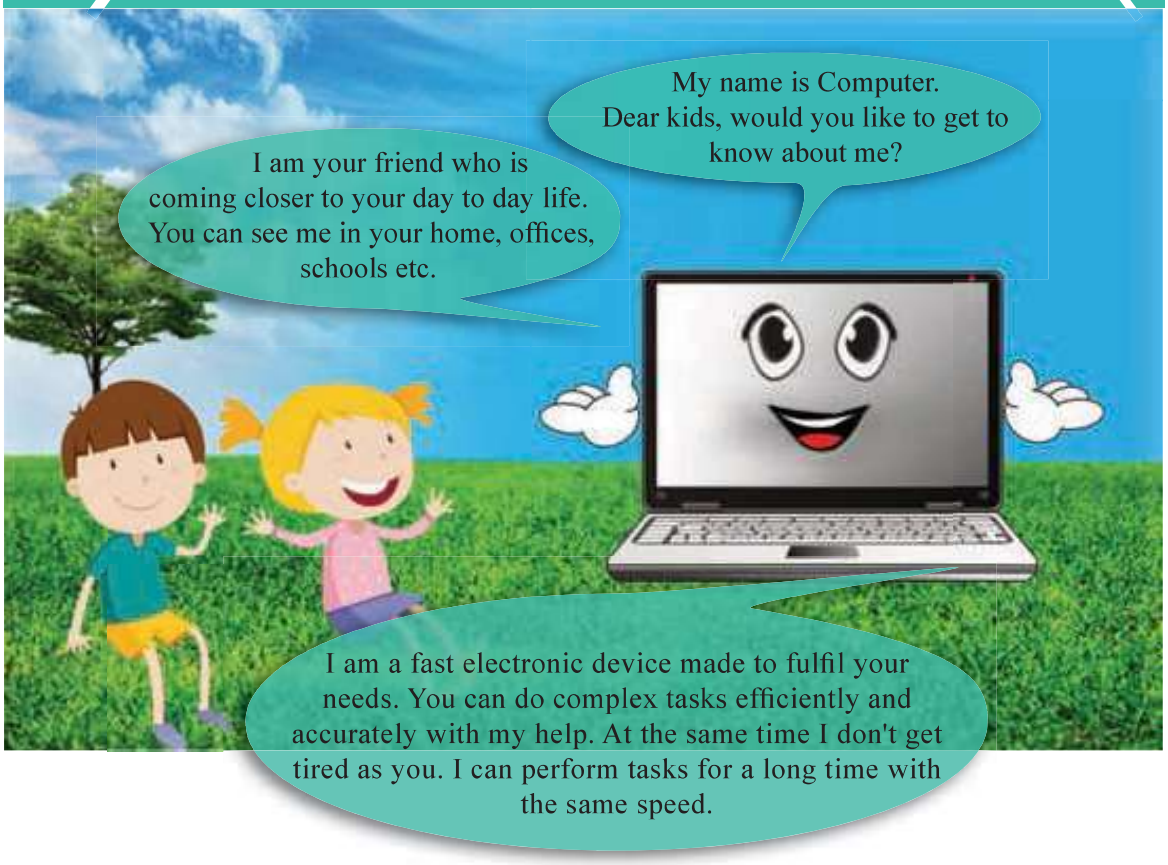
1 Importance of Computers

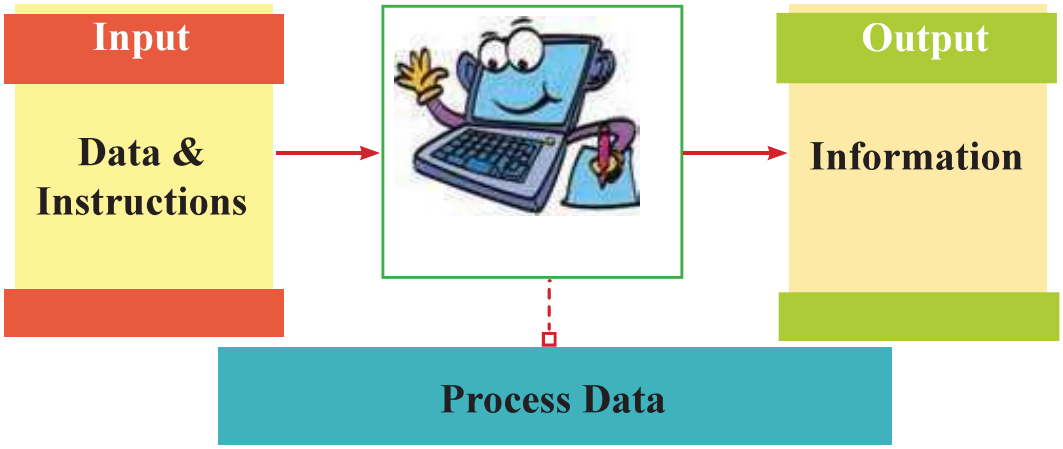
1.1 Let's get to know the Computer



1.1.1 Functions of a Computer

The basic functions of a computer are entering data, processing them and producing processed data (information).

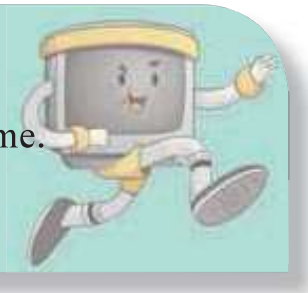
Figure 1.1 - Basic Functions of a Computer



Activity 1 - See 1.1 in the Workbook.

1.1.2 Significant Features of a Computer

Speed and Efficiency



- It can finish any given task within a very short time. (It can perform billions of tasks in a second.)

Accuracy

- It can provide correct information when correct instructions and data are given.

Reliability

- You can rely on the process and the output.

Consistency

- It produces consistent output when the same input is given.

Storage Capacity

- It can store a large amount of data. It can obtain them at any given time for any process.

