Study guide line for grade 9th

• **Written exam** (20 marks):

Kind of questions: **All the types.** True or false or multiple choice or fill the blank from box, or writing.

• The exam will cover these topics:

Computer specifications:

• Identifying the users of the computers and their tasks.

• Non portable computers and Computers for mobile use.

• Types of computers.

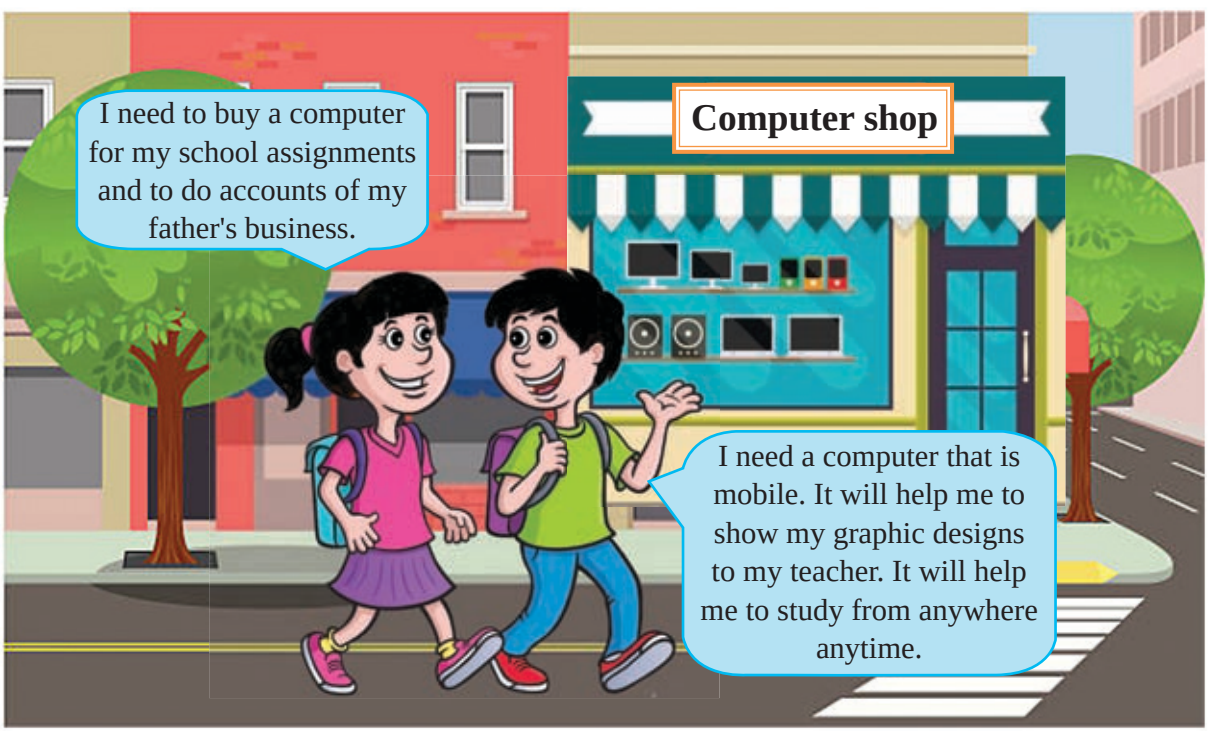
• Computer specifications: processor, hard disk, monitor,

