TOUCHPAD

Ver. 4.0

8

Teacher's Manual

Extended Support for Teachers

ORANGE
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Teacher's Time Table

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

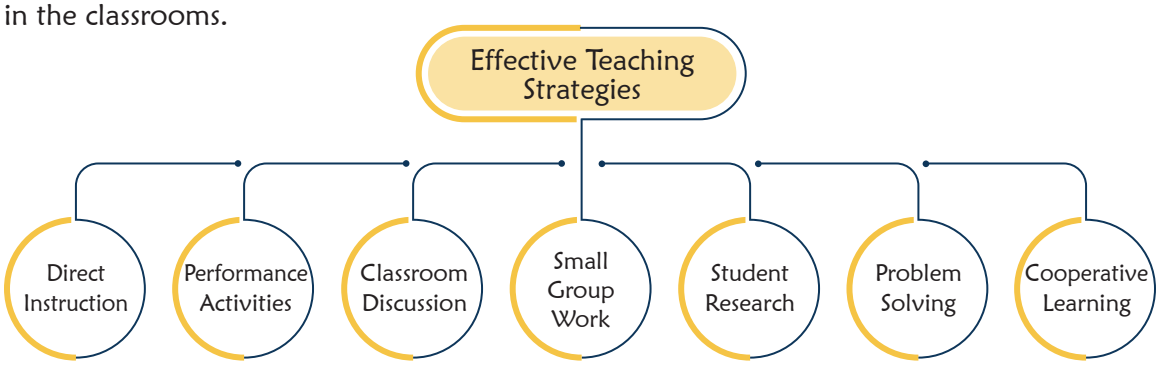
After the class

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

"Knowing yourself is the beginning of all wisdom."

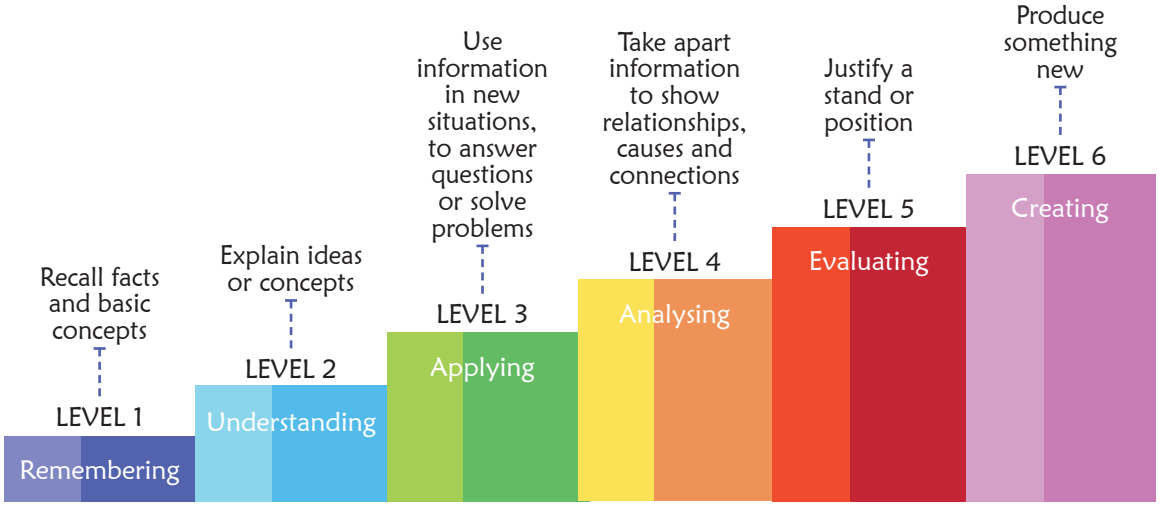
Teaching Strategies

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."

