8

TOUCHPAD®

iPRIME Ver. 1.0

Teacher's Manual

Extended Support for Teachers

ORANGE™

www.orangeeducation.in
www.thetouchpad.com

Teacher's Time Table

Periods / Days	0	I	II	III	IV		V	VI	VII	VIII
Monday										
Tuesday						B				
Wednesday						R				
Thursday						E				
Friday						A				
Saturday						K				

DEVELOPMENT MILESTONES IN A CHILD

Development milestones are a set of functional skills or age-specific tasks that most children can do at a certain age. These milestones help the teacher to identify and understand how children differ in different age groups.

Age 5 - 8 Years	
Physical	• First permanent tooth erupts • Shows mature throwing and catching patterns • Writing is now smaller and more readable • Drawings are now more detailed, organised and have a sense of depth
Cognitive	• Attention continues to improve, becomes more selective and adaptable • Recall, scripted memory, and auto-biographical memory improves • Counts on and counts down, engaging in simple addition and subtraction • Thoughts are now more logical
Language	• Vocabulary reaches about 10,000 words • Vocabulary increases rapidly throughout middle childhood
Emotional/Social	• Ability to predict and interpret emotional reactions of others enhances • Relies more on language to express empathy • Self-conscious emotions of pride and guilt are governed by personal responsibility • Attends to facial and situational cues in interpreting another's feelings • Peer interaction is now more prosocial, and physical aggression declines

"If you cannot do great things, do small things in a great way."

Age 9 - 11 Years	
Physical	• Motor skills develop resulting enhanced reflexes
Cognitive	• Applies several memory strategies at once • Cognitive self-regulation is now improved
Language	• Ability to use complex grammatical constructions enhances • Conversational strategies are now more refined
Emotional/Social	• Self-esteem tends to rise • Peer groups emerge

Age 11 - 20 Years	
Physical	• If a girl, reaches peak of growth spurt • If a girl, motor performance gradually increases and then levels off • If a boy, reaches peak and then completes growth spurt • If a boy, motor performance increases dramatically
Cognitive	• Is now more self-conscious and self-focused • Becomes a better everyday planner and decision maker
Emotional/Social	• May show increased gender stereotyping of attitudes and behaviour • May have a conventional moral orientation

Managing the children's learning needs according to their developmental milestones is the key to a successful teaching-learning transaction in the classroom.

"Family is the most important thing in the world."

TEACHING PEDAGOGIES

Pedagogy is often described as the approach to teaching. It is the study of teaching methods including the aims of education and the ways in which such goals can be achieved.

Lesson Plans

A lesson plan is the instructor's road map which specifies what students needs to learn and how it can be done effectively during the class time. A lesson plan helps teachers in the classroom by providing a detailed outline to follow in each class.

A lesson plan addresses and integrates three key components:

- Learning objectives
- Learning activities
- Assessment to check the student's understanding

A lesson plan provides an outline of the teaching goals:

Before the class:

1. Identify the learning objectives.
2. Plan the lesson in an engaging and meaningful manner.
3. Plan to assess student's understanding.
4. Plan for a lesson closure.

↓

During the class:

Present the lesson plan.

↓

After the class:

Reflect on what worked well and why. If needed, revise the lesson plan.

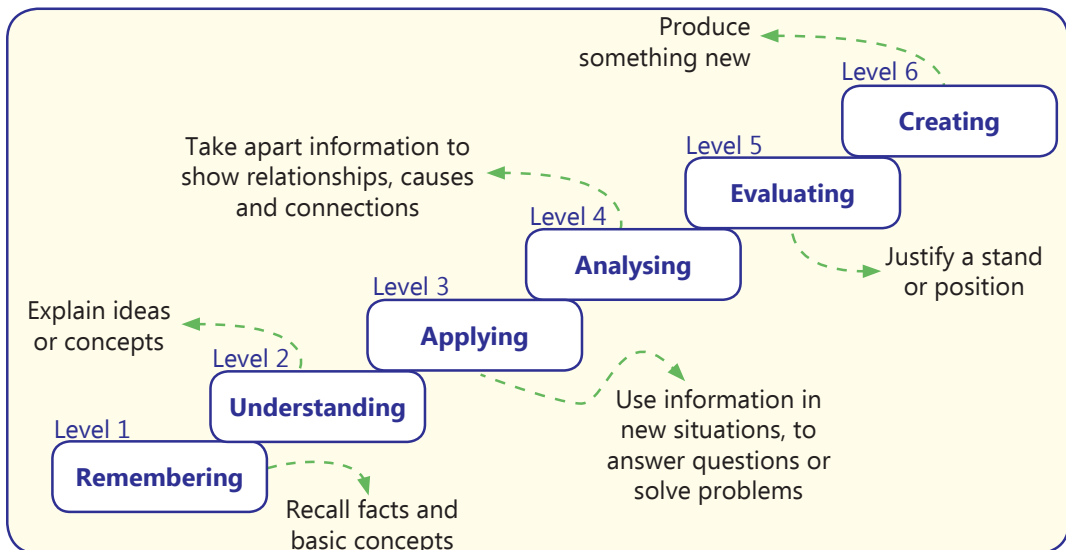"Knowing yourself is the beginning of all wisdom."