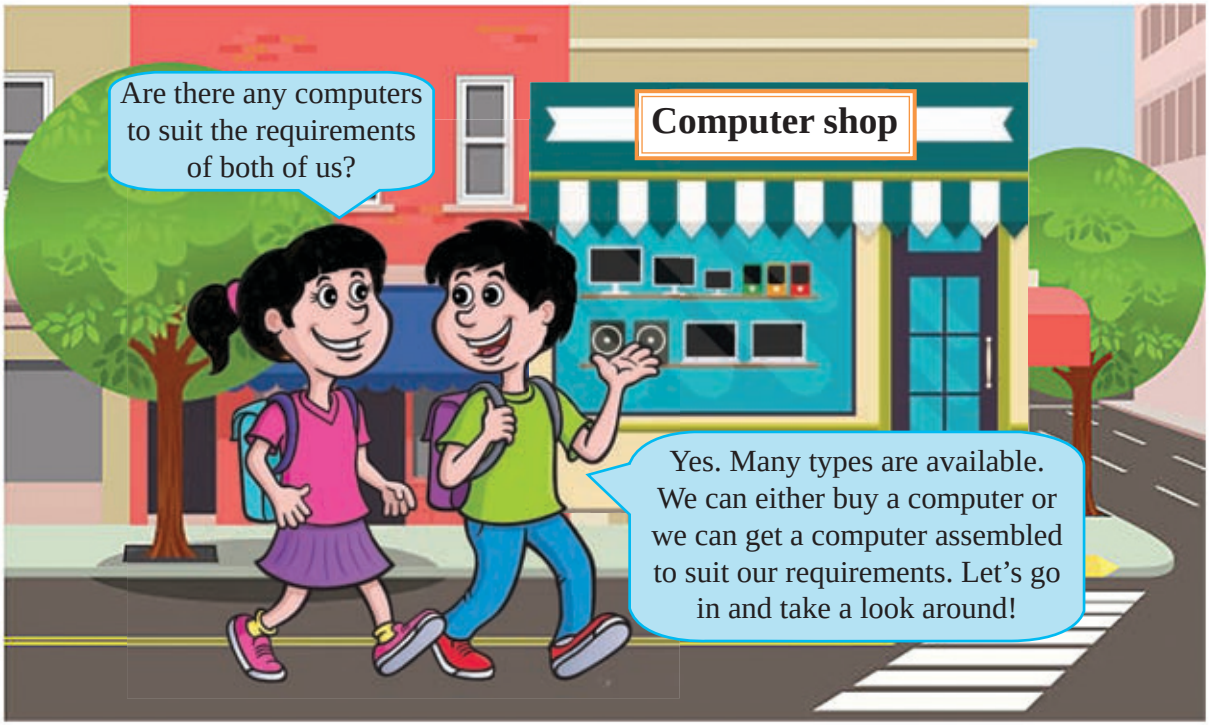
• Main memory, VGA, Sound.

1 Preparation of Computer Specifications

This chapter will cover the following:

- Computers and peripheral devices
- Selection of devices for the user requirement
- Creating computer specifications
- Non-technical factors to be considered in purchasing a computer





1.1 Identifying the user

The one who uses a computer is generally referred to as a *user*. Different users working in different areas in Information and Communication Technologies have different designations. The following table shows a few such examples;

Table 1.1 : Types of users and their work

User name	Task
Programmer	Develops computer programs
Network Administrator	Manages and maintains computer networks
System Analyst	Designs information systems
Software Engineer	Develops software
Computer Application Assistant	Uses office application packages for office related tasks
Web Developer	Develops and maintains websites

The sixth chapter presents you a further study on the user.

Note - Users can be classified into mainly two categories: *system user*s and *end users*. *End user* uses the software maintained by the *Systems User.*

1.2 Selection of a computer to suit user requirements

User requirements relate to tasks that are carried out by using a computer. The following Figure 1.1 provides examples for user requirements.

Figure 1.1 : Some examples for user requirements

A computer to suit user requirements can be selected from those available in the market (Figure 1.2), or a computer can be assembled to suit user requirements. Computers can be classified according to their nature and use as follows;

- **Non - portable computers**

Server computers, workstations, desktop computers and all-in-one computers, are all operated using the main electricity power supply. These computers are large in size and relatively heavy. Therefore, they are installed and used in places like houses, schools or offices.

- **Computers for mobile use**

Laptops, notebooks, tablet computers and a smart phones can be considered for mobile use. They operated with re-chargeable batteries. Therefore, they can be used when traveling in buses, trains, aeroplanes or from any convenient place.

Figure 1.2 : Examples for types of computers that are available in the market

Refer to workbook for Activity 1.1.

Important - The following are useful in learning more about computers.

- Printed or electronic commercial advertisements on computers
- Magazines and newspapers about computers
- Websites providing information on computers
- Obtaining information from an expert in computers
- Visiting the computer shops and gathering information

1.3 Computer peripheral devices

What are peripheral devices?

