



Computer Science

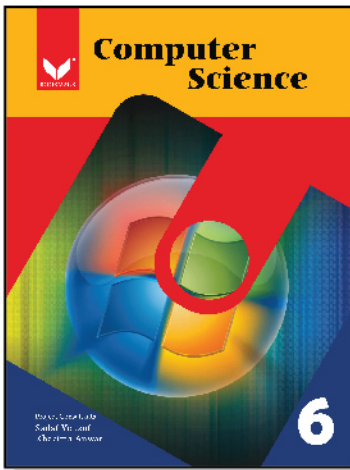


A comprehensive series to understand
computer science and programming with ease

Computer Science

Grade 1 – 8

Computer Science series is a comprehensive computing course up to secondary level. This thoroughly revised edition is empowered with colourful pictures, illustrative diagrams, real-life examples, 'Chapter Overview', end-of-chapter 'Exercises', additional information in 'TitBits', 'Research Work' and a 'Glossary' of important terms. It introduces key concepts and provides information on major topics in a very clear and concise manner. It aims to promote technical competencies within the children. The language used in this set of books is simple yet easy to get into the mind of young learners.



what but once you get the hang of them they really can make life a lot easier. To use the hotkeys, just hold down the first key then press the second one:

Hotkeys	Functions
Ctrl + A	Select all the text in a document/file
Ctrl + B, I or U	Make text bold, italics or underlined
Shift + one of the directional arrow keys up or down)	Selects text in that direction (left, right, up or down)
Ctrl + C	Copy the selected text
Ctrl + V	Paste the selected text
Ctrl + Z	Undo the last action
Ctrl + Y	Redo the previous action
Ctrl + S	Saves the document
Ctrl + Shift + >	Increase font size by 1 point
Ctrl + Shift + <	Decrease font size by 1 point
Ctrl + X	Cut the selected text
	If you select a line or paragraph and hit Ctrl + X, the selected text will disappear. If you then place your cursor where you want to insert that text and hit Ctrl + V to paste, it will reappear where you want it.

F Keys (Function Keys)

A number of the F keys along the top of your keyboard also have useful functions in MS Word. The most notable are:

- F7: Launches the spell checker.
- Shift + F7: Launches the thesaurus.
- F5: Opens a dialogue box that allows you to "go to" any page number or "find" any word in your document or webpage. It also allows you to "replace" words, so if you have typed a matter and all through you have consistently mis-spelled Computer as Commuter you can "replace" every Commuter with Computer in one

Hotkeys along with their tips for making typing and editing quicker.

Explanation of advance and basic features of the commonly used software.

to save the opened/active Word document with its existing name and in its current location. You can also save your document by pressing Ctrl + S or click on the icon

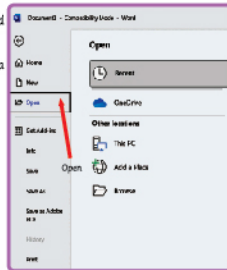
Save next to Office Button.

- via Menu: Click the File and select Save.
 - via Toolbar: The Save tool looks like a floppy disk. Click on it to save your document.
 - via Hot Key: Ctrl + S
- Save As can be used to save a second copy of your opened document with a new name and or at a new location.



Loading and Opening a Document/File

- via Menu: Click the Office button and select Open.
 - via Toolbar: The Open tool looks like a Folder. Click on it to open an existing document.
 - via Hot Key: Ctrl+O
 - via Desktop: Find the file and double click on its icon.
- The Open option helps to open an existing Word document, which is already saved in the computer.



Student learning Outcomes assist teachers to know the concepts of the chapter.



- #### Student Learning Outcomes
- To explain the different stages in the development of the computer, its various uses or computers.
 - To identify suitable computers and uses of the computer.

The word "Computer" is coined from the Latin word "Computatio" which means "to calculate". It is an electronic, automatic calculating device which processes the data in a prescribed manner and gives the required results.

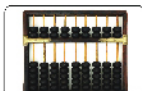
How does a computer work?
A computer performs its work with the assistance of hardware and software. All the different parts of a computer are called hardware. Software means the equipment, programmes or computer instructions that are used to make the computer work. Software means the programmes that instruct the computer what to do.

History of Computer

To do these data processing equipments we will find the mechanical devices. This era is referred to as the classical age of data processing.

