

Princess & Dragon

Part 1: Objects in an Alice World



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Introduction

Welcome to Alice! Alice is an innovative 3D programming environment that makes it easy to create an animation. These animations can be used to:

- tell a story
- make an interactive game
- create a video that you can share online
- and much more!

Alice uses 3D graphics and a drag-and-drop interface so its fun and easy to learn.

In this four part tutorial, you'll be learning some of the basics of Alice so that you can program your own stories and games.



Download & Install [Alice 2.2](#)

You may need to download Alice from the [Alice.org](#) website. See the site for more details

Overview

In this tutorial, we'll be creating a short animated story about a princess who is captured by a dragon and rescued by a knight that comes riding in. The tutorial is broken up into four parts.

Part 1: Objects

Part 2: Methods & Properties

Part 3: Cameras & Events

Part 4: Billboards, Sound, & 3D-Text

In Part 1 we'll set up the distressed princess calling for help on top of a tower. This will cover how to set up a world, add objects, position them, and create a simple animation.

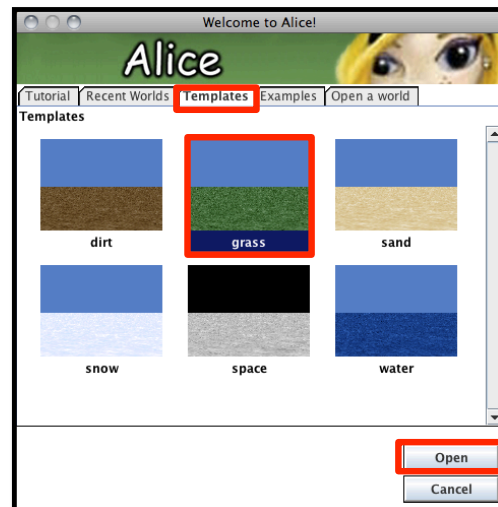
Step 1: A New Alice World



Start Alice and after it loads (it may take awhile) you will see the “Welcome to Alice!” screen.

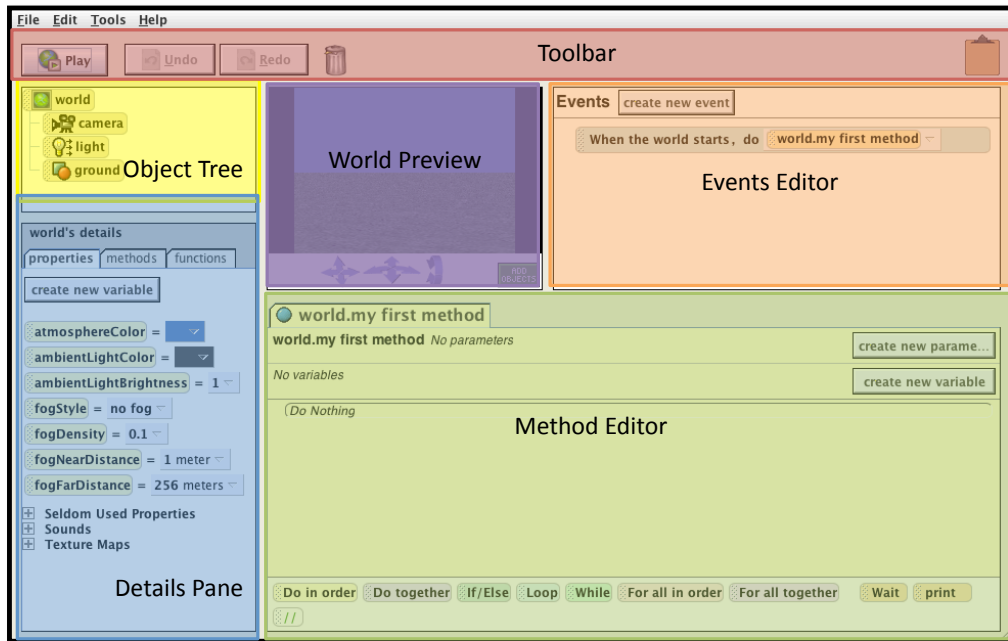
From this screen you can start a new world with a template or open a saved Alice world from earlier.

Click on the **Templates** tab to start a new Alice world and you will see 6 basic templates. Select **grass** and then click **open**.

