

# Alice

## Exploring Alice and Object Oriented Programming

### Competencies:

- 6670.81 Explain the purpose and functions of computer programming.
- 6670.84 Design a simple program for a specific application.
- 6670.85 Create a simple computer program.
- 6670.86 Test and debug the program.

### Objectives:

Students will be able to:

- Describe the concept of object-oriented programming (OOP)
- Start Alice
- Locate and describe the components of the Alice interface
- Load and play an existing Alice World
- Create and save a new Alice world
- Print the code for Alice methods and events

#### 1. Open the Alice program

- ✓ Click on start
- ✓ Go to the Apps (J) folder
- ✓ Select the folder labeled Alice 2.3
- ✓ Then click on slowandsteadyalice

#### 2. Watch each of the tutorials:

- Tutorial 1 Skater
- Tutorial 2 Nap time
- Tutorial 3 Penguins
- Tutorial 4 Space

#### 3. Text example (to receive credit teacher needs to see project)

- IceSkater World (follow instructions attached)

#### 4. Projects (teacher needs to sign off on)

- In the Lab "Greetings from a Japanese Fan Dancer"
- In the Lab "A Penguin Demonstration"
- In the Lab "American Chicken Farmers Associations"
- Cases and Places 1 – Caribbean School of Computer Programming
- Cases and Places 2 – Shelly Cashman Drama Society

#### 5. Create your own Alice World with any characters and setting you want. Must include (teacher needs to sign off on):

- 3 characters interacting
- At least five dialogs
- An object or character entering and exiting
- Something else, your choice
- Must last at least 30 seconds

Save each of these into a folder on your shared drive and then show them to your teacher. Once your teacher has signed off on each one, you must turn in this sheet so that you will receive credit for completing the assignment.

## iceSkater World

### To Create a New Ice Skater World page 27 (in packet)

1. Click the Templates tab on the Welcome to Alice! Dialog box, as shown here, click on English folder
2. Click the snow template and then click the Open button

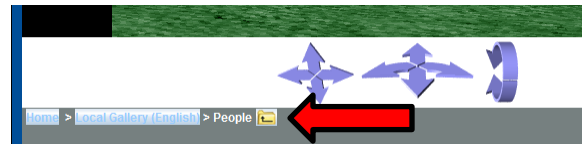


### To Enter Scene Editor Mode

1. Click the ADD OBJECTS button in the lower-right corner of the World window.

### To Add the Lake Object to the World

1. Using the horizontal scroll bar at the bottom of the screen, scroll to the right until you can see the Environments folder. Click the tile to enter the Environments folder.
2. Scroll to the right until you can see the Lake (NOT frozen) tile, then click the tile one
3. Click the Add instance (means add the lake) of the Lake class to your world. It will take a few seconds for Alice to finish adding the object and all of its subparts to your world.



### To Add the Ice Skater to the World – Click the Move up a Level

button, shown here, to go up one level in the Local gallery' tree of folders. (Teacher just screen shot this, it may not be the same as the example)

1. Scroll to the right until the People folder tile is visible, then click the People folder tile to enter the folder.
2. Take a moment to scroll back and forth through the folder and see some of the many characters that you can add to Alice worlds, then find and click the IceSkater class tile.
3. Click the Add instance to world button add an instance of IceSkater class to your world (means add IceSkater).

### To Save the Alice World

1. Click File on the menu bar to display the File menu, then click Save World on the File menu.
2. In the Save World As dialog box, navigate to the folder in which you wish to save your world, type "skaterHello" in the File name text box, and then click the Save button.

### Positioning the iceSkater

1. If you are not already in Scene Editor mode, click the ADD OBJECTS button to enter Scene Editor mode. The Pointer tool is already selected. Click and drag the iceSkater back and to the right.
2. Select the Turn tool and turn the object so that she is facing slightly to the left.
3. The iceSkater is now in place. Click the DONE button to close Scene Editor mode and return to the standard Alice interface.
4. Click File on the menu bar, then click Save World on the File menu to save the world again with the skater in position.

