Computer and Information Technology
AP Computer Science A

ORGANIZING THEME/TOPIC	FOCUS STANDARDS & SKILLS
Objects and Classes Time Frame: 4 Weeks	KS 10157.1.1 Object-oriented program design ● Define classes for objects. ● Instantiate objects using constructors. ● Access objects via reference variables (dot operator). ● Use visibility modifiers to control access (e.g. Public, Private). ● Use instance variables as a way of storing each object's data. ● Practice data field encapsulation to preserve the integrity of the Class and its members. ● Use Static variables, constant and methods. ● Use String manipulation to solve problems.
Inheritance and Polymorphism Time Frame: 5 Weeks	KS 10157.1.3 Object-oriented program design and analysis ● Utilize inheritance to define and control subclass/superclass methods and data access. ● Use the keyword "super" to invoke the superclass's constructors and methods. ● Apply polymorphism to extend functionality and flexibility through overriding and overloading methods.
Abstract Classes and Interfaces Time Frame: 5 Weeks	KS 10159.1.8 Higher level program ● Design and use abstract classes. ● Specify common behavior for objects using interfaces. ● Define interfaces and classes that implement interfaces (e.g. Comparable, List). ● Explore the similarities and differences among concrete classes, abstract classes and interfaces.
Recursion Time Frame: 4 Weeks	KS 10159.1.12 Algorithms, data structures, recursions, file organization ● Solve problems using recursion. ● Implement searching and sorting with recursion.