As per NEP 2020

Cobot

A Text Book of Computer

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PREFACE

Digital transformation involves using digital technologies to transform the curriculum to become more efficient or effective. The idea is to use technology to transform and improve education process while playing a vital role in the progress of the country. **COBOT**, a comprehensive and exhaustive computer series for class **1** to **8** is an endeavour to equip students with necessary repertoire of technical skills and contribute effectively in shaping the digital world.

To make students ready to face the uncertain challenges and to stay tuned with the unprecedented journey of technology, **National Education Policy 2020** has suggested certain skills that should be taught to them. These skills will help them in becoming successful, innovative, adaptable, and productive human beings in the various fields such as Digital Literacy, Coding, Computational Thinking and Artificial Intelligence in the rapidly changing tech-savvy world. This series is based on **Windows 10** and **MS Office 2016** version with a glimpse of **Windows 11** which helps the students to learn the basics of the subject while simultaneously giving them opportunities for exploration and self-learning.

This book incorporates the following features to facilitate the learning process by accomplishing these objectives :

- Proper explanation of concepts is given in each chapter followed with interactive fun-based coding for all levels which empowers them not only to use technology but also to create it.
- **PLUGIN** gives the idea of the chapter at a glance.
- **FACT FOLDER** provide extra information about the concerned topics as well as will help the students to know about the historical development of computers with the flavour of pictorial data regarding inventors and discoverers. It also provides keyboard shortcuts to consolidate the learning process.
- **Fetching Time** includes the different kinds of activities to develop the observation power of the students.
- **THROWBACK** summarizes the whole chapter.
- **Bookmarks** covers the important terms covered in the chapter.
- **Exercise** at the back of the chapter are designed in accordance with an objective and subjective pattern to evolve the conceptual understanding of students.
- **Fun Venture** of every lesson provides an integrated approach to learning and adds value to the long-term growth of a child. It also includes discussion-based questions which helps the students to develop communication and analytical skills. A perfect blend of Sustainable Development Goals (SDGs) which encompass economic, social and environment dimensions.
- **HOTS** put advanced cognitive demand on the students which encourage them to think beyond literal questions.
- **Lab Tech** are given along with the guidelines to enhance the creativity of students.
- **HyperLink** provides online links to breakthrough technologies that are incorporated to access more information on the given topics.
- **Projects** have been added to encourage students to try out for themselves, and to instil in them the confidence before they embark on making their projects using a software.
- **National Cyber Olympiad (NCO)** questionnaire is included to promote awareness about the national level competition.

The amazing world of apps gives a new dimension to this journey of learning. An insight into the captivating branches of augmented and virtual reality, artificial intelligence, big data analytics and machine learning is included. We welcome constructive suggestions and valuable feedback to make this series more relevant, updated and useful for both the teachers and learners.

–Publishers

Objective of NEP 2020

NEP 2020 aims at reforming school education with equal emphasis on all subjects and soft skills while integrating them with new era technology-based learning to prepare the students for the leading role in future. This series has specially been designed to achieve the goal set by NEP 2020, CBA, NIPUN BHARAT and SAFAL 2021.

Spatial Intelligence

An ability to perceive and derive insight from visual data. This is an approach to judge space and visualize its different angles, shapes and fine details, along with recognizing and remembering complete visual scenes. This cognitive process creates an aptitude for understanding visual information in the real and abstract world.

Vocational Skills

It is a non-academic education which provides information on practical activities. These activities are thereby related to a specific trade, occupation or vocation. It prepares students for future job possibilities.

Life Skills

- It is all about working together to improve the overall results and enhancing psychosocial capabilities to deal with the situations and the people in an acceptable manner.

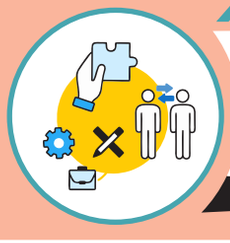
Environment & Health

Students should be aware of the need of a healthy environment and the importance of their own physical and mental health. A healthy environment helps in generating interest and increasing learning capabilities.

Experiential Learning

Experiential learning is the purposeful engagement with students in direct experience and focused reflection in order to increase knowledge, develop skills and clarify values.

Multidisciplinary Learning



A multidisciplinary curriculum is one in which the same topic is studied from the viewpoint of more than one discipline.

Conceptual Learning

This is to make sure that students are engaged in quality learning around key concepts and central ideas rather than using the traditional method of focusing on topics.

Creativity

Creativity is an ability to make things happen using skills and imaginations. It is the way of self-expression which can reflect and nurture children's emotional health. There is nothing more satisfying and fulfilling for children than to be able to express themselves openly and without judgment.

Art Integration

A teaching-learning model which is based on learning 'through the arts' and 'with the arts'. It is an approach to engage in a creative process which connects an art form and another subject and to meet evolving objectives in both.