CLASS 8

LESSON PLAN

1 Computer Networking

Teaching Objectives

Students will learn about

- Computer Network
- Advantages of Computer Network
- Components Required for a Network
- Topology
- Wireless Networking Technology
- Need for Computer Network
- Network Terminology
- Types of Network
- Network Architecture
- Protocol

Number of Periods	
Theory	Practical
2	1

Teaching Plan

While teaching this chapter, tell the students that the process of connecting computers and peripheral devices with each other to exchange data is called computer networking.

Tell the students about the meaning and basics of computer network.

Share with the students the need for computer network – for resource sharing, for data security and for communication.

Discuss with the students the advantages of a computer network.

Introduce network terminologies like Server (host computer) and Client (dependent on server) to the students.

Tell the students about the components required for a network covering NIC, hub/switch, router, modem and ethernet cable.

Share with the students that on the basis of geographical area covered, the networks can be classified into LAN (Local Area Network), MAN (Metropolitan Area Network), WAN (Wide Area Network), PAN (Personal Area Network) and CAN (Campus Area Network).

Introduce that Topology refers to the physical or logical arrangement of computers or nodes in a network to the students.

Explain the five different types of topologies covering bus topology, ring topology, star topology, tree topology and mesh topology.

Tell the students that the network architecture defines the overall design of the computer network.

Share with the students the two types of network architectures such as Peer-to-Peer network and Client-Server network.

Share with the students about the wireless networking technologies detailing about Wi-Fi and Bluetooth.

Introduce Protocol as a set of rules that govern the communication between the computers on a network.

Discuss briefly about the different types of protocols explaining about HTTP, HTTPS, FTP, TCP/IP, POP3, IMAP and 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. Define computer network.

Q. What is the need for a computer network?

Q. What are the advantages of a computer network?

Q. Define server and client.

Q. What are the different types of computer servers?

Q. What are the components required for a network?

Q. Define the terms:

- LAN
- MAN
- WAN
- PAN
- CAN

Q. Define Topology.

Q. Explain different types of topologies.

Q. What do you meant by protocol?

Encourage the students to walk through the chapter and ask them to explain any one topic from the chapter.

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 14 and 15 of the main course book as **Exercise**.

Take the students to the computer lab and let them practice the activity given in **HANDS ON** and **In the Lab** section on Page 16 in the main course book. This will enhance the abilities of the students and serve as a Critical Thinking and Technology Literacy activity.

Suggested Activity

Ask the students to make models of different types of topologies using marbles and used wire pieces / straws.

2 Photo Editor & Video Editor

Teaching Objectives

Students will learn about

- Photo Editing
- OpenShot Video Editor

Number of Periods	
Theory	Practical
2	2

Teaching Plan

While teaching this chapter, tell the students about new apps like photos in Windows 10.

Introduce the students to Photo Editing.

Teach the students how to start Photos App and to open a photo for editing.

Demonstrate to the students the method of cropping, rotating and flipping photos in Photos App.

Demonstrate to the students how to apply filters to a photo.

Tell them that In Photos app, we can also adjust brightness and contrast by using the Adjustments feature.

Demonstrate the steps to start OpenShot video editor.

Explain to the students the components of OpenShot video editor.

Demonstrate the steps to import media files.

Also demonstrate the steps to add media files on timeline.

Explain to the students the steps to add transition effect on a video.

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 editing?

Q. What is the use of editing?

Q. How is photo different from a video?

Q. Name some photo editing apps.

Q. What is the difference between brightness and contrast?

Q. What do you mean by OpenShot video editor?

Q. What is cropping?

Q. What is rotating?

Q. What is flipping?

Q. What is a filter?

Q. What is trimming?

Q. Name some components of OpenShot video editor.

Encourage the students to walk through the chapter and ask them to explain any one topic from the chapter.

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 25 to 27 of the main course book as **Exercise**.

Take the students to the computer lab and let them practice the activity given in **In the Lab** section on Page 27 in the main course book. This will enhance the abilities of the students and serve as a Critical Thinking and Technology Literacy activity.

Suggested Activity

Ask the students to prepare a word document on major differences between photo and video editing and take print out on an A4 sheet of paper.