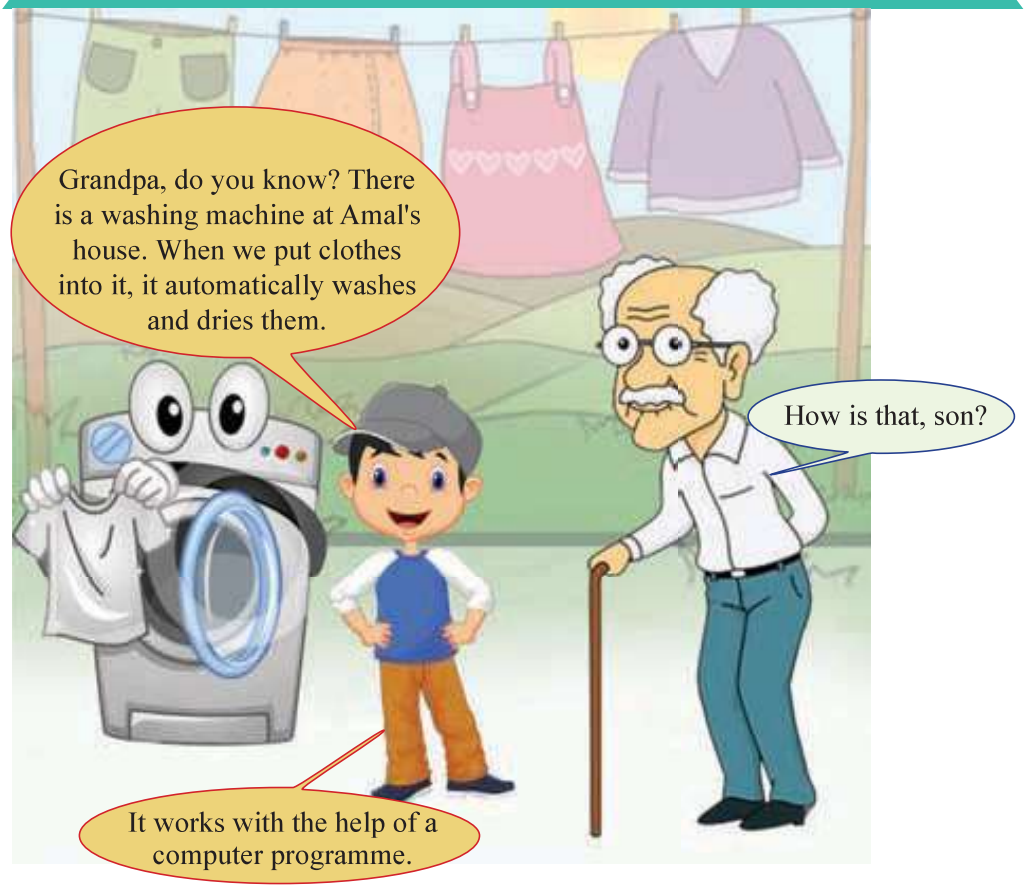
Cost

- Though the initial cost is high, the maintenance cost is not so.

Intelligence

- It can act according to the given instructions. But it cannot take decisions on its own like a human being.

1.1.3 Devices with Embedded Computers



Equipment like washing machines, mobile phones, modern motor vehicles and modern televisions are operated by computer programmes. Computer programmes included in such equipment are known as Embedded Computer Systems.

Smart Phones | Washing Machines | Modern Cars | Smart Televisions

Figure 1.2 - Some Devices with Embedded Computers

1.2 Let's identify the Components of a Computer

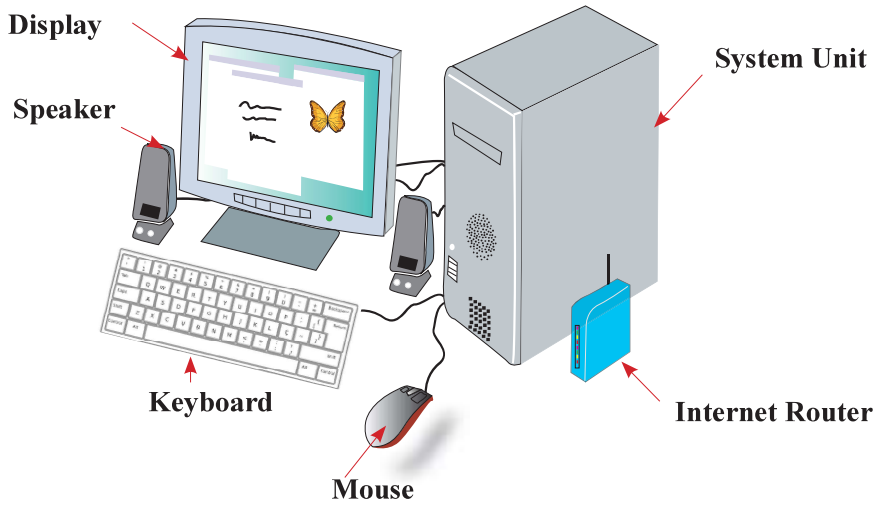


Figure 1.3 - Components of a Computer

A computer is a unit which consists of many parts. We can categorise those parts into components according to the nature of the functions they do.

- Input Devices
- Output Devices
- Central Processing Unit
- Main Memory
- Storage Devices
- Communication Devices

• Input Devices

The devices which are used to enter data and instructions to computers are called input devices.

Figure 1.4 - Some Input Devices

• Output Devices

The devices which are used to retrieve the data and information are called output devices.

Figure 1.5 - Some Output Devices

• Central Processing Unit (CPU)

Controlling the computer and processing data according to the given instructions are done by the Central Processing Unit.

The Central Processing Unit is located inside the system unit. It cannot be seen from outside.

System Unit Mother Board Central Processing Unit

Figure 1.6 - Location of the Central Processing Unit

• Main Memory

The device which is used to store data, information and instructions temporarily is identified as the main memory or the primary memory. It is also called the Random Access Memory (RAM).