Teaching Strategies

Numerous strategies have evolved over the years to facilitate the teaching-learning process in the classrooms.

Effective Teaching Strategies:
- Direct Instruction
- Classroom Discussion
- Small Group Work
- Cooperative Learning
- Problem Solving
- Student Research
- Performance Activities

Bloom's Taxonomy

Bloom's Taxonomy was created by **Dr Benjamin Bloom** and several of his colleagues, to promote higher forms of thinking in education instead of rote learning. There are three domains of learning: cognitive (mental), affective (emotional), and psychomotor (physical). However, when we refer to Bloom's Taxonomy we speak of the cognitive domain. Bloom's Taxonomy is a list of cognitive skills that is used by teachers to determine the level of thinking their students have achieved. As a teacher, one should attempt to move students up the taxonomy as they progress in their knowledge.

Level 6 — Creating — Produce something new
Level 5 — Evaluating — Justify a stand or position
Level 4 — Analysing — Take apart information to show relationships, causes and connections
Level 3 — Applying — Use information in new situations, to answer questions or solve problems
Level 2 — Understanding — Explain ideas or concepts
Level 1 — Remembering — Recall facts and basic concepts

Teachers should focus on helping students to remember information before expecting them to understand it, helping them understand it before expecting them to apply it to a new situation, and so on.

"If you have no confidence in self, you are twice defeated in the race of life."

LESSON PLAN

Touchpad iPRIME Ver 1.0
Class-8

1. Operating System

Teaching Objectives

Students will learn about

☞ Operating system
☞ Functions of an Operating System
☞ What is user interface?

☞ Why we need an Operating System?
☞ Types of operating systems
☞ A comparison between CUI and GUI

Teaching Plan   **Number of periods:** 5

While While teaching this chapter, tell the students how a computer works with a combination of hardware and software.

Share with the students different categories of software:

• System software   • Application software

Explain what is an operating system

Explain what is the need of an operating system

Demonstrate to the students different functions of an OS

• Arranging Files and Folders   • Assigning Tasks to CPU   • Managing Memory
• Managing Resources   • Managing Devices   • Security

Tell the students about the different types of OS

• Single-user Operating System
• Multi-processor Operating System
• Multi-tasking Operating System
• Multi-user Operating System
• Real Time Operating System

Introduce user interface and its advantages and disadvantages.

Share with the students different types of User interfaces

Explain GUI and its advantages and disadvantages

Compare and explain differences between CUI & GUI

Ensure that the scope of Teacher's Corner given at the end of the chapter has been covered.

Extension

Ask the students some oral questions based on this chapter.

Q. What is a System Software

Q. What is an OS

Q. What is the need of an OS

Q. What are some different types of OS

Q. Explain the use of GUI in an OS

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 12 and 13 of the main course book as One Touch Learn and Let's Do It. After solving the course book exercises, tell the students to solve Crack the Code activity given on Page 14 of the main course book. Help the students to solve these questions.

In Creative Assignment, activities like Fun in Lab given on Page 14 and 15 of the main course book will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to create an algorithm to add 2 numbers and explain through a flowchart.

2. Spreadsheet—Functions and Charts

In this chapter, you will learn about some advanced features of MS Excel 2010.

Teaching Objectives

Students will learn about
- ☞ Different ways to enter formulas Understanding cell range
- ☞ Cell referencing in formulas and its types Customise worksheet tab
- ☞ Functions
- ☞ Charts in Excel
- ☞ Sorting data

Teaching Plan   **Number of periods:** 5

While teaching this chapter, tell the students that MS Excel has some built-in formulas called functions.

Share with the students the basic elements and rules of writing a formula in Excel.