Input devices are used to feed data and instructions into a computer. *Storage devices* are used to store data. *Output devices* are used to provide the information processed with the input data. Accordingly, input, storage and output devices are called *peripheral devices*.

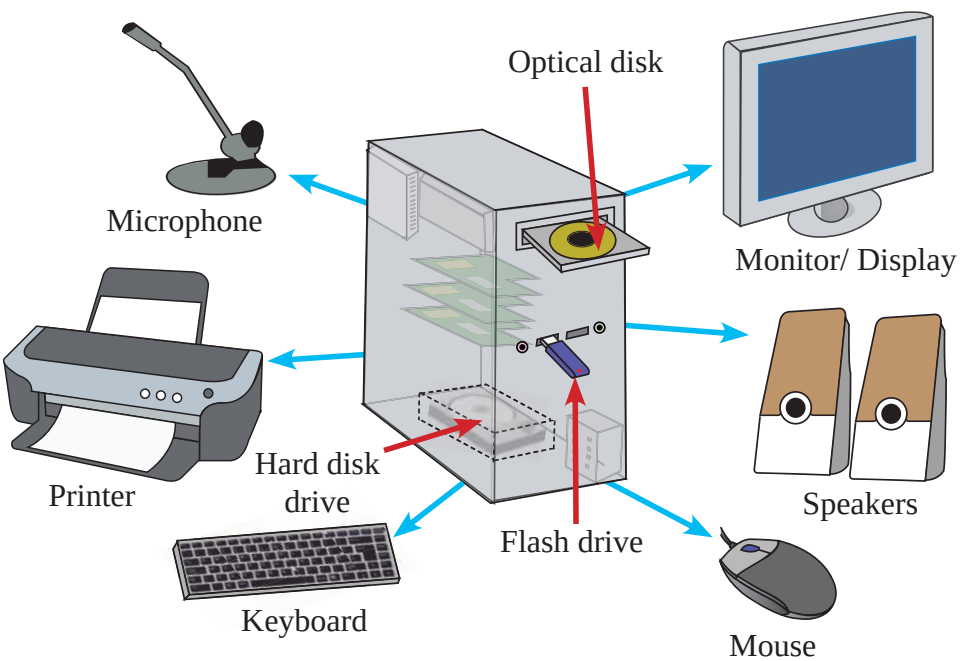
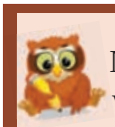


Figure 1.3 : Computer peripheral devices

The peripheral devices shown in Figure 1.3 above are classified in Table 1.2 as *input*, *output* and *storage*.

Table 1.2 : Peripheral devices

Input	Output	Storage
Keyboard	Monitor	Hard disk drive
Mouse	Printer	Optical disk drive
Microphone	Speaker	Flash drive
Touch screen		Magnetic tape drive



Note - The touch screen can be used to input data as well as to display information. Hence, it can be used as an input an output device.

Refer to workbook for Activity 1.2.

1.4 Computer specifications

What are computer specifications?

Before purchasing an item, it is important to be aware of the value and the quality of the item. Specifications are generally about the common features of an item.

For example, length, width and paper thickness, etc. determine quality of an exercise book. Basic specifications for an exercise book are as shown.

Basic specifications for an exercise book

Length	: 210 mm
Width	: 148 mm
Number of pages	: 40
Thickness of paper	: 60 GSM
Type	: Single ruled

Similar to the specification of a book, a computer also has its specification.

Specifications to suit different user requirements

Consider a situation where two students use two types of books for different purposes. For example, a square ruled exercise book for *mathematics* and a large size drawing book for *art*. Specifications for the two types mentioned above are as follows:

Specifications for an exercise book	
Length	: 210 mm
Width	: 148 mm
Number of pages	: 200
Thickness of paper	: 60 GSM
Type	: Square ruled

Specifications for a drawing book	
Length	: 300 mm
Width	: 210 mm
Number of pages	: 20
Thickness of paper	: 70 GSM
Type	: Blank

Different specifications for different purposes may result in price differences as well.

The specifications change according to user requirements in the above example. Similarly depending on the use of a computer its specifications also differs.