3 Introduction to GIMP

Teaching Objectives

Students will learn about

- Features of GIMP
- Components of GIMP Window
- Opening an Image for Editing
- Starting GIMP
- Creating a New File
- Saving a File

Number of Periods	
Theory	Practical
2	3

Teaching Plan

While teaching this chapter, tell the students that GIMP is a free and open-source graphics editor software used for image retouching and editing, free-form drawing, cropping, converting between different image formats and more.

Explain the features of GIMP to the students.

Demonstrate to the students the steps to start GIMP.

Familiarise the students with the components of GIMP covering Menu Bar, Toolbox, Foreground/ Background colors, Tool options, Image window, Ruler, Layers Palette and Brushes/Patterns/Fonts tab.

Demonstrate to the students how to create a new file in GIMP.

Show to the students the steps involved in opening an image for editing.

Tell the students the process to save a file.

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

Ask the students to read the **Clickipedia** given on page 31.

Extension

Ask the students some oral questions based on this chapter.

Q. What is GIMP?

Q. Name the various components of GIMP Window..

Q. State the features of GIMP.

Q. What is a template?

Q. Which button is used to open a file?

Q. What extension does the GIMP add to a file when we save it?

Encourage the students to walk through the chapter and ask them to explain any one topic from the chapter.

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 33 and 34 in the main course book as **Exercise**.

Take the students to the computer lab and let them practice the activity given in **In the Lab** section on Page 34 in the main course book. This will enhance the abilities of the students and serve as a Critical Thinking and Technology Literacy activity.

Suggested Activity

Ask the students to draw a similar drawing in GIMP using various tools from the toolbar.

4 Using Tools in GIMP

Teaching Objectives

Students will learn about

- Components of GIMP Window
- Retouching Tools
- Correction Tools

Number of Periods	
Theory	Practical
2	3

Teaching Plan

While teaching this chapter, tell the students that GIMP provides various types of selection tools.

Familiarise the students with the selection tools of GIMP covering Rectangle tool, Ellipse tool, Free Select tool and Fuzzy Select tool.

Tell the students that crop tool is used to remove unwanted portion from an image.

Demonstrate to the students the steps to use crop tool.

Explain the paintbrush tool to the students and demonstrate the steps to use paintbrush tool.

Tell the students how to use:

- Zoom tool
- Text tool
- Gradient tool

Introduce retouching tools as the tools used to add or remove features to an image.

Demonstrate the use of Retouching Tools like:

- Healing Tool (used to repair dark spots, scratches, etc.)
- Clone Tool (used to duplicate parts of an image)

Demonstrate the use of Correction Tools like:

- Blur/Sharpen Tool (used to blur parts of an image)
- Smudge Tool (used to show image as wet paint on the image has been spread by finger)
- Dodge/Burn Tool (used to improve quality of an image)

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 GIMP used for?

Q. What are Retouching Tools?

Q. What is Gradient Tool?

Q. Name some important retouching tools in GIMP.

Q. What is the use of Correction tools in GIMP?

Q. Name the important correction tools of GIMP.

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 43 to 45 in the main course book as **Exercise**.

Take the students to the computer lab and let them practice the activity given **HANDS ON** and **In the Lab** Session section on Pages 45 and 46 in the main course book. This will enhance the ability of the students and serve as a Creativity and Technology Literacy activity.

Suggested Activity

Ask the students to arrange a scanned copy of their passport size photo and apply retouching and correction tools to beautify the image.

5 Advanced Features of GIMP

Teaching Objectives

Students will learn about

- Working with Layers
- Filters
- Changing the Print Size of Image
- Merging Two Images
- Changing the On-Screen Size of Image

Number of Periods	
Theory	Practical
2	3

Teaching Plan

While teaching this chapter, tell the students that GIMP is used for editing images for making them look interesting.

Introduce Layers as transparent sheets which are stacked on top of each other so that individual objects of an image can be edited without affecting other objects.

Familiarise the students with the components of Layers covering Layers tab, Lock buttons, Eye icon, Layers stack, Create a new layer, Create a duplicate layer, Raise this layer, Lower this layer, Anchor the floating layer, Delete this layer and Create a new layer group.

