Computer Science

ORIGINAL STUDY COMPANION
PADIKAM
CLASS 11 | SCIENCE / ELECTIVE
Computer Science
CBSE / NCERT core lessons | Academic year 2026-27
11 chapter lessons
Quick explanations, core points, exam practice and chapter-specific notation in one consistent format.
Padikam explanations are independently written. Official textbooks are used as the coverage map, chapter sequence and terminology reference.

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Study rhythm
Read the quick explanation, recall the core points aloud, then answer the prompts without looking back. Use the official textbook links for full prescribed readings, activities and diagrams.
Textbook and verification links
1. https://cbseacademic.nic.in/web_material/CurriculumMain27/SecPart2/Computer_Science_SecP2_2026-27.pdf
2. https://ncert.nic.in/textbook.php?kecs1=0-11
3. https://cbseacademic.nic.in/new-resources-srsec.html

CHAPTER 01
Computer System
Quick understanding
Understand hardware, software, CPU, memory, input-output and operating-system roles as one coordinated system.
Core points Check your learning
The CPU follows an instruction cycle using registers Draw a functional computer-system and memory. diagram.
Primary memory is fast and directly accessible; Compare RAM, ROM, cache and secondary storage is persistent. secondary storage.
System and application software solve different levels of need.
One-line recall The CPU follows an instruction cycle using registers and memory.

CHAPTER 02
Encoding Schemes and Number System
Quick understanding
Represent numbers, characters and instructions as binary patterns and convert among common bases.
Core points Check your learning
Abit has two states; groups of bits encode larger values. Convert numbers among binary, octal, decimal and hexadecimal.
Place value changes with base. Explain why Unicode is needed.
ASCII, ISCII and Unicode solve character-encoding needs at different scales.
Equation and notation
1 byte = 8 bits
Positional value = digit × base^position
SYMBOLS AND UNITS
bit: binary digit 0 or 1 base: number of symbols in the numeral system
position: place counted from the radix point
One-line recall Abit has two states; groups of bits encode larger values.

CHAPTER 03
Emerging Trends
Quick understanding
Recognise how AI, IoT, cloud systems, big data, robotics and immersive technologies combine computing with real-world tasks.
Core points Check your learning
AI infers patterns; it does not guarantee truth or fairness.
Match a technology to a real problem. Evaluate benefits, risks and data needs
IoT links sensors, networks and services. of a smart system.
Cloud services trade local ownership for scalable shared resources.
One-line recall AI infers patterns; it does not guarantee truth or fairness.

CHAPTER 04
Introduction to Problem Solving
Quick understanding
Move from a clearly defined problem to an algorithm, representation, implementation, test and refinement.
Core points Check your learning
Decomposition reduces a complex task into manageable parts. Write pseudocode for a daily-life process.
Pseudocode and flowcharts express logic independently of syntax. Design test cases for a number-classification program.
Test cases should include normal, boundary and invalid inputs.
One-line recall Decomposition reduces a complex task into manageable parts.

CHAPTER 05
Getting Started with Python
Quick understanding
Use Python syntax, tokens, variables, data types, operators, expressions, conversion and console

input-output.
Core points Check your learning
Interactive mode explores statements; script mode Predict values and types of expressions.
stores programs.
Write an input-process-output program.
Names reference values whose type controls valid
operations.
Syntax, runtime and logical errors need different
debugging strategies.
Code pattern
name = input("Name: ")
age = int(input("Age: "))
print(name, age)
One-line recall Interactive mode explores statements; script mode stores programs.
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CHAPTER 06
Flow of Control
Quick understanding
Direct program execution through conditions, loops, range, nesting, break and continue.
Core points Check your learning
if/elif/else chooses among alternatives. Trace a nested conditional and loop.
for usually traverses a sequence; while repeats while Write a program for a series, pattern or
a condition remains true. validation task.
Aloop needs correct initialisation, progress and
termination.
Code pattern
for n in range(1, 6):
print(n * n)
while value < 0:
value = int(input("Non-negative: "))
One-line recall if/elif/else chooses among alternatives.
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CHAPTER 07
Functions
Quick understanding
Package a reusable operation with parameters, local variables and a returned result.
Core points Check your learning
Afunction name should describe one responsibility. Write and call a function with two
parameters.
Arguments provide input; return sends a result back.
Trace local and global names in a short
Local scope reduces accidental interference
program.
between parts of a program.
Code pattern
def area(length, width):
return length * width
result = area(8, 5)
One-line recall Afunction name should describe one responsibility.
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CHAPTER 08
Strings

Quick understanding
Treat text as an immutable sequence and use indexing, slicing, traversal and methods.
Core points Check your learning
Indices begin at zero and negative indices count Trace five slicing expressions.
from the end.
Write a palindrome or character-
String methods return new values rather than frequency program.
changing the original string.
Split and join connect strings with lists of text parts.
Code pattern
word = "Padikam"
print(word[1:5])
parts = sentence.split()
One-line recall Indices begin at zero and negative indices count from the end.

CHAPTER 09
Lists
Quick understanding
Store an ordered mutable collection and manipulate it through indices, slices, methods and loops.
Core points Check your learning
Mutation can change a list object in place. Distinguish append, extend and insert.
append adds one item; extend adds items from an Write linear search and summary-
iterable. statistic programs.
Nested lists represent table-like structures.
Code pattern
marks.append(92)
for value in marks:
total += value
One-line recall Mutation can change a list object in place.

CHAPTER 10
Tuples and Dictionaries
Quick understanding
Choose tuples for fixed ordered records and dictionaries for mutable key-value associations.
Core points Check your learning
Tuple elements are ordered but the tuple cannot be Build and query a student dictionary.
changed in place.
Compare list, tuple and dictionary use
Dictionary keys are unique and map to values. cases.
Membership on a dictionary tests keys by default.
Code pattern
student = {"name": "Asha", "mark": 88}
for key, value in student.items():
print(key, value)
One-line recall Tuple elements are ordered but the tuple cannot be changed in place.

CHAPTER 11
Societal Impacts
Quick understanding
Use technology lawfully, safely, inclusively and sustainably.
Core points Check your learning
Digital footprints can persist beyond the original Analyse a plagiarism or phishing case.

context.
Create an inclusive cyber-safety
Copyright, patents, trademarks and open licences checklist.
protect different interests.
Cyber safety, accessible design and e-waste
management are shared responsibilities.
One-line recall Digital footprints can persist beyond the original context.
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