

ARROW

TechBrain

Computer Science

BOOK - 2

NC Madhavi
Debi Chatterjee



ARROW PUBLICATIONS PVT. LTD.[®]

HYDERABAD - 500 040

First Edition : 2018

Reprint : 2019, 2020

© **Reserved with publishers**

No part of this book may be copied or translated, stored in any data base system or transmitted in any form or by any means without the prior written permission of the Publishers. Any breach will entail legal action and prosecution without further notice.



ARROW PUBLICATIONS PVT. LTD.[®]

C-11 A & B, TSIIC, Moula-Ali, Hyderabad - 500 040.

Ph : +91 91009 99026, 91009 99027

mail@arrowpublicationsindia.com

PREFACE

TechBrain series on Computer Science is unique in many ways. It focuses on ensuring that the student not only learns the latest in the world of technology but also gets amply challenged to test and consolidate the learning in an easy to read, simple to understand way. Overall, it is intended to inspire students to be curious and delve into the subject and at the same time learn and apply the learning to good effect.

Our day-to-day activities are so deeply intertwined with technology that a life without internet, mobile phones and computers is unimaginable. The advancement of technology is not expected to abate anytime soon in future. In such a scenario it is, therefore, essential that an exposure to computers be made compulsory for children in a manner that generates interest in wanting to learn more and appreciate more. It is in that capacity that this series becomes all the more relevant and effective.

This series for classes 1-8 has been conceptualised in accordance with the practical requirements of the end user. To encourage higher order thinking skills (HOTS), the lab activities extend beyond the usual lab exercises while the project work included in each chapter helps reinforce the learning. The data bank will keep the student updated, with latest developments and the extra information through the several Knowledge Bytes are expected to make understanding easy and fun.

Check points after each concept to gauge the understanding are a way to consolidate the learning. Each chapter also has game plans containing links of websites with topic related games.

Special emphasis has been laid on identifying and explaining difficult words and complex terminologies, which guarantee unhindered learning. While technology has made our lives easy it also comes with its package of threats and risks. It has opened up the sinister world of hacking, data theft and several other risks. An appreciation of student related real-life issues of netiquette, cyber bullying, cyber safety tips presented in the pages will strengthen awareness on these critical aspects of safe usage of technology.

Teacher's note at the end of each chapter is a guiding point for them to understand how to impart collaborative learning and encourage students to participate in the learning process.

Enough research has gone into crafting this series with inputs from expert practitioners. The hands-on approach, the practical way of dealing with the most critical and sensitive topics, and the small tips and tricks will undoubtedly help the students in generating interest in knowing more, and expanding their learning and solidifying it.

We hope this series serves its purpose well and suggestions for improvement are most welcome.

- Publishers

TechBrain Highlights

As per the new pattern issued by **CBSE**

Safety Tips
strengthens the awareness in the students about safe usage of technology.

Higher Order Thinking Skills (HOTS) tests logic and understanding of the student.

Knowledge Bytes
provides interesting snippets of information.

Data Bank keeps student updated with latest developments.

Game Plan
provides links of websites with topic related games.

Lab Time
practical assignment based on concept.

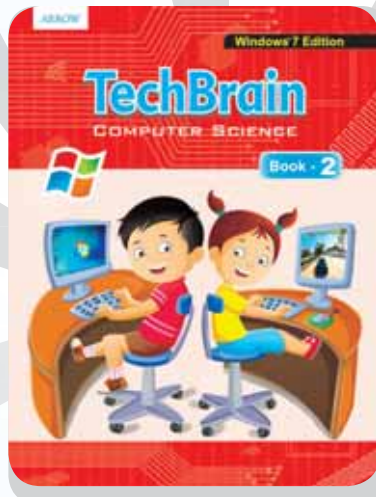
Lab Activity
provides hands on activity to give an insight into the working of computers.

Check Points
tests the understanding of each concept.

Project Work
reinforces learning.

Teacher's Note
guides teachers to impart learning with active participation.

Tips & Tricks
Fun elements added to make the learning enjoyable.