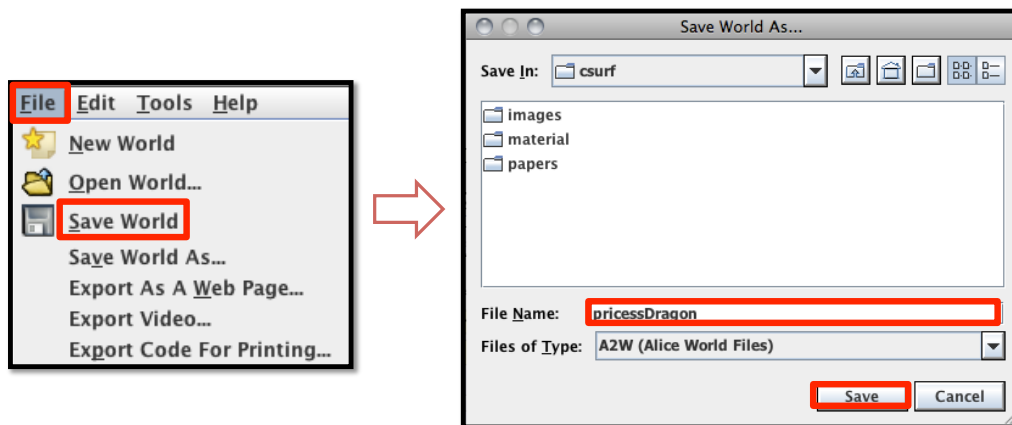


Step 1: Main Screen

The main Alice screen is broken up into sections.



Step 1: Saving an Alice World

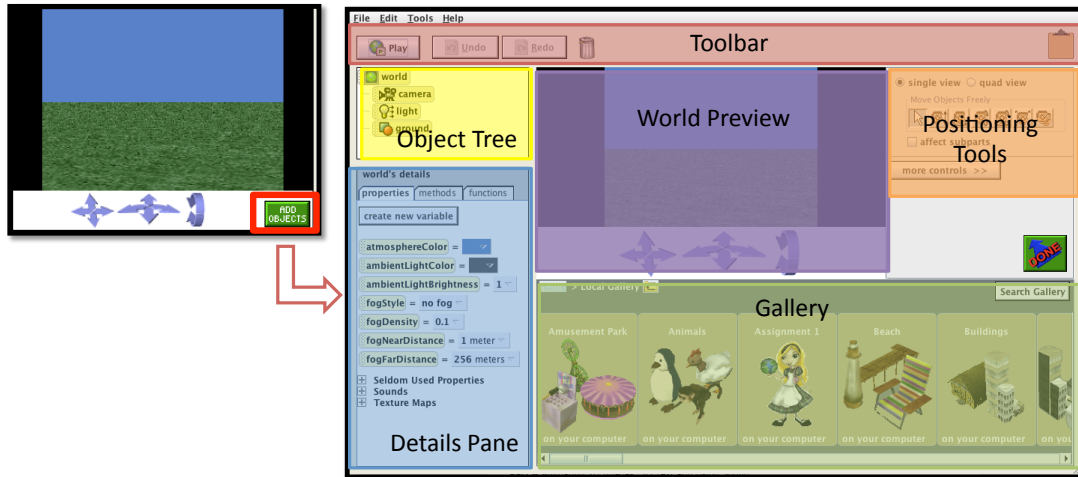


Click on **File** in menu at the top of the screen, select **Save World** and give a **name** to your world. Click **Save** when you are done.

Alice worlds are saved as .a2w files. Remember where you save the world so that you can find it later!

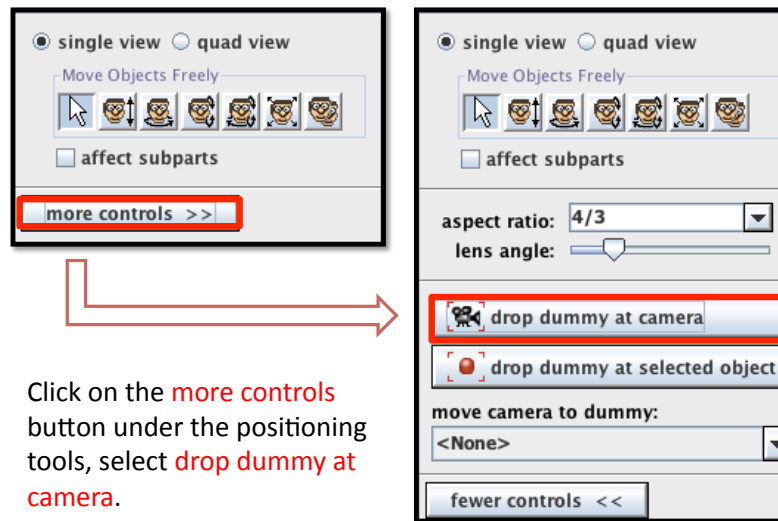
Step 2: Adding Object Screen

Click on the **Add Objects** button in the World Preview Pane and You will see the screen change into the **Adding Objects** screen.



