6

TOUCHPAD®

PRIME Ver. 2.0

Teacher's Manual

Extended Support for Teachers

ORANGE™
www.orangeeducation.in
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Teacher's Time Table

Periods / Days	0	I	II	III	IV	BREAK	V	VI	VII	VIII
Monday										
Tuesday										
Wednesday										
Thursday										
Friday										
Saturday										

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

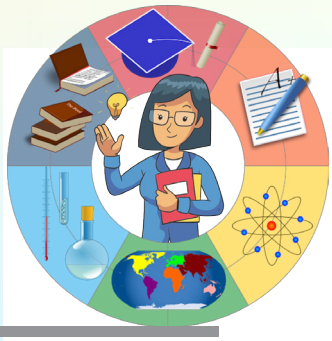
"If you cannot do great things, do small things in a great way."

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.

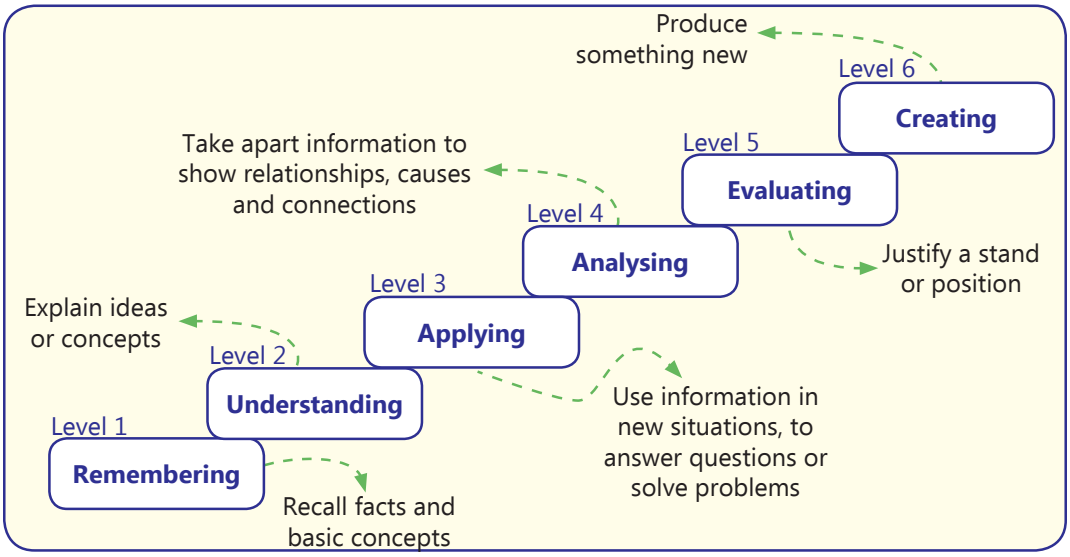
"Knowing yourself is the beginning of all wisdom."

Teaching Strategies

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

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.



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 PRIME Ver 2.0
Class-6

1. FUNDAMENTALS OF COMPUTER

Teaching Objectives

Students will learn about

- ☞ Hardware
- ☞ Software
- ☞ System Software
- ☞ Application Software

Teaching Plan

Number of Periods: 3

While teaching this chapter, tell the students that a computer is an electronic device that performs diverse operations with the help of instructions to process the data in order to achieve desired results.

Introduce to the students about Hardware and their internal components like:

- **CPU**
- **Motherboard**
- **Disk Drive**
- **SMPS**
- **Ports**
- **Modem**
- **Sound Card**
- **Video Card**
- **Input Devices**
- **Output Devices**
- **Storage Devices**

Also explain the types of devices and examples of the above mentioned components in detail.

Introduce to the students about Software and their internal components like:

- **System Software**
- **Application Software**

Tell the students about the types of system software like, **Operating**, **Programming**, and **Utility Software**.

Share with the students about the types of application software like, **General Purpose** and **Customised Software**.