### **To Start Coding world.my first method**

1. Click the iceSkater tile in the Object tree and then click the properties tab in the Details area.
2. Drag a copy of the pose2 tile from the properties tab and drop it in the blank area below Do Nothing in the Editor area.

### **To Add an Instruction to Make the iceSkater Spin**

1. Click the methods tab in the Details area, then drag a copy of the iceSkater turn tile from the methods tab and drop it in the Editor area below the iceSkater set pose instruction.
2. Point to right on the direction menu
3. Click other on the amount menu
4. Type 2 in the text box and then click the Okay button

### **To Add Instructions to make the iceSkater Change Poses While Moving**

1. Drag a copy of the Do together tile from the bottom of the Editor area and drop it in the Editor area below the first two instructions.
2. Click the properties tab in the Details area, then drag a copy of the pose4 tile and drop it in place of Do Nothing in the Do together tile.
3. Click the methods tab in the Details area, then drag a copy of the iceSkater move tile and drop it just below the iceSkater set pose tile that you just put into place.
4. Point to forward on the direction menu, then click 2 meters on the amount menu. If 2 meters is not an option on the amount menu, click other, type 2 in the Custom Number window, and then click the Okay button.

### **To Add an Instruction to Make the iceSkater Spin again**

1. Drag a copy of the iceSkater turn tile from the Details area and drop it below the Do together tile in the Editor area.
2. Point to right on the direction menu, and then select 2 revolutions on the amount menu.
3. To Make the iceSkater Pose and Face the Camera at the same Time - Drag a copy of the Do together tile from the bottom of the Editor area and drop it in world.my first method below all of the existing instruction tiles.
4. Click the methods table in the Details area, scroll down if necessary, and then drag a copy of the iceSkater turn to face tile and drop it in the lower Do together tile.
5. Click camera to select it as the target that the ice skater should turn to face.
6. Click the properties tab in the Details area, then drag a copy of the pose tile and drop it in the Do together tile below the iceSkater turn to face camera instruction.

### **To Add an Instruction to make the iceSkater Say "Hello, World!"**

1. Click the methods tab in the Details area, then drag a copy of the iceSkater say tile and drop it onto world.my first method in the Editor area, below all the existing instruction tiles.
2. Click other display the Enter a string dialog box
3. Type Hello, World! In the text box and then click OK button to continue.
4. Click more on the IceSkater say Hello, World! Instruction tile
5. Point to duration to open the duration menu. If 3 seconds is not an option on the menu, then click other and use the calculator- style keypad to enter 3 as the amount click the Okay button.

6. Click File on the menu bar, and then click Save World on the File menu to save your world with its existing file name, skaterHello. As before, it will take a few seconds for Alice to save the world.

### **To play the skaterHello World**

1. Click the play button in the top left corner of the Alice interface to play the world, and see how it works.
2. Click the Stop button when finished playing the world.

If you would like to see how to print the code for Alice look at page 48. Not required for this class.

### **Apply Your Knowledge**

An Animated Hello World Program – we do not have the file to alter so you do not have to do this activity.

## **Lab 1 – Greetings from a Japanese Fan Dancer**

Your task is to create a world in which a Japanese fan dancer will perform a short routine and then say “Welcome to the world of Alice.”

Instructions:

1. Open an Alice world with a grass template.
2. Click the ADD OBJECTS button to enter Scene Editor mode.
3. Find and click the Japan tile in the Alice object gallery.
4. Find and click the Class Dojo tile, and then click the Add instance to world button to add a Dojo object to your world as a background for the dancer.
5. Find and click the Class FanDancer tile, and then click the Add instance to world button to add a fanDancer to your world.
6. Use the pointer tool to move the fanDancer back to the right so that she is, about halfway between the center and right edge of the World window.
7. Use the Turn tool to turn the fanDancer so that she is facing diagonally to her right.
8. Click the DONE button to exit Scene Editor mode.
9. Use Save World AS on the File menu to save the world with the filename, Lab 1-1 fanDancer greeting.
10. Make sure that the fanDancer is selected in the Object tree and that the methods tab is selected in the Details area.
11. Drag a copy of the fanDancer turn tile from the methods tab and drop it in world.my first method in the Editor area.
12. Point to left on the direction menu that appears, then click 2 revolutions on the amount menu.
13. Drag a Do together tile from the bottom of the Editor area and drop it in world.my first method below the fanDancer turn instruction.
14. Drag a copy of the fanDancer move tile from the methods tab and drop it in the Do together tile in place of Do Nothing.
15. Point to right on the direction menu that appears, and then click other on the amount menu.
16. Use the Custom Number dialog box to enter the number 3 as the amount, and then click the Okay button.
17. Drag a copy of the fanDancer turn to face tile from the methods tab and drop it in the Do together tile below the move instructions.