LEADERSHIP SKILLS

Students must be trained to be visionaries and are goal oriented. They should be able to see beyond the task at hand. They involve people and set the steps to achieve it for themselves and for the team.

Communication Skills

Communication is the act of giving, receiving and sharing information. Communication skills are needed to speak appropriately with a wide variety of people whilst maintaining good eye contact, demonstrate a varied vocabulary and respect different opinions.

Critical Thinking

Critical thinking is at the forefront of learning, as it aids a student reflect and understand their points of views to reason better. It helps them base conclusions on facts rather than emotions and ability to go deep into details and examine the different aspects of an issue.

Computational Thinking

It is a problem solving process followed with an interrelated set of skills and practices for solving complex problems. It is a way to learn topics in many discipline by fully participating in a computational world with an approach that integrates across activities.

Scientific Temper

It is a way of life which uses the scientific method followed with an attitude of logical reasoning observing physical reality, questioning, testing, hypothesizing, analysing and communicating.

Problem Solving

Students learn to look at challenges from a fresh perspective. Therefore, they take more calculated risks by examining the questions to find the key ideas, doing the calculations, choosing an appropriate strategy and finding the answers.

Democratic and Human Values

India is a democratic country. Everyone should be treated equally and fairly regardless of their background. Students should learn to have respect and empathy for all human beings.

CONTENTS

1 COMPUTER DEVICES

PLUGIN

- Computer
- Types of Computers
- Functions of Computer Parts
- Characteristics of a Computer
- Computer and Its Peripheral Devices
- IPO Cycle

COMPUTER

Computer is an electronic machine as it runs on electricity. It takes instructions from us and gives the result after processing it. It helps us in many ways like draw pictures, do calculations, type letters, listen to music and watch videos.

CHARACTERISTICS OF A COMPUTER

A computer has some wonderful features that make it smarter than a human being.

- Computer works very fast.
- It can do many tasks at the same time.
- A computer never gets tired and bored.
- It never makes mistakes.
- A computer never forgets anything. It can store lots of information in it.
- A computer needs commands or instructions to do any work.

FACT FOLDER

A set of instructions that we give to the computer is called a **program**. **Ada Lovelace** wrote the first computer program.

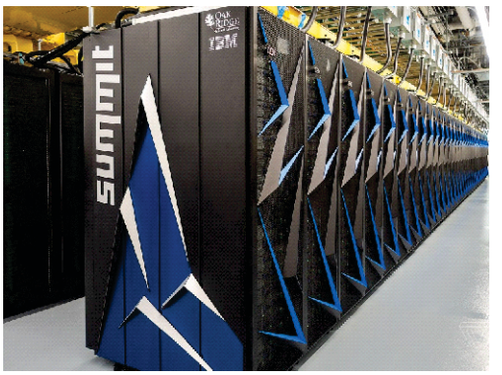
TYPES OF COMPUTERS

Computers come in different sizes and shapes.

Let us learn about different types of computers :

Supercomputer

Supercomputers are very big and powerful. They are as large as cinema halls. They work very fast and can store huge amount of information. These computers are used in weather forecasting and research purpose.

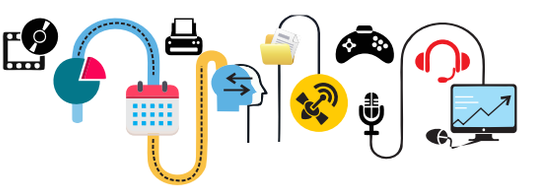


Desktop Computer

A computer which is kept on a desk or a table is called a **desktop computer**. It is also known as **PC** or **Personal Computer**. It is big in size, so we cannot carry it from one place to another. It is commonly used in homes, schools and offices.

Laptop

Laptop is a small and light weight computer. We mostly keep it on our lap. It runs on battery that needs to be charged on electricity. We can carry it from one place to another very easily.



Tablet

Tablet is a small mobile computer. It is also known as **tab**. It is smaller than a laptop. It is operated by **touchscreen**. Just like a laptop, it runs on battery which can be charged.

FACT FOLDER

Phablet is a device which is bigger than a smartphone and smaller than a tablet.

Smartphone

Smartphone is also called a **mobile phone**. It helps us to make calls, send messages, store phone numbers and perform many other tasks in it. It is very small in size. We can keep it in our pocket. The first smartphone was created in 1992.

Fetching Time

Identify the types of computers and write their names using the Help Box : [Critical Thinking]

Desktop Smartphone Laptop Tablet

1. 

2. 

3. 

