

Computing Concepts 1 Unit 2: Intermediate Problem Solving

Stage 1 Desired Results		
ESTABLISHED GOALS: <u>Competencies:</u> - Students will demonstrate the ability to create a coding solution in order to solve a problem. - Students will demonstrate the ability to deconstruct a problem to utilize data structures and recognize patterns in order to develop a solution. - Students will demonstrate the ability to compare and discuss the effects of computing on society in order to improve current technology practices. - Students will demonstrate the ability to understand the impact of hierarchy and abstraction in order to design solutions. - Students will demonstrate the ability to analyze and summarize text and integrate knowledge to make meaning of discipline-specific materials. - Students will demonstrate the ability to produce coherent and supported writing in order to communicate effectively for a range of discipline-specific tasks, purposes, and audiences. - Students will demonstrate the ability to speak purposefully and effectively by strategically making decisions about content, language use, and discourse style. <u>Content Standards:</u> CSTA - Computer Science Teacher Association <u>CSTA 3B-A-7-4:</u> Explain security issues that might lead to compromised computer programs (e.g., circular references, ambiguous program calls, lack of error checking and field size checking.) <u>CSTA 3A-I-6-29:</u> Redesign user interfaces (e.g., webpages, mobile applications, animations) to be more inclusive, accessible, and minimizing the impact of the designer's inherent bias. <u>CSTA 3A-A-3-10:</u> Design algorithms using sequence, selection, and iteration. <u>CSTA 3A-A-4-7:</u> Understand the notion of hierarchy and abstraction in high-level languages, translation, instruction sets, and logic circuits.	Transfer	
	Students will be able to independently use their learning to improve efficiency through creating complex structures and use of patterns.	
	Meaning	
	ENDURING UNDERSTANDINGS Students will understand that... - different data has different purposes. - varying types of information (data) must be treated differently.	ESSENTIAL QUESTIONS Is our personal, digital information ever really private?
	Acquisition	
	Students will know... - that problem solving requires defining, designing, implementing, and testing a solution. - that designing applications requires noticing repeating data and behavior patterns. - that writing applications is based on repeated modifications and updates. - that developing applications is impacted by current societal behavior. <u>vocabulary:</u> algorithm, AND, array, class, decision, iteration, logic, loop, NOT, object-oriented, OR, repetition, selection, sequence, syntax	Students will be skilled at... - creating programs that verify data and program flow. - creating or modifying applications to make them more accessible and appealing to a broad range of users. - incorporating sequence, decisions, and repetition in code. - creating hierarchical programs that are based on abstraction.
Content Area Literacy Standards		21st Century Skills
RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text RST.11-12.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to <i>grades 11-12 texts and topics</i>. WHST.9-10.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.		<i>Solve Problems</i> <i>Communicate Clearly</i> <i>Manage Goals and Time</i>

WHST.11-12.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.

Stage 2 - Evidence

<i>Evaluative Criteria</i>	<i>Assessment Evidence</i>
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Stage 3 – Learning Plan

Summary of Key Learning Events and Instruction

<i>Language Arts Integration</i>	<i>Mathematics Integration</i>
1.OA.1 Use	1.OA.1 Use
<i>Technology Integration</i>	<i>District Materials</i>
1.OA.1 Use	