TOUCHPAD

Ver. 2.1

8

TEACHER'S MANUAL

Extended Support for Teachers

ORANGE

Teacher's Time Table

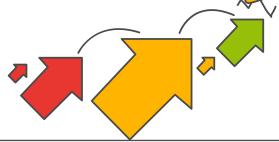| Periods / Days	0	I	II	III	IV		V	VI	VII	VIII
Monday						B				
Tuesday						R				
Wednesday						E				
Thursday						A				
Friday						K				
Saturday										

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.

Effective Teaching Strategies

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

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 1 — Recall facts and basic concepts — Remembering

LEVEL 2 — Explain ideas or concepts — Understanding

LEVEL 3 — Use information in new situations, to answer questions or solve problems — Applying

LEVEL 4 — Take apart information to show relationships, causes and connections — Analysing

LEVEL 5 — Justify a stand or position — Evaluating

LEVEL 6 — Produce something new — Creating

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.

1 Computer Networking

Teaching Objectives

Students will learn about

✦ Computer Network
✦ Need for Computer Network
✦ Advantages of Computer Network
✦ Network Terminology
✦ Components Required for a Network
✦ Types of Network
✦ Topology
✦ Network Architecture
✦ Wireless Networking Technology
✦ 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 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 networking 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 is a geometric 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 (Refer Suggested Activity also).

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, TC/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 Hands-On the activity given in In the Lab section on Page 16 in the main course book. This will enhance the abilities of the students and serve as a Initiative & Creativity and Technology Literacy & Creativity activity.

Suggested Activity

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

2 Photo Editor and Video Editor

Teaching Objectives

Students will learn about

✦ Photos App
✦ 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 App.

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 OpenShot Video Editor and steps to open a video file for editing.

Explain to the students the Component of OpenShot Video Editor.

Further tell them that how to trim the videos using the trim button.

Also demonstrate the :

• Importing Media Files
• Arranging Media Files
• Adding Transition Effects

Tell them the various steps involved in editing a photo and 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 video editing?

Q.   What is cropping?

Q.   What is rotating?

Q.   What is flipping?

Q.   What is a filter?

Q.   What is trimming?

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 24 to 26 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 26 in the main course book. This will enhance the abilities of the students and serve as a Technology Literacy and Creativity 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

✦   Starting GIMP

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

Number of Periods	
Theory	Practical
2	3

Teaching Plan

While teaching this chapter, tell the students that GIMP is a free open-source graphics software used for image creation and editing.

Explain the features of GIMP to the students.

Demonstrate to the students the steps to start GIMP.

Familiarize the students with the components of GIMP covering Menu Bar, Workspace, 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 pages 28 to 30.

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.

Also, ask them to solve Worksheet 1 given on page 24.

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 32 and 33 in the main course book as Exercise.

Take the students to the computer lab and Hands-On the activity given in In the Lab section on Page 33 in the main course book. This will enhance the abilities of the students and serve as a Social Interaction & Collaboration and Information Literacy & Initiative 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

✦ Selection Tools
✦ Crop Tool
✦ Paintbrush Tool
✦ Zoom Tool
✦ Text Tool
✦ Gradient Tool
✦ Retouching Tools
✦ Correction Tools

Number of Periods	
Theory	Practical
3	3

Teaching Plan

While teaching this chapter, tell the students that GIMP is used for creating and editing images in order to make them look attractive.

Explain the some Tools that use in GIMP:

● Selection Tool
● Crop Tool
● Paintbrush Tool
● Zoom Tool
● Text Tool
● Gradient Tool
● Retouching Tool

- Correction Tool

Demonstrate the use of Selecting Tools like:

- Rectangle Select Too
- Ellipse Tool
- Free Select Tools
- Fuzzy Select 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)

Extension

Ask the students some oral questions based on this chapter.

Q.   What is GIMP used for?

Q.   What are Retouching Tools?

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.

Q.   What is Paintbrush Tool?

Q.   Difference Between Selection and Crop Tools.

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 44 to 46 in the main course book as Exercise. Tell the students to try different activities under Mind Boggler and Hands-On given on Pages 46 in the main course book.

Take the students to the computer lab and let them practice the activity given In The Lab Session section on Page 47 in the main course book. This will enhance the ability of the students and serve as a Creativity and Productivity & Accountability 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 Filters of GIMP

Teaching Objectives

Students will learn about

- ✦ Layers
- ✦ Working with Layers
- ✦ Merging Two Images
- ✦ Filters
- ✦ Changing the On-screen Size of an Image
- ✦ Changing the Print Size of an 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 containing objects which are stacked on top of each other so that individual properties of an object can be edited without affecting other objects.

Explain the Component of Layers Palette.

Tell the student

While working with layers in GIMP, you can perform different operations like adding, deleting, reordering, renaming, hiding, and flattening layers.

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

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 56 to 58 in the main course book as Exercise.

Take the students to the computer lab and Hands-On the activity given In The Lab Session section on Page 58 in the main course book. This will enhance the ability of the students and serve as a Communication & Social Interaction and Creativity & 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
✦ Starting Tupi 2D Software
✦ Components of the Tupi 2D Window
✦ Creating a New Tupi 2D Project
✦ Saving a Project in Tupi 2D
✦ Opening a Tupi 2D Project
✦ Exiting Tupi 2D
✦ Tools of Tupi 2D
✦ Library

Number of Periods	
Theory	Practical
2	3

Teaching Plan

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, Toolbar, Toolbox, Workspace, Paint Area Action Toolbar, Modules Tab, Left side bar and right side bar , Exposure Sheet , Expanded Panel along with the functions.

Demonstrate to the students the steps involved to create shapes in Tupi 2D.

Show the students the steps involved in:

- Saving a program
- 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.

- Ink Tool – used to draw in different colors. The properties to be defined are Stroke Color, 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 and squares. 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.

- Node 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.

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 Pencil / Fill / Object Selection tools?

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

Q.   What is the use of Library?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 71 and 72 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 72 in the main course book. This will enhance the ability of the students and serve as a Information 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

✦ Layers

✦ Frames

✦ 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 how to use it.

Tell the students about Layers and their importance in Flash.

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

Make tExplain 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

- Rotation Tween

- Scale Tween

- Shear Tween

- Opacity Tween

- Coloring Tween

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 the difference between a frame and a keyframe?

Q. Define Tween.

Q. What is Motion Guide Tweening?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 80 and 81 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 81 in the main course book. This will enhance the ability of the students and serve as a Initiative 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 App

✦   Downloading and Installing the App   ☞   Developing an App

Number of Periods	
Theory	Practical
3	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   • Productivity Apps   • Entertainment Apps

• Utility Apps   • Educational Apps   • Social Networking Apps

- Communication 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.

Extension

Ask the students some oral questions based on this chapter.

Q. What is an App?

Q. Define the following:

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

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 96 to 98 in the main course book as Exercise.

Take the students to the computer lab and let them practice the activity given In The Lab section on Page 98 in the main course book. This will enhance the ability of the students and serve as a 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 while Statement
- ✦ The Infinite Loops
- ✦ Jump Statements
- ✦ Some More Programs

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 about Python has some looping statements.

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

a.   FOR statement

- using the range() statement

b.   WHILE statement

- while loop using else statement
- Infinite Loop

c.   JUMP statement

- break statement
- continue statement

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

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?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 107 to 109 in the main course book as Exercise.

Take the students to the computer lab and let them practice the activity given In The Lab section on Page 93 in the main course book. This will enhance the ability of the students and serve as a Technology Literacy and Critical Thinking activity.

Suggested Activity

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