## Lesson Plan

**Teacher:** Darlene Winans  
**Date:** September 2013

| Subject / grade level: Computer Science Club Grades 9-12 | Materials: Alice Software  
| Class Time: 38 minutes | Computers/projection equipment standard to the layout of the computer lab  
|  | AliceFrogger.a2w  
|  | alice day 1/Ch4Halloween.a2w  
|  | Scavenger Hunt handout (attached)

### NYS Learning Standards for Math, Science, and Technology

**Standard 1.** Analysis, Inquiry, and Design: Students will use mathematical analysis, scientific inquiry, and engineering design, as appropriate, to pose questions, seek answers, and develop solutions.

**Standard 5.** Technology: Students will apply technological knowledge and skills to design, construct, use, and evaluate products and systems to satisfy human and environmental needs.

**Standard 6.** Interconnectedness: Common Themes: Students will understand the relationships and common themes that connect mathematics, science, and technology and apply the themes to these and other areas of learning.

**Standard 7.** Interdisciplinary Problem Solving: Students will apply the knowledge and thinking skills of mathematics, science, and technology to address real-life problems and make informed decisions.

**Common Core Standards** are woven throughout the lesson in the promotion of literacy and application of critical thinking skills to solve problems.

### Lesson objective(s):

The purpose of the lesson is to utilize Alice as a recruiting tool to recruit students to join the Computer Science Club.

### Differentiation strategies to meet diverse learner needs:

- Wait time
- Handouts/visual aids
- Multimedia presentation

### ENGAGEMENT

- Teacher is wearing Alice T-Shirt
- Play Alice worlds: first the Halloween world to demonstrate video animation; then the frogger one to demonstrate gaming aspect.
- Students should ask questions like What program is this? What does it do? How do you run it/use it?

### EXPLORATION

- Concept: Adding objects and manipulating them spatially in the Alice world
- Teacher will demonstrate basics of manipulating characters in Alice, including:
  - Opening the world
  - Exploring Alice objects in the gallery – see handout
  - Operating the buttons to move objects within the world

### EXPLANATION

- Students may ask what the red, blue, and green lines mean. Ask students where they have seen similar lines like these before (in what other subject or discipline?)
- Explain that these lines represent the x, y, z axes that are tagged to each character.
- Explain how to find the “center” of each character (at 0,0,0).

### ELABORATION

- Students will add at least 3 objects to a world (they can select the background of their choice). They will arrange their characters in the following way:
  - One object is in the foreground, one is center, one is in the background.
  - All three objects are facing front.
  - All are standing on the ground (not in the ground or above it).

**Vocabulary:** axes, background, foreground, single view, quad view, objects, manipulation

### EVALUATION

- Teacher will observe students as they are working in the Alice world
- Teacher will view student-created worlds to evaluate student achievement of the lesson objectives
Exploring Alice in the Gallery: for each of the objects named below, indicate which gallery folder in which the object is found. You may work with a partner.

Class Fountain

Class WhiteRabbit

Class Lighthouse

Class HandsomePrince

Class Volcano

Class Stegosaurus

3D Text

Class Surfboard

Class Fire

Class LightSwitch

Class Ramp

Class Church

Class PoolTable

Class Cheerleader

Class Banner:

Class Coattrack3

Class Egyptian

Class Cake

Class GasStationSign

Class BadGuyRobot

Bonus:
Locate an object in the Alice Gallery that interests you (cute, funny, random, obscure, etc.). Test your partner to see if she can locate it in the appropriate folder.
Scavenger Hunt

Answer Key

Class Fountain: Amusement Park
Class WhiteRabbit: Animals
Class Lighthouse: Beach
Class HandsomePrince: People
Class Volcano: Nature
Class Stegosaurus: Animals/Dinosaurs
3D Text: Create 3DText
Class Surfboard: Hawaii/Transportation
Class Fire: Special Effects
Class LightSwitch: Controls
Class Ramp: Skate Park
Class Church: City
Class PoolTable: Sports
Class Cheerleader: High School/Students and Teachers
Class Banner: Medieval
Class CoatRack3: Furniture
Class Egyptian: Ancients
Class Cake: Holidays/Birthday
Class GasStationSign: Roads and Signs
Class BadGuyRobot: SciFi