North Carolina CTE

Introduction to Computer Science (CS10) (2024)

Understand the components of computers and computer programming.	1.01	Describe the function of common physical components of computing systems (hardware) with appropriate terminology.
	1.02	Utilize the design thinking process to develop an understanding of a problem or user need in order to design an optimal solution.
	1.03	Recall the variety of inputs that a computer takes in and the outputs a computer sends to the user.
	1.04	Understand the importance of documenting, commenting, and debugging code to make the program easier to read.
Understand ethics in computer science.	2.01	Evaluate the social and economic implications of privacy in the context of safety, law, and ethics.
	2.02	Utilize public domain or creative commons media to avoid copying or using material created by others without permission.
Understand algorithms.	3.01	Define an algorithm as a sequence of instructions that can be processed by a computer.
	3.02	Implement flowcharts and pseudocode to address complex problems as algorithms.
Understand what variables are and how to use them in a program.	4.01	Declare, initialize, and assign values to constants and variables using meaningful names.
	4.02	Apply basic mathematical operators for variable values.
	4.03	Create programs that use variables to store and modify data.
Understand what conditional statements are and how to implement them in a program.	5.01	Utilize â€˜Ifâ€¦thenâ€™ and â€˜Ifâ€¦thenâ€¦elseâ€™ statements to yield specified outcomes.
	5.02	Create a program that correctly and effectively implements conditionals.

Understand the iteration in programming.	**6.01**	**Analyze when to implement loops as a form of iteration.**
	6.02	**Create a program that uses iteration and looping, including nested loops.**
	6.03	**Construct programs that include events.**
Understand coordinate grid system.	**7.01**	**Evaluate how a sprite or game character moves across the output screen using a coordinate system.**
	7.02	**Create a program that uses coordinates.**
Understand what Booleans and Boolean operators are and why and when to use them.	**8.01**	**Apply Boolean expressions inside conditional (If/then and loops).**
	8.02	**Create a program that uses Booleans and Boolean operators.**
Understand what bits and bytes are and how they relate to computers.	**9.01**	**Analyze the base-2 (binary) number system.**
	9.02	**Convert numbers from base-10 (decimal) to binary and decimal.**
Utilize lists to simplify solutions, generalizing computational problems instead of repeatedly using simple variables.	**10.01**	**Understand common list operations.**
	10.02	**Practice creating, storing and retrieving list values.**
Understand functions.	**11.01**	**Recognize functions in programs as a form of abstraction.**
	11.02	**Explain why and how functions can make code easier to read and maintain.**
	11.03	**Define and call simple functions.**