Extension

Ask the students some oral questions based on this chapter.

Q. What is a hardware?

Q. How many types of hardware are there?

Q. Explain the following:

a) CPU
b) Motherboard
c) Disk Drive
d) SMPS
e) Ports
f) Modem
g) Sound Card
h) Video Card
i) Input Devices
j) Output Devices
k) Storage Devices

Q. What is a software?

Q. How many types of software are there?

Q. What is a system software?

Q. What is an application software?

Q. Give examples each of:

a) Operating Software
b) Programming Software
c) Utility Software

Evaluation

After explaining the chapter, let the students do the Mind Drill given on Page 23 and 24 in the main course book as Rapid Fire and Evaluation Time. Tell the students to try sections under Activity Time given on Pages 24 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Find Out and In the Lab section on Page 25 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to collect pictures of different types of computers and paste them on a chart paper according to the categories explained in this chapter.

2. Advanced Windows

Teaching Objectives

Students will learn about

- Control Panel
- Date and Time Settings
- Mouse Settings
- Sound Settings
- Disk Cleanup

Teaching Plan

Number of periods: 3

While teaching this chapter, tell the students that Windows is the foundation of a computer to work with an ease.

Tell the students about Control Panel and steps involved in using the feature of it.

Share with the students about steps involved in using the feature of Time and Date setting and how to modify it.

Explain to the students how to change Mouse setting and steps involved in using it.

Demonstrate the students about the Sound settings and steps involved in modifying.

Explain about the Disk Clean Up to the student and also show the steps involved in this process.

Extension

Ask the students some oral questions based on this chapter.

Q. What is a control panel?

Q. How can you change date and time?

Q. How can you change a mouse's settings?

Q. What are the steps to change the sound setting?

Q. What is a disk cleanup?

Evaluation

After explaining the chapter, let the students do the Mind Drill given on Page 32 and 33 in the main course book as Rapid Fire and Evaluation Time. Tell the students to try sections under Activity Time given on Pages 33 and 34 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Find Out and In the Lab section on Page 34 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to collect information from the Internet about earlier versions of Windows like Windows XP and Windows Vista. Tell them to make a comparative table about the various features available in these earlier versions and Windows 7.

3. Advanced Features of PowerPoint 2016

Teaching Objectives

Students will learn about

- ☞ Inserting Audio and Video Files
- ☞ Action Buttons
- ☞ Printing the Presentation

Teaching Plan

Number of periods: 3

While teaching this chapter, tell the students that PowerPoint 2016 is used to create electronic presentations.

Tell the students that what elements a movie has to make it interesting.

Show to the students how sound and audio files can be inserted into a presentation.

Explain the steps involved in inserting an audio file into a presentation.

Demonstrate the steps involved in inserting a video file into a presentation.

Explain the students about actions button in PowerPoint.

Demonstrate the steps involved in adding the action button.

Show the students how to print a presentation with labeled steps involved in it.

Extension

Ask the students some oral questions based on this chapter.

Q. What type of audio files can be inserted into a presentation?

Q. Can we add video files on a slide?

Q. What are action buttons?

Q. How can you add action button in a presentation?

Q. How can you print a presentation?

Evaluation

After explaining the chapter, let the students do the Mind Drill given on Page 43 and 44 in the main course book as Rapid Fire and Evaluation Time. Tell the students to try sections under Activity Time given on Pages 44 and 45 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Find Out and In the Lab section on Page 45 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Divide the class into two teams. Ask one team to prepare charts on various types of pollution. Ask the other team to prepare a PowerPoint presentation on the same topic. Make the students share the benefits enjoyed and limitations faced by each team while working on their project.

4. More on Excel

Teaching Objectives

Students will learn about

- ☞ Copying/Moving Data
- ☞ Column Width and Row Height

- ☞ Inserting Rows/Columns
- ☞ Merging Cells
- ☞ Formatting Spreadsheets
- ☞ AutoFill
- ☞ Using Formulas to Perform Calculation
- ☞ Order of Operation

Teaching Plan

Number of periods: 4

While teaching this chapter, tell the students that Excel is an application software that helps us to store and analyse data.

