



Chapter 1 Problem Solving and Computational Thinking



What You Will Learn

In this chapter, students will learn how problems are solved using logical steps and computational thinking. They will understand algorithms, sequencing, patterns, and how humans and computers work together to solve problems. This chapter builds the foundation for future coding and AI concepts.



Chapter Topics

- Understanding Problems Clearly
- Step-by-Step Problem Solving
- Introduction to Algorithms
- Sequencing and Order of Steps
- Patterns and Logical Reasoning
- Applying Computational Thinking in Daily Life



Chapter Introduction

Every day we face problems that need solutions. Some problems are simple, while others are complex. To solve problems effectively, we need to think logically and follow proper steps.

Computers also solve problems, but they need very clear and correct instructions.



The way we prepare these instructions is called computational thinking.

In this chapter, you will learn how to solve problems step by step and how computational thinking helps in learning coding and Artificial Intelligence.



Understanding Problems Clearly

Before solving any problem, it is important to understand it clearly.



Understanding a problem means knowing what is given, what is required, and what rules must be followed.



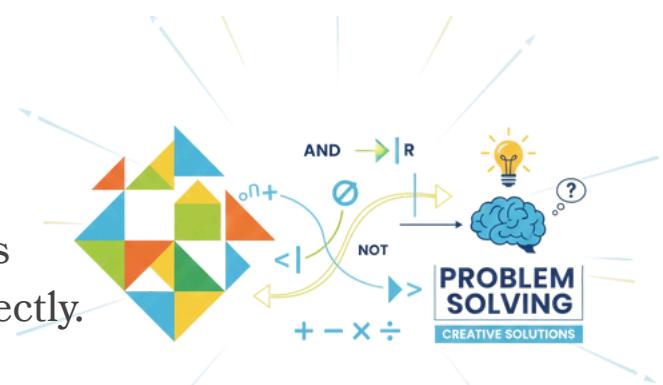
Complex problems become easier when solved step by step.

Each step should be clear and arranged in the correct order to get the correct result.



An algorithm is a set of steps used to solve a problem.

Algorithms help both humans and computers follow a fixed method to complete tasks correctly.

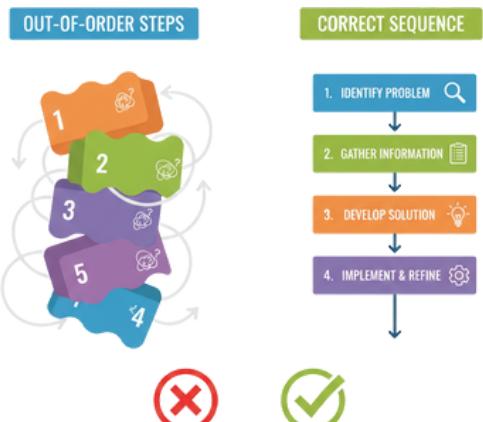




Sequencing and Order of Steps

Sequencing means arranging steps in the correct order.

If steps are not in the right sequence, the solution may be wrong.



Patterns and Logical Reasoning



Patterns help us find similarities and repetitions.

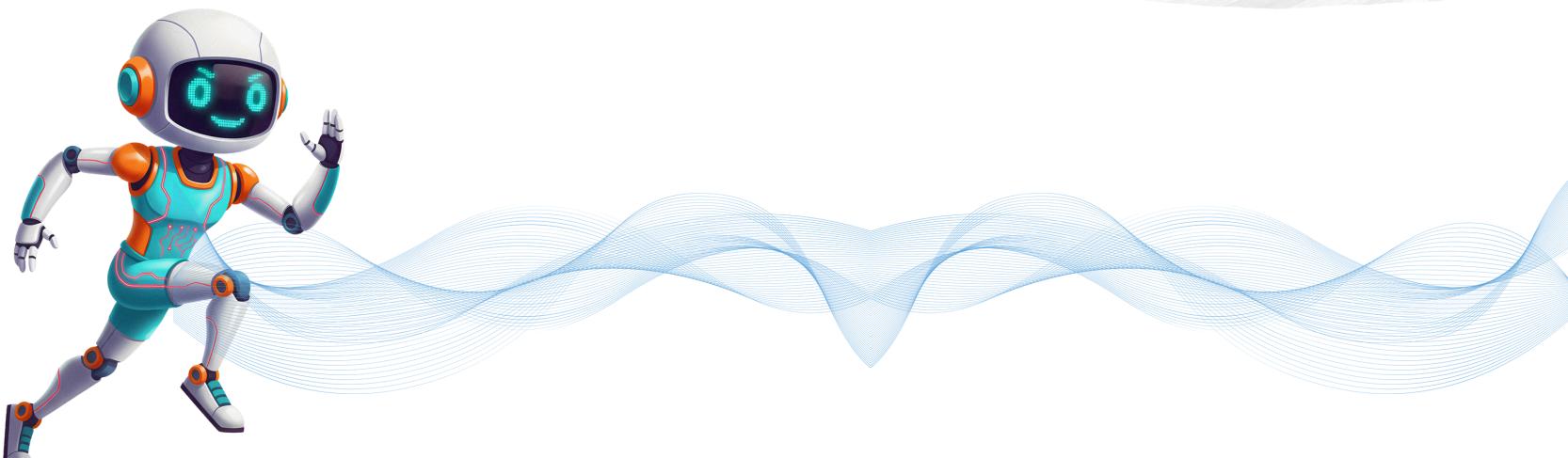
Logical reasoning helps us decide what step should come next based on rules.



