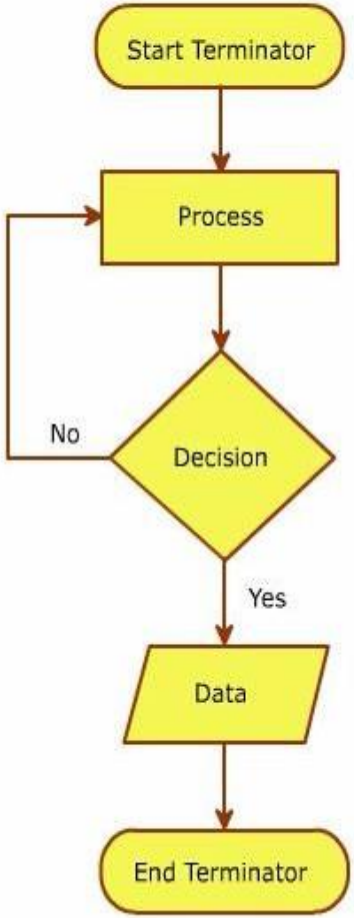
Algorithms and Flowcharts

Topic to be Covered:

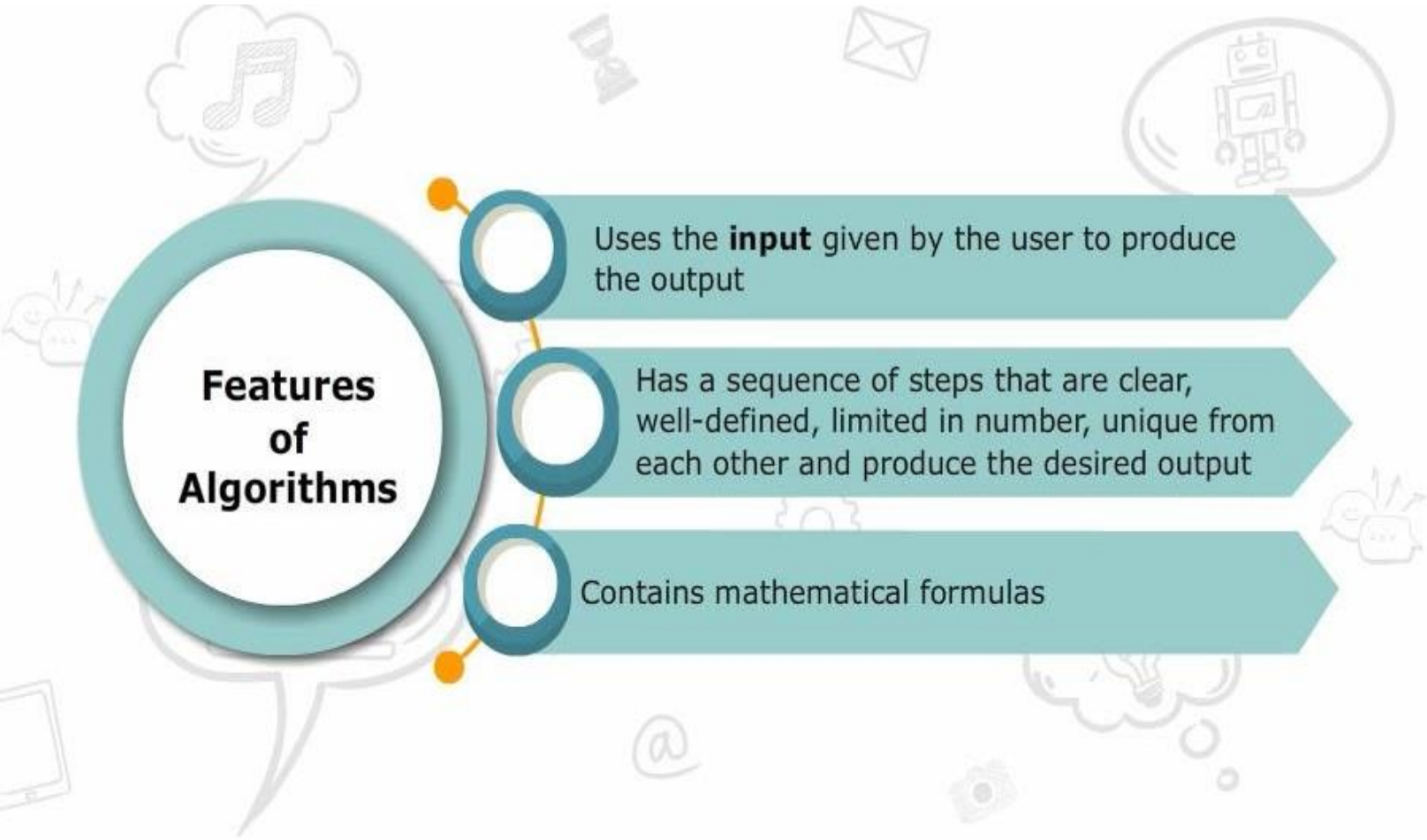
- Features of algorithms and flowcharts

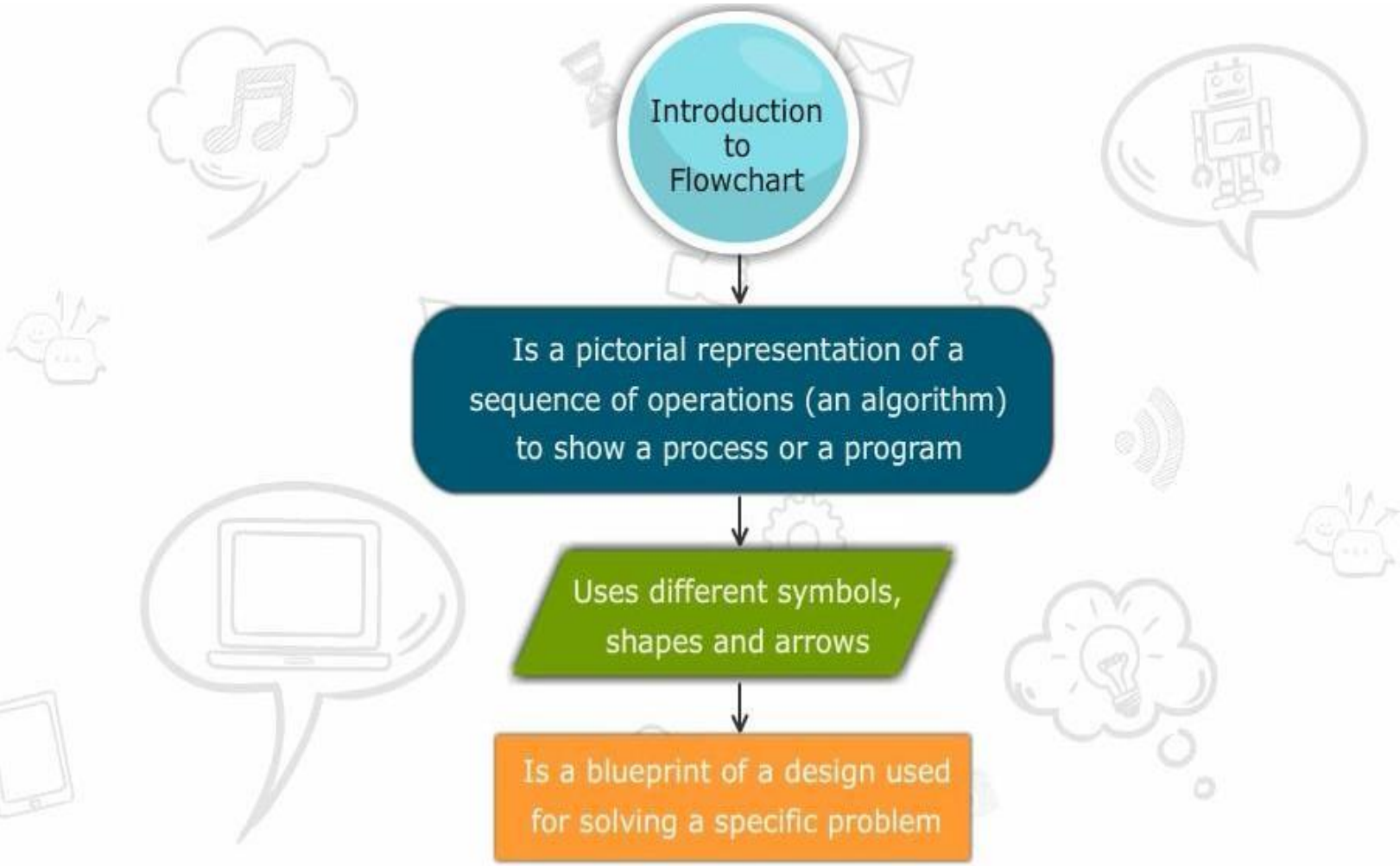


Algorithms

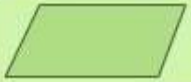
- Is a procedure to solve a problem
- Defines the process to complete a task
- Is used to perform basic operations
- Is used to organize and store data

Note: Computer programs are based on algorithms.


Features of Algorithms
Uses the **input** given by the user to produce the output
Has a sequence of steps that are clear, well-defined, limited in number, unique from each other and produce the desired output
Contains mathematical formulas


Introduction to Flowchart
Is a pictorial representation of a sequence of operations (an algorithm) to show a process or a program
Uses different symbols, shapes and arrows
Is a blueprint of a design used for solving a specific problem

Symbols

Name	Symbol	Function
Terminal Box		The terminal box denotes the start and end of a flowchart. The words such as 'Start', 'Begin', and 'End' are added in the box to represent the beginning or the completion of a task or process.