Show to them the different methods of copying and pasting a formula.

Tell them the order of operation followed in Excel.

Introduce cell referencing as use of cell address while writing a formula.

Make them understand the different types of cell referencing and the difference between the three – Absolute, Relative and Mixed.

Tell the students about rules for using Functions and different categories of Functions in Excel.

Demonstrate the use of mathematical functions – SUM, PRODUCT, MOD, SQRT, INT, POWER and COUNT.

Demonstrate the use of text functions – CONCATENATE, LEFT, RIGHT, LEN, UPPER and LOWER.

Demonstrate the use of logical functions – MAX, MIN and AVERAGE.

Demonstrate the use of date functions – TODAY, MONTH, YEAR and DAY.

Show the different components of an Excel chart.

Familiarize the students with the different types of chart options available.

Extension

Demonstrate the steps of:

• Creating a chart.

• Modifying a chart by changing its type, layout and design.

Ensure that the scope of Teacher's Corner given at the end of the chapter has been covered. Demonstrate and explain to the students the procedure to apply sorting in MA Excel.

Explain and demonstrate custom sort

Ask the students some oral questions based on this chapter.

Q. What are Functions in Excel?

Q. Name the different elements of a formula in Excel.

Q. What is the order of operation followed in Excel?

Q. Define cell referencing.

Q. Name some important categories of Functions.

Q. State the purpose of SUM / SQRT / MOD / COUNT / LEN / RIGHT / TODAY / MAX Function.

Q. What is the syntax of PRODUCT / INT / POWER / CONCATENATE / LEFT / UPPER / LOWER / MIN / AVERAGE function?

Q. Define charts in Excel.

Q. What is a legend?

Q. What are gridlines in a chart?

Q. When is a Line / Column / Pie / Bar / Area chart used?

Q. In Excel, can we change the type of chart used earlier?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 34, 35 and 36 as One Touch Learn and Let's Do It. After solving the course book exercises, tell the students to solve Crack the Code activity given on Page 36 and 37. Help the students to solve these questions.

In Creative Assignment, activities like Fun in Lab given on Page 37 and 38 will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

1. Ask the students to enter their last mark sheet in Excel and calculate total marks scored, average marks scored, maximum and minimum marks amongst all the marks and the number of subjects using various Functions used in Excel.

2. From the previous mark sheets of Grade 1 to 6, collect data about your attendance in various Grades. Plot a Line Chart in Excel from the data.

3. Algorithms and Flowcharts

Teaching Objectives

Students will learn about

☞ Algorithm

☞ Uses of an algorithm

☞ Defining flowcharts

☞ Characteristics of a good algorithm

☞ Writing an algorithm

☞ Solving problems using algorithms and flowchart

Teaching Plan   Number of periods: 5

While teaching this chapter, tell the students how to solve problems using various strategies.

Share with the students what is an algorithm and characteristics of a good algorithm

Explain what are the uses of an algorithm

Demonstrate to the students the method of writing algorithms with examples

Tell the students the steps involved in writing an algorithm

Introduce flowchart and different symbols used in a flowchart

Show to the students rules of drawing a flowchart and advantages of flowcharts.

Share with the students how to use algorithms and flowcharts for solving problems.

Ensure that the scope of Teacher's Corner given at the end of the chapter has been covered.

Extension

Ask the students some oral questions based on this chapter.

Q. What is an algorithm

Q. What are advantages of using an algorithm

Q. What is a flowchart

Q. What are some rules of drawing a flowchart.

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 45 and 46 of the main course book as One Touch Learn and Let's Do It. After solving the course book exercises, tell the students to solve Crack the Code activity given on Page 46 of the main course book. Help the students to solve these questions.

In Creative Assignment, activities like Hands-On and Fun in Lab given on Page 47 of the main course book will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to create an algorithm to add 2 numbers and explain through a flowchart.

4. Program Coding

Teaching Objectives

Students will learn about

☞ Introducing Java

☞ What s object and class

☞ Interface of BlueJ

☞ Structure of a Java Program

☞ Operators

☞ Writing some more programs

☞ Features of java

☞ Introducing BlueJ

☞ Creating first project using BlueJ

☞ Basic fundamentals of Java

☞ Taking values as arguments

Teaching Plan

Number of periods: 2

While teaching this chapter, tell the students how a computer uses various types of applications to perform different operations.

Share with the students what is a programming language and difference between procedural and object oriented language.