Explain how to add a new layer, delete a layer, rename a layer, hide a layer and flatten a layer from an image.

Demonstrate how to merge two images to the students.

Introduce Filters as tools which are used to modify an image in a variety of ways. Also, show them how to apply filters to images.

Show the steps involved in:

- Changing the on-screen size of image
- Changing the print size of image

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 layers?

Q. What is the use of Layers in GIMP?

Q. What are filters?

Q. What is the use of filters in GIMP?

Q. How can you change the on-screen size of image?

Q. How can you change the print of image in GIMP?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 55 to 57 in the main course book as **Exercise**.

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

Suggested Activity

Ask the students to draw a labeled diagram of the GIMP Tools panel in your computer practical file or notebook.

6 Introduction to TUPI 2D

Teaching Objectives

Students will learn about

- Features of Tupi 2D
- Components of the Tupi 2D Window
- Saving a Project in Tupi 2D
- Exiting Tupi 2D
- Library
- Starting Tupi 2D Software
- Creating a New Tupi 2D Project
- Opening a Tupi 2D Project
- Tools of Tupi 2D

Number of Periods	
Theory	Practical
2	3

Teaching Plan

While teaching this chapter, tell the students that animation is the process of creating the illusion of movement and motion in visual media by displaying a sequence of images in rapid succession.

Tell the students about Tupi 2D and features of it.

Show the steps to install TubiTube Desk and start the application.

Explain the components of Tupi 2D window: Menu bar, Toolbox, Toolbar, Workspace, Paint Area Action Toolbar, Modules Tab, Left side bar, Exposure Sheet, Expanded Panel and Right side bar along with the functions.

Show the students how to create a document in Tupi 2D with labelled steps.

Show the students the steps involved in:

- Saving a project

- Opening an existing project
- Exiting Tupi 2D

While teaching this chapter, tell the students that the various tools present in the Tools panel are quite helpful in creating drawings in Tupi 2D.

Demonstrate the use of some important drawing tools along with some of their important properties to be defined in Tupi 2D covering:

- Pencil Tool – used to draw freehand lines and curves. The properties to be defined are Stroke Color, Stroke Height, Stroke Style and Cap.
- Ink Tool – used to draw in different colours. The properties to be defined are Stroke Colour, Stroke Height, Stroke Style and Cap.
- PolyLine Tool – used to draw closed shapes like triangles and those having five or more sides. The properties to be defined are Style and Number of Sides.
- Shapes Tool – used to draw closed rectangles, square, circle, ellipse or a line. The properties to be defined are Stroke Color, Fill Color, Stroke Height and Stroke Style.
- Object Selection Tool – used to select parts or whole objects from the stage.
- Nodes Selection Tool – helps to reorder the nodes which are created while drawing the object.
- Paint Bucket Tool – used to fill colour in closed shapes. The properties to be defined are Fill Color.

Explain the use of the Library in Tupi 2D.

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 Tupi 2D?

Q. How to create a document in Tupi 2D?

Q. How to save a project in Tupi 2D?

Q. How to open an existing project in Tupi 2D?

Q. What is the use of Tools panel?

Q. What is the use of Pencil / Fill / Object Selection tools?

Q. What are the different properties that need to be defined for PolyLine / Shapes / Ink tools?

Q. Which key is pressed to draw a rectangle or an ellipse?

Q. What is the use of Library?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 71 to 73 in the main course book as **Exercise**.

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

Suggested Activity

Ask the students to create any shape in Tupi 2D using the tools taught in this chapter.

7 Animations in TUPI 2D

Teaching Objectives

Students will learn about

- Exposure Sheet
- Frames
- Motion Tween
- Scale Tween
- Opacity Tween
- Layers in Tupi 2D
- Tweening Tool
- Rotation Tween
- Shear Tween
- Coloring Tween

Number of Periods	
Theory	Practical
2	3

Teaching Plan

While teaching this chapter, tell the students that Tupi 2D is an authoring tool to create games, applications, simple animations, etc.