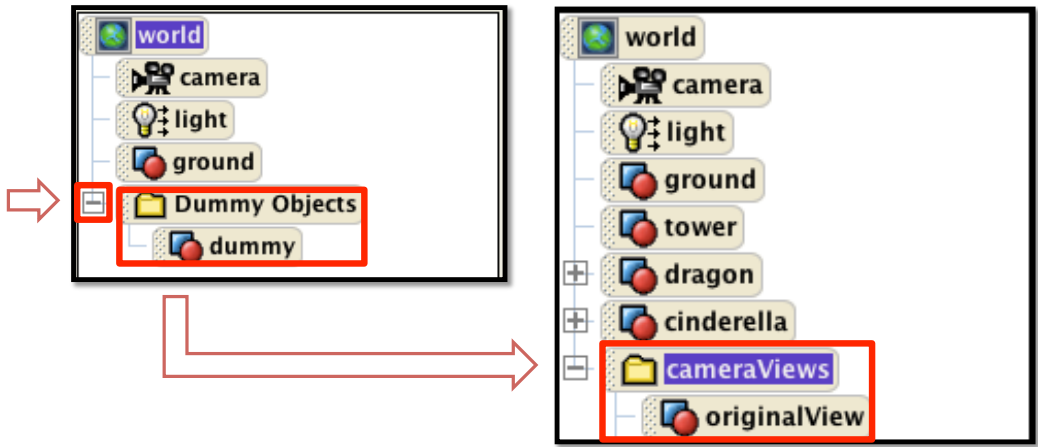
Step 2: Dummy Objects

A Dummy Object allows us to save the position of the camera and return to it. Before you add or position any objects, it's a good idea to save the original camera position.



Click on the **more controls** button under the positioning tools, select **drop dummy at camera**.

Step 2: Renaming Objects

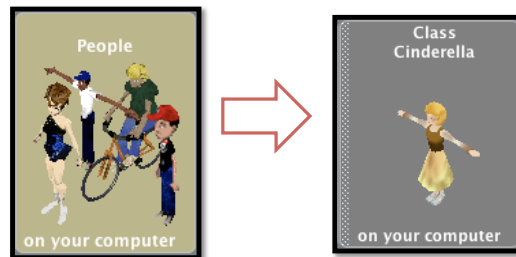


You will notice in the object tree that a new folder called **Dummy Objects** has appeared. Right click it and **rename** it **cameraViews**. Open the folder by clicking on the + next to it. Right click on the dummy object inside and **rename** it **originalView**.

Step 2: The Gallery

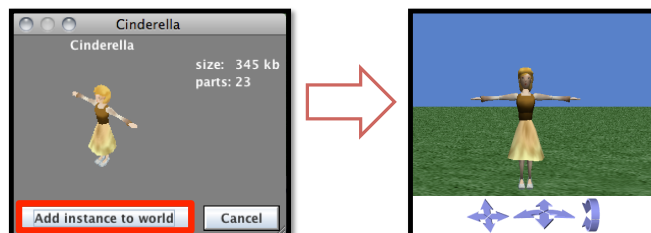
The Gallery contains different types of objects that you can add to a world in Alice. It is organized into folders which are listed in alphabetical order.

Scroll to the right until you find the **People** folder. Click on it. Scroll to the right until you find **Cinderella**. She will be our princess. Click on her and you will see a screen pop up.




Click on **Add instance to world** and you will see **Cinderella** appear in the world!





Congratulations you've added your first Alice object!



Step 2: More Objects

 Click either the **folder icon** next to People or click **Local Gallery** to exit the people folder.

Now add a dragon and a tower. Find the **Medieval** folder and add a **Dragon** and a **Tower**

Step 3: Positioning Tools

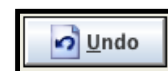
The panel to the right contain a variety of positioning tools that will help you move the objects on the screen to set up the scene.

To use the tools, you click on the tool that you want and then click & hold on the object you want to position. Move the mouse to watch the tool work!



DO NOT use the last tool on the right, it does not work.

If you mess up, use the **Undo** button in the toolbar!



Step 3: Positioning Tools Continued

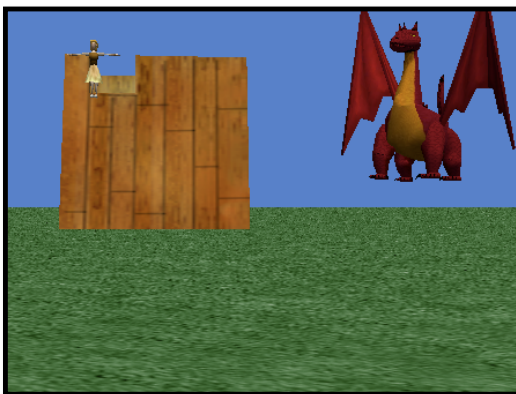


Use the **mouse** tool to move the **tower** to the left and move **Cinderella** back so that she is almost at the base of the tower.

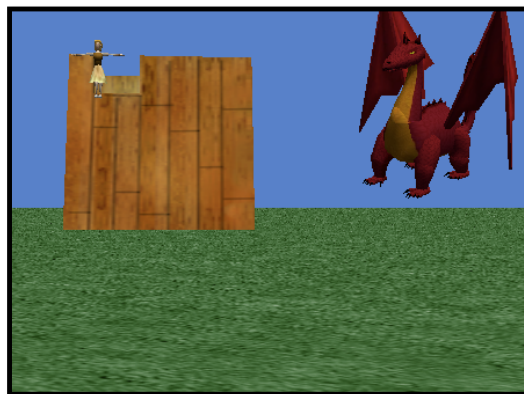


Use the **Up and Down** tool to move the **tower** down a little and **Cinderella** up so that she is in the doorway of the tower. Move the **dragon** up off the ground.