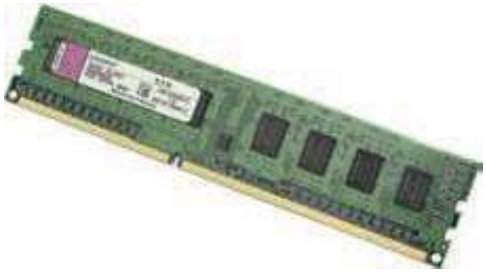


Figure 1.7 - Random Access Memory -RAM

• Storage Devices

The devices which are used to store data, information and instructions are called storage devices.

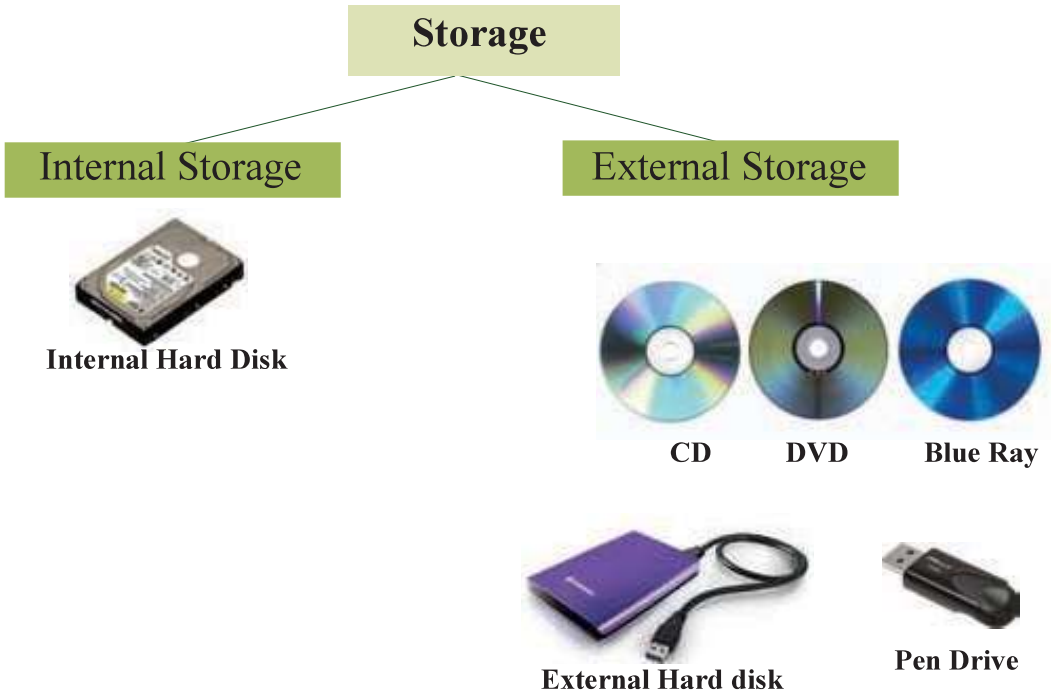


Figure 1.8 - Some Storage Devices

• Communication Devices

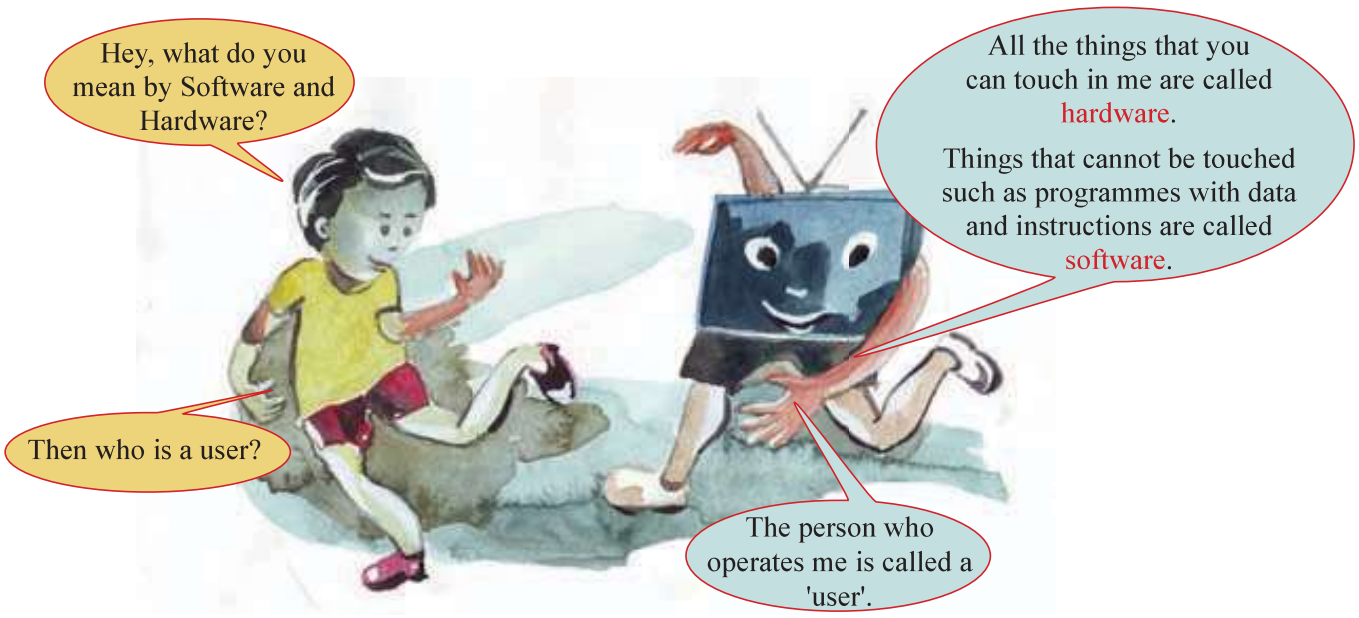
The devices which are used to exchange the processed data and information are called communication devices.