Tell the students about the exposure sheet and various tools of it.

Tell the students about Layers and the steps to insert a new layer.

Introduce the concept of frames in Tupi 2D and its purpose.

Demonstrate the steps to insert frames in TUPI 2D.

Explain the concept of animation using tweens.

Show the steps to create various types of tweens covering all types of Tween.

Tell the students about tweens and different types of tweens –

- Motion Tween
- Scale Tween
- Opacity Tween
- Rotation Tween
- Shear Tween
- Coloring Tween

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 Tupi 2D used for?

Q. What do you understand by Layers?

Q. How are layers useful?

Q. What is a frame?

Q. Define Tween.

Q. What is Motion Guide Tweening?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 83 and 84 in the main course book as **Exercise**.

Take the students to the computer lab and let them practice the activity given **In the Lab** Session section on Page 84 in the main course book. This will enhance the ability of the students and serve as a Technology Literacy and Creativity activity.

Suggested Activity

Ask the students to create an animation where two cars are coming on a road from opposite directions and crash in the center.

8 App Development

Teaching Objectives

Students will learn about

- What is an App?
- Defining the Android and iOS
- Types of Mobile Apps
- Categories of Apps
- Downloading and Installing the App
- Developing an App

Number of Periods	
Theory	Practical
2	1

Teaching Plan

While teaching this chapter, brief the students about smartphones and technology.

Tell the students that an app is a software program primarily developed for hand-held smart devices such as mobile and tablet.

Explain to the students the difference between the Android and iOS in detail.

Demonstrate the types of Mobile Apps to the students with example, that are:

- Native Apps
- Web Apps
- Hybrid Apps

Explain the following categories of Apps to the students along with the examples:

- Gaming Apps
- Entertainment Apps
- Educational Apps
- Communication Apps
- Productivity Apps
- Utility Apps
- Social Networking Apps
- E-Commerce Apps

Explain to the students the steps involved in downloading and installing the Apps.

Explain to the students the steps involved in developing 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. Define the following:

- Gaming Apps
- Entertainment Apps
- Educational Apps
- Communication Apps
- Productivity Apps
- Utility Apps
- Social Networking Apps
- E-Commerce Apps

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 99 to 101 in the main course book as **Exercise**.

Take the students to the computer lab and let them practice the activity given **In the Lab** Practice section on Pages 101 and 102 in the main course book. This will enhance the ability of the students and serve as a Leadership & Responsibility and Technology Literacy activity.

Suggested Activity

Ask the students to develop an App for reciting tables with your help.

9 Loops in Python

Teaching Objectives

Students will learn about

- The for Statement
- The Infinite Loop
- Some More Programs
- The while Statement
- The Jump Statements

Number of Periods	
Theory	Practical
2	2

Teaching Plan

While teaching this chapter revise Python for the students and repeat the features of Python from the earlier class.

While teaching this chapter, tell the students that Python provides two types of looping statements.

Demonstrate to the students the steps involved in using these statements using programs and syntax, which are:

a. FOR statement
   - using the range() function

b. WHILE statement
   - while loop using else statement

c. JUMP statement
   - break statement
   - continue statement

d. Infinite loop

Demonstrate to the students the steps involved in using the FUNCTIONS using programs and syntax.

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

Ask the student to solve the exercise **Let's Catch** Up given on page number 135.

Extension

Ask the students some oral questions based on this chapter.

Q. What are looping statement?

Q. What is the function of FOR statement?

Q. What is the function of WHILE statement?

Q. What is the function of JUMP statement?

Q. What is a continue statement?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 111 to 113 in the main course book as **Exercise**.

Take the students to the computer lab and let them practice the activity given **In the Lab** Practice section on Page 113 in the main course book. This will enhance the ability of the students and serve as a Critical Thinking and Technology Literacy activity.

Suggested Activity

Ask the students to make a list of series where you can apply the FOR and JUMP statements.