18. Select camera on the target menu that appears.
19. Drag a copy of the fanDancer turn tile from the methods tab and drop it in world.my first method below the Do together tile.
20. Point to left on the direction menu that appears, then click 2 revolutions on the amount menu.
21. Click the plus sign next to the fanDancer tile in the Object tree, and then click the upperBody tile that appears.
22. Drag a copy of the upperBody turn tile from the methods tab and drop it in world.my first method below the Do together title.
23. Select forward and  $\frac{1}{4}$  revolution on the menus that appear.
24. Right-click the fanDancer.upperBody turn instruction in world.my first method and select make copy on the menu that appears. Be sure to right-click the tile and not one of the white parameter boxes in the tile.
25. There are now two copies of the fanDancer.upperBody turn instructions. Click the forward parameter in the bottom copy and select backward on the menu that appears.
26. Click the fanDancer tile in the Object tree to re-select the fanDancer.
27. Drag a copy of the fanDancer say tile from the methods tab and drop it into world.my first method below all of the existing instruction titles.
28. Select other on the menu that appears.
29. Type "Welcome to the World of Alice," in the Enter a string dialog box, then click the OK button.
30. Click more on the fanDancer say instruction tile and then select duration and 2 seconds on the menus that appear.
31. Your new fanDancer world is not complete. Save the world again before continuing. You may now play the world to see the fanDancer perform her routine.

## Lab 2 - Penguin Demonstration

**Problem:** The penguin class of objects in the Local Gallery has built-in methods to make a penguin walk, jump up and down, flap its wings, and so on. Your task is to create a world that can be used to show people what some of the more useful built-in methods do. You should create a new Alice world in which a penguin will announce what action it is going to perform, and then perform the action. For example, the penguin would say "I am now going to flap my wings," then it would flap its wings.

1. Start Alice and begin a new world with a snow template.
2. Enter Scene Editor Mode and add a penguin to the world from the Animals folder. The tile for the penguin class of objects is shown below.
3. Place the penguin in the middle of the screen, facing the camera. Click the DONE button to exit Scene Editor Mode.
4. Click the penguin tile in the object tree. You will see several user-defined methods on the methods tab in the Details area. You will start with the wing flap method.
5. First, make the penguin say "I am now going to flap my wings." The duration for the instruction should be 2 seconds.
6. Next, the penguin should actually flap its wings. Use the wing flap tile from the methods tab to create an instruction to make the penguin flap its wings two times.

7. Following this pattern, have the penguin demonstrate some of the other things that it can do (**minimum of 2 other things it can do**).
8. By changing the penguin's color property in a manner similar to the way you changed the IceSkater's pose property during Project 1, you can make the penguin demonstrate that he can change color. For example, he could say "I am now going to turn blue," then do so.
9. The penguin should also execute several moves together at the same time. For example, the penguin could say "I am now going to jump up and down, flap my wings, and spin around all at the same time." You will need to use a Do together tile and adjust the instructions' parameters to coordinate such actions.
10. Finally, the penguin should turn to face the camera, say "Now, I'm leaving," and then turn to the side and glide out of the scene. You can use the penguin glide method. To make the penguin glide out of the scene.
11. When you are finished creating the code for the world, save your world with the filename, Lab 1-2 penguin methods.a2w before playing the world.