Step 3: Positioning Tools Continued



Turn the **tower** so that the camera sees it straight on.



Use the **Tumble** tool to move the **dragon** in the air so that he looks like he is flying.

Step 3: Positioning Tools Continued

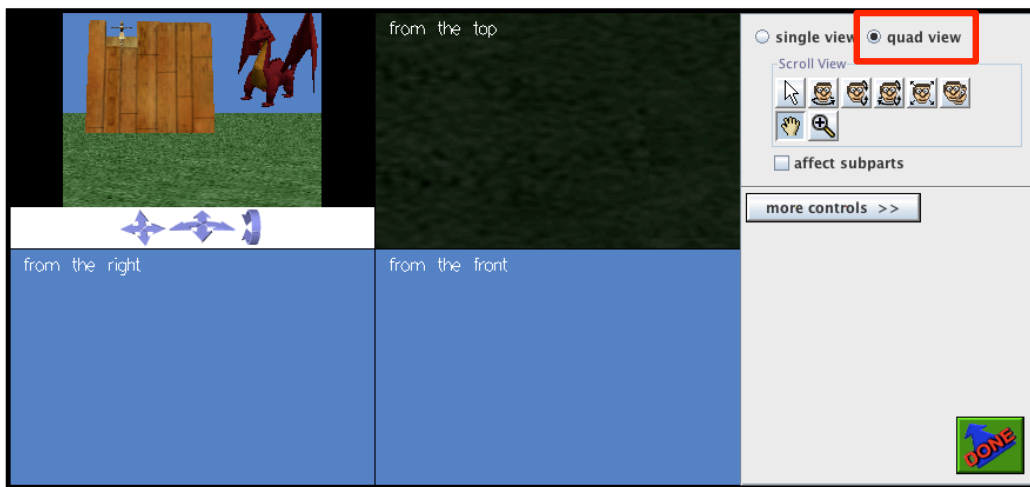


*Positioning objects in Alice is tricky. Take your time and don't be afraid to play with a tool until you get the hang of it. If you accidentally move the ground or the camera, just use **Undo**.*



Move the **tower** forward (using the **mouse** button) and use the **Resize** tool to make it smaller so that you can still see it in the screen.

Step 3: Quad View



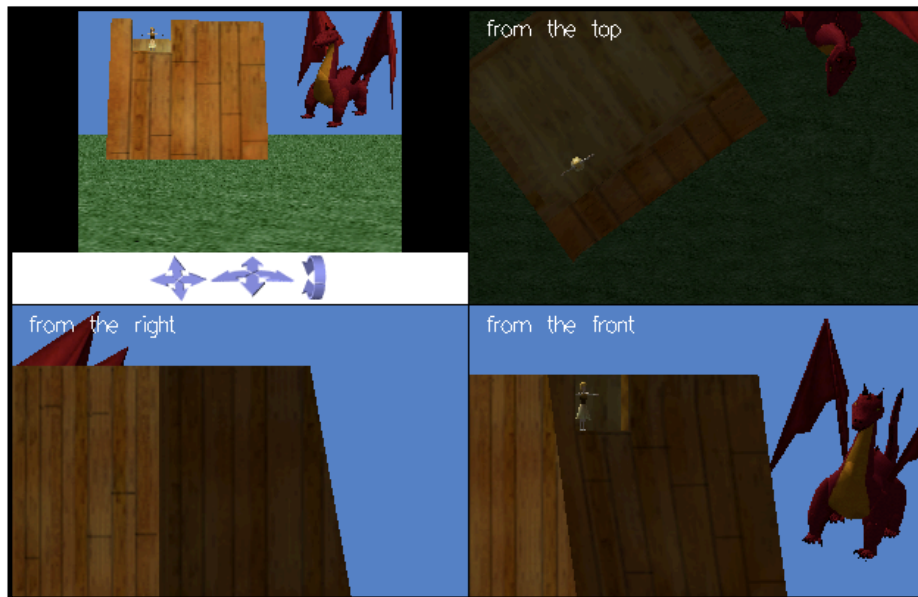
Click on **quad view** and you will see a new view of the world with four windows. We will use this view to move **Cinderella** onto the **tower**.

Step 3: Quad View Continued



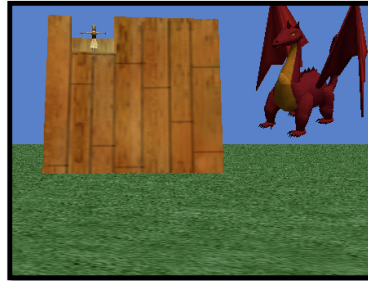
Use the **Scroll** and **Zoom** tool on the **from the top** view in order to get the top of the **tower** into view. First zoom out until you find the **tower**, then zoom in on it and scroll until you get the right view. Use the **mouse** tool to move **Cinderella** in that view onto the **tower**. (If she goes into the tower instead of on top of it, move her up more in single view)

Step 3: Quad View Continued

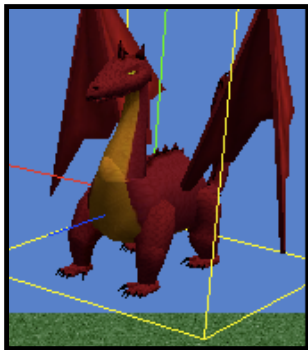


Practice using **zoom** and **scroll** until you can get a good view of the tower in all four screens.