1.5 Specifications of computers and peripheral devices

The following shows some important factors of computer specifications;

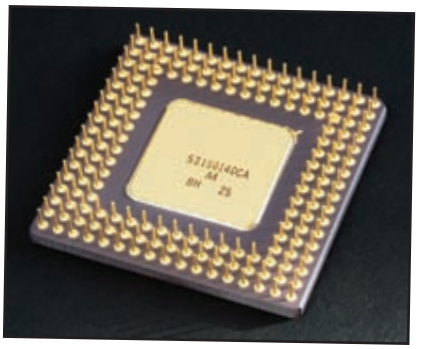
Important - One can generally assure the quality of an item through its specifications.

1.5.1 The processor

Humans are considered the most intelligent among all living beings. The brain (Figure 1.4) helps man to make decisions for actions taken. The brain also has the ability to swiftly respond to all sensations.

Figure 1.4 : the human brain

Much as the brain is most important for humans, the processor (Central Processing Unit) (Figure 1.5) is the most important part of a computer. The processor processes data swiftly. As such, the processor is considered the "Brain" of the computer.



The side that connects to the mother board

View from above

Figure. 1.5 : Central Processing Unit

Speed of the processor

A machine functions at a slower speed takes a longer time to complete a task while a machine functions at a higher speed takes a shorter or a lesser time to complete a task. Therefore, the amounts of work that could be carried out using these machines during a unit time differs.

Blender working at slower speed

Blender working at higher speed

Figure 1.6 : Preparation of fruit juice using blenders with different speeds

Figure 1.6 shows two blenders working simultaneously. The blender working at higher speed processes a larger quantity of fruit juice per unit time. A machine working at a higher speed provides better results.

The performance of a computer depends on the speed of the processor. A processor running at high speed is able to process more data during a unit time. That is, the performance of the computer is increases. Then the software can be run faster. Therefore, when selecting a processor, it is advisable to select one with a greater speed.

The speed of the processor is measured by the number of instructions executed per second.

Important - The speed of a computer is determined by the number of instructions execute per second.

The speed is measured in Hertz (units such as MHz or GHz).

1000 MHz = 1 GHz

Processor manufacturers

Several processor manufacturing companies, Apple, Intel and AMD (Advanced Micro Devices) exists.

Figure 1.7 : Different processors

Types of processors

Generally, the number of processors in a central processing unit is used to classify the Central Processing Unit. The following table shows examples of some Intel Central Processing Units with multiple processor units.

Table 1.3 : Types of processors

No. of CPUs	Type
1	Single Core
2	Dual Core
4	Quad Core

When the number of processors in a central processing unit increases its capacity also increases. Table 1.4 shows examples for Intel processors.

Table 1.4 : Different processors and their names

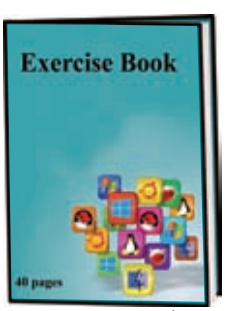
Type	Name	Examples
Single Core	*Pentium I, II, III, IV*	
Dual Core	*Dual Core/Core 2 Duo*	
Quad Core	*Core i3, i5, i7, i9*	

Refer to workbook for Activity 1.3.

1.5.2 Hard disk

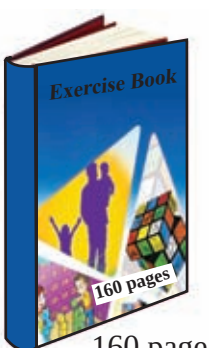
The hard disk provides permanent storage space for storing data and to installing all software. The hard disk is the main secondary storage device in a computer.

For example, an exercise book with 160 pages provide more writing space than a book with 40 pages. Similarly, more data can be stored in a hard disk with a greater storage capacity. (see figure 1.8).



40 page exercise book

1 TB hard disk



160 page exercise book

4 TB hard disk

Figure 1.8 : An analogy for hard disk capacities

Refer to workbook for Activity 1.4.

1.5.3 The monitor display

The main output device of a computer is its monitor display. Most often, a user interacts with a computer via its monitor/ display.