### 3 American Chicken Farmers Association

**Problem:** The American Chick Farmers Association needs your help. For several months, the Amalgamated Beef Producers of America have been running a television advertising campaign that has been cutting into the profits of chicken farmers. They want you to create an animated advertisement to respond to the Beef Producers' ads. Their catch phrase is "Don't even think beef"

The American Chicken Farmers Association advertisement will feature a cow that walks to the middle of the screen, turns its head to face the camera, and then says the following, one at a time: "chicken is healthy", "Real healthy.", "And tasty, too" The cow will then turn its head to face forward, start to walk off the screen, then stop, look at the camera gain, and say "Don't even think beef". Finally, it will turn its head to face forward again and continue to walk off the screen.

Instructions:

1. Start Alice and begin a new world with grass template.
2. Enter Scene Editor mode and add a cow to the world from the Animals folder
3. Turn the cow so that it is perpendicular to the camera, facing to the left as seen by the camera (you are looking at his side).
4. Using the blue camera control arrows, move the camera to the left just enough so that the cow is off screen on the right, then exit Scene Editor mode and return to the standard Alice interface.
5. Click the cow tile in the Object tree to select the cow. Several user-defined methods are visible for the cow in the details area, including walk, walkTowards, and tailSwish.
6. You will need to create the animation sequence by dragging instruction tiles from the methods tab into world.my first methods in the Editor area. You will need the following 15 instructions.
  - a. Cow.walk times = 10 speed = 2
  - b. Cow.tailSwish times = 2 speed 2
  - c. Cow.neck turn left  $\frac{1}{4}$  revolution
  - d. Cow say "Chicken is healthy." Duration = 2 seconds
  - e. Cow say "Real healthy." Duration = 2 seconds
  - f. Cow say "And tasty, too". Duration = 2 seconds

- g. Cow.neck turn right ¼ revolution
- h. Cow.tailSwish times = 2 speed = 2
- i. Cow.walk times = 2 speed = 2
- j. Cow.tailSwish times = 2 speed = 2
- k. Cow.neck turn left ¼ revolution
- l. Cow says “Don’t even think beef.” Duration = 2 seconds
- m. Cow.neck turn right ¼ revolution
- n. Cow.tailSwish times = 2 speed = 2
- o. Cow.walk times = 11 speed = 2

Most of the instructions use the walk, say, or tailSwish tiles found on the cow’s methods tab, so you simply need to drag those instructions into world.my first method in the proper order and set the parameters as indicated. Four of the instructions are turn instructions for the cow’s neck, which is a subpart of the cow. For each of these, you will need to click the plus sign next to the cow tile in the Object tree to see the neck tile, then you can drag the neck turn instruction from the methods tab into world.my first method.

7. When you are finished creating the code, save your world with the file name, Lab 1-3 Chicken is tasty.a2w before playing the world.

## Cases and Places (there are 2 projects here)

**Number 1:** The Caribbean School of Computer Programming would like a 10-second video advertisement in the form of an animated virtual world. They wish to show a beach scene with a lighthouse, two beach houses, a pier, a sailboat, and several palm trees.

When the advertisement starts, the sailboat sails away, then two messages appear on the screen one at a time. One of the beach houses should say “Come to the Caribbean School of Computer Programming.” Then the other should say “Where the summer semester never ends.” Each message should stay on the screen for several seconds.

Your task is to add the necessary objects to an existing beach scene and then create the advertisement. You can find most of the items you will need in the Beach folder in Alice’s local object gallery. The sailboat is in the Vehicles gallery and the palm tree is in the nature folder, you can resize, turn, and rotate copies of the palm tree so that they do not all look the same.

**Number 2:** Daphne Belle, the Director of the Shelly Cashman Drama Society, has been trying to create an animation to show students the movements and dialoged for their upcoming production of the 1970’s revival “Joe Cool!”. Scene II, Act III opens with Mary standing in a room between classes. The door opens, Joe enters the room and, trying to be cool, says in French “Ehhh! Mon Ami, Je t’adore.” To which Marys says (1<sup>st</sup> conversation bubble says) “Shut the door?” (2<sup>nd</sup> conversation bubble says) “Shut it yourself.” She then walks away.

The problem is that a director like Daphane often is quite busy, and she hasn’t finished creating the Alice animation to show her actors what to do. Your task is to finish working on the animation so that it functions as described above.

**Now create your own Alice story** – see instructions of first page