Step 3: Centers



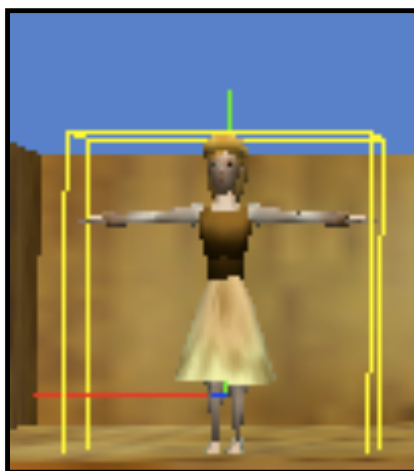
When you are done, click on **single view** to go back to one screen.



If you click on an object, either in the viewing pane or in the object tree, you will notice that lines appear around and through the object.

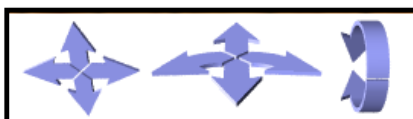
Click on the **dragon**. The **center** of the object is where the green, blue, and red lines meet. When you tumble the dragon for example, he moves around his center. The dragon's center is located in the middle of his body but each object has its own center.

Step 3: Centers Continued



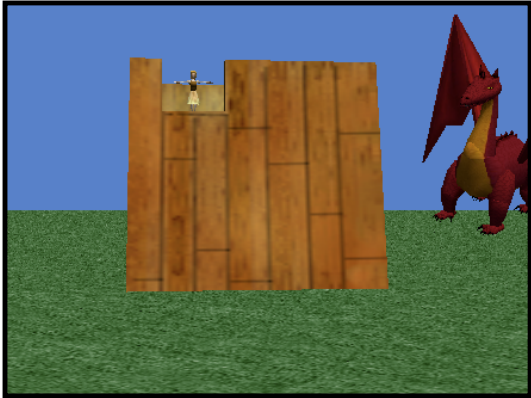
Click on **Cinderella**. You will notice that her **center** is around her knees.

You will also notice the yellow **bounding box** of the object. This can be useful when you're trying to line up the object. There are three **orientation lines** to help you. The green line indicates the object's sense of up. The red line indicates the object's sense of right. In Alice, everything happens relative to the object so even if it is your left, keep it in mind that it is Cinderella's right. The blue line indicates the object's sense of forward and backward.



Between the viewing pane and the gallery you will see three sets of arrows. These are the camera controls. We will be using them next to create a new camera view. To use them, click on the arrow you want and hold release when you are done.

Step 4: Camera Positioning

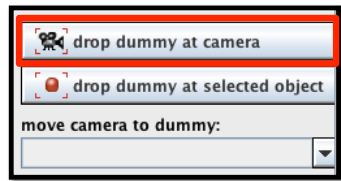


Move the camera so that the tower is in the center of the view.



Drive the camera so that the you can see Cinderella.

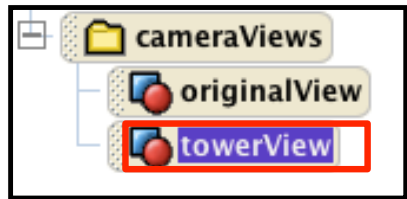
Step 4: Camera Positioning Continued



We have created a new camera view! Drop a dummy to save it and name it towerView.



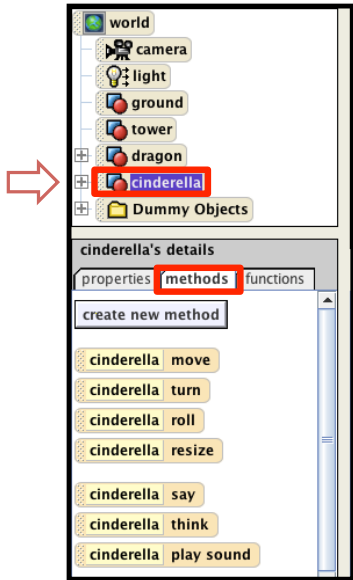
Tilt the camera slightly.



Step 5: Methods



Click the green **DONE** button to go back to the main view.



