



Computer and Information Technology

AP Computer Science A



ORGANIZING THEME/TOPIC	FOCUS STANDARDS & SKILLS
<p>Objects and Classes</p> <p>Time Frame: 4 Weeks</p>	<p>KS 10157.1.1 Object-oriented program design</p> <ul style="list-style-type: none"> • 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.
<p>Inheritance and Polymorphism</p> <p>Time Frame: 5 Weeks</p>	<p>KS 10157.1.3 Object-oriented program design and analysis</p> <ul style="list-style-type: none"> • 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.
<p>Abstract Classes and Interfaces</p> <p>Time Frame: 5 Weeks</p>	<p>KS 10159.1.8 Higher level program</p> <ul style="list-style-type: none"> • 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.
<p>Recursion</p> <p>Time Frame: 4 Weeks</p>	<p>KS 10159.1.12 Algorithms, data structures, recursions, file organization</p> <ul style="list-style-type: none"> • Solve problems using recursion. • Implement searching and sorting with recursion.

Aligned with [AP Computer Science A](#) Curriculum from College Board