CONTENTS

1. Revision Time.....	6
2. Computers in Daily Life	15
Assessment - I.....	21
3. Different Types of Computer.....	23
4. Hardware and Software.....	28
5. Working of a Computer	36
Revision Assessment - I.....	44
6. Keyboard.....	46
7. Notepad.....	57
Assessment - II.....	65
8. Know Your Computer.....	67
9. Paint Brush	75
10. Data and Storage	92
Revision Assessment - II.....	99
Sample Olympiad Questionnaire.....	102



Revision Time

Characteristics of a Machine

In the previous class you have learnt about machines. Do you remember the features of machines?

Machines are man-made things.



Machines do the work quickly.



Machines are run and controlled by man.



Machines require electricity, fuel or energy to work.



These features of machines make them very useful.

Let's have a look at some of the advantages of machines.

Advantages of a Machine

A machine makes human tasks easier and saves time. For example, your mother uses a mixer, oven, cooker etc. to cook faster.





A machine does not make mistakes. If you use the calculator to do sums using very big numbers, each time it gives you the correct answer without making any mistake.

A machine does not get tired. For example, in a car factory computers help to make hundreds of cars every day for years without ever getting tired!



A machine increases the quality of work. For example, printed paper instead of a handwritten one. This makes the text appear neat and clear.



Activity

Hi! I am a machine. Do you agree with the following statements about me? Mark (✓) or (X).

1. I cannot work on my own.
2. I make your task easy.
3. I have to be operated by a human.
4. I require electricity to run.
5. I make a lot of mistakes.

○
○
○
○
○

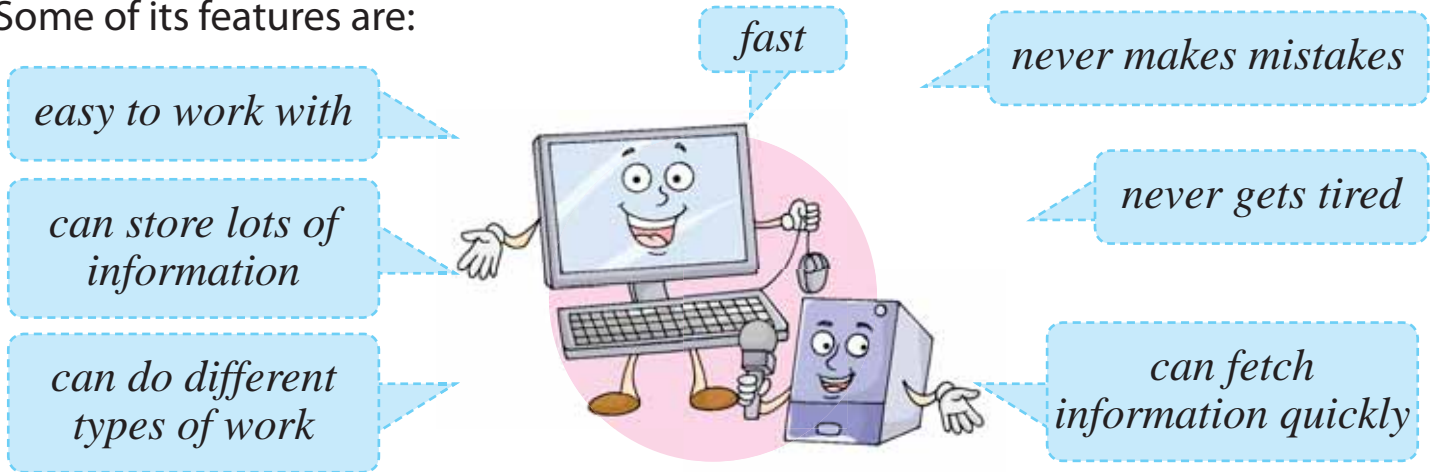


Computer, the Super Machine

A computer is an electronic machine. It is now being used for almost everything and is now one of the most useful machines. Thus it is also known as a Super Machine. Let's quickly revise its features.

Features of a Computer

A computer is a smart machine which can be used to do different types of tasks. Some of its features are:



Now, let's look at the different parts of a computer.



Monitor shows us the work done on the computer. It shows pictures, movies etc. It is also known as VDU or **Visual Display Unit**.



CPU or **C**entral **P**rocessing **U**nit helps to do all calculations. It controls and helps all the other parts of the computer to work together.

Mouse is a pointing device. It helps to point to and select objects on the screen. It also helps to draw and paint on the screen.





Keyboard helps to give instructions to the computer. It helps to type letters, numbers, symbols etc.