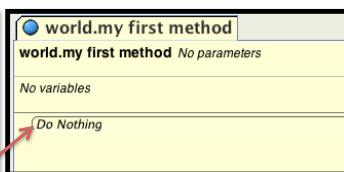
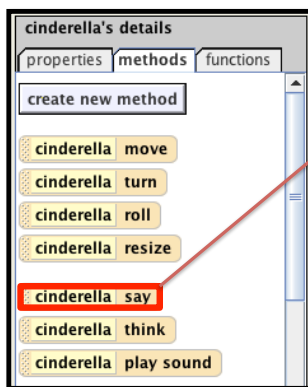
Now that we have all our objects in place, it's time to learn how to animate them in Alice. We will make Cinderella jump up and say she is trapped.

The **object tree** shows all the objects that are in the world. Click on **Cinderella** since she is the object we want to animate.

Click on **methods** in the **details pane**.

When you click on an object, its details show up in the details pane. There you can see the object's properties, methods, and functions. A **method** is a sequence of instructions that will be carried out when instructed. All the methods you see in details show the basic behavior that every object knows how to do. Built in methods are combined to create more complicated animations.

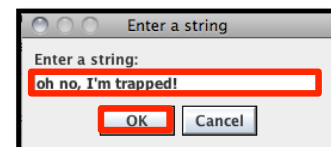
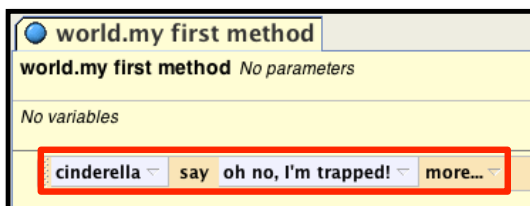
Step 5: First Instruction



Click and drag **Cinderella say** from the details pane into the method editor.



A list of options will appear, asking you what Cinderella should say. Click **other...** and enter **oh no, I'm trapped!** Then press **OK**.



You will see the new instruction appear in the method editor.

Step 5: Testing



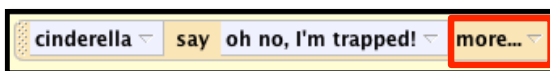
Click **Play** in the toolbar to test the new instruction. The words disappear too quickly so we would like to change that

The viewing screen has many tools to help you. You can adjust the speed the animation plays through with the slider as well as pause, resume, restart, and stop the animation anytime. Always remember to **Close** the viewing screen to return to the main view.

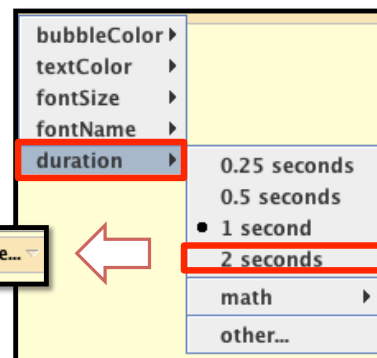
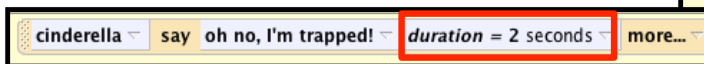


Test frequently when you are building an Alice world. You can speed through parts that are working and pause to get a better look at parts you want to fine tune. Don't wait until you have many lines written to test!

Step 5: Duration



Click on **more...** in the **say** instruction to bring up a list of options. Select **duration** and then **2 seconds**.



All instructions are set to 1 second by default so doubling the time will make the words stay on the screen for longer.

Click **Play** in the toolbar to test. The words now stay up long enough for everyone to read it.

*There are many other options in the **more** menu such as changing the font and color of the words. Try them out!*

Step 5: Move Method

The top screenshot shows the 'cinderella's details' pane with 'move' highlighted in red. A red arrow points to the 'world.my first method' editor where 'cinderella move' is being added above the existing 'say oh no, I'm trapped!' method. The bottom screenshot shows the 'direction' dropdown menu with 'up' selected and '1/2 meter' highlighted in red. A second screenshot shows the method editor with 'cinderella move up 0.5 meters' added above the 'say' method.

In order to make her jump, we will move her up and then down.

Drag **Cinderella move** from the details pane into the method editor above the **say** method that is already there. Release when you see the green line where you want the instruction. Select **up 1/2 meter**.

Step 5: Copy a Method

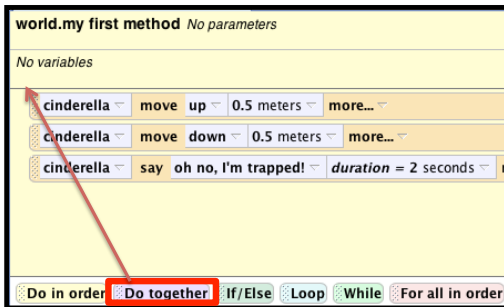
The top screenshot shows the 'world.my first method' editor with 'cinderella move up 0.5 meters' highlighted in red. A red arrow points to a context menu with 'make copy' highlighted in red. The middle screenshot shows the method editor with a copy of 'cinderella move up 0.5 meters' added below the original. The bottom screenshot shows the 'direction' dropdown menu with 'down' highlighted in red. A final screenshot shows the method editor with 'cinderella move down 0.5 meters' added below the original.

Right click on the **Cinderella move** method and select **make copy**. You will see a copy appear below the original. This is useful when you want to copy a single line of code.

