Unit 05

ALGORITHM AND FLOW CHARTS

PROCESS OF SOLVING PRACTICAL PROBLEMS

- Preparing tea for guests, making a fruit salad, or baking a birthday cake.
- Each of these tasks involves identifying a problem and finding a way to solve it.
- Similarly, in mathematics, solving problems like finding the area of a rectangle also requires step-by-step actions.
- Therefore, problem-solving is an important part of both daily activities and learning.

• PROBLEM SOLVING

The problem-solving process includes three main parts:

1. **Input: The things or materials needed to solve the problem.**
2. **Process: The steps or methods followed to find the solution.**
3. **Output: The final result or outcome obtained after solving the problem.**

Activity 5.1

01. What are the three main components of a 'problem'?

A - .....

B - .....

C - .....

Explain them briefly.

A - .....

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B - .....

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C - .....

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02. Write the input, process and output to find the perimeter of a rectangle.

Input - .....

Process - .....

Output - .....

03. Given below are the steps related to making a cup of tea by a grade 6 student. select the steps related to input, process and output.

Write the relevant English alphabetical letter against input, process and output

A. Take water, tea leaves, sugar and milk powder
B. Boil water
C. Add tea leaves to boil water
D. Mix milk powder and sugar
E. Add plain tea to the above mixture
F. Prepare the cup of tea mixing all

Input - .....

Process - .....

Output - .....

WHAT IS AN ALGORITHM?

- A method that includes all the steps of solving a problem in order is known as an algorithm.

Example 1

Steps to create a fruits salad are as follows.

Step 01		Finding various kinds of fruits
Step 02		Washing all the fruits well
Step 03		Cutting fruits into small pieces
Step 04		Putting the pieces of fruit into a bowl
Step 05		Add sugar and mix
Step 06		Serve the fruit salad in bowls

Writing Algorithm

- Every algorithm should be written in a standard and organized way.
- Each algorithm must have a starting point and an ending point.
- Therefore, it is essential to include an initial step (Start) and a final step (End) when writing an algorithm.
- These steps clearly define where the algorithm begins and where it finishes, making it easier to understand and follow.

Example 1

Algorithm to find the area of a rectangle.

1. Steps 01 Start
2. Steps 02 Get the length of the rectangle
3. Steps 03 Get the width of the rectangle
4. Steps 04 Area = length x width
5. Steps 05 Get the area of the rectangle
6. Steps 06 End

Activity 5.2

01. What is algorithm? Explain it briefly.

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02. Write suitable algorithm to find the perimeter of rectangle which is mentioned in question 2 of activity 5.1.

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03. Write suitable algorithm for preparing tea which is mentioned in question 3 of activity 5.1

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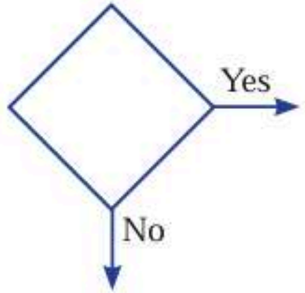
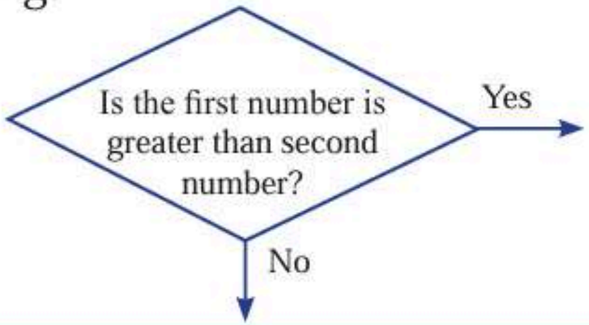
FLOW CHART

- A flow chart is a graphical representation of the algorithmic steps. Here, standard symbols are used to show each action.

Symbol	Usage
	Used to indicate the start and the end. Eg: 
	Used to indicate the input and the output. Eg:  

	Used to show an action/a process Eg: Adding eggs one by one to the mixture of sugar and butter and beating it. Area = length x width
	Used to indicate an instance of decision making. 
	It is used to indicate the direction of data flow.

Activity 5.3

01. What is a flowchart? Explain it briefly.

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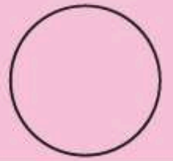
02. Fill the gaps in the table.

	Name	Symbol	Usage
01	Start/ end		Showing Start and End of flowchart
02	Input/output		....
03	....		To show the steps of the procedure
04	....		To show making decision
05	Flow lines		To show the flow of instructions

Example 01

Drawing the flow chart for making a fruit salad using the above symbols is given below. Here the symbols related to start, end input out and process are used

THANK YOU