Data Input/ Output Box		The data input or output box is denoted by a parallelogram. It represents the input data that is received or displays the output data.
Process Box		The process box is represented graphically by using a rectangle. It denotes a set of instructions written for a process and operations carried out for calculations.
Decision/ Condition Box		The decision box is represented by using a diamond. It examines the conditions in an algorithm and indicates the decision-making process.
Flow Lines		The flow lines are usually represented by an arrow. The arrows are used to indicate the direction of flow in an algorithm. The arrows also show the connection between various shapes and/or symbols.

A Flowchart:

- Always starts with a Start Terminal Box and ends with an End Terminal Box symbol
- Uses the on-page connector and off-page connector symbols

Algorithms and Flowcharts-A Comparison

Algorithms	Flowcharts
Allows you to easily understand a program	Provides an analysis for different processes
Gives step-by-step instructions for a process	Describes the steps in a graphical way

Key Learning:

- Algorithm provides step-by-step instructions for a process.
- A flowchart describes the steps in a graphical way.

What is the process to be followed in the completion of a task called?

*Select the correct answer and then click the **Submit** button.*

- Algorithm
- Instruction
- Flowchart
- Computer

What is a pictorial representation of a sequence of operations (an algorithm) to show a process called?

*Select the correct answer and then click the **Submit** button.*

- Diagram
- Figure
- Flowchart
- Data

Flowcharts are often used as a _____ tool to organize the sequence of instructions in a program.

*Select the correct answer and then click the **Submit** button.*

- ◯ Graphical
- ◯ Textual
- ◯ Sketchy
- ◯ Explicit

The data that has to be processed is set as an input for an algorithm.

*Select the correct answer and then click the **Submit** button.*

- ○ True
- ○ False

A flowchart always flows from bottom to top or from right to left.

*Select the correct answer and then click the **Submit** button.*

- ◯ True
- ◯ False