

Syllabus

The syllabus of all grades will include all topics from previous grades. (e.g., Primary 5-6/Grades 5-6 syllabus includes topics from Primary 1-2/Grades 1-2 and Primary 3-4/Grades 3-4.)

Grades 1 - 2: Preparatory Computational Thinking

- Pattern recognition
- Sequencing
- Loops
- Binary representation of numbers
- Representation of text and images

Grades 3 - 4: Computational Thinking 1

- Debugging
- Conditionals
- Variables
- Functions

Grades 5 - 6: Computational Thinking 2

- For Loops
- While Loops
- Nesting code
- Sorting
- Searching



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Grades 7 - 8: Programming 1

- Introduction to input and output, lists, Strings, and iteration
- Creating and accessing variables for storing and manipulating data
- Making simple decisions with conditions like if-then-else statements
- Repeating instructions through loops like the while statements
- Using simple functions
- Principle of Algorithms and Abstraction

Grade 9 - 10: Programming 2

- Data structure
- Modularity
- Analysis
- Divide and conquer: Search
- Divide and conquer: Sorting
- Principle of Decomposition and Patterns

Grade 11 - 12: Introduction to Algorithm Design 2

- Introduction to Binary Representation, Bitwise Operations, Bitmasking
- Linear Data Structures
- Tree Data Structures
- Greedy Algorithms
- Shortest Paths
- Amortized Analysis, Two-pointers Method, Disjoint Set Union-Find

