AP Computer Science Unit 4: Methods and Classes

Unit #:	APSDO-00019736	Duration:	4.0 Week(s)	Date(s):	

Team:
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Grades:
11, 12
Subjects:
Mathematics, Science

Unit Focus

In this unit, students will learn how to create classes by defining objects. Proper method and class structure is emphasized. Students are also introduced to interfaces (Comparable). Students will learn about the "has a" relationship inherent in object structures. Summative assessments may include projects, labs and tests. Primary instructional materials include: Java Software Solutions for AP Computer Science, Lewis Loftus and Cocking, APCentral Computer Science Course Webpage.

Stage 1: Desired Results - Key Understandings

Established Goals

Common Core
Mathematics: 11

- Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then f(x) denotes the output of f corresponding to the input x. The graph of f is the graph of the equation y = f(x). *CCSS.MATH.CONTENT.HSF.IF.A.1*
- Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in

Transfer

T1 (T24) Classify, interpret, and compare functions or equations.
T2 (T10) Describe, classify, and compare objects/numbers and sets of objects/numbers.
T3 (T23) Use functions or equations to model relationships among quantities.

Meaning

Understandings

U1 (U100) Objects and sets of objects can be given numerical descriptions.
U2 (U400) Objects in the world can be described by their shape.
U3 (U200) Numbers, objects, or elements may repeat in predictable ways (patterns).
U4 (U200) Numbers, objects, or elements may repeat in predictable ways (patterns).

Essential Questions

Q1 (Q502) What is important here? What is not important?
Q2 (Q531) What values, numbers, quantities, and/or symbols can be used to solve a problem?
Q3 (Q400) What kinds of attributes/characteristics would I use to describe this object? What category do they

tables, or by verbal descriptions). For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.
CCSS.MATH.CONTENT.HSF.IF.C.9

- Look for and make use of structure.
CCSS.MATH.MP.7

belong to?

Acquisition of Knowledge and Skill

Knowledge	Skills
	S1 The creation of classes with appropriate instance variables and methods **S2** The distinction between public and private scope identifiers **S3** The use of libraries of methods **S4** The use of objects in runner classes **S5** The use of primitive data types and objects as parameters in methods **S6** The creation of interfaces and the implementation of interfaces in class definitions

Stage 3: Learning Plan

Coding	Code	Description of Learning Activity