7

TRACKPAD

Ver. 2.0 (102)

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						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 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

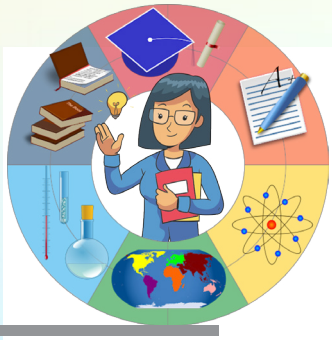
"If you cannot do great things, do small things in a great way."

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.

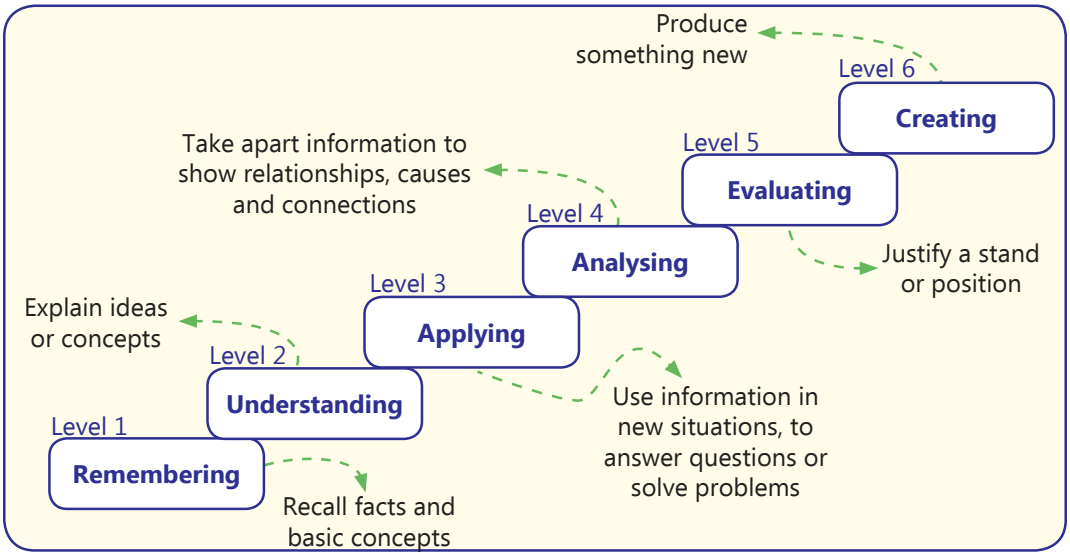
"Knowing yourself is the beginning of all wisdom."

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."

Class 7

LESSON PLAN

Trackpad Ver 2.0 (102)

1. Number System

Teaching Objectives

Students will learn about

- Data Representation
- Number Systems
- Conversion of Decimal to Binary
- Conversion of Binary to Decimal
- Operations on Binary Numbers

Number of Periods	
Theory	Practical
2	0

Teaching Plan

Before starting the chapter, ask the students to read the comic given in page number 7 to understand the recap of the topic.

While teaching this chapter, tell the students that a number system is simply a method of counting.

Introduce base or radix as the total number of digits used in a number system.

Inform them that there are four important types of number systems – Decimal (base 10), Binary (base 2), Octal (base 8) and Hexadecimal (base 16).

Make the students recall the method of writing expanded form of a number under Decimal number system.

Inform them that just like decimal number system:

- Add one more bullet In decimal number system, the numbers are expressed using ten digits, 0 to 9 and expanded with base 10.
- In octal number system, the numbers are expressed using eight digits, 0 to 7 and expanded with base 8.
- In hexadecimal number system, the numbers are expressed using fifteen digits, 0 to 9 and A to F, and expanded with base 16.

Ask the students to solve the exercise **I Know** given on page number 10.

Show to the students the method of converting:

- Decimal number to Binary number by successive division by 2 and arranging the remainders in reverse order.
- Binary number to Decimal number by multiplying digits with 2 raise to the power of place of that digit starting from 0 on the left.

Ask the students to solve the exercise **Quiz Bee** given on page number 11.

Share the rules of binary addition, subtraction, multiplication and division.

Show to the students the method of carrying out mathematical operations on binary numbers and verifying the results by corresponding conversions to decimal numbers

Extension

Ask the students some oral questions based on this chapter.