Pre-Historic age (before 3000 B.C)

Probably developed in China, the Abacus is a frame with beads sliding on wires or rods. Arithmetic calculations are performed by manipulating the beads. The Abacus is still being used. An abacus calculator can calculate very fast.



Multimedia

- #### Student Learning Outcomes
- To identify different content forms, interest fully.
 - To explain the importance of multimedia and its applications.

A movie everybody has heard the word multimedia. Everybody reads here it is, talks about it and wants to know what it is? Well, here is a very simple definition. It includes any combination of two or more media. This includes intelligible systems, by example, this can be any medium to convert the message. So we will see that multimedia is, in fact, a combination of different content forms. It is called "Multimedia". Media can be text, illustrations, animations, still images, audio, speech or video. An example of multimedia is a webpage that has text to use or audio files of music and can include a video. Multimedia is used by webmaster and designer. It is employed by researchers, students, business and it is becoming a part of our life. We perform the Multimedia using electronic means. It is used to store and experience within multimedia content.

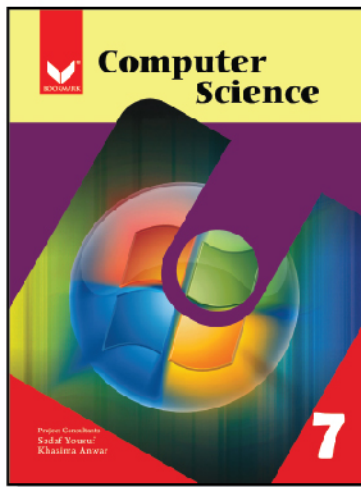


Combination of Different Content Forms

Content forms that comprise multimedia are:



Advanced concepts are defined in simple language.



Student learning Outcomes assist teachers to know the concepts of the chapter.

Chapter 1 Computer Components

Student Learning Outcomes

- To review the computer components.

Computer hardware consists of physical equipments. It includes not only peripherals but also essential parts that are present in the computer system. This chapter explains the details of components of a computer which are as follows:

- Input devices
- Central Processing Unit
- Storage devices
- Output devices

Motherboard
This is the main circuit board of a microcomputer. It contains connectors for attaching external devices. It also contains CPU, BIOS, memory and all the controllers required to connect devices, such as the display screen, keyboard, mouse, etc.

Microprocessor
This is a silicon chip that contains CPU. In computers, the terms microprocessor and microcomputer are used interchangeably. At the heart of all computers sits a microprocessor. It controls the logic of almost all digital devices, including systems for automobiles.

Central Processing Unit (CPU)
The Central Processing Unit (CPU) is the brain of a computer system. All input and output connections inside and outside a computer and the present in a computer system work upon to produce the correct answer.

Functions of the CPU

- Sorts the data instructions.
- Controls the sequence of operations.

Explanation of core concepts in simple language using illustrations.

BASIC Statements

A statement is a group of BASIC keywords (reserved words). It is always preceded by a line number as a part of program. When the program is run statements are executed as and when they appear. They work in "Indirect Mode" or "Programming Mode". Examples of statement are CLS, PRINT, END, REM, INPUT, LET etc.

- CLS**
Purpose: It clears the screen.
Syntax: CLS
- LET**
Purpose: It assigns the value of an expression to a variable.
Syntax: LET variable = <expression>
- PRINT**
Purpose: It displays data on screen.
Syntax: PRINT [<list of expressions>]
- INPUT**
Purpose: It receives input value from the keyboard during program execution.
Syntax: INPUT [<list of expressions>]
- REM**
Purpose: It allows explanatory remarks to be inserted in a program.
Syntax: REM [<comments>]
- GOTO**
Purpose: To branch unconditionally out of the normal program sequence to a specified line number.
Syntax: GOTO line number
- DRAW**
Purpose: To draw a figure.
Syntax: DRAW string expression
- READ and DATA**
Purpose: To read values from a DATA statement and assign them to variables.
Syntax: READ list of variables
DATA list of constants
- LPRINT**
Purpose: To print data at the printer.
Syntax: LPRINT [<list of expressions>]
- END**
Purpose: It terminates the program.
Syntax: END