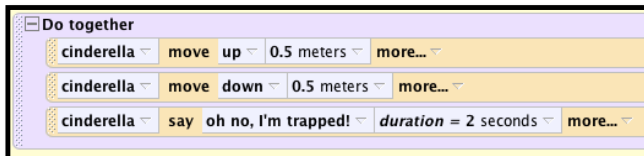
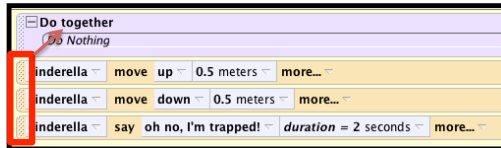
Since we want her to move down in exactly the same way she moved up we made a copy. Click on the **up** and select **down**. Press **Play** to test this.

Step 5: Do Together

Better but not quite what we want, we want her to jump up and say together. We can do this by using a Do together block. There are two main types of blocks, Do in order and Do together. The default is a Do in order.

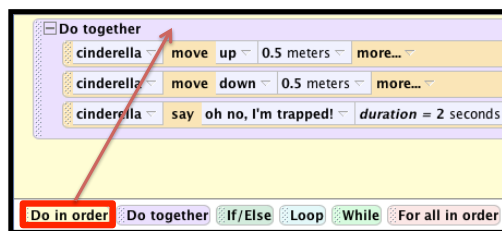


Drag in a **Do together** block from the bottom of the method editor in.



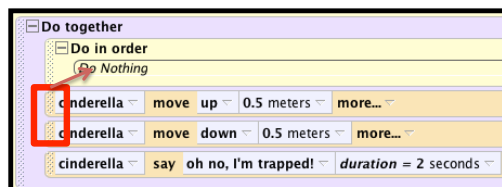
Drag each of the **move** and **say** methods in by clicking on the bumpy left side and dragging it into the **Do together** block.

Step 5: Do In Order

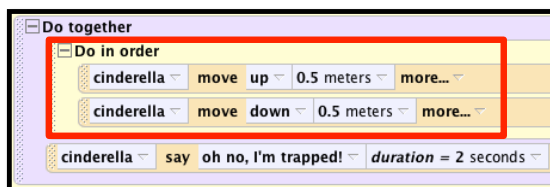


When you press Play, nothing happens! This is because the move up and move down happen at the same time, cancelling each other out!

Drag in a **Do in order** into the **Do together** block. Drag the **move up** and **move down** commands inside.

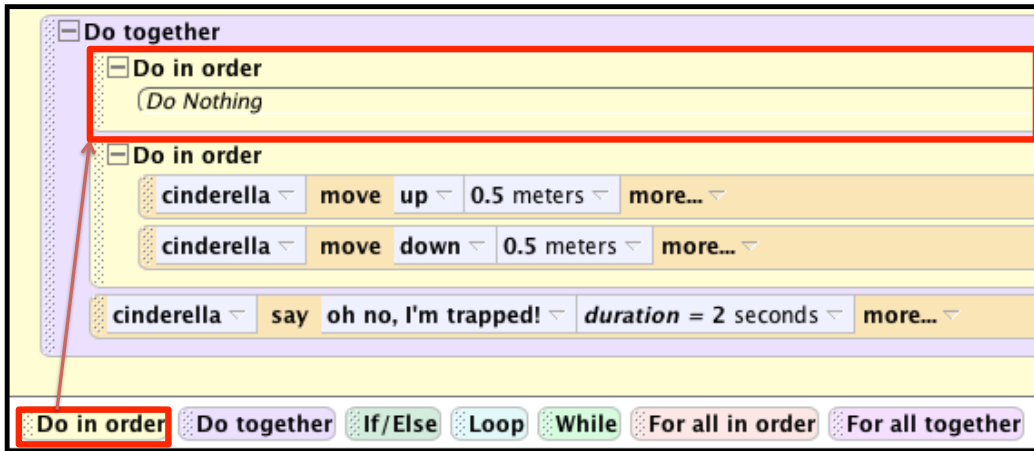


Press **Play**, why does it work now?



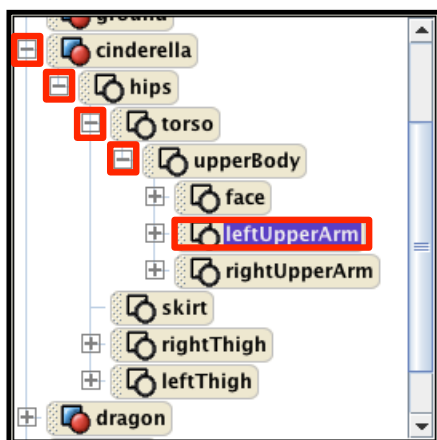
At this point we are basically done with part 1. But Cinderella's arms don't look quite right. Let's review the animation skills we've learned and make them look more natural.

Step 5: Do in Order Continued



Drag in another **Do in order** inside the **Do together**.

Step 6: Subparts



This time we only want to animate Cinderella's arms. To do that we must select her arm.