Q. What is a number system?

Q. What is the radix of decimal / binary / octal / hexadecimal number system?

Q. Which digits are used to express a decimal / binary / octal / hexadecimal number?

Q. What is the value of addition of binary digits 1 and 1?

Q. What is the value of subtraction of binary digits 0 and 1?

Q. Which number system is used by computers?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 13, 14 and 15 in the main course book as Assess Yourself. Tell them to solve the computational skill developing exercise as Coding Zone given on Page 15.

Take the students to the computer lab and let them practice the activity given in the Lab Activity section on Page 15 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

1. Convert the last four digits of your parents' mobile numbers into binary number.
2. Ask the students to prepare a comparative chart with four columns, the first one listing the digits used in Hexadecimal number system and in the remaining three columns, their equivalent value under decimal, binary and octal number systems.

2. Advanced Features of Excel

Teaching Objectives

Students will learn about

- SUM()
- Sorting Data in Excel
- Conditional Formatting
- IF()
- Filtering Data in Excel

Number of Periods	
Theory	Practical
2	0

Teaching Plan

Before starting the chapter, ask the students to read the comic given in page number 16 to understand the recap of the topic.

While teaching this chapter, tell the students that Excel 2016 provides easy options for sorting data and highlighting the required information in a worksheet.

Explain the students about the SUM( ) function and how to use it in Excel.

Demonstrate the students about the IF( ) function and the details regarding how to use it in Excel.

Ask the students to solve the exercise **I Know** given on page number 19.

Introduce sorting as arranging the data in ascending or descending order.

Demonstrate to the students the various steps involved in sorting of data in an Excel worksheet.

Explain the concept and use of Custom Sort feature.

Introduce filtering as hiding unwanted data from a set of data.

Show students the various steps involved in applying Filters in a worksheet.

Share with the students that Filters once applied can be easily removed and tell them the method of removing filters.

Introduce Conditional Formatting as highlighting the required information.

Tell the students about basic difference between Filtering (unwanted information gets hidden) and Conditional Formatting (required information gets highlighted).

Explain the various criteria detailed under Conditional Formatting.

Demonstrate the steps involved in applying conditional formatting on a worksheet.

Ask the students to solve the exercise **Quiz Bee** given on page number 23.

Extension

Ask the students some oral questions based on this chapter.

Q. What is the purpose of SUM()?

Q. What is the purpose of IF()?

Q. What is the difference between sort and custom sort features?

Q. What are filters?

Q. How can filters be removed in a worksheet?

Q. What do you understand by conditional formatting feature?

Q. How is conditional formatting different from filtering data?

Q. When is the conditional formatting criteria Highlight Cell Rules / Data Bars / Icon Sets used?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 23, 24 and 25 in the main course book as Assess Yourself. Tell them to solve the computational skill developing exercise as Coding Zone given on Page 25.

Take the students to the computer lab and let them practice the activity given in the Lab Activity 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

1. Ask the students to enter their height and weight along with similar information for their nine friends. Sort the data with primary criteria as heights in ascending order and secondary criteria as weights in descending order.
2. Highlight the cells where the heights are less than the height of the student or weight is more than the weight of the student preparing the worksheet.

3. 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 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 the students understand the meaning of and difference between frames and keyframes.

Explain the concept of animation using tweens.

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

Tell the students that animation can also be done in Flash through Frame by Frame technique.

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 43 and 44 in the main course book as Checkpoint. Tell the students to try different activities under Mind Boggler given on Page 45 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 45 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 an animation where two cars are coming on a road from opposite directions and crash in the center.

4. Lists and Tables in HTML5

Teaching Objectives

Students will learn about

- ☞ Lists
- ☞ Nested List
- ☞ Tables
- ☞ Styling Tables Using CSS

Number of Periods	
Theory	Practical
2	2

Teaching Plan

Before starting the chapter, ask the students to read the comic given in page number 43 to understand the recap of the topic.

While teaching this chapter, tell the students that HTML tags are used to create a web page.

Introduce list as collection of related items.

Tell the students that there are three types of lists – Ordered List (Numbered List), Unordered List (Bulleted List) and Definition List (Description List).

Explain the use of <OL> tag to create ordered lists, <UL> tag to create unordered lists and <DL> tag to create definition lists.

