

Game Programming 2 Unit 2: Constructing Games

ESTABLISHED GOALS:		
<u>Competencies:</u> - Students will demonstrate the ability to analyze machine code to utilize its correct interpretation in order to solve a problem. - Students will demonstrate the ability to create a coding solution in order to solve a problem. - Students will demonstrate the ability to create test cases and use debugging techniques in order to correct solutions. - 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 analyze and summarize text as well as 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-D-4-25:</u> Discuss how data sequences (e.g. binary, hexadecimal, octal) can be interpreted in a variety of forms (e.g. instructions, numbers, text, sound, image.) <u>CSTA 3B-A-6-21:</u> Evaluate key qualities of a program (e.g. correctness, usability, readability, efficiency, portability, scalability) through a process such as a code review. <u>CSTA 3B-A-7-3:</u> Modify an existing program to add additional functionality and discuss intended and unintended implications (e.g. breaking other functionality.) <u>CSTA 3B-A-5-7:</u> Decompose a problem by creating new data types, functions, or classes. <u>CSTA 3B-A-5-8:</u> Demonstrate code reuse by creating programming solutions using libraries and APIs (e.g. graphics libraries, maps API.) <u>CSTA 3B-A-3-20:</u> Develop and use a series of test cases to verify that a program performs according to its design specifications. <u>CSTA 3B-I-1-33:</u> Debate laws and regulations that impact the development and use of software.	Transfer	
	Students will be able to independently use their learning to construct interactive games.	
	Meaning	
	ENDURING UNDERSTANDINGS Students will understand that... - creating computer games is complex, time-consuming, and expensive. - creating computer programs requires knowing another language.	ESSENTIAL QUESTIONS Why can you play games for hours on end without realizing that you haven't eaten anything?
	Acquisition	
	Students will know.... - that content code can be integrated into a game framework. - that games incorporate plot, graphics, physics, and code. - that troubleshooting is needed to find and solve problems. - that testing produces more reliable and robust code. - that evaluating gameplay produces better games. <u>vocabulary:</u> animation, artificial intelligence, audio, collision detection, game engine, game loop, graphics, initialization, memory management, platform, rendering, scripting, sound, sprite, streaming, sync rate, transparency, random number	Students will be skilled at... - understanding what functionality a game engine provides for a game developer. - incorporating content code into the game framework. - designing simple games. - analyzing data. - evaluating key qualities of a program through a specific process. - making changes to existing programs to improve functionality. - breaking down problems by creating new data types, functions, or classes. - creating a program solution that shows code reuse. - developing test cases to verify program performance. - debating existing software laws and regulations.

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. WHST.11-12.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.	● <i>Make Judgements and Decisions</i> ● <i>Manage Goals and Time</i> ● <i>Be Self-directed Learners</i> ● <i>Solve Problems</i>

Evaluative Criteria	Assessment Evidence
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Summary of Key Learning Events and Instruction			
Language Arts Integration	Mathematics Integration		
● 1.OA.1 Use	● 1.OA.1 Use		
Technology Integration	District Materials		
● 1.OA.1 Use			

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