7

TRACKPAD

iPro Ver. 4.0

Teacher's Manual

Extended Support for Teachers

ORANGE
www.orangeeducation.in
www.thetouchpad.com

Teacher's Time Table

Periods / Days	0	I	II	III	IV	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 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 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.

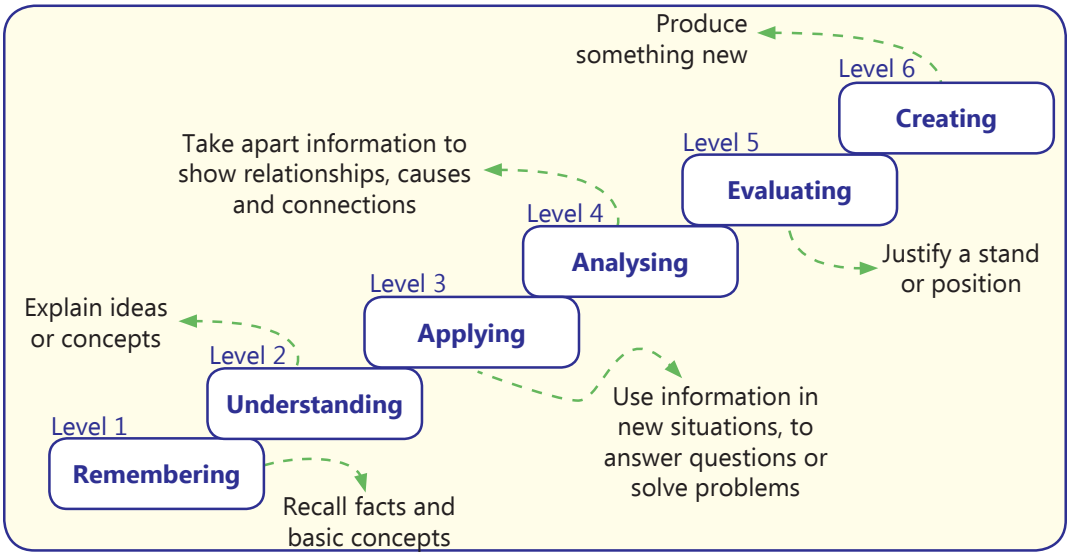
"Knowing yourself is the beginning of all wisdom."

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 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

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1. Computer—Hardware Components

Teaching Objectives

Students will learn about

- ☞ Hardware
- ☞ New trends in hardware

Number of Periods	
Theory	Practical
3	2

Teaching Plan

While teaching this chapter, tell the students that a computer system is madeup of two components hardware and software.

Explain to the students what is hardware and some of the internal hardware components of a computer:

- CPU
- Motherboard
- Disk Drive
- SMPS
- Ports
- Modem
- Sound Card
- Video Card

Familiarize the students with the various external hardware components of computer system covering

- **Input Devices**
  - o Keyboard
  - o Mouse
  - o Scanner–Hand-Held Scanner, Flatbed Scanner, Sheetfed Scanner
  - o Webcam
  - o Graphic Tablet
  - o Joystick
  - o Microphone
  - o Touchscreen
- **Output Devices**
  - o Monitor
  - o Printer–Dot matrix printer, Inkjet Printer, Laser Printer
  - o Plotters
  - o Speakers
  - o Projector
- **Storage Devices**
  - o Hard disks
  - o Compact Disc
  - o Flash Drive
  - o Pen Drive
  - o Memory Card

Tell the students about new trends in hardware such as:

- Wireless Devices
- Virtual keyboard
- 3D Camera
- Skylake
- LaCie SAFE Hard Drive
- Portable Printers
- Finger Mouse

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

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Extension

Ask the students some oral questions based on this chapter.

Q. What is Hardware?

Q. What are the internal hardware components of a computer system?

Q. Name any five external hardware components.

Q. Differentiate between Hand-held and Sheetfed Scanner.

Q. Name any two types of printers and how they differ from each other.

Q. What is finger mouse?

Evaluation

After explaining the chapter, let the students do the course book exercises given on pages 18 and 19 of the main course book as Exercise. After solving the course book exercises, tell the students to solve Crack the Code activity given on page 20 of the main course book. Help the students to solve these questions.

In Creative Assignment, activities like Be Creative and Practical Time given on page 20 of the main course book will enhance the ability of the students and serve as a digital literacy activity.

Suggested Activity

Ask the students to prepare a list of hardware devices in the computer lab and classify them as input/output devices.

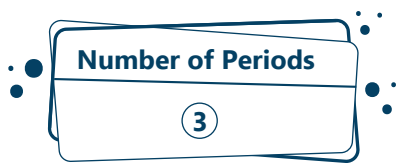
2. Number System

Teaching Objectives

Students will learn about

- ☞ Number system
- ☞ Binary to decimal conversion
- ☞ Decimal to binary conversion
- ☞ Operations on binary numbers

Teaching Plan



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.

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- In hexadecimal number system, the numbers are expressed using fifteen digits, 0 to 9 and A to F, and expanded with base 16.

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 (Refer Suggested Activity 1 also).
- 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 (Refer Suggested Activity 2 also).

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.

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

Extension

Ask the students some oral questions based on this chapter.

Q. What is a numbers 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 course book exercises given on pages 26 and 27 as Exercise. After solving the course book exercises, tell the students to solve Crack the Code activity given on page 27. Help the students to solve these questions.

In Creative Assignment, activities like Be Creative and Practical Time given on page 28 will enhance the ability of the students and serve as a digital literacy, creativity & innovative ness 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.

3. Computer Virus

Teaching Objectives

Students will learn about

- ☞ What is a computer virus?
- ☞ How does a computer get infected with a virus?
- ☞ Types of computer virus
- ☞ How do you know your PC has a virus?

- How to prevent your PC from a virus?
- The most dangerous malwares known
- Firewall
- Malware
- Antivirus

Number of Periods	
Theory	Practical
1	1

Teaching Plan

While teaching this chapter, tell the students that a computer virus can destroy the programs and files saved in a computer.

Introduce computer virus as a program that can infect the system and/or duplicate itself reducing the storage space.

Share examples of some computer viruses with the students.

Tell the students about the harms that may be caused by a computer virus.

Explain to the students the various methods by which a computer system may get infected with virus.

Make the students aware of the symptoms that tell that a computer system is infected by a computer virus.

Explain in detail to the students the various methods by which prevention can be taken from a computer virus.

Introduce the students to the concept of antivirus as a program developed to detect and remove virus from a computer system.

Share the names of some commonly used antivirus programs. (See Suggested Activity also).

Introduce the students to the term Firewall

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

Extension

Ask the students some oral questions based on this chapter.

Q. What is a computer virus?

Q. State any two harms caused by a computer virus.

Q. State any two methods by which a computer may get infected by computer virus.

Q. State any two symptoms that show that a computer system has been infected by a virus.

Q. State any two ways in which the user can prevent from a computer virus.

Q. What is antivirus program?

Q. What is the main purpose of an antivirus program?

Q. What is firewall?

Evaluation

After explaining the chapter, let the students do the course book exercises given on pages 35, 36 and 37 of the main course book as Exercise. After solving the course book exercises, tell the students to solve Crack the Code activity given on page 37 of the main course book. Help the students to solve these questions.

In Creative Assignment, activity like Practical Time given on page 38 of the main course book will enhance the ability of the students and serve as a digital literacy, creativity & innovativeness activity.

Suggested Activity

Ask the students to collect information about any computer virus and narrate it in the class.

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