Ask the students to solve the exercise **I Know** given on page number 48.

Explain the use of <TABLE> tag and its child tags covering <TR>, <TD>, <TH> and <Caption>.

Explain the use of different attributes of <TABLE> tag covering BORDER, BORDERCOLOR, FRAMES, BGCOLOR, BACKGROUND, HEIGHT, WIDTH, CELLSPACING and CELLPADDING.

Discuss the use of different attributes of <TD> tag explaining about ALIGN, BGCOLOR, WIDTH, ROWSPAN, COLSPAN and VALIGN attributes.

Tell the students that all the attributes except ROWSPAN and COLSPAN are taken up by <TR> tag also.

Demonstrate the code to create a table and its data in HTML.

Ask the students to solve the exercise **Quiz Bee** given on page number 57.

Extension

Ask the students some oral questions based on this chapter.

Q. Define List / Table.

Q. How many types of Lists can be created in HTML?

Q. Name the different types of Lists that can be created in HTML.

Q. What is an Ordered / Unordered / Definition List?

Q. Name the attributes of <OL> tag.

Q. Name the tags used to create Definition List.

Q. Name the tags that can used to create different kinds of tables.

Q. What are the attributes of <TABLE> / <TD> tag?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 57, 58 and 59 in the main course book as Assess Yourself. Tell them to solve the computational skill developing exercise as Coding Zone given on Page 60.

Take the students to the computer lab and let them practice the activity given in the Lab Activity section on Pages 59 and 60 in the main course book. This will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the student to create a web page using all the HTML Tags taught in this chapter.

5. Images, Links and Forms in HTML5

Teaching Objectives

Students will learn about

- Images in HTML
- Hyperlink in HTML
- Embedding Audio and Video
- iFrames and CSS
- Images with CSS
- Hyperlink with CSS
- Frames and iFrames
- Forms in HTML

Number of Periods	
Theory	Practical
2	0

Teaching Plan

Before starting the chapter, ask the students to read the comic given in page number 61 to understand the recap of the topic.

While teaching this chapter, tell the students that HTML allows inserting images and frames on web pages as well as interlinking them.

Tell the students that HTML supports JPEG, GIF and PNG image formats.

Tell the students that <IMG> tag is used to insert images and it takes the attributes as SRC, WIDTH, HEIGHT, ALIGN, BORDER and ALT.

Demonstrate to the students the use of <IMG> tag and its attributes.

Ask the students to solve the exercise **Quiz Bee** given on page number 64.

Introduce Marquee as the moving objects on a web page to get special attention of the users.

Explain the use of <MARQUEE> tag and its attributes as BEHAVIOUR, DIRECTION and SCROLLAMOUNT.

Make the students understand that a hyperlink is an underlined text or an image which when clicked takes the user to some other location.

Share with the students that <A> is used to create links and the attributes that this tag can take are – LINK, ALINK and VLINK.

Demonstrate the use of <A> tag and its attributes to hyperlink web pages.

Ask the students to solve the exercise **I Know** given on page number 66.

Introduce Frames as a feature to display more than one web page on a single screen of the web browser.

Explain the use of <FRAMESET> tag and <FRAME> tag to create and define frames on a web page.

Tell the students that the <FRAME> tag can take FRAMEBORDER, NORESIZE and SRC as attributes.

Demonstrate the use of <FRAMESET> and <FRAME> tags to create frames on a web page.

Extension

Ask the students some oral questions based on this chapter.

Q. Which tag is used to insert images on a web page?

Q. State the use of SRC / WIDTH / ALIGN /ALT attribute of IMG tag.

Q. Which image formats are supported by HTML?

Q. What is the use of MARQUEE tag?

Q. Which tag is used to link web pages?

Q. Name the attributes that can be taken by FRAME tag.

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 78 and 79 in the main course book as Assess Yourself. Tell them to solve the computational skill developing exercise as Coding Zone given on Page 80.

Take the students to the computer lab and let them practice the activity given in the Lab Activity section on Page 80 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 an e-shopping web site listing categories of items on home page and details of items on separate category pages.

6. Introduction Mobile Apps

Teaching Objectives

Students will learn about

- ☞ What are Apps?
- ☞ Features of Mobile Apps
- ☞ Categories of Apps
- ☞ iOS and Android
- ☞ Types of Mobile Apps

Number of Periods	
Theory	Practical
2	2

Teaching Plan

Before starting the chapter, ask the students to read the comic given in page number 81 to understand the recap of the topic.