Monitor size

For examples, a wall clock is larger than a wrist watch. Time is easily seen on a wall clock because of its size. Similarly, larger monitors have better visibility.

A larger monitor size is useful in viewing a larger picture. The monitor size is measured in terms of its diagonal length in inches. (Figure 1.9).

Figure. 1.9 : Monitor Size

Monitor technology

Monitors can be classified into the following types according to the technology used by them:

- CRT (Cathode Ray Tube) Monitor
- LCD (Liquid Crystal Display) Monitor
- LED (Light Emitting Diode) Monitor

CRT monitor

LCD /LED monitor

Fig.1.10 : CRT and LCD /LED monitor

CRT monitors consume more electricity than the other two types. Further they are heavier and occupy more space due to its size. Hence, light weight LED and LCD monitors which consume less electricity are commonly used today. (See figure 1.10).

1.5.4 Main memory

Let us consider a shelf which is used to keep books and bags when entering a library (See figure 1.11). Students who enter the library keep their school bags in compartments. They takes their bags as they leave the library.

In a similar manners data and instructions are stored temporarily in the main memory (See figure 1.12) when the computer functions. A bigger rack for storage in a library can hold more school bags. Similarly, a higher capacity in the main memory stores more data and instructions. Therefore, a computer with a higher main memory capacity is better.

Figure 1.11 : Rack for school bags

Figure 1.12 : Random Access Memory (RAM) card act as the main memory

Important - The capacity of the main memory is measured in units of bits. (Mega Bite (MB) or Giga Bite (GB) etc).

1024 MB = 1 GB

Refer to workbook for activity 1.5.

1.5.5 Video Graphic Adapter (VGA)

Figure 1.13 : VGA card

The Monitor is the main output device of a computer. The output is fed to the monitor via the Video Graphic Adapter (VGA). There are two types of Video Graphic Adapter (VGAs). On board VGA is fixed to the mother board and Separate VGAs card can be fixed to mother board manually. The separate VGA card has a separate video memory and a processor. Separate VGA cards are useful for playing computer games.

Modern computers use DV1 or HDMI ports instead of VGA port (See Figure 1.14).

Figure 1.14 : Types of video ports

When HDMI cables are connected to a computer, a television screen or multi media projector, both sound and video signals are transmitted. When a VGA is used for the same purpose, only images are transmitted and a separate cable is required for sound.

1.5.6 Sound cards

Many computer are widely used for entertainment today. A sound card is required for listening to music and recording audio. A microphone connected to the sound card can be used to record (input) sounds while a speaker connected to the sound card can be used to play (output) sounds.

Most computers have the sound card built into the motherboard (See figure 1.15). A user can also connect external sound card to the computer if necessary.

Figure 1.15 : Built in sound card on mother board

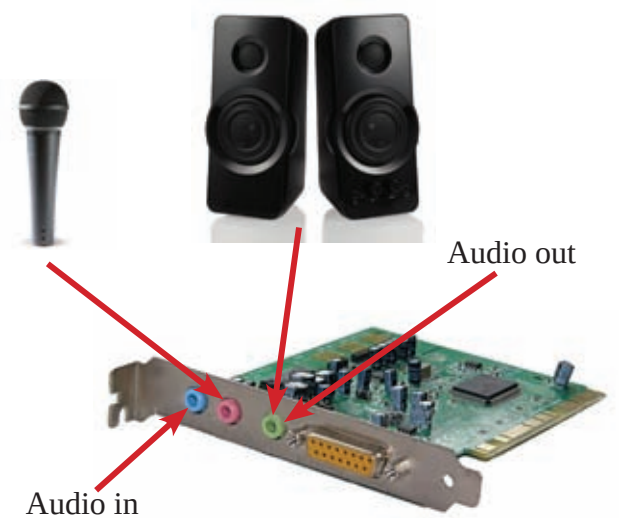


Figure 1.16 : External sound card

The ports of a sound cards use standard colour scheme for identification purpose.

Light green - Audio out (to connect speaker or headphone)
Light pink - Mic in (to connect microphone)
Light blue - Line in (to feed sound with external devices)