Figure 1.9 - Wired/Wireless Communication Devices

1.3 Importance of Software

A software is a set of programmes designed to execute certain tasks by using a computer.

Activity 2 - See 1.2 in the Workbook.



A user can do different tasks by using software.There are various types of software to fulfil the needs of the user.

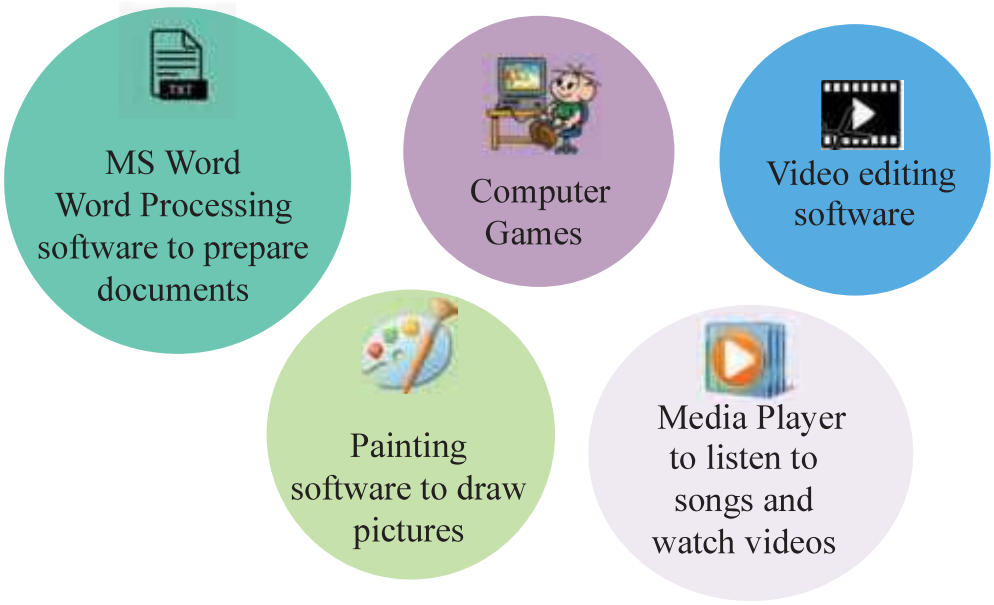


Figure 1.10 - Some Examples for Software

You can study more about software in the forthcoming chapters.