Demonstrate how to select cells in a worksheet in Excel. Show them the labeled steps to modify the cell content.

Tell the students the methods of modifying data by cut, copy and paste.

Explain to the students the steps involved in changing row height and column width – both manually and automatically.

Tell the students that Excel allows inserting blank rows and columns at the required place in the worksheet.

Demonstrate to the students how two or more cells can be merged into one and also how a cell can be split up into two or more cells.

Explain some worksheet formatting features of Excel like:

- **Word wrap** – displaying multiple lines of text in a cell
- **Format numbers** – applying various data types to the cells
- **Cell borders** – boundary around a cell or a series of cells
- **Cell styles** – Pre-defined cell border, colour and formatting
- **Cell fills** – adding colours or shades in the cells

Show to the students the steps involved in applying all of these formatting features on a worksheet.

Explain to the students that worksheet tab can be customized by changing its default name and colour.

Introduce to the students AutoFill feature of Excel as automatically filling a series of data in the worksheet and the steps involved in the same.

Tell the students how to use formulas to perform calculations and also how to copy them.

Explain to the students the order of operation with the help of examples.

Extension

Ask the students some oral questions based on this chapter.

Q. What is the difference between Cut and Copy options?

Q. What does it mean when data in a cell is displayed as #####?

Q. Define merging of cells.

Q. Define splitting of cells.

Q. What is wrap text feature of Excel?

Q. Name any three number formats available in Excel.

Q. What is meant by border of a cell?

Q. What is the use of AutoFill feature?

Q. How can you use formulas to perform calculations?

Evaluation

After explaining the chapter, let the students do the Mind Drill given on Page 55 and 56 in the main course book as Rapid Fire and Evaluation Time. Tell the students to try sections under Activity Time given on Pages 56 in the main course book.

Take the students to the computer lab and let them practice the activity given in the In the Lab section on Page 57 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to design their class time-table in Excel 2016.

5. Formulas & Functions in Excel 2016

Teaching Objectives

Students will learn about

- ☞ Different Ways to Enter a Formula
- ☞ Understanding Cell Range
- ☞ Cell Referencing in Formulas and its Types
- ☞ Customise Worksheet Tab
- ☞ Functions

Teaching Plan

Number of periods: 5

Introduce data type in Excel to the students.

While teaching this chapter, tell the students that 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.

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

(Refer Suggested Activity 1 also).

Show the different components of an Excel chart.

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

Demonstrate the steps of:

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

Ask the student to solve the exercise Warm Up! given on page number 70.

Extension

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?

Evaluation

After explaining the chapter, let the students do the Mind Drill given on Pages 70 and 71 in the main course book as Rapid Fire and Evaluation Time. Tell the students to try sections under Activity Time given on Page 72 in the main course book.

Take the students to the computer lab and let them practice the activity given in the In the Lab section on Page 73 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

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.

6. Introduction to Animate CC

Teaching Objectives

Students will learn about

- ☞ Starting Adobe Animate CC
- ☞ Creating a Document in Animate CC
- ☞ Components of the Animate CC Window
- ☞ Saving a Document in Animate CC
- ☞ Creating Shapes in Animate CC
- ☞ Gradient Fill
- ☞ Creating a Symbol in Animate CC

Teaching Plan

Number of periods: 3

Tell the students about Animate CC and the steps to start the application.

Show the students how to create a document in Animate CC with labeled steps.

Explain the components of Animate CC window: stage, timeline, tools panel, properties panel, library panel, menu bar along with the functions.

Show the students the steps involved to save a program.

emonstrate to the students the steps involved to create shapes in Animate CC.

Explain the use of gradient fill in Animate CC.

Show the students the steps involved to create a symbol in Animate CC.

