

# 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

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### Learning Objectives

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- 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

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- 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
- Use debugging skills as part of developing an app
- Use debugging skills as part of developing an app
- Write comments to clearly explain both the purpose and function of different segments of code within an app
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- Write comments to clearly explain both the purpose and function of different segments of code within an app
- 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

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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**

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

## **Assessment Procedure**

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- 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**

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- 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**

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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**

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

## **Instruction/Materials**

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- 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**

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- 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**

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## **Resources**

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- code.org

