AP Computer Science Unit 1: Introduction to Computer Systems

Unit #:	APSDO-00019732	Duration:	3.0 Week(s)	Date(s):	

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

Unit Focus

In this unit, students will focus on how a computer hardware interacts with computer software. Students will translate from Binary to Hexadecimal to Decimal bases. Students will understand the basics of a Central Processing Unit. Summative assessments may include projects, labs and test. 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*
- Rearrange formulas to highlight a

Transfer

T1 (T13) Move from one representation to another without changing the quantity.
T2 (T12) Compose and decompose numbers to establish relationships and perform operations.
T3 (T40) Describe, classify, and compare objects by their attributes.

Meaning

Understandings

U1 (U100) Objects and sets of objects can be given numerical descriptions.
U2 (U103) The same value can be represented in multiple ways.
U3 (U208) Mathematical symbols (e.g.

Essential Questions

Q1 (Q540) What tool(s) is appropriate for use with this model?
Q2 (Q531) What values, numbers, quantities, and/or symbols can be used to solve a problem?

quantity of interest, using the same reasoning as in solving equations. *CCSS.MATH.CONTENT.HSA.CED.A.4* • Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in 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*	period, line) represent quantities and operations in agreed upon ways (e.g. decimal place holders, line to separate numerator from denominator).	**Q3** (Q550) Did I use clear language (symbols, labels, terms, units of measure and significant digits) to explain my reasoning to others?
	Acquisition of Knowledge and Skill	
	Knowledge	**Skills**
		S1 Defining the basic hardware of a computer system **S2** Defining the levels of programming languages and how they relate **S3** Converting between binary, hexadecimal, decimal and unicode systems **S4** Describing the connection between computer hardware and software

Stage 3: Learning Plan

Coding	Code	Description of Learning Activity
	LA1	**Learning Activity**