

Lesson Plan - 1

Computer Science

Computer Languages and Programming Techniques

Topic: Categories of Computer Language

Class:		Period:		Mode:	Classroom/Lab
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Teacher: _____

Learning Support Assistant: _____

S.M.A.R.T. Learning Objectives

By the end of this session, students will be able to:

1. Identify 4 categories of computer languages.
2. List different types of translator programs.

Resources

- video <https://youtu.be/efLjW0vfz-E> (00:01 to 9:55)

Session Conduction

Engage: Ask students if they can give instructions on how to make juice in Spanish or French. Let them have a discussion on their mother tongues. Emphasize the need for languages for expressing human views. Explain if someone doesn't understand a particular language how we can take the help of the interpreter.

Next, ask students what do they think what languages computers understand. Encourage them to answer. After they answer, tell computers will not understand the languages we speak (Hindi/English). The computer will only understand machine language which is a combination of 0's and 1's. Again, ask students if anyone gives instruction to them as 00000011 will they understand this. Tell them that computer scientists in the 1940s used to give instruction in 0's and 1's.

Concept introduction: Humans use computer languages to communicate with computers. Computer language/Programming language is used for expressing a set of

instructions in a program. Tell them how programming languages have evolved. Relate it with the evolution of humans.

To convert high-level languages to the machine we need a translator program. Emphasize on just like we follow grammar when we write something, we need to follow some rules when we write a program. Whether we have followed these rules are checked by the compiler and interpreter.

Concept Demo/Explanation: Write a small code in python and run it to show how the program is written in a human-readable language and to convert it to machine language we have to run it.

Concept Practice: Ask the students to search for some more information on computer languages on the internet.

Optional Activity: Watch the video <https://youtu.be/efLjW0vfz-E> (8:09 min.) and discuss with the teacher.

Home Assignments

Revise the topics at home.

Evaluation

After completing the lesson solve the exercises given in the book.

Lesson Plan - 2
Computer Science
Computer Languages and Programming Techniques

Topic: Components of a Program

Class:		Period:		Mode:	Classroom/Lab
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Teacher: _____

Learning Support Assistant: _____

S.M.A.R.T. Learning Objectives

By the end of this session, students will be able to:

1. Classify at least four types of programming methodologies.
2. Understand the steps required for writing a program.
3. Identify important components of a program.
4. Write pseudocode.

Resources

- video <https://youtu.be/efLjW0vfz-E> (8.10 onwards)

Session Conduction

Engage: Ask students to define the term program. Why is there a need to write a program for the computer?

Ask them if they have to write a program for adding two numbers, how will they proceed along with the following questions.

- What will they need add to add?
- What will be the result?

Just like in a mathematic problem we know what will be the input and what output we should get what formula we will apply; we have to analyze what the output is going to be before writing the program and what data is needed to produce that output.

Concept Introduction: Before writing a program plan for it. Don't waste time writing a computer program that doesn't work or that solves the wrong problem. Give an example of how just as a builder must know what the house should look like before beginning to build it, a programmer must create a program that performs the task required. That's why we need an algorithm.

Stress on when programs are developed for real-life applications like student admissions, examination result processing, etc tends to be huge and complex. The approach to analyzing such complex problems needs programming methodologies.

Tell them what are important components for writing a program.

Next, explain what is pseudocode and how to write them.

Concept Demo/Explanation: Through the examples in the book, demonstrate how to write pseudocode. If possible, write a python code to show the various components like variables, operators, etc., of a program

Concept Practice: Ask the students to write pseudocode for finding the total and average of students' marks in five subjects.

Optional Activity: Watch the video <https://youtu.be/efLjW0vfz-E> (8:10 min.) and discuss with the teacher.

Practical Application: Ask students to complete the lab activities.

Home Assignments

Revise the chapter at home

Guided Assignment

Ask the students to visit <https://www.technokids.com/blog/teaching-strategies/how-to-make-a-flowchart-for-programming-easy-to-understand/> and discuss their findings with the teachers.

Evaluation

Solve the exercises at the end of the lesson.