Speakers and **headphones** help to listen to different sounds from a computer.



A **printer** helps to print pictures or text on paper.

Microphone helps to record sound.



Webcam is a video camera that helps to take photos, record videos and have video chats.



Fun Time

Check the following sites for some fun games:

<http://www.playkidsgames.com/games/computer/computer.htm>

<http://play.bbc.co.uk/play/pen/gpq5rstph6>



Activity

Write down the correct number in the box given beside the parts of the computer.



Keyboard

Speakers

Mouse

Headphone

Monitor

CPU

How is a computer different from a calculator and you?

Man created computers and calculators. But there are many differences between men, computers and calculators.

A **calculator** is used to add, subtract, multiply and divide numbers. A computer can do not only the tasks of a calculator but also many other tasks. It can take logical decisions. A calculator can **calculate** the marks obtained by the students in different subjects but a computer can also **compute** the grade according to the total marks. Let's look at the differences.

Characteristics	You	Calculator	Computer
Speed	slow	fast	very fast
Accuracy	can make mistakes	calculates correctly	calculates correctly
Memory	very less	does not remember	can remember a lot of information
Types of Calculations	all calculations, but slow	addition, subtraction, multiplication, division etc.	all calculations at very high speed
Decision Making	can think and take decisions	cannot take decisions	cannot think on its own, follows given instructions

Let us now see in what ways a computer can help us.

Tasks done by a Computer

With the help of a computer, one can:



Did You Know?

The word **COMPUTER** means, a device that **computes**. Computation means calculation combined with decision making.





get information



study



*make presentations
and charts*



send/receive mails



watch movies



listen to music



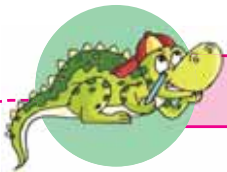
play games



make calls

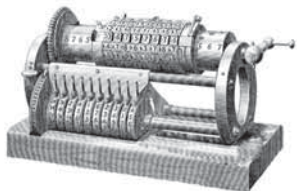


book online tickets, pay bills



Data Bank

Abacus was the first machine used for counting and calculating. It was invented in China about 5000 years ago.



Blaise Pascal, the great French mathematician constructed the first mechanical calculating machine-Pascaline.

ENIAC was the first electronic general-purpose computer.



Always remember, a computer is a machine created by a human being. It just follows the instructions given to it. But you, as a human being, can think and create a new machine like a computer. So you are the best!



Teacher's Note

- Discuss the basic parts of a computer, its characteristics and uses in daily life.
- Emphasize on the capabilities of a computer.
- Differentiate between the capabilities of humans, calculators and the computers.
- Discuss how and why computer is a Super Machine.

Lab Time

I. Start MS Paint, draw and colour :

1. A machine which we use every day (eg. ceiling fan).
2. Four main parts of a computer, i.e. The Monitor, CPU, Keyboard & Mouse.

II. Start Notepad. List 2 things that you can do but a computer cannot.

(i.e. I can think but a computer cannot).

1.
2.

Now, list 2 things that a computer can do, but you cannot.

1.
2.



electronic, fetch, processing, quality, advantage, logical, decisions,
computer, accuracy



EXERCISE

I. Write True (T) / False (F) for the following statements.

1. Computers can calculate quickly.
2. Computers get bored easily.
3. Computers can calculate different types of sums correctly.
4. Computers always give the correct answer.
5. Computers cannot remember a lot of information.



5. _____ help us to hear different sounds from the computer.

6. _____ helps to print pictures or text on paper.

V. Solve the puzzle.

1. I have 104 keys but no lock : _____

2. I share my name with an animal but I am not a living thing : _____

VI. Answer the following questions.

1. List five things that a computer helps us to do:

i. _____

ii. _____

iii. _____

iv. _____

v. _____

2. State three things that a computer can do but you cannot.

i. _____

ii. _____

iii. _____

3. State two things that a computer cannot do but you can.

i. _____

ii. _____

Lab Time

1. Start Notepad. Type in the multiplication table of 9. i.e.

$$9 \times 1 = 9$$

$$9 \times 2 = 18$$

2. Ask your teacher to help you start a calculator. Using a calculator, check the answers.

(Hint : Click on Start → Run → Type Calc → Press Enter)

