

Alice: Computer Programming in a 3D Environment

Educational Transfer Plan

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I. Subject Areas:

- a. Science
- b. Mathematics
- c. Language Arts
- d. Foreign Language
- e. Social Studies
- f. Technology
- g. Career Education

II. Standard:***California State Standards-Common Core Standards*****1. Writing:****Production and Distribution of Writing**

With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.

2. Speaking and Listening:**Presentation of Knowledge and Ideas**

Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.

National Board Standard**Career and Technical Education****1. Standard II: Knowledge of Subject Matter**

Accomplished career and technical educators command a core body of knowledge about the world of work in general and the skills and processes that cut across industries, industry-specific knowledge, and a base of general academic knowledge. They draw on this knowledge to establish curricular goals, design instruction, facilitate student learning, and assess student progress.

2. Standard V: Advancing Knowledge of Career and Technical Subject Matter

Accomplished career and technical educators foster experiential, conceptual, and performance-based student learning of career and technical subject matter and create important, engaging activities for students that draw upon an extensive repertoire of methods, strategies, and resources. Their practice is also marked by their ability to integrate career and technical and academic disciplines productively.

3. Standard VI: Assessment

Accomplished career and technical educators utilize a variety of assessment methods to obtain useful information about student learning and development, to assist students in reflecting on their own progress, and to refine their teaching.

4. Standard VII: Workplace Readiness

Accomplished career and technical educators develop student career decision-making and employability skills by creating opportunities for students to gain understanding of workplace cultures and expectations.

National Education Technology Standards

1. Creativity and Innovation

Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.

2. Communication and Collaboration

Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.

4. Critical Thinking, Problem Solving, and Decision Making

Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

6. Technology Operations and Concepts

Students demonstrate a sound understanding of technology concepts, systems, and operations.

III. Lesson Abstract

Students will be able to use Alice, a 3D object oriented programming language, to create projects that will integrate technology into the curriculum of any subject. Students will create storyboards where they will outline actions and dialogue that will be included in their project. They will also learn to create audio files so they can add sound to their projects. They will use GarageBand (Audacity can be used for PC) to record the dialogue and then convert the files to MP3 so it can be imported in their Alice projects. They will present their final product to their class and share it with students from other classrooms. This project can be tailored to any subject. Students can write a narrative story, they can do a book report for reading, they can discuss a historical event, they can explain a scientific concept or math concept, even teach another language.

IV. Need for School

I will be the Science and Technology Teacher at Ida Jew Academies Charter School in the Mt. Pleasant Elementary School District. One of our academies is the STEM academy. We will be assigned to teach an elective class to students in 5th-7th grade. I will be teaching students the Alice programming language so they will have an opportunity to experience what computer programmers do. There is a great need for students to be exposed to and encouraged to consider careers in Computer Science. This will be a great opportunity for students, especially girls, to see how fun computer programming can be.

V. ETP and Fellowship Connection

During my fellowship, I worked with programmers who create software that simulates satellites that orbit around the Earth. It is crucial that this software is done correctly and that all details are reviewed to make sure that the software does what is intended. There is a process of peer review that all people involved in a project go through to make sure the programs are done right. These skills are very important because they develop, integrate, and test equipment that supports the national security infrastructure. I will show students the importance of learning these skills that one day will help them create products that will help and protect others.

VI. Outline

Each class period is 45 minutes.

Day 1

The teacher will show the students a sample of a project in Alice (*See link to video of sample project in attachments*).

The teacher will discuss the requirements, checklists, and rubrics used to assess their project.

The teacher will model how to create a storyboard by including actions and dialogue. (*See Storyboard Worksheet in attachments*).

Discuss whole class possible topics that can be used to create a project. Students can pick a concept in any subject area including science, math, reading, social studies, and foreign language.

Students discuss in groups what topics they are considering and make a list of 5 topics.

Students share with the class 2 topics from their list.

Students begin their individual storyboard. (*See Storyboard worksheet attachment*)

Day 2

The teacher models how to set-up the scene and acquire objects. (*See Step-by-Step instructions for Alice in attachments*)

Students continue with their storyboards.

If they finish, they have a conference with the teacher for final approval before beginning their project.

Students will watch the video tutorials on their own to review. Students will have to answer the Alice Quiz as they watch the video. (*See Alice Commands Quiz attachment*)

Day 3

The teacher models how to drag and drop commands for each object.

Students will get started on their project after final approval of their storyboard.

Students will watch the video tutorials on their own to review.

Day 4

The teacher models how to select different methods to run commands.

Students continue working on their Alice project.

Day 5

The teacher models how to record dialogue in GarageBand and export it as an MP3 file to Alice. *(See Step-by-Step instructions for GarageBand attachment)*

Students continue working on their Alice project.

Students take turns recording their dialogue using Garageband.

Students will watch the video tutorials on their own to review. Students will have to answer the GarageBand Quiz as they watch the video. *(See GarageBand Commands Quiz attachment)*

Day 6-8

Students continue working on their Alice project.

Students take turns recording their dialogue using GarageBand.

Students will watch the video tutorials on their own to review.

Day 9

Students will have two classmates peer review their project using the checklist and give them feedback. *(See Peer Editor Checklist attachment)*

Students edit and revise their projects.

Day 10-12

Students continue to edit and revise their projects to finalize their product.

Students use the rubric to self-assess their project.

Day 13-14

Students take turns sharing their projects with the class. The teacher will assess their projects using the assessment rubric.

VII. Objectives:

1. Students will create a storyboard that includes dialogue and actions.
2. Students will use Alice to create their project.
3. Students will use GarageBand to create audio files of the dialogue, convert to MP3, and import to their Alice project.
4. Students will peer review each other's work to give feedback to improve their project.
5. Students will revise and edit their project to finalize it.
6. Student will do a self-assessment using a rubric.
7. Students will share their final product with the class.

VIII. Assessment/Evaluation

1. There will be a Peer Editor Checklist used by students to verify that all the requirements were included in their project.
2. A rubric will be used by students and the teacher to assess the projects.

3. Alice Commands and GarageBand Commands Quiz

IX. Resources

1. Bibliography/Resources

- a. [Download Alice](#)
 - i. <http://alice.org/>
- b. Alice's [Teacher Resources Link](#)
 - i. <http://www.aliceprogramming.net/>
- c. Join the [listserv](#) for Alice
 - i. <https://lists.andrew.cmu.edu/mailman/listinfo/alice-teachers>
- d. Download Audacity
 - i. <http://audacity.sourceforge.net/download/>
- e. Video Links:
 - i. Alice Commands Tutorial
 - ii. GarageBand Commands Tutorial
 - iii. Sample Alice Movie

2. Supply List

- a. Copy of Alice program found at alice.org
- b. Computer Lab or mobile computer cart with projector
- c. GarageBand, Audacity, or other audio creating software
- d. Copies of Storyboard
- e. Copies of Alice Commands Quiz
- f. Copies of Rubric
- g. Copies of Checklist
- h. Sample Project Movie

X. Attachments

1. ✓ Assessment Rubric
2. ✓ Storyboard Worksheet
3. ✓ Peer Review Checklist
4. ✓ Step-by-Step Instructions for Alice
5. ✓ Step-by-Step Instructions for GarageBand
6. ✓ Alice Commands and GarageBand Commands Quiz

XI. Coach

Stephanie Ruzicka