Important Websites

News/Information/Entertainment

- | | |
|------------------------------|-------------------------|
| 1. www.dictionary.com | 8. www.eyemad.com |
| 2. www.eaj.tv | 9. www.discovery.com |
| 3. www.tune.pk | 10. www.nation.com |
| 4. www.expressnews.tv.com.pk | 11. www.travel.com |
| 5. www.health.com | 12. www.youth.com |
| 6. www.movies.com | 13. www.nickelodeon.com |
| 7. www.itsindia.com | 14. www.itsindia.com |

Search Engines

- | | |
|----------------------|----------------------|
| 1. www.bing.com | 4. www.bing.com |
| 2. www.esk.com | 5. www.esk.com |
| 3. www.sourcelab.com | 6. www.sourcelab.com |

Education

- | | |
|----------------------|----------------------|
| 1. www.ppt.com | 5. www.ppt.com |
| 2. www.education.com | 6. www.education.com |
| 3. www.science.com | 7. www.science.com |
| 4. www.weebly.com | 8. www.weebly.com |

Social Media

- | | |
|----------------------|----------------------|
| 1. www.facebook.com | 5. www.facebook.com |
| 2. www.twitter.com | 6. www.twitter.com |
| 3. www.linkedin.com | 7. www.linkedin.com |
| 4. www.pinterest.com | 8. www.pinterest.com |

Important websites are given at the end of each book to support learning beyond curriculum.

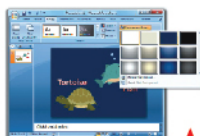
Simple and easy to learn programming language introduced in methodical order.

Formatting the Slide



Change the Font Style and Colour

- Use the mouse to highlight the words, fish and tortoise sea. You can also double click on the word to highlight it.
- Select the font options in the Home tab and select a font style. For example, for the word 'fish' you can select the font style 'Bold'.
- Click on the Bold and Italic buttons.
- You can also click the text to Shadow so that it stands out. Click on the Format menu heading and click on Font.
- Set the Effects box to Shadow.
- You can change the colour of the text. The words fish and tortoise should still be highlighted. Move the pointer over the arrow next to the Font Color button in the Home tab.
- Click the mouse button to display the Font Color palette and click on the More Font Colors button.
- Select dark blue from the top row of the spectrum of colours.
- Select OK to return to the slide and the words Fish and Tortoise are now in dark blue.



Setting a Background

- To complete the slide, add colour in the background. Follow these steps to colour the background of a slide:
- Click the Design tab and select Background Styles.
 - Select any of the available backgrounds or use Format Background option to set as per your choice.
- PowerPoint provides a set of professionally designed backgrounds and features that can be used to enhance your presentation.

Exercise

- Q1: Answer the following questions in detail.
- Explain the purpose of the uses of Print window.
 - How many types of data can be entered? Define each one briefly.
 - With this method for changing the colour of any chart in Sheet tab.
 - How can you merge the cells? Write its method.
- Q2: Write short answers to the following questions.
- What is meant by spreadsheet?
 - Define the following: a) Desktop b) Worksheet c) Workbook
 - What is the method of selecting non-neighbouring cells?
- Q3: Fill in the blanks.
- Microsoft Excel is the most popular _____ software.
 - There are _____ rows and _____ columns in Excel 2007.
 - Times tables up to 100 are displayed in _____.
 - The default value of row is _____.
 - 7:20 p.m. is written in military time as _____.
- Q4: Write 'True' or 'False'.
- Deleting a cell is not possible in Excel. ()
 - Collection of worksheets is known as workbook. ()
 - MS Excel is a component of the very popular MS Office application suite. ()
 - Formula bar displays the formula value, the current state of the program. ()
 - In order to write a formula, always use = sign in the beginning of a cell. ()

Lab Session

- Prepare a consolidated record of 20 students with the following column headings.
- Student's Name
 - Marks obtained in any 4 subjects (e.g. Math, Urdu, Eng, Science)
 - Obtained Marks
 - Percentage
- Enter the data in the above columns.
 - Calculate the obtained marks and percentage.
 - Apply formatting of your choice.
 - Insert a row between row 6 and row 7.

Lab session are included to demonstrate the students practical skills.



Step-by-step procedures to apply on the practical applications of software.

