

Computer Studies



Introduction

With computers, mobiles and tablets present in most urban households, children today have far greater access to these devices than ever earlier. With their natural tendency to explore, they are often adept at learning by themselves or by observation. It is important to identify the content suitable for the children according to their age and introduce it to them at the opportune time. Keeping in mind their curiosity and knowledge, this curriculum provides children with opportunities to use modern technology to enhance their learning in all subjects. It also generates awareness among them about risks like long hours of usage to play or inappropriate access to the internet. This curriculum also ensures that children become digitally literate, i.e. able to use, and express themselves and develop their ideas through ICT at level suitable for the future workplace and as active participant in the digital world.

Aim

This curriculum helps the learner:

- to become competent, confident, responsible and critical user of technology.
- to develop the appropriate social skills that are essential for co-operative and collaborative learning.
- to take ownership of their own learning.
- acquire knowledge and skills in using Information and Communications Technology (ICT) to accomplish tasks, communicate, and facilitate activities.
- develop awareness in regard to the developments and emerging issues concerning computing and society;
- develop critical and analytical thinking skills for practical solutions.
- develop creative skills for problem solving.

The Core Concepts of Computer Studies for Classes VI-VIII are as follows:

Class VI

**Categories of
Computer and
Computer
Languages**

**File Management -
Organisation of
Data**

**Word Processor -
Tabular
Presentation**

**Word Processor -
Mail Merge**

**Presentation -
Visual Effects**

**Scratch
Programming -
Introduction to
Game Creation**

**HTML - An
Introduction**

Class VII

**Computer -
Hardware
Components**

**Number System -
An Introduction**

Computer Virus

**Ethics and Safety
Measures in
Computing**

**Spreadsheets - An
Introduction**

**Database and
DBMS - An
Introduction**

**HTML - Advanced
Features**

Class VIII

**Operating System
and Graphic User
Interface - Role
and Functions**

**Spreadsheet -
Functions and
Charts**

**Algorithms and
Flowcharts**

Program Coding

App Development

Networks

Topic 1: Categories of Computers and Computer Languages

This theme focuses on computers and computer languages. Computers are categorized based on the basis of (i) generation, (ii) type, (iii) purpose and (iv) size, speed, processing power and price. The aim of this theme is to enable children to communicate with the computer, by using specific languages that are broadly into three categories, i.e., machine language, assembly language and higher level language. They will also become aware of all the different operations performed by a computer which are controlled by computer programs written in a computer programming language.

Learning Outcomes:

Children will be able to:

- ✓ classify computers into different categories;
- ✓ differentiate between computers on the basis of RAM size, Storage capacity, CPU speed, etc.;
- ✓ describe a Computer Language.
- ✓ explain the evolution of computer languages with their features;
- ✓ differentiate between different computer languages;
- ✓ explain the importance of 4GLs;
- ✓ explain the working of translators by differentiating between an interpreter and compiler.

Categories of Computer and Computer Languages

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
▶ Categories of computers: basic features of microcomputers, mini computers mainframes, supercomputer, mobile, game consoles, embedded computer. ▶ Types of computer languages. ▶ Features of Low level language (Machine language. Example: binary language) ▶ Features of Assembly language. ▶ Features of High level languages. Example: C, C++, Java. ▶ Features of 4GLs. ▶ Translator and its types (Interpreter, Compiler); ▶ Working of Translators (briefly).	▶ Revisiting and reviewing children's previous learning and building on their experiences. ▶ Revising the basic features of a computer with children. ▶ Questioning children to identify various types of computers observed in their surroundings. ▶ Discussing with children different categories of computers (definition and basic features of microcomputers, mini computers mainframes, supercomputer, mobile, game consoles, embedded computer). ▶ Explaining computer languages - Low level language, Assembly language and High level languages. ▶ Discussing and explaining the evolution of computer languages. ▶ Demonstrating the working of a Translator and its types.	▶ Presentations/ Videos/ Comparative charts. ▶ Computer/ IWB with presentation software. ▶ Hands on experience /activity ▶ Interactive class resources ▶ Projector, etc. ▶ Discussion on computer languages

Topic 2: File Management – Organisation of Data

Building on children's previous learning in primary classes this Topic covers additional and advanced features on file management which will enable them to organise data better. It is important to understand file format as it makes the task of file management easier. In file management the focus of this theme is that they develop the ability to undertake common operations on stored files such as editing, viewing, copying, playing, moving and deleting files enable better management, access and retrieval/ sorting of files by type, name, size, date (created or modified). File management will also help them to transfer data from one device to another and work with multiple applications at the same time. Understanding of a file format is important as it makes the task of file management easier.

Learning Outcomes:

Children will be able to:

- ☒ move/copy data from one drive to another drive;
- ☒ move/copy data between storage devices (pen drive, C.D. hard disc);
- ☒ use two or more applications at the same time;
- ☒ search files and folders;
- ☒ compare different file formats.