Ask the student to solve the exercise Warm Up! given on page number 81.

Extension

Ask the students some oral questions based on this chapter.

Q. What is Animate CC?

Q. How to create a document in Animate CC?

Q. Define:

a. Stage
b. Timeline
c. Tools Panel
d. Properties Panel
e. Library Panel
f. Menu Bar

Q. What is gradient fill?

Evaluation

After explaining the chapter, let the students do the Mind Drill given on Page 83 and 84 in the main course book as Rapid Fire and Evaluation Time. Tell the students to try sections under Activity Time given on Pages 85 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Find Out and In the Lab section on Page 85 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to create any shape in Animate CC using the tools taught in this chapter.

7. Problem Solving and Programming Languages

Teaching Objectives

Students will learn about

- ☞ Algorithm
- ☞ Characteristics of a Good Algorithm
- ☞ Uses of an Algorithm
- ☞ Writing an Algorithm
- ☞ Defining Flowcharts
- ☞ Solving Problems Using Algorithms and Flowcharts
- ☞ Computer Languages
- ☞ Language Translator
- ☞ Working of Language Translators

Teaching Plan

Number of periods: 4

While teaching this chapter, tell the students about how humans communicate and their language. Also give an introduction of problem solving techniques, algorithm, flowchart, etc.

- **Program** – a set of instructions given to CPU in a pre-defined sequence to complete a task.
- **Computer language** – means by which data and instructions are transmitted to the computer.
- **Syntax** – the grammar of a computer language.
- **Programming** – process of writing a program.
- **Programmers** – people who write computer programs.

Introduce algorithms as set of steps in a sequential and ordered manner to solve any problem or to complete a task.

Encourage the students to write algorithms involving some basic tasks like getting ready for school or involving mathematical problems.

Introduce flowcharts as diagrammatic representation of an algorithm.

Explain the shapes and usage of flowchart symbols covering Start / Stop box, Process box, Decision box, Input / Output box, Flow lines and Connectors.

Make the students learn the rules for drawing a flowchart.

Encourage the students to draw flowcharts for the algorithms written earlier.

Tell the students that computer languages are categorized as low-level languages (machine dependent) and high level languages (machine independent).

Share with the students that low level languages are further classified as machine language (first generation language made up of 0s and 1s) and assembly language (second generation language made up of alphanumeric symbols).

Make the students learn that the high level languages are further classified as third generation languages (examples: **BASIC**, **COBOL**, **FORTRAN**, **PASCAL**, etc.), fourth generation languages (examples: **Visual Basic**, **Oracle**, **SQL**, **JAVA**, **C++**, etc.) and natural language or fifth generation languages (involving artificial intelligence).

Tell the students the advantages and disadvantages of high level languages over low level languages.

Introduce the concept of language translators as software that convert a high level language into a machine language covering:

- **Assembler** – used to translate assembly language into machine language.
- **Compiler** – used to convert source program at once into machine language before executing it.
- **Interpreter** – used to convert source program one line at a time into machine language before executing it.

Ask the students to solve the question in Warm Up! on page number 94.

Extension

Ask the students some oral questions based on this chapter.

Q. What is an algorithm?

Q. What is a flowchart?

Q. What are computer languages?

Q. What is Low-Level language?

Q. What is High-Level language?

Q. Give examples of each:

a. Machine Language

b. Assembly Language

c. Third Generation Language

d. Fourth Generation Language

e. Fifth Generation Language

Q. What are advantages of HLL?

Q. What are disadvantages of HLL?

Q. What is a language translator?

Q. What is an assembler?

Q. What is the difference between a compiler and an interpreter?

Q. Explain the working of language translators.

Evaluation

After explaining the chapter, let the students do the Mind Drill given on Page 95, 96 and 97 in the main course book as Rapid Fire and Evaluation Time. Tell the students to try sections under Activity Time given on Pages 97 and 98 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Find Out and In the Lab section on Page 98 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to find some questions which can be solved using algorithm and flowchart. Also, ask the students to collect more information about the computer languages and translators.