Explain what is Java and what are its basic features.

Tell the students the concept of an object and a Class.

Introduce BlueJ and explain its interface to the students.

Show to the students how to create a project using BlueJ

Share with the students how to compile and run a Java Program.

Explain the structure of a Java program

Explain the basic fundamentals of java such as:

• Identifiers   • Keywords   • Data Types   • Variable   • Comments

Explain to the students what are operators in Java and different types of Java operators:

• Arithmetic Operators   • Relational operators   • Logical operators

• Unary operators   • Assignment operators

Demonstrate some more Java programs and explain how to pass values as arguments in Java.

Ensure that the scope of Teacher's Corner given at the end of the chapter has been covered.

Extension

Ask the students some oral questions based on this chapter.

Q.   What is an object oriented language

Q.   What are keywords in Java & how are they different from identifiers

Q.   What is a variable in Java?

Q.   What are some rules of naming a variable in Java

Q.   What are operators in Java?

Q.   How many types of operators are there in Java

Q.   What is BlueJ

Q.   What is a literal?

Q.   What are Data Types?

Q.   How do we write a comment in Java ?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 62, 63, 64 and 65 of the main course book as One Touch Learn and Let's Do It. After solving the course book exercises, tell the students to solve Crack the Code activity given on Page 66 of the main course book. Help the students to solve these questions.

In Creative Assignment, activities like Fun in Lab given on Page 66 of the main course book will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to create a program in BlueJ to swap 2 variables

•   using a 3rd variable

•   without using a 3rd variable.

5.   Conditional Looping and Jumping Statement in Java

Teaching Objectives

Students will learn about

☞   Conditional statements

☞   Looping statements

☞   Jumping statements

☞   Errors in Java

☞   Writing some more programs

Teaching Plan   **Number of periods:** 5

While teaching this chapter, tell the students about different statements used in Java with examples

•   Conditional statements
   o   If statement
   o   If....else statement
   o   If...else...if statement
   o   Switch statement

•   Looping statements

- o   The while loop
- o   The do-while loop
- o   The for loop
- Jumping statements
  - o   The break statement
  - o   The continue statement

Share with the students what are different types of errors in Java

- Syntax errors
- Runtime errors
- Logical errors

Demonstrate to the students some basic programs in Java

- Write a java program to print all the even numbers between 1 and N by using the while loop.
- Write a Java program to print sum of all the odd numbers between 1 and 20 by using the for loop.
- Write a Java program to calculate the factorial of an entered number.
- Write a program to print a table of an entered number

Ensure that the scope of Teacher's Corner given at the end of the chapter has been covered.

Extension

Ask the students some oral questions based on this chapter.

Q.   What are conditional statements in Java

Q.   What are the difference between if...else & if...else...if statements

Q.   What are looping statements in Java

Q.   How many types of jumping statements are there in Java

Q.   Explain different types of errors in java

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 85, 86, 87 and 88 of the main course book as One Touch Learn and Let's Do It. After solving the course book exercises, tell the students to solve Crack the Code activity given on Page 88 and 89 of the main course book. Help the students to solve these questions.

In Creative Assignment, activities like Fun in Lab given on Page 89 of the main course book will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to create a program in BlueJ to swap 2 variables

(a)   using a 3rd variable

(b)   without using a 3rd variable

6. App Development

Teaching Objectives

Students will learn about

☞ What is an App?

☞ Types of Mobile Apps

☞ Downloading and installing the App

☞ Defining Android and iOS

☞ Categories of Apps

☞ Developing an App

Teaching Plan

Number of periods: 5

While teaching this chapter, tell the students what is an App and about different types of apps developed for different platforms

Explain to the students what is the difference between android and iOS

Share with the students different types of mobile apps

• Native Apps   • Web Apps   • Hybrid Apps

Explain to the students different categories in which Apps are categorized

• Gaming Apps   • Productivity Apps   • Entertainment Apps

• Utility Apps   • Educational Apps   • Social Networking Apps

• Communication Apps   • E-commerce Apps

Demonstrate to the students how to download and install an app

Explain the process to develop an App

Ensure that the scope of Teacher's Corner given at the end of the chapter has been covered.

Extension

Ask the students some oral questions based on this chapter.

Q.   What is an App?

Q.   What is Android OS?

Q.   What is the difference between native apps and web apps

Q.   Name some utility apps

Q.   Name some Communication apps

Q.   What are some common E-commerce Apps

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 99 and 100 of the main course book as One Touch Learn and Let's Do It. After solving the course book exercises, tell the students to solve Crack the Code activity given on Page 100 and 101 of the main course book. Help the students to solve these questions.

