# Computing Concepts 1 Unit 1: Introductory Problem Solving

## Stage 1 Desired Results

ESTABLISHED GOALS:

*Competencies:*

- ***Students will demonstrate the ability to explain the process used to translate high level languages to low level languages in order to create executable images.***
- ***Students will demonstrate the ability to create a coding solution in order to solve a problem.***
- ***Students will demonstrate the ability to design or improve software in order to respond to events.***
- ***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.***

*Content Standards:*

CSTA - Computer Science Teacher Association

CSTA 3A-C-4-16: Describe the steps necessary for a computer to execute high-level source code (e.g. compilation to machine language, interpretation, fetch-decode-execute cycle.)
CSTA 3A-A-5-6: Integrate grade-level appropriate mathematical techniques, concepts, and processes in the creation of computing artifacts.
CSTA 3A-C-5-14: Create, extend, or modify existing programs to add new features and behaviors using different forms of inputs and outputs (e.g. inputs such as sensors, mouse clicks, data sets; outputs such as text, graphics, sounds.)

### *Transfer*

*Students will be able to independently use their learning to **select the most appropriate tool to solve a variety of problems.***

### *Meaning*

ENDURING UNDERSTANDINGS
*Students will understand that…*

- computer software is designed and created to solve a problem.

ESSENTIAL QUESTIONS

- What draws you to an app?
- What makes you continue to use an app?

### *Acquisition*

*Students will know…*

- that design involves decisions based on information (data) that is used in creating a solution.
- that developing solutions requires special software to create, run, and test programs.
- that computer languages use exacting language syntax to successfully solve problems.

*vocabulary:* boolean, display, edit, image, input, integer, floating point number, machine code, run a program, software life cycle, string, test, text, user interface design

*Students will be skilled at…*

- describing the process of translating source code to machine code
- creating a running program
- constructing a simple object oriented program
- describing how computers execute source code.
- Using simple math operations and techniques in the creation of programs.
- making changes to existing programs to improve functionality.

### *Content Area Literacy Standards*

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 *grades 11-12 texts and topics*.
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

### *21st Century Skills*

- *Solve Problems*
- *Communicate Clearly*
- *Manage Goals and Time*

| | |
|---|---|
| processes. | |

| Stage 2 - Evidence | |
|---|---|
| ***Evaluative Criteria*** | ***Assessment Evidence*** |
| | PERFORMANCE TASK(S): |
| | OTHER EVIDENCE: |

## Stage 3 – Learning Plan

*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 | |