8. Introduction to Small Basic

Teaching Objectives

Students will learn about

- ☞ Opening Small Basic
- ☞ Small Basic Environment
- ☞ Creating Your First Small Basic Program
- ☞ Saving a Program
- ☞ Running a Program
- ☞ Opening a Program
- ☞ Sharing a Program
- ☞ Elements of Small Basic Programming
- ☞ Statements
- ☞ Maths Library Functions
- ☞ Sample Programs

Teaching Plan

Number of periods: 2

While teaching this chapter, tell the students that **BASIC** is a very simple programming language used for calculations and business applications. Its name stands for Beginners All-purpose Symbolic Instruction Code. Small Basic is a simpler version of BASIC.

Show to the students the steps to be taken to start Small Basic

Small Basic provides you a simple yet powerful development environment. Let's learn about the Small Basic environment:.

- **Title Bar:** It gives us the information about the program in which we are working.
- **Editor:** It is identified as the area where we write our Small Basic programs. When we open a saved program, it will show up in this editor. We can then modify it and save it for later use. We can also open and work with more than one programs at a time. Each program you are working with will be shown in a different Editor window. The editor window that contains the program you are currently working on is known as an active Editor window.
- **Toolbar:** It is used to give commands. It contains commands like New, Open, Save, Save As, Cut, Copy, Paste and Run. We can use these commands by clicking on the command buttons.

- **Help Area:** When we write a program in the Editor, this area displays the tips and hints for the program.
- **Surface:** This is an open area where we can move and organize our Editor windows for each Small Basic program.

Introduce the steps of creating first Small Basic program.

Show to the students the steps involved in saving a program.

Show to the students the steps involved to run, open and share a program.

Explain the elements of Small Basic programming:

- Variables
- Operators
- Keywords
- Comments

Tell the students about the Statements and its type.

Show the students the use of Maths Library functions along with some sample questions.

Ask the student to solve the question in Warm Up! given on page number 105.

Extension

Ask the students some oral questions based on this chapter.

Q. What is Small Basic?

Q. Define the following:

a. Title bar b. Toolbar c. Editor d. Help Area e. Surface

Q. What is a variable?

Q. What are operators?

Q. What are keywords?

Q. What are comments?

Q. What are statements?

Q. What are maths library functions?

Evaluation

After explaining the chapter, let the students do the Mind Drill given on Pages 110 and 112 in the main course book as Rapid Fire and Evaluation Time. Tell the students to try sections under Activity Time given on Pages 112 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Find Out and In the Lab section on Page 112 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to create a simple program in Small Basic.

9. Internet

Teaching Objectives

Students will learn about

- ☞ The Internet
- ☞ World Wide Web
- ☞ How the Web Works?
- ☞ Using Web Browser
- ☞ Using URLs
- ☞ Services of Internet

Teaching Plan

Number of periods: 5

While teaching this chapter, tell the students that what is Internet and its history.

Tell the students and define what is World Wide Web.

Show the students how the web works and meaning of URL. Demonstrate them use of URL using address bar and hyperlink.

Make the students understand the meaning of services of Internet like E-mail, E-Greetings, Online Shopping, Online Reservation and Online Education with labeled steps to use them.

Also ask the students to solve the question in Warm Up! given on page number 116.

Extension

Ask the students some oral questions based on this chapter.

Q. What is Internet?

Q. Define the following:

- URL
- E-mail
- E-Greetings
- Online shopping
- Online Reservation
- Online Education

Evaluation

After explaining the chapter, let the students do the Mind Drill given on Page 123 and 124 in the main course book as Rapid Fire and Evaluation Time. Tell the students to try sections under Activity Time given on Page 124 in the main course book.

Take the students to the computer lab and let them practice the activity given in the Find Out and In the Lab section on Page 124 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to learn how to use the internet services.