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

Ask the students to solve the exercise **Quiz Bee** given on page number 83.

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

Ask the students to solve the exercise **I Know** given on page number 84.

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 86 and 87 in the main course book as Assess Yourself. Tell them to solve the computational skill developing exercise as Coding Zone given on Page 88.

Take the students to the computer lab and let them practice the activity given in the Lab Activity section on Page 88 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 develop an App for reciting tables with your help.

7. Developing Mobile Apps

Teaching Objectives

Students will learn about

- ☞ Installing an App from Google Play Store
- ☞ Removing an App
- ☞ Developing an App

Number of Periods	
Theory	Practical
2	3

Teaching Plan

Before starting the chapter, ask the students to read the comic given in page number 92 to understand the recap of the topic.

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

Explain to the students the steps involved in installing the App from the Google Play Store.

Explain to the students the steps involved in removing an App.

Tell the students in detail:

- Points to keep in mind while developing an App
- App Inventor
- Setting Up App Inventor

Ask the students to solve the exercise **Quiz Bee** given on page number 95.

Define all the components of Project Designer Window in detail:

- Palette Pane
- View Pane
- Components Pane
- Properties Pane

Describe to the students how to create a Talking App by following the actions like:

- Adding a button
- Testing the App
- Rename the button
- Change the display name of button
- Adding a text to Speech Command

Define all the components of Block Editor in detail:

- Built-in blocks
- Component blocks
- Workspace
- Trash
- Backpack

Show the students how to test the App in detail.

Ask the students to solve the exercise **I Know** given on page number 101.

Extension

Ask the students some oral questions based on this chapter.

Q. What is an App?

Q. Write the steps to install an app from play store.

Q. Write the steps to remove an app.

Q. What is App Inventor?

Q. Define the following.

- Palette Pane
- View Pane
- Components Pane
- Properties Pane

Q. How to create a talking app?

Q. Define the following.

- Built-in blocks
- Component blocks
- Workspace
- Trash
- Backpack

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 102 and 103 in the main course book as Assess Yourself. Tell them to solve the computational skill developing exercise as Coding Zone given on Page 104.

Take the students to the computer lab and let them practice the activity given in the Lab Activity section on Page 104 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 develop an App for adding grocery list and with your voice.

8. Google Apps

Teaching Objectives

Students will learn about

- ☞ Google Workplace
- ☞ How are Google Apps Helpful?
- ☞ Commonly used Google Apps
- ☞ Other Google Apps
- ☞ Apps for Everyday Use

Number of Periods	
Theory	Practical
3	3

Teaching Plan

Before starting the chapter, ask the students to read the comic given in page number 105 to understand the recap of the topic.

While teaching this chapter, brief the students about Google and mobile apps.

Introduce Google to the students along with the history.

Explain the Google Apps to the students in detail like Gmail, Google Drive, Google Maps, Google Docs, Google Sheets, Google Slides and YouTube.

Explain the following components of Google Drive to the students along with the steps involved in:

- What can you store in Google Drive?
- How much can you store in Google Drive?
- How does it work?
- Features of Google Drive

Ask the students to solve the exercise **Quiz Bee** given on page number 109.

Demonstrate the features of Google Maps to the students along with the steps involved in it.

Demonstrate the opening/ importing an existing word document for editing in Google Docs to the students along with the steps involved in it.

Explain the following components of Google Sheets to the students along with the steps involved in:

- Features of Google Sheets
- Creating and Saving a New Google Sheet
- Sharing and Protecting Data in Google Sheets

- Sharing a File
- Protecting Data

Explain the following components of Google Slides to the students along with the steps involved in:

- Features of Google Slides
- Creating a New Presentation

Explain the following components of YouTube to the students along with the steps involved in:

- Features of YouTube
- How to Create YouTube Account
- Uploading a Video on YouTube

Explain the other Google apps which are used in our daily lives:

- Google Calendar
- Google Meet
- Google Contacts
- Google Photos
- Google Classroom
- Google Forms
- Google Earth
- Google Translate

Ask the students to solve the exercise **I Know** given on page number 118.

Extension

Ask the students some oral questions based on this chapter.