Applying Computational Thinking in Daily Life

Computational thinking is not only used in computers. We use it daily while planning, organizing, and solving problems.

Following recipes, planning trips, and solving puzzles are examples of computational thinking.





Exercise



1. Multiple Choice Questions- {Write the correct option in the box}

1. Understanding a problem means
- a) Guessing
 - b) Knowing requirements
 - c) Ignoring rules
 - d) Skipping steps

2. Step-by-step problem solving makes problems
- a) Harder
 - b) Easier
 - c) Bigger
 - d) Confusing

An algorithm is

- a) A machine
- b) A set of steps
- c) A game
- d) A device

4. Sequencing means
- a) Random steps
 - b) Correct order
 - c) Skipping steps
 - d) Guessing

5. Patterns help in
- a) Confusion
 - b) Finding repetition
 - c) Forgetting rules
 - d) Sleeping

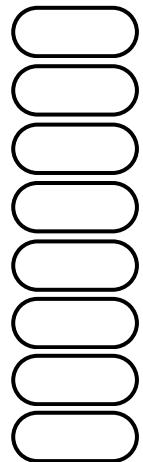
6. Logical reasoning helps us
- a) Decide next step
 - b) Feel emotions
 - c) Guess
 - d) Sleep

7. Algorithms are useful for
- a) Only humans
 - b) Only computers
 - c) Both humans & computers
 - d) Animals

8. Computational thinking is used in
- a) Only school
 - b) Only computers
 - c) Daily life
 - d) Only games

2. Write T for True and F for False-

1. Problems should be understood before solving.
2. Algorithms help solve problems.
3. Sequencing means random order.
4. Patterns show repetition.
5. Logical reasoning is useless.
6. Computers need clear instructions.
7. Computational thinking is used daily.
8. All problems have one step.



3. Fill in the Blanks

1. A set of steps is called an _____.
2. Sequencing means arranging steps in _____ order.
3. Patterns show _____.
4. Logical reasoning helps us make _____.
5. Computers follow _____ instructions.
6. Understanding a problem is the _____ step.
7. Algorithms are useful for _____.
8. Computational thinking helps solve _____.

4. Match the Following

Column 1	Column 2
Algorithm	Steps
Sequence	Order
Pattern	Repetition
Logic	Rules
Problem	Task
Solution	Answer

4. Short Answer Questions

Q 1. What is an algorithm?

Ans. _____.

Q 2. Why is sequencing important?

Ans. _____.

Q 3. What are patterns?

Ans. _____.

Q 4. How is computational thinking used in daily life?

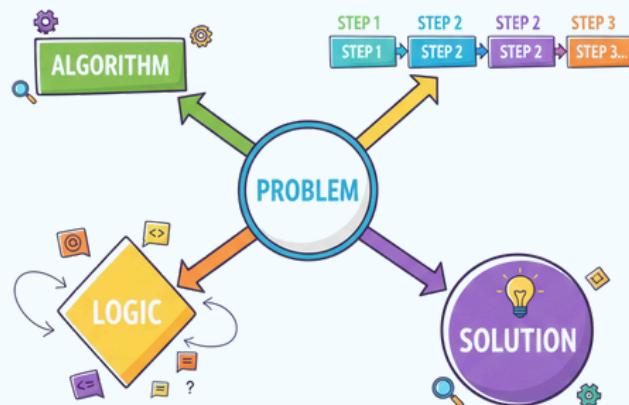
Ans. _____.

Q 5. Why do computers need clear instructions?

Ans. _____.



Problem → Algorithm → Steps → Sequencing → Logic → Solution



My Learning Reflection

- In this chapter, I learned how to solve problems using algorithms and logical thinking. I learned the importance of sequencing and patterns. These skills will help me in coding and AI learning.