AP CS A

1 Curriculum Introduction

2 Curriculum Maps

3 Unit 1: Programming & Java (2 weeks)

- Lesson 1.99: (Unit 1 Test)
- Lesson 1.XX: Open Ended Programming Project

4 Unit 2: Working with Data & Basic Control Flow (3 weeks)

- Lesson 2.00: Test Review & Reteach
- Lesson 2.01: Basic Data Concepts
- Lesson 2.02: Declaring & Assigning Variables
- Lesson 2.03: String Concatenation & Increment Decrement Operators
- Lesson 2.04: Mixing Types & Casting
- Lesson 2.05: for Loops
- Lesson 2.06: nested for Loops
- Lesson 2.07: Scope & Pseudocode
- Lesson 2.08: Programming Project
- Lesson 2.08a: Alternative Programming Project - Lyrics
- Lesson 2.09: Programming Project
- Lesson 2.10: Finding & Fixing Errors
- Lesson 2.11: Review
- Lesson 2.99: (Unit 2 Test)

5 Unit 3: Advanced Data & Control Flow (4 weeks)

- Lesson 3.00: Test Review & Reteach
- Lesson 3.01: Parameters
- Lesson 3.02: Limitations of Parameters & Multiple Parameters
- Lesson 3.03: Return Values
- Lesson 3.04: Programming Project
- Lesson 3.05: Using Objects & String Processing
- Lesson 3.06: Interactive Programs & Scanner Objects
- Lesson 3.07: Pokémon Battle Programming Project
- Lesson 3.08: Finding & Fixing Errors
- Lesson 3.09: Relational Operators & if/else
- Lesson 3.10: Nested if/else Statements
- Lesson 3.11: Reducing Redundancy
- Lesson 3.12: Cumulative Algorithms
- Lesson 3.13: while Loops
- Lesson 3.14: Random Numbers

- Lesson 3.15: Fencepost & Sentinel Loops
- Lesson 3.16: Boolean Logic (2 Days)
- Lesson 3.17: Finding & Fixing Errors
- Lesson 3.18: Consumer Lab
- Lesson 3.19: Review
- Lesson 3.99: (Unit 3 test)
    - Test 2 Guide
- Lesson 3.XX: Frac Calc
- Lesson 3.XX1: Programming Project(FracCalc Alternative)

6 Unit 4: Arrays, Lists, & Files (4 weeks)

- Lesson 4.00: Test Review & Reteach
- Lesson 4.01: Array Basics
- Lesson 4.02: For-Each Loop & Arrays Class
- Lesson 4.03: Printing, Searching, & Testing for Equality (2 Days)
- Lesson 4.04: Reference Semantics
- Lesson 4.05: Shifting Values & Arrays of Objects
- Lesson 4.06: Nested Loop Algorithms & Rectangular Arrays
- Lesson 4.07: ArrayList
- Lesson 4.08: Finding & Fixing Errors
- Lesson 4.09: Magpie Lab (5 Days)
- Lesson 4.09a: Steganography Lab
- Lesson 4.10: Review
- Lesson 4.99: (Unit 4 test)
- Lesson 4.XX: Programming Project(Magpie Alternative)

7 Unit 5: Object-Oriented Programming (4 weeks)

- Lesson 5.00: Test Review & Reteach
- Lesson 5.01: Object Oriented Programming
- Lesson 5.02: Object State & Behavior
- Lesson 5.03: Object Initialization: Constructors
- Lesson 5.04: Encapsulation
- Lesson 5.05: Finding & Fixing Errors
- Lesson 5.06: Picture Lab (9 Days)
- Lesson 5.06a: Data Lab

- Lesson 5.07: Review
- Lesson 5.99: (Unit 5 test)
- Lesson 5.XX: Programming Project(Picture Lab Alternative)

8 Unit 6: Inheritance & Polymorphism (4 weeks)

- Lesson 6.00: Test Review & Reteach
- Lesson 6.01: Inheritance Basics (2 Days)
- Lesson 6.02: Overriding Methods & Accessing Inherited Code
- Lesson 6.03: Interacting with the Object Superclass
- Lesson 6.04: Polymorphism
- Lesson 6.05: Has-a Relationships
- Lesson 6.06: Interfaces
- Lesson 6.07: Programming Project (5 Days)
- Lesson 6.07a: Celebrity Lab
- Lesson 6.08: Finding & Fixing Errors
- Lesson 6.09: Review
- Lesson 6.99: (Unit 6 test)
    - Test 5 Guide
- Lesson 6.XX: Text Excel

9 Unit 7: Searching & Sorting (3 weeks)

- Lesson 7.00: Test Review & Reteach
- Lesson 7.01: Searching Algorithms
- Lesson 7.02: Sorting Algorithms
- Lesson 7.03: Elevens Lab (16 Days)
- Lesson 7.04: Review
- Lesson 7.99: (Unit 7 test)
    - Test 6 Guide

10 Unit 8: Recursion (2 weeks)

- Lesson 8.00: Test Review & Reteach
- Lesson 8.01: Thinking Recursively
- Lesson 8.02: Writing Recursive Solutions

- Lesson 8.03: Mechanics of Recursion
- Lesson 8.04: MergeSort
- Lesson 8.05: Finding & Fixing Errors
- Lesson 8.06: Review
- Lesson 8.07: (Unit 8 quiz)
- Lesson 8.08: Quiz Review & Reteach

11 Unit 9: AP Test Review (3 weeks)

- Lesson 9.00: Reviewing for the AP Exam
- Lesson 9.01: Mock AP Exam

12 Unit 10: Post-AP Exam Projects (4–5 weeks)

- Character Clash
- SpaceBattleArena
- TEALS Minecraft Modding

13 Culture Days (4 days)

- Culture Day Lesson A: Video/Reading
- Culture Day Lesson B: Student Research Project/Presentation
- Culture Day Lesson C: My Skills and Interests Journal
- Culture Day Lesson D: Interview with People in Technology

14 Appendix

- About This Curriculum
- Changelog
- Contributing
- Acknowledgements