Unit #3: Intro to App Design

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State Mandated Topics Addressed in this Unit

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N/A	N/A

Unit #3: Intro to App Design

Learning Objectives

- Artists will begin to understand how code works.
- Artists will design their own app.
- Artists will learn how to debug code.
- Artists will learn how to use the Design mode in App Lab.
- Artists will see the value of pair programming and the iterative process of improving an app/software.
- Artists will understand apps in reference to inputs, outputs, and overall user interface.
- Artists will understand the need to create more structured and precise programming languages in order to make communication clearer than natural language.
- Artists will work collaboratively design their projects, choose topics of personal interest, and build an app to meet the needs of other people.

Essential Skills

- Brainstorm and choose a topic to develop into an app
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- Create a user interface based on a prototype
- Create the code and user interface of an app based on a program specification
- Debug simple sequential and event-driven programs
- Define a program as a sequence of commands that are executed or run by a computer
- Define comments as notes or documentation into a program that do not affect how the program executes
- Design the user interface of an app

- Design the user interface of an app
- Effectively use pair programming while designing the features of an app
- Explain the differences between how sequential and event-driven programs execute
- Explain the qualities that differentiate natural languages and programming languages
- Identify the inputs of an app
- Identify the outputs of an app
- Identify the purpose of an app
- Iteratively improve an app based on feedback
- Justify the existence of programming languages to precisely communicate instructions
- Provide effective feedback on the functionality or usability of an app
- Reflect on the value of different stages of a development process in creating an app
- Set up the User Interface of an app including buttons, text, and images
- Test an app's functionality by attempting to use features and behavior described in a program specification
- Use feedback to help guide the design of an app
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- Use meaningful names to for element ids
- Use the debugging process and Identify specific best practices for debugging programs
- Use the speed slider, break points, and documentation as part of the debugging process

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.7	Collaboratively design and develop programs and artifacts for broad audiences by incorporating feedback from users.
CS.9-12.8.1.12.AP.9	Collaboratively document and present design decisions in the development of complex programs.
CS.9-12.8.1.12.CS.2	Model interactions between application software, system software, and hardware.
CS.9-12.8.1.12.CS.4	Develop guidelines that convey systematic troubleshooting strategies that others can use to identify and fix errors.
CS.9-12.8.1.12.IC.2	Test and refine computational artifacts to reduce bias and equity deficits.
CS.9-12.8.2.12.NT.2	Redesign an existing product to improve form or function.
CS.9-12.8.2.12.ITH.1	Analyze a product to determine the impact that economic, political, social, and/or cultural factors have had on its design, including its design constraints.

Instructional Tasks/Activities

- Classroom Discussions

- Debugging
- Exploration/App Lab - Design Mode Activities
- Formative Assessments
- Journaling
- Pair Programming
- Peer Feedback
- Project Designing An App
- 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 - Design Mode
- 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