Flowchart:

```

    Start
    Read L, W
    Area = L * W
    Print L
    Print W
    Print Area
    Write L, W, Area
    Stop
  
```

Area of Rectangle

10	C/S
20	Area = L * W
30	Area = L * W
40	Print Area = ?
50	Print "Area = ?"
60	Print "Area = ?"
70	Print "Area = ?"
80	Print "Area = ?"
90	Print "Area = ?"
100	Print "Area = ?"

Numbers in Descending order

10	C/S
20	Area = L * W
30	Area = L * W
40	Print Area = ?
50	Print "Area = ?"

Program to draw Circle

```

    Draw Circle
    Print "Area = ?"
    Stop
  
```

"Dos" is explained with emphasis on the types of Dos commands.

Chapter 5 About DOS

Student Learning Outcomes

- To explain DOS.
- To differentiate a between internal and external commands.
- To learn and apply internal and external commands.

The computer software is typically classified into two major types of programs:

- System Software
- Application Software

The system software consists of instructions that is called "operating system". It is a collection of programs that supervise the operations of CPU. DOS is an operating system. It the changes, work, learn more about DOS.

DOS

DOS stands for Disk Operating System. It is in short, the system software that helps to operate the computer. DOS provides a set of commands that enables you to access or retrieve information on your disk. DOS manages file operations (copying, printing, viewing, etc.), disk storage (managing), screen displays and other routine tasks that make your computer easier to use. The operating system itself is contained on the disk and is generally "loaded" from the hard disk into the computer memory. The process of loading the operating system into memory is called "booting".

Commands

We can store data permanently and also correct and edit it only if we tell our computer to do these jobs through some commands. A command is an instruction which is given to the CPU either directly by using the keyboard or through program that performs some specific tasks. In other words it is a way to communicate with the computer.

There are two types of commands:

- Internal Commands
- External Commands

Changing the Format of the Slides

The slides are all the slides with a white background which can be changed.

- Click the Design tab and select Theme group.
- Select any of the styles.
- You can also change the appearance of your slides by selecting any style from Background Styles.

Objects

Each shape drawn in Microsoft PowerPoint is said to be an object. You select an object by placing the pointer over the object and clicking the mouse button. "Handles" around the object tell you that it has been selected. The object can be moved, resized, and deleted.

Deleting Objects

- You should have a number of objects when working.
- Click the mouse button with the pointer over the object to remove its "handles".
- Press the Backspace or Delete key. The object will be removed.

Copying Objects

- Click on any object e.g. the Rectangle.
- Click Copy button from the Home ribbon.
- Click Paste button from the Home ribbon. The object will be placed on the screen over the original object.

Integrating BASIC programs and flowcharts along with the outputs develop the practical and theoretical concepts.

Antivirus Software

When a computer is infected by a virus, worm, Trojan horse or any kind of malware program, the solution for this problem is an antivirus.

Antivirus is a computer program that attempts to identify, neutralize or eliminate malicious software. Antivirus is so named because it is designed to combat computer viruses; however most modern antivirus software are now designed to combat a wide range of threats, including worms, phishing attacks, Trojan horses and other malware. Two different approaches that an antivirus software typically uses are as follows:

- Examining (scanning) files to look for known viruses matching definitions in a virus dictionary.
- Identifying suspicious behaviour from any computer program which might indicate infection.

Here is a short introduction of some popular antivirus programs:

Mcafee

It is a virus removal tool from Mcafee Security. This tool automatically performs virus detection and removal tasks for specific viruses. If your system is infected, this tool will remove the virus and repair any damage.

AVG

It runs continuously to monitor your computer for possible viruses. If it detects anything, you will receive an alert indicating the problem and the suggestion to run the antivirus program. The resident shield does not remove viruses though, just warns you that it has found something. You have to run an antivirus program to remove it or find it for yourself and remove it.

Symantec/Norton Antivirus

It is a virus protection program distributed by the Symantec Corporation, offering effective protection features, including infected file quarantine, online virus protection updates and an automatic scheduler. It is designed to start running as soon as your computer's operating system starts. It runs in the background, checking all vulnerable files for possible infection by malicious programs called viruses and worms. When it detects an infected file, it notifies you and manages it according to your preferences.

Helpline
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Exercises at the end of each chapter enhances the students understanding. Teaching the commonly used software and its application.