1.4 Application of Computers in Various Sectors

Activities in all sectors have become easy by the use of computers. Several examples for such sectors are given below.

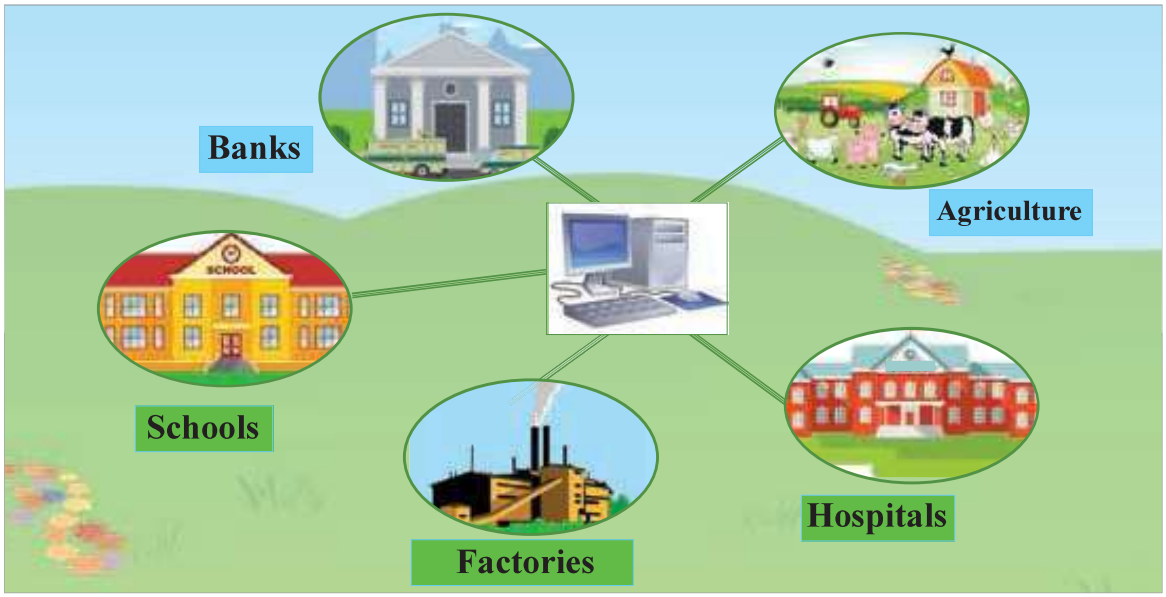


Figure 1.11 - Various Sectors that use Computers

1.4.1 Schools

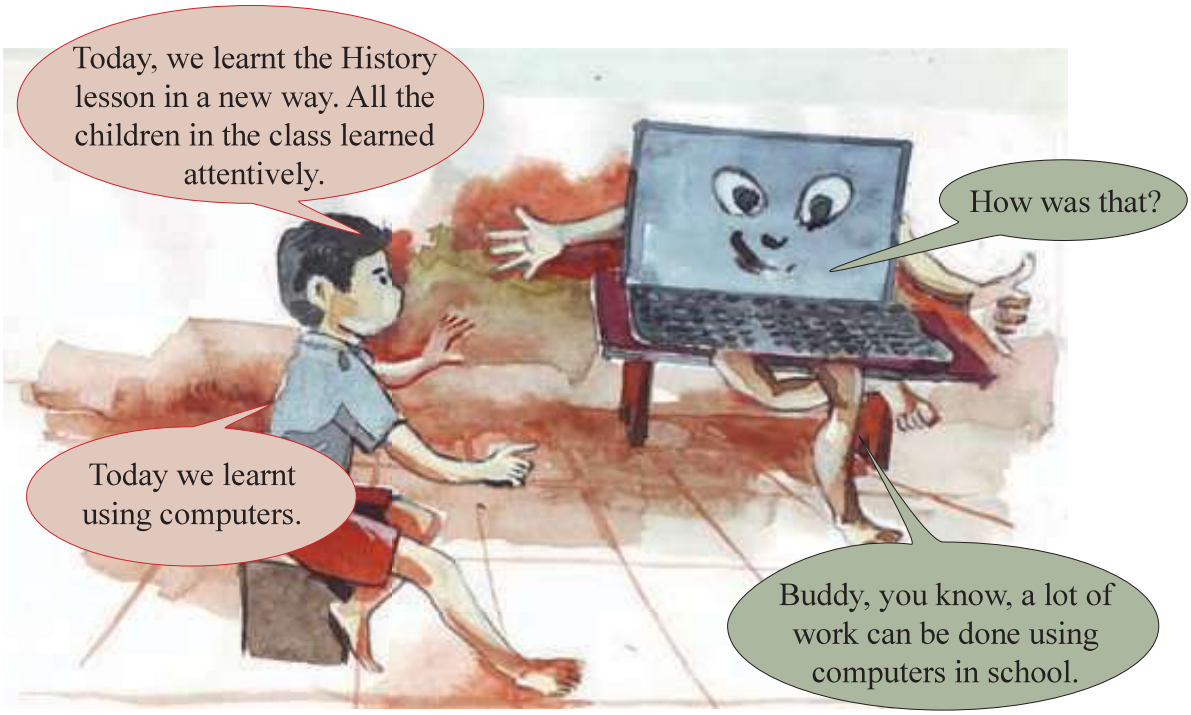


Figure 1.12 - Working in the school office using computers

Computers simplify work and bring effectiveness to office work in the school system.

Computers are used instead of blackboard and books in the learning process.

Figure 1.13 - Computer enabled Learning Situation

Figure 1.14 - Getting knowledge from the internet

Obtain additional knowledge related to subjects by accessing the internet.

1.4.2 Banking

Computer has become an essential tool in the banking activities.

Figure 1.15 - An ATM machine

Use of Automated Teller Machine (ATM) to deposit and withdraw money.

Using electronic cards to settle bills when purchasing goods.

Figure 1.16 - Paying bills by electronic cards

Figure 1.17 - Internet Banking

Internet banking and mobile banking are latest trends in the banking system.

1.4.3 Hospitals

There are many examples of using computer systems in hospitals.

Figure 1.18 - Thermometer

Digital thermometer is an embedded computer device which can be used at home.

Use of computer and embedded computer devices in Intensive Care Unit (ICU).

Figure 1.19 - Use of computers and computer embedded devices in ICU

Use of computers and computer embedded devices in an operation theatre.

Figure 1.20 - Use of computers and computer embedded devices in an operation theatre

1.4.4 Factories

Figure 1.21 - Use of Robotic Technology

- Human labour is replaced by computer devices. As a result, production can be increased.
- The use of robotic technology is a latest improvement in industrial work. Activities in industrial sector have become easier by that.

1.4.5 Agriculture

Embedded computer devices are used in various activities such as harvesting, weeding and water supplying. Thus, the productivity can be increased by minimising expenditure.

Figure 1.22 - Supplying Water and Fertilizer using Modern Technology in Agriculture

Activity 3 - See 1.3 in the Workbook.

Summary

- The main tasks of the computer are input, processing and output.
- Input devices, memory, CPU, output device, communication devices are identified as the main parts of a computer.
- Software is essential to do different tasks of the user.
- Computer is used for various activities of day to day life.
- Smart phones, modern televisions and washing machines can be identified as equipment with embedded computer systems.