Q What are Google Apps?

Q. What is Gmail?

Q. What is Google Drive?

Q. What is Google Maps?

Q. What is Google Docs?

Q. What is Google Sheets?

Q. What is Google Slides?

Q. What is YouTube?

Q. Define the following.

a. Google Calendar
b. Google Meet
c. Google Contacts
d. Google Photos
e. Google Classroom
f. Google Forms
g. Google Earth
h. Google Translate

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 119, 120 and 121 in the main course book as Assess Yourself. Tell them to solve the computational skill developing exercise as Coding Zone given on Page 121.

Take the students to the computer lab and let them practice the activity given in the Lab Activity section on Page 121 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 more about the features of Google Classroom.

9. Cyber Security

Teaching Objectives

Students will learn about

- What is Cyber Security?
- Computer Ethics
- Indian Laws and Government Initiatives
- Need of Cyber Security
- Common Cyber Security Measures

Number of Periods	
Theory	Practical
2	0

Teaching Plan

Before starting the chapter, ask the students to read the comic given in page number 122 to understand the recap of the topic.

While teaching this chapter, brief the students about what is cyber and cyber security.

Tell the students why we need cyber security and what issues we can resolve with it.

Explain the students about the Computer Ethics and the unethical practices:

- Spamming
- Phishing
- Software Piracy
- Digital Footprints
- Hacking
- Plagiarism
- Intellectual Property Rights

Also, explain the tips the avoid these unethical practices while you are using online services.

Ask the students to solve the exercise **Quiz Bee** given on page number 125.

Share some common cyber security measure with the students along with information technology security.

Ask the students to solve the exercise **I Know** given on page number 126.

Tell the students in detail about the Indian Laws and Government Initiatives which are:

- Information Technology Act, 2000
- Information Technology Amendment Act, 2008
- National Cyber Security Policy, 2013

Extension

Ask the students some oral questions based on this chapter.

Q. What is Cyber Security?

Q. Why do we need cyber security?

Q. Define the following:

- Spamming
- Phishing
- Software Piracy
- Digital Footprints
- Hacking
- Plagiarism
- Intellectual Property Rights

Q. What IT security?

Q. Explain the following:

- Information Technology Act, 2000
- Information Technology Amendment Act, 2008
- National Cyber Security Policy, 2013

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 128 and 129 in the main course book as Assess Yourself. Tell them to solve the computational skill developing exercise as Coding Zone given on Page 130.

Take the students to the computer lab and let them practice the activity given in the Lab Activity section on Page 130 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 prepare a detailed project on Indian Laws and Government Initiatives on an A3 sheet.

10. Tokens and Data Types in Python

Teaching Objectives

Students will learn about

- ☞ Python Character Set
- ☞ Python Tokens
- ☞ Data Types
- ☞ Find Data Type
- ☞ Errors in Python Programs
- ☞ Some more Programs

Number of Periods	
Theory	Practical
2	0

Teaching Plan

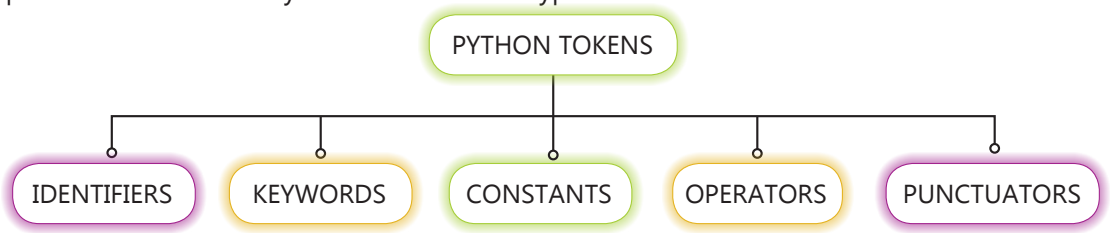
Before starting the chapter, ask the students to read the comic given in page number 132 to understand the recap of the topic.

While teaching the chapter, explain the students a brief about Python for a quick revision.