In Creative Assignment, activities like Fun in Lab given on Page 101 of the main course book will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to make a list of commonly used android apps with the help of their teacher and parents and categorize them.

7. Computer Networking

Teaching Objectives

Students will learn about

☞ Computer network
☞ Need for computer network
☞ Advantages of computer network
☞ Components of a network
☞ Network terminologies
☞ Devices required for a network
☞ Types of networks
☞ Topology
☞ Network architecture
☞ Wireless networking technology
☞ Protocol

Teaching Plan   **Number of periods:** 5

While teaching this chapter, tell the students what is a computer network and what is the need for computer networks.

Explain the advantages of a computer network.

Explain to the students what are the components of a network and make them familiar with basic network terminologies such as

• Server   • Client   • Intranet   • Internet   • URL   • ISP
• IP address   • DNS   • WebPage   • Website   • Web Portal   • Hyper text
• Link   • Hyper link   • Bandwidth

Share with the students different devices required for a network

• NIC   • Hub or Switch   • Router
• Modem   • Networking Cable   • Gateway

Explain to the students different types of networks based on geographical area they cover

• LAN   • MAN   • WAN   • PAN   • CAN

Explain to the students what is the meaning and concept of Topology in computer networking.

Explain different types of network topologies such as

• BUS topology   • RING topology   • STAR topology
• TREE topology   • MESH topology

Explain what is the meaning of Network Architecture?

• Peer to Peer network   • Client Server network

Explain wireless networking technologies

• Wi-Fi   • Bluetooth

Explain what is Protocol and different protocols used in computer network

- HTTP
- HTTPS
- FTP
- TCP/IP
- POP3
- IMAP
- SMTP

Ensure that the scope of Teacher's Corner given at the end of the chapter has been covered.

Extension

Ask the students some oral questions based on this chapter.

Q.   What is a computer Network?

Q.   Name some components of a computer network.

Q.   What is NIC?

Q.   What is the work of a modem in a computer network?

Q.   Differentiate between LAN and WAN.

Q.   What is a PAN?

Q.   What do you mean by network topology?

Q.   Name some commonly used network topologies.

Q.   In which topology all communication is controlled by a central hub.

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 112, 113 and 114 of the main course book as One Touch Learn and Let's Do It. After solving the course book exercises, tell the students to solve Crack the Code activity given on Page 115 of the main course book. Help the students to solve these questions.

In Creative Assignment, activities like Fun in Lab given on Page 115 of the main course book will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to visit their computer lab and find out which topology is being used and all the networking devices which are being used.

8. Cloud Computing

Teaching Objectives

Students will learn about

- ☞   What is cloud computing?
- ☞   Benefits of cloud computing
- ☞   Characteristics of cloud computing
- ☞   Advantages of cloud computing
- ☞   Disadvantages of cloud computing
- ☞   Storing data using cloud computing
- ☞   Sharing files
- ☞   File shared with you
- ☞   Other cloud storage service providers

Teaching Plan

While teaching this chapter, tell the students what a cloud and what is meant by cloud computing.

Explain the benefits of cloud computing.

Explain to the students what are the characteristics of Cloud computing and what are its advantages and disadvantages.

Share with the students how to store data using cloud computing(using MS one drive).

- Accessing one drive
- Creating files on one drive
- Uploading files on one drive
- Uploading folders to one drive

Explain to the students some other cloud storage service providers such as

- DropBox
- ZipCloud
- iCloud
- Google Drive

Ensure that the scope of Teacher's Corner given at the end of the chapter has been covered.

Extension

Ask the students some oral questions based on this chapter.

Q. What is cloud computing?

Q. Name some benefits of cloud computing.

Q. Explain any 4 characteristics of cloud computing.

Q. What is the advantages of using cloud storage to save and access your files?

Q. What is Microsoft One drive?

Q. How do we upload a folder from local storage to one drive?

Q. Name some commonly used cloud storage services.

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 126 and 127 of the main course book as One Touch Learn and Let's Do It. After solving the course book exercises, tell the students to solve Crack the Code activity given on Page 128 of the main course book. Help the students to solve these questions.

In Creative Assignment, activities like Fun in Lab given on Page 128 & 129 of the main course book will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to find out basic differences between some major cloud storage services such as DropBox and Google Drive.