Go to the object tree and click on the + next to **Cinderella** then next to **hips**, **torso**, **upperBody** until we see the **leftUpperArm**. Click on that.

Objects in Alice are made of subparts that you can animate. You will notice that the arm has its own details pane and bounding box, just like the bigger Cinderella object.



Step 6: Subparts Continued

From the **leftUpperArm's** detail pane, drag in a **roll** instruction into the new **Do in order**. Select **right** and then **other...** Using the calculator, punch in **.2** and then click **Okay**.

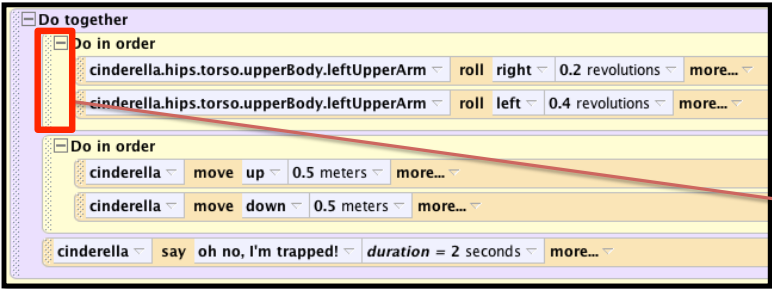
The roll command moves an object around it's center. Since the center of the arm is near the shoulder, the roll command will cause the arm to look like it is swinging. We choose right because remember it is relative to the object that instructions are animated and we want the left arm to swing toward Cinderella's right.

Step 6: Subparts Continued

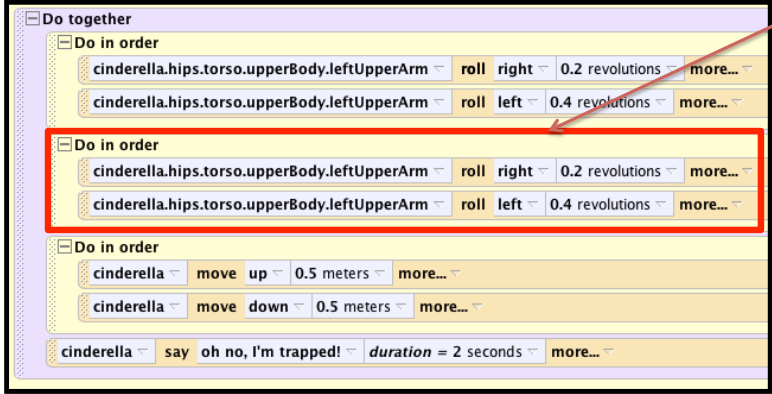
To roll the arm back downwards, drag a **roll** command below the previous one and this time select **left** and then **other...** and punch in **0.4**.

Play the world to test it. It looks good! Now let's do it again for the other arm.

Step 6: Another Copy



Another way to copy code is to use the clipboard at the right of the toolbar.



Drag the entire **Do in order** with the two **roll** methods onto the clipboard.

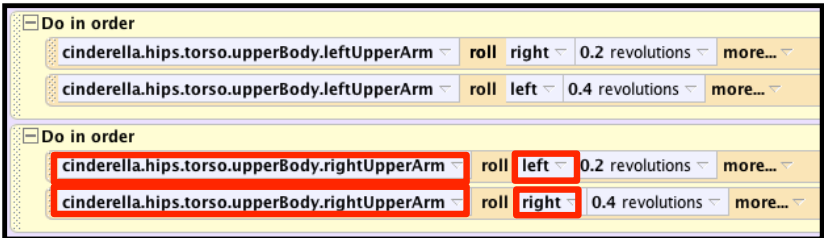
Drag the clipboard into the **Do together**.

This method is useful for copying chunks of code.

Step 6: Another Copy Continued



We want the new block of code to refer to the right arm. Click on the arrow next to **leftUpperArm** in the first roll method in the block and select **Cinderella**, **hips**, **torso**, **upperBody**, **rightUpperArm**, **the entire rightUpperArm**.



Do the same for the other **roll** method then change the **right** to **left** and the **left** to **right**.

Congratulations!

```
Do together
├─ Do in order
│  ├─ cinderella.hips.torso.upperBody.leftUpperArm roll right 0.2 revolutions more...
│  └─ cinderella.hips.torso.upperBody.leftUpperArm roll left 0.4 revolutions more...
├─ Do in order
│  ├─ cinderella.hips.torso.upperBody.rightUpperArm roll left 0.2 revolutions more...
│  └─ cinderella.hips.torso.upperBody.rightUpperArm roll right 0.4 revolutions more...
└─ Do in order
   ├─ cinderella move up 0.5 meters more...
   ├─ cinderella move down 0.5 meters more...
   └─ cinderella say oh no, I'm trapped! duration = 2 seconds more...
```



This is the final code for the tutorial. **Play** your world one last time to make sure everything is right.

Congratulations on finishing part 1! In part 2 you will learn more about methods and how to do more animating in Alice.