File Management – Organisation of Data

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
▷ Transfer of data from one device/drive to another device/ drive ▷ Work with multiple applications ▷ Search for files using wild card characters ('?', '*') ▷ Various file formats such as JPEG, MP3, MP4, doc. XLS	▷ Giving opportunities for hands on activities for transferring data from one drive/ device to another drive/ device/ ▷ Demonstrating with an example of listening to music while searching for information on Internet. ▷ Explaining the difference between wild card characters by using a games like a puzzle ▷ Correlating the file ▷ extensions with the type of file	▷ Computer/ IWB with presentation software. ▷ Hands on activity. ▷ Internet. ▷ Videos. ▷ Projector. ▷ Group discussion / activities.

Life Skills: organisation skills

Topic 3: Word Processor - Tabular Presentation

One of the most common but an important formatting feature of the word processor is 'Tables'. Tables are a method of presenting data in a document, in rows and columns. Blank tables can be inserted or drawn. A table can be simple (based on a metrics) or complex (having different number of rows in columns or vice versa). Intersection of a row and column is a cell. After entering data in a table, it can be modified as per the requirement.

Learning outcomes:

Children will be able to:

- ✓ define table;
- ✓ create a table and enter data in the table;
- ✓ edit a table;
- ✓ format the row/ column/table;
- ✓ apply borders and shading in tables.

Word Processor – Tabular Presentation

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
▷ Define a table in terms of rows and columns. ▷ Create and edit tables. ▷ Insert and delete rows and columns in a table. ▷ Enter data. ▷ Change row height and column width. ▷ Split and merge cells. ▷ Apply borders and shading. ▷ Resize tables. ▷ Align text,	▷ Providing children opportunities to: Explain a table and work on how it can be created in a document. ▷ Providing every child hands- on experience and involving them in creating and formatting tables based on everyday requirements such as- creating a class time-table, study schedule for the month, marks obtained in the term examination, etc.	▷ Computers/ IWB with presentation software and Word Processor. ▷ Hands on activity ▷ Projector.

Topic 4: Word Processor – Mail Merge

The topic Mail merge is an important feature of the word processor. The aim is to develop the ability in children so as to enable them to create personalised letters for bulk mailing in a short period of time and address/ mailing labels by using this facility.

Learning outcomes:

Children will be able to:

- ☒ describe Mail merge;
- ☒ apply the concept of mail merge to multiple addresses;
- ☒ handle various components of mail merge;
- ☒ use mail merge to create multiple personalised documents from a single one.

Word Processor – Mail Merge

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
▷ Mail merge and its advantages. ▷ Apply Mail merge feature of a Word processor to generate document with varying addresses. ▷ Components of mail merge (main document, data source, merged document). ▷ Steps to be followed during mail merge. ▷ Printing merged letters.	▷ Initiating a discussion with children on the need of mail merge by giving real life examples like birthday party invitations, etc. ▷ Providing opportunities for hands on activities to create and print mail merged letter/ documents for everyday situations.	▷ Computers/ IWB with Word Processor. ▷ Hands on activity ▷ Projector, etc. ▷ Use of mail for document development related to daily life activities

Life Skills: General Awareness, Collaborative learning

Topic 5: Presentation – Visual Effects

Presentation software is an application software that aims at enabling children to access their ideas easily while making a presentation through slide shows. It also provides the audience with visual information. They will understand appreciate how presentations can be made more attractive and interactive by using animations, sound, video, etc.

Learning outcomes:

Children will be able to:

- ✓ demonstrate different ways of viewing a presentation;
- ✓ present a Topic in an attractive manner by using different objects;
- ✓ enhance the presentation by applying transitions and custom animations;
- ✓ navigate between slides during a slide show;
- ✓ import data from other applications.

Presentation – Visual Effects

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
▷ Need for different views in a presentation. ▷ Working with different views (normal, slide sorter, slide master, slide show) to view a presentation. ▷ Apply animation effects through custom animation ▷ Add transitions to slides. ▷ Use of a media clip and action buttons. ▷ Insert media clips (movie and sound)/ action buttons in the presentation. ▷ Import data from other applications.	▷ Demonstrating to children the advantages of using normal, slide sorter, slide master, slide show by using an existing presentation. ▷ Involving the children in a discussion to highlight how a presentation can be enhanced by using a media clip/ transitions/ animations and action buttons. ▷ Organising hands on activities for each child to: insert different objects; apply slide transition and custom animation; use action buttons to navigate between slides.	▷ Computers/ IWB with presentation software. ▷ Projector. ▷ Animation related activities. ▷ Presentation on media clip. ▷ Hands-on activities / experiences

Life Skills: Presentation skills, creativity

Topic 6: Scratch Programming – Introduction to Game Creation

In previous learning of the Topic on 'Scratch' children learnt how to handle basic motion block. This Topic aims at enabling children to handle and work with looks, control pen, and sound blocks of Scratch programming.

