

Strand 3.0: Software Development

Sub Strand 3.2: Program Development Overview

Specific Learning Outcomes

By the end of the sub strand, the learner should be able to:

- a) Describe the stages of the program development cycle (problem definition, program design, coding, testing, implementation, documentation, maintenance)
- b) Write a pseudocode to illustrate the logical flow of an algorithm
- c) Represent the logical flow of an algorithm using a flowchart
- d) Design algorithms to solve a real-life problem
- e) Appreciate the importance of using algorithms in problem solving

Suggested Learning Experiences

The learner is guided to:

- Discuss the stages of the program development cycle (problem definition, program design, coding, testing, implementation, documentation, maintenance)
- Discuss characteristics of an algorithm (input, output, finite, definite, effective)
- Discuss the keywords (start, variables, input, processing, output, end) used in pseudocodes and demonstrate how they are used to represent algorithms
- Use the keywords (start, variables, input, processing, output, end) to write a pseudocode that illustrates the logical flow of an algorithm
- Discuss the standard symbols (start, input, processing, decision, repetition, continuation, output, end) used in flowcharts and demonstrate how they are used to represent an algorithm
- Draw a flowchart to illustrate the logical flow of an algorithm
- Write an algorithm on how traffic lights enhance road safety
- Use pseudocodes and flowcharts to solve a real-life problem
- Discuss the significance of algorithms in problem solving

Suggested Key Inquiry Questions

1. How are programs developed?
 2. Why are algorithms designed?
-

Core Competencies to be Developed

- **Creativity and Imagination:** Learner undertakes tasks while working on a problem to find a solution by constructing an algorithm using a flowchart and pseudocode
 - **Critical Thinking and Problem Solving:** Learner seeks alternative ways of using algorithms in problem solving
-

Values

- **Love:** The learner understands and appreciates others as they discuss the significance of algorithms in problem solving
 - **Integrity:** The learner demonstrates honesty when participating in a group activity involving drawing and discussing symbols in a program flowchart
-

Pertinent and Contemporary Issues (PCIs)

Socio-economic and Environmental Issues: The learner enhances road safety by writing an algorithm on how traffic lights operate