Tell the students about the Python character set and define:

- Alphabet
- Digits
- Special Character

Explain the students the Python tokens and its types:

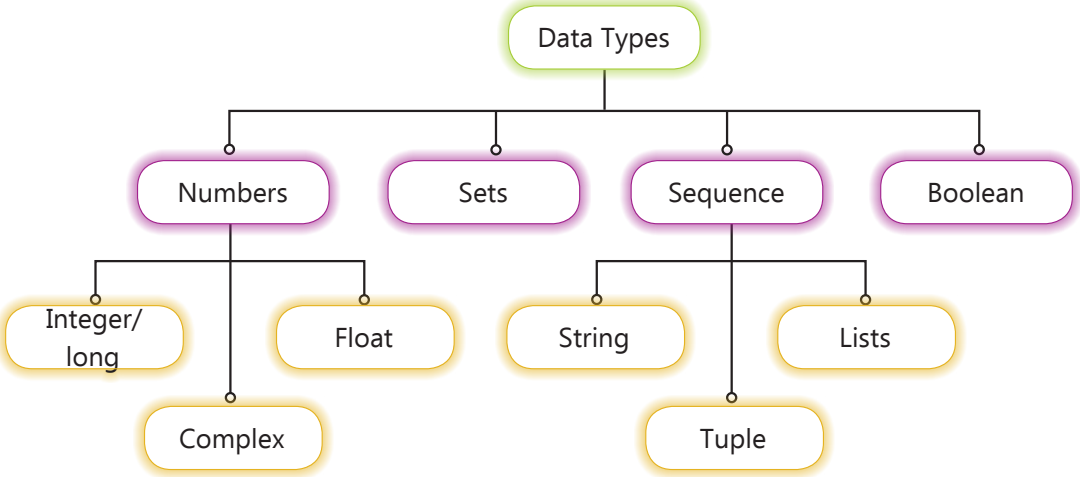


Ask the students to solve the exercise **I Know** given on page number 134.

Also, explain how the following operators are used:

- Arithmetic
- Relational or Comparison
- Logical
- Assignment
- Operator Precedence

Share to the students about data types in detail



Ask the students to solve the exercise **Quiz Bee** given on page number 139.

Tell the students how to find the data type using the type( ) function in Python.

Explain the students about the types of error that occurs in a Python program:

- Syntax Error
- Logical Error

Also, explain some more programs of Python for their self-learning and practice.

Extension

Ask the students some oral questions based on this chapter.

Q. What are tokens in python?

Q. Explain the following:

- Identifiers
- Keywords
- Constants
- Operators
- Punctuators

Q. Explain the data types.

Q. Define the following:

a. Numbers

b. Sets

c. Sequence

d. Boolean

Q. How to use type( ) function?

Q. Define the following types of error in Python.

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 142, 143 and 144 in the main course book as Assess Yourself. Tell them to solve the computational skill developing exercise as Coding Zone given on Page 144.

Take the students to the computer lab and let them practice the activity given in the Lab Activity section on Page 144 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 write a program to calculate area of a square in Python.

11. Future of Artificial Intelligence

Teaching Objectives

Students will learn about

- ☞ Evolution of AI
- ☞ Future Prospects of AI

Number of Periods	
Theory	Practical
2	0

Teaching Plan

Before starting the chapter, ask the students to read the comic given in page number 145 to understand the recap of the topic.

While teaching this chapter, brief the students about Artificial Intelligence.

Explain the students about the scope and evolution of AI with examples of:

- First Wave of AI
- Second Wave of AI
- Third Wave of AI

Demonstrate the future prospects of AI to the students in detail:

- Automated Transportation
- Safety and Security
- Traffic Management

- Smart Homes and Cities
- Smart Highway
- Intelligent Security

Ask the students to solve the exercise **Quiz Bee** given on page number 147.

Ask the students to solve the exercise **I Know** given on page number 148.

Extension

Ask the students some oral questions based on this chapter.

Q. What is AI?

Q. Write notes on:

a. First Wave of AI

b. Second Wave of AI

c. Third Wave of AI

Q. Explain the following:

- Automated Transportation
- Safety and Security
- Traffic Management
- Smart Homes and Cities
- Smart Highway
- Intelligent Security

Evaluation

After explaining the chapter, let the students do the exercises given on Page 149 in the main course book as Assess Yourself. Tell them to solve the computational skill developing exercise as Coding Zone given on Page 150.

Take the students to the computer lab and let them practice the activity given in the Lab Activity section on Page 150 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 research more examples about the devices which fall under the categories of future prospects.