Learning outcomes:

Children will be able to:

- ☒ handle commands of different blocks;
- ☒ create a working multi-player game.

Scratch Programming – Introduction to Game Creation

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
▷ Revision from previous class. ▷ Changing sprites, images, shapes. ▷ Working with Multiple sprites ▷ Use of different blocks like Looks, Motion, Control, Pen and Sound. ▷ Use of Forever, Forever- IF.	▷ Explaining the working of Blocks like Looks, Motion, Control, Pen and Sound. ▷ Providing opportunities to children to use the commands in their own way in order to create games/ quizzes/ interactive cards. ▷ Demonstrating the use of blocks and working with multiple sprites to children in class.	▷ Computers/ IWB with Scratch software. ▷ Projector. ▷ Games, quizzes, interactive cards.

Integration: Mathematics, Physics

Life Skills: Collaborative learning

Topic 7: HTML - An Introduction

HTML an acronym for Hyper Text MarkUp Language, is the language used to describe structured documents as well as to create web pages in Internet. Hyper Text refers to links that connect web pages/ web sites and MarkUp means a set of markup tags. This aim of this topic is to enable children to understand the different features of HTML and develop the ability to design a simple web page using HTML editors.

Learning outcomes:

Children will be able to:

- ☒ define HTML;
- ☒ differentiate between web page, web site and web browser;
- ☒ list various features of HTML;
- ☒ use various HTML tags;
- ☒ design a web page.

HTML – An Introduction

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
▷ Definition of webpage and website, web browser. ▷ Introduction to HTML programming and its features. ▷ Create a web page using HTML Editors (e.g. Notepad). ▷ Basic Structure of a HTML document. ▷ Basic HTML Tags (<HTML>, <HEAD>, <TITLE>, <BODY>,
, <P>, heading tags from <H1> to <H6>, , <I>, <U>, <SUP>, <SUB>, <CENTER>, <BGCOLOR>, , , , <TEXT>). ▷ Web Browsers for HTML (e.g. IE, Google Chrome, Netscape Navigator etc.). ▷ View HTML codes in a Browser. ▷ Create and save a web page through HTML editor.	▷ Explaining and discussing with children HTML, as a web designing tool, and its features. ▷ Demonstrating various tags in classroom activities. ▷ Demonstrating the process to view the code in a browser. ▷ Providing opportunities to each child to participate in project work to create webpage/ website.	▷ Computers/ IWB with HTML editor. ▷ Internet facility. ▷ Projector. ▷ . ▷ Project work

Life Skills: creative thinking, logical thinking and critical thinking.

Topic 8: Internet – Online Surfing

Internet is the largest wide area network. It provides us many facilities and services. In this chapter we will discuss internet services such as E-mail, E-commerce, Blogging, Podcasting and Google drive (to store and share data). The focus of this topic is to develop children's interest, understanding of and ability to use the Internet in simple ways.

Learning outcomes:

Children will be able to:

- ☒ communicate through e-mail;
- ☒ store and share data using google drive;
- ☒ explain online services of e-commerce;
- ☒ create a blog;
- ☒ express views/ opinions through blogs;
- ☒ differentiate between a website and a blog;
- ☒ create a podcast.

Internet – Online Surfing

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
▶ Features to be kept in mind while using the internet services – following netiquette; being aware of potential threats in the cyber world. ▶ E-mail: introduction; features; advantages; composing and sending e-mail, attachments, cc, bcc, inbox, outbox, trash, spam, logging in and out. ▶ Google Drive: introduction; using the drive: upload, organise and share. ▶ E-commerce: an understanding of E-commerce as online buying and selling of goods and services. ▶ Online modes of payment: credit card, debit card, e-money. ▶ Blogging and Podcasting: meaning purpose and uses.	▶ Having an open discussion with children on their experiences while surfing the internet, what they liked and did not and issues they faced if any. ▶ Discussing and debating with children on: • potential threats while using the internet • importance of netiquettes. • evolution of communication by comparing earlier modes with the modern modes and advantages and disadvantages of each. ▶ Demonstrating how to: • send an e-mail, with bcc, cc, attachments. • use the Google Drive and explaining the process of uploading and sharing data through it ▶ Introducing E-commerce by discussing the different modes online buying and selling ▶ Discussing with children the following: • advantages and disadvantages of online shopping • online modes of payment • the difference between a website and a blog ▶ Introducing the concept of podcast by giving real life examples of use of podcast in news ▶ Providing opportunities for hands on activity through projects and individually on the internet, google, website and blog.	▶ Computers/ IWB with presentation software ▶ Use of internet in conducting activities ▶ Hands on experiences working on various functions of internet. ▶ Use of google drive ▶ Use of website and blog

Life Skills: Organisation skills