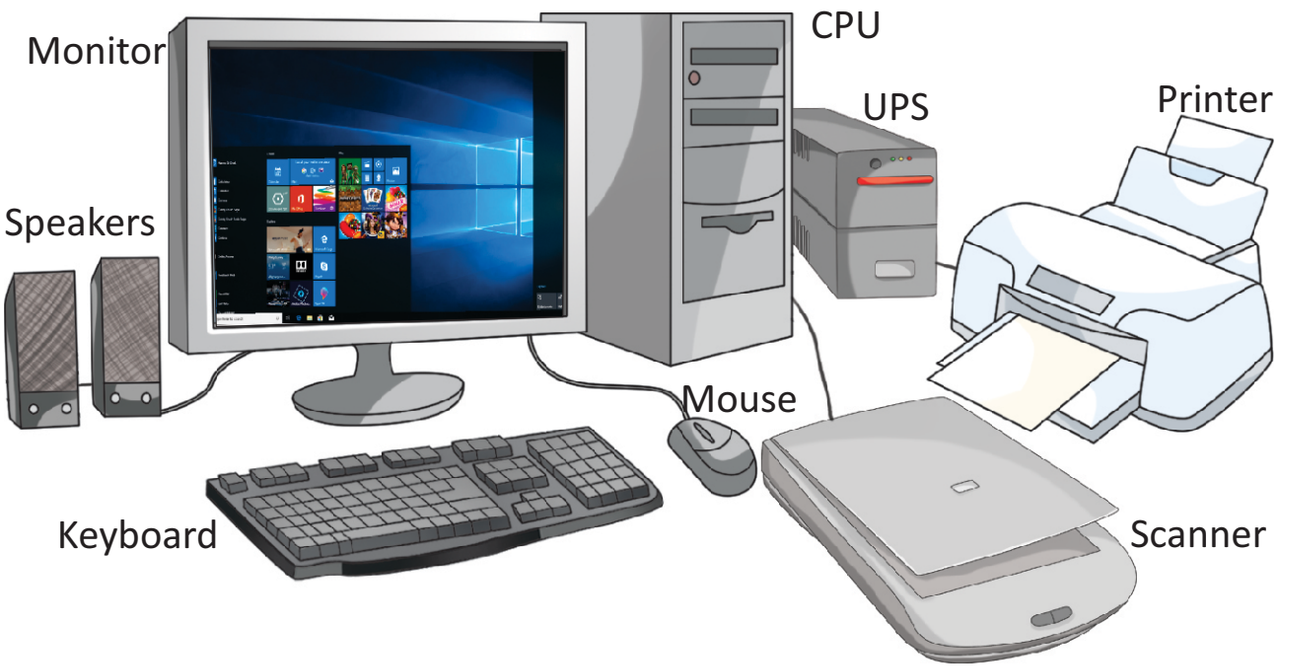
4. 

FACT FOLDER

These days, some watches also come with a small computer fitted inside them. They are called smart watches. Using them, we can make calls and send messages.

COMPUTER AND ITS PERIPHERAL DEVICES

A computer works with many peripheral devices, which are called **input-output devices**. Each device does a different task.



A Computer System

These devices together make a computer system.

FACT FOLDER

These days, desktop computers in which the CPU and monitor are combined together as one unit are also available. This type of computer is known as an **all-in-one** computer and it takes less space than a desktop computer.

FUNCTIONS OF COMPUTER PARTS

All its different parts perform different functions.

Let us know about them :

Monitor

A **monitor** looks like a television screen. It is also called **VDU (Visual Display Unit)**. It allows to see the work done on the computer. We can also watch cartoons, movies on it.

Keyboard

Keyboard is used for typing. It has small buttons for alphabet, number and symbols. These buttons are called **keys**.

Mouse

The **mouse** is used to move the pointer on a computer screen. By clicking the buttons of the mouse, commands are given to the computer. It is used to draw pictures and select objects on the computer.

CPU

CPU is short for **Central Processing Unit**. It is also called the **Brain of the Computer**. It controls all the operations of the computer.

Speakers and Headphones

Speakers let us listen to music and hear different sound on the computer. We can wear **headphones** to listen to music without disturbing others.

Printer

The **Printer** is used to print the result of the work done by the computer.

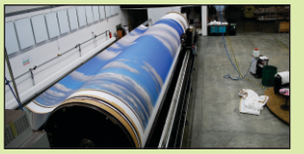
UPS

UPS is short for **Uninterrupted Power Supply**. It is attached to the computer so that it does not switch OFF suddenly when the main electricity source gets disrupted.

FACT FOLDER

The world's largest printer is **Infinitus**.

We need a big room to place it.



Scanner

The **Scanner** does the opposite of what the printer does. It makes copies of the documents and images put in it and saves it in the computer.

FACT FOLDER

When purchasing items, we notice a label with thin, black lines across it. This is called a **barcode**. A device that is used to scan a barcode is known as **Barcode scanner**.

IPO CYCLE

A computer cannot work without a command. We enter information or data to make it work. Different parts of computer do different tasks. A computer works on **Input-Process-Output cycle**.

