

# Game Programming 2 Unit 1: The Language of Games

## ESTABLISHED GOALS:

### Competencies:

- *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 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.*

### Content Standards:

CSTA - Computer Science Teacher Association

CSTA 3B-D-4-25: Discuss how data sequences (e.g. binary, hexadecimal, octal) can be interpreted in a variety of forms (e.g. instructions, numbers, text, sound, image.)

CSTA 3B-A-6-21: Evaluate key qualities of a program (e.g. correctness, usability, readability, efficiency, portability, scalability) through a process such as a code review.

CSTA 3B-A-7-3: Modify an existing program to add additional functionality and discuss intended and unintended implications (e.g. breaking other functionality.)

CSTA 3B-A-5-7: Decompose a problem by creating new data types, functions, or classes.

## Transfer

*Students will be able to independently use their learning to solve a problem based on the given circumstances and information.*

## Meaning

### ENDURING UNDERSTANDINGS

*Students will understand that...*

- creating computer programs requires knowing another language.
- computers use data to process information and produce results.

### ESSENTIAL QUESTIONS

- When do choices you make result in unintended consequences?

## Acquisition

*Students will know....*

- that an IDE is used create a program.
- that computers process information and produce results.
- that different types of information are stored differently by the computer
- that specific language syntax is used when successfully solving problems.
- that programming consists of a robust language syntax that includes many operators used to process and display data.
- that decision structures allow for alternative actions based on data values.
- that looping structures allow lines of code to be repeated.
- that creating computer programs requires using computer vocabulary and following specific language rules.

vocabulary: accessor, data types, data structures, decision structures, floating point number, functions, input, instantiation, integer, logical operators, loop

*Students will be skilled at...*

- creating a running program.
- creating, selecting, and using appropriate memory locations for primitive data types (variables and constants).
- using simple math operators in programs.
- applying advanced operators to produce solutions to word problems.
- selecting the most appropriated decision structure to solve a problem.
- evaluating and using the most suitable repetition structure to solve a problem.
- declaring and using memory addresses to access data objects.
- using existing classes to create object.
- accepting input and producing output in programs.
- 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

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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | structures, math functions, mutator, output, parameter, processing, scope | types, functions, or classes.                                                                                                                                                                                 |
| <b>Content Area Literacy Standards</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                           | <b>21<sup>st</sup> Century Skills</b>                                                                                                                                                                         |
| 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<br>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> .<br>WHST.9-10.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.<br>WHST.11-12.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. |                                                                           | <ul style="list-style-type: none"> <li>● <i>Make Judgements and Decisions</i></li> <li>● <i>Manage Goals and Time</i></li> <li>● <i>Be Self-directed Learners</i></li> <li>● <i>Solve Problems</i></li> </ul> |

| <b>Evaluative Criteria</b> | <b>Assessment Evidence</b> |
|----------------------------|----------------------------|
|                            | PERFORMANCE TASK(S):       |
|                            | OTHER EVIDENCE:            |

| <i>Summary of Key Learning Events and Instruction</i>          |                                                                |
|----------------------------------------------------------------|----------------------------------------------------------------|
| <b>Language Arts Integration</b>                               | <b>Mathematics Integration</b>                                 |
| <ul style="list-style-type: none"> <li>• 1.OA.1 Use</li> </ul> | <ul style="list-style-type: none"> <li>• 1.OA.1 Use</li> </ul> |
| <b>Technology Integration</b>                                  | <b>District Materials</b>                                      |
| <ul style="list-style-type: none"> <li>• 1.OA.1 Use</li> </ul> |                                                                |

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