Unit #5: Lists, Loops, and Traversals

Content Area: **Template**
Course(s):
Time Period:
Length:
Status: **Published**

State Mandated Topics Addressed in this Unit

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N/A	N/A

Unit #5: Lists, Loops, and Traversals

Learning Objectives

- Artists are exposed to different ways of interacting with a list like accessing, removing, appending, and inserting elements.

- Artists will be able to write code for an app from scratch using lists, loops, and traversals.

Essential Skills

- Begin programming an app which uses a database

- Complete a Written Response modeled after the Create PT

- Complete the Hackathon Project app

- Debug programs that use list traversals

- Debug programs that use loops

- Determine a dataset for project usage

- Effectively plan a project using a paper prototype

- Explain the purpose of programming patterns with lists both in terms of how they work and what they accomplish

- Explain the purpose of programming patterns with traversals both in terms of how they work and what they accomplish

- Identify common programming patterns using lists

- Identify common programming patterns using traversals

- Identify the exit point of a loop.

- Implement programming patterns with lists to develop a functioning app

- Implement programming patterns with loops to develop a functioning app

- Implement programming patterns with traversals to develop a functioning app

- Modify apps that make use of common programming patterns with lists to adjust their functionality

- Modify apps that make use of common programming patterns with traversals to adjust their functionality

- Read programs that use for loops

- Recognize the need for programming patterns with lists as part of developing a functioning app

- Recognize the need for programming patterns with loops as part of developing a functioning app

- Recognize the need for programming patterns with traversals as part of developing a functioning app

- Trace a simple program with a loop

- Trace simple programs with loop traversals

- Translate a paper prototype to screens

- Understand how to use a loop to traverse a list

- Understand the parts of a for loop

- Update the Boolean expression in a for loop to change how many times the loop runs

- Use a for-loop to update multiple screen elements at once

- Use an index to reference specific elements in a list

- Use appropriate vocabulary to describe lists.

- Use appropriate vocabulary to describe loops.

- Use appropriate vocabulary to describe traversals

- Use debugging skills as part of developing an app

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- Write comments to clearly explain both the purpose and function of different segments of code within an app

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- Write programs that use for loops with the support of sample code.

- Write programs that use list traversals, including the filter and reduce patterns, with the support of sample code

Standards

CS.9-12.8.1.12.AP.3	Select and combine control structures for a specific application based upon performance and readability, and identify trade-offs to justify the choice.
CS.9-12.8.1.12.AP.4	Design and iteratively develop computational artifacts for practical intent, personal expression, or to address a societal issue.
CS.9-12.8.1.12.AP.5	Decompose problems into smaller components through systematic analysis, using constructs such as procedures, modules, and/or objects.
CS.9-12.8.1.12.AP.6	Create artifacts by using procedures within a program, combinations of data and procedures, or independent but interrelated programs.

CS.9-12.8.1.12.AP.7	Collaboratively design and develop programs and artifacts for broad audiences by incorporating feedback from users.
CS.9-12.8.1.12.AP.8	Evaluate and refine computational artifacts to make them more usable and accessible.
CS.9-12.8.1.12.CS.4	Develop guidelines that convey systematic troubleshooting strategies that others can use to identify and fix errors.

Instructional Tasks/Activities

- Classroom Discussions
- Debugging
- Exploration/Internet Simulator Activities
- Formative Assessments
- Journaling
- Pair Programming
- Peer Feedback
- Project Internet Dilemmas
- Worksheets

Assessment Procedure

- Classroom Total Participation Technique
- Classwork
- DBQ
- electronic active responders
- Essay
- Exit Ticket/Entrance Ticket/Do Now
- identify the error problems
- Journal / Student Reflection
- Kahoot
- Other named in lesson
- Peer Review
- Performance
- Problem Correction
- Project
- Quiz
- response and analysis questions
- Rubric
- Teacher Collected Data
- Test
- Worksheet

Recommended Technology Activities

- App Lab
- Appropriate Content Specific Online Resource
- Gimkit
- GoGuardian
- Google Classroom
- Google Docs
- Google Slides
- Google Slides
- Kahoot
- MagicSchool AI
- Other- Specified in Lesson
- Quiziz
- Screencastify

Accommodations & Modifications & Differentiation

Accommodations and Modifications should be used to meet individual needs. Their IEP and 504 plans should be used in addition to the following suggestions.

Gifted and Talented

- Compare & Contrast
- Conferencing
- Debates
- Jigsaw
- Peer Partner Learning
- Problem Solving
- Structured Controversy
- Think, Pair, Share
- Tutorial Groups

Instruction/Materials

- alter format of materials (type/highlight, etc.)
- color code materials

- eliminate answers
- extended time
- extended time
- large print
- modified quiz
- modified test
- Modify Assignments as Needed
- Modify/Repeat/Model directions
- necessary assignments only
- Other (specify in plans)
- other- named in lesson
- provide assistance and cues for transitions
- provide daily assignment list
- read class materials orally
- reduce work load
- shorten assignments
- study guide/outline
- utilize multi-sensory modes to reinforce instruction

Environment

- alter physical room environment
- assign peer tutors/work buddies/note takers
- assign preferential seating
- individualized instruction/small group
- modify student schedule (Describe)
- other- please specify in plans
- provide desktop list/formula

Honors Modifications

Resources

- code.org