Input	Processing	Output
The data and instruction that we enter into the computer is called **input**.	Working on the data is called **processing**.	**Output** is the final result displayed on monitor.

INPUT → PROCESS → OUTPUT

Input, process and output cycle is also known as **IPO cycle**.

Look at some examples to understand the IPO cycle :

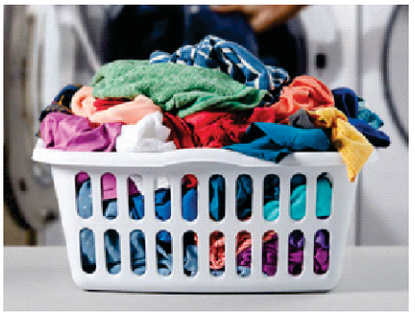
a)

Dough
(INPUT)

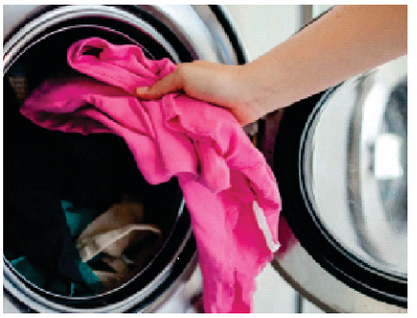
Baking
(PROCESS)

Pizza
(OUTPUT)

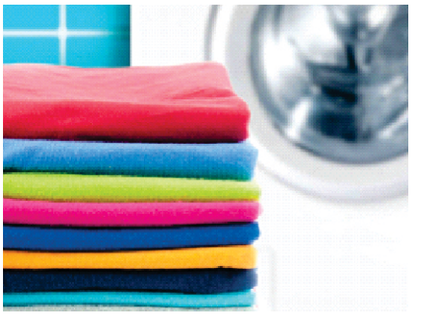
b)



Dirty clothes
(INPUT)



Washing clothes
(PROCESS)



Clean clothes
(OUTPUT)

THROWBACK

- A computer works very fast and do many tasks at the same time.
- Computer comes in a different sizes and shapes.
- Supercomputer, PC, Laptop, Tablet and smartphone are different types of computers.
- A computer works with various peripheral devices.
- Monitor, keyboard, Mouse, CPU, etc., are the different parts of a computer.
- Input, process and output cycle is known as IPO cycle. A computer works on IPO cycle.

Bookmarks

Laptop : A type of computer that works on a battery and can be carried easily from one place to another.

Monitor : A device that displays text and images. It is also known as VDU.

IPO Cycle : A cycle followed by a computer wherein it takes input, processes it and then gives the output.

Exercise

A. Tick (✓) the correct option :

1. A computer works _____.

   a) fast ☐ b) slow ☐ c) without data ☐

2. It can be kept in our pockets.

   a)  ☐ b)  ☐ c)  ☐

3. This part of computer is also known as VDU.

   a)  b)  c) 

4. It is used to give output on a paper.

a)  b)  c) 

B. Fill in the blanks :

processing	tab	Scanner	electricity	Desktop

1. A computer runs on _____.
2. _____ is also known as PC.
3. Tablet is a small mobile computer which is also known as _____.
4. The _____ does the opposite of what the printer does.
5. Working on the data is called _____.

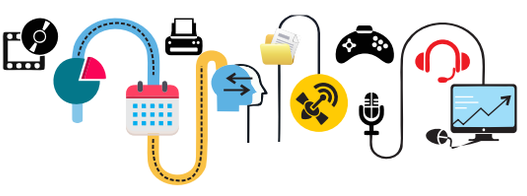
C. Which device is used in the following situations ? Identify the pictures and write their names in the blanks :

1. To listen to our favourite song. _____
2. To type a poem for the competition. _____
3. To draw and paint a birthday card. _____
4. To make a soft copy of your photograph. _____

D. Answer the following questions :

1. Write any two characteristics of a computer.
2. What are the different devices that make a computer system ? Name them.
3. What is an IPO cycle ?



Fun Venture

A. Look at the pictures below and write the type of devices they are—Input (I), Processing (P) or Output (O) : [Critical Thinking]

1.   

2.   

B. Discuss the advantages and disadvantages of a computer. [Communication Skills]

LabTech

[Experiential Learning]

A. Visit the computer lab and observe different parts of a computer.

B. Our body also follows IPO cycle. Our sense organs help us to feel and sense things around us. All other body parts then act according to the instructions given by the brain. Write the names of five sense organs in the WordPad program. [Multidisciplinary Learning]

HyperLink

PrinCube is the world's only portable colour printer. It is small enough to fit into a pocket or handbag and travel anywhere. Surf the site followed by the link (https://princubestore.com/) and learn more about its features. [Experiential Learning]