

Elizabethtown Area School District: Scope & Sequence



Department: Computer Science (Mathematics)

Course: 278 AP Computer Science A

Grade Level(s): Grades 10-12

<i>Unit Title</i>	<i>General Topics/Course Modules</i>	<i>Pacing</i>
1. Primitive Types	Why Java?, Variables and Data Types, Expressions and Assignment Statements, Compound Assignment Operators, Casting and Ranges of Variables	MP 1: 5 Blocks
2. Using Objects	Objects - Instances of Classes, Creating and Initializing Objects: Constructors, Calling Methods without Parameters, Calling Methods with Parameters, Calling Methods that Return Values, Strings, String Methods, Wrapper Classes - Integer and Double, Using the Math Class	MP1: 8 Blocks
3. If Statements	Boolean Expressions, if Statements and Control Flow, Two-way Selection: if-else Statements, Multi-Selection: else-if Statements, Compound Boolean Practice, Equivalent Boolean Expressions, Comparing Objects, Introducing Free Response Questions	MP1/MP2: 9 Blocks
4. Iteration/Loops	While Loops, For Loops, Loops and Strings, Nested For Loops, Loop Analysis	MP2: 7 Blocks
5. Writing Classes	Anatomy of a Java Class, Writing Constructors, Comments and Conditions, Accessor Methods, Mutator Methods, Writing Methods, Static Variables and Methods, Scope and Access, this Keyword	MP2: 11 Blocks
6. Arrays	Array Creation and Access, Traversing Arrays with For Loops, Enhanced For-Loop (For-Each) for Arrays, Array Algorithms	MP3: 7 Blocks
7. ArrayLists	Intro to ArrayLists, ArrayList Methods, Traversing ArrayLists with Loops, ArrayList Algorithms, Searching ArrayLists, Sorting ArrayLists	MP3: 9 Blocks
8. 2D Arrays	Two-dimensional Arrays, Traversing 2D Arrays (nested loops)	MP3/MP4: 6 Blocks
9. Inheritance	Inheritance, Superclass, Subclass, Inheritance and Constructors, Overriding Methods, super Keyword, Inheritance Hierarchies, Polymorphism, Object Superclass, Recursion, Recursive Searching and Sorting	MP4: 9 Blocks
10. Recursion		
11. Pre-Exam Review	Comprehensive review activities and exam preparation. This is dependent on the AP Exam assigned date.	MP4: 4-7 Blocks
12. Post-Exam	Coding Contest, Portfolio Development, Celebration, Social Impacts and Ethics of Computer Science, Final Exam Review, Final Exam	MP4: 7-10 Blocks