

CompSci 94

Classwork: Arrays

October 19, 2021



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1) Setting up the scene

- You can use the starter world on the calendar page called `classworkOct19starter.a3p`
- OR Follow these instructions to setup:
 - Add in a light ground cover, such as sand
 - Drag in these objects so they are in positions similar to the picture on the next page
 - Biped: hare, two of tortoise, panda, pig
 - myClasses: load in two of bunny who knows how to walk
 - Props: pricklyPearCactus(small), colaBottle, pumpkin, ruby, mango, cake (birthday)

1) Setup scene (cont)

- In scene setup
 - Change the height of the pumpkin to 0.2
 - Change the height of the pricklyPear cactus to 0.3 and change its color to GREEN
 - Change the color of the ruby to RED
 - Change the color of the colaBottle to RED
 - Change color of bunny2 to PINK
 - Change color of tortoise2 to CYAN
- See picture next page for layout

1) Setup Scene (cont)

- Layout as shown:



1) Setup Scene (cont)

- Make sure there are two rows of animals lined up
- Smaller row is about two units back.
- This is what the setup world comes with!



2) Overview of story

- There is lots of synchronized movement and things happening to animals. The tall animals change different colors. Then animals disappear, props all appear and the bunny appears. The bunny tries to eat everything but not the prickly cactus (two prickly) and not the colaBottle or ruby. Then the tortoise reappears and the tortoise and bunny resize several times. Then items disappear and ending.
- **Follow the next steps** with more detail to write this program, including writing procedures.

3) Build several arrays under Scene tab, add Scene property

- Create a **Biped** array named **animals**
 - Put in it in this order: bunny2, pig, tortoise, hare, bunny, panda, tortoise2
- Create a **Biped** array named **shortAnimals**
 - Put in it in this order: bunny2, tortoise, bunny, tortoise2
- Create a **Biped** array named **tallerAnimals**
 - Put in it in this order: pig, hare and panda

3) Build more arrays as scene properties (cont)

- Create a **DecimalNumber** array named **someNumbers** and put in 5 numbers between 0.25 and 7.0, alternate between very small and large
- Create a **Prop** array named **itemsOnGround**
 - Put in it in this order: pricklyPearCactus, colaBottle, cake, pumpkin, ruby, mango
- Create a **Paint** array named **someColors**
 - Put in it three different colors.

4) Notes

- You will create lots of loops with arrays. For each such loop you must create a name for the variable in the loop. **That name must be different than the name of anything else in Alice.**
- **Don't copy and paste array loops!** This can cause problems.

5) Add code in myFirstMethod

- Put in a do in order
- Add an array loop to have everything in the itemsOnGround array disappear instantly. When you click run you shouldn't see them at all. Hint: Use the “each in_together” loop
- Add in an array loop to have each animal one at a time do the following three things: Kick their right leg up (0.25), turn around once and put their right leg back down. (use fast duration on each line – 0.25)

6) Write a **Biped** procedure named **upAndKick**

- This procedure should have the biped move up a random amount (between 1.0 and 3.0), then have its two legs swing in opposite directions, then its two legs swing back, then move back down the same amount it moved up. All moves should be quickly, in 0.25 sec.
- Here is a side view of the split
- There are **NO** parameters.



7) Continue adding code in myFirstMethod

- At the same time, have all the animals in the array jump up and kick their legs (call upAndKick)
- Next at the same time, have all the tall animals (tallerAnimals) jump up and kick their legs (call upAndKick)
- Next at the same time, have all the short animals (shortAnimals) move forward 2, say hello and then move back to where they were.

7) Continue adding code in myFirstMethod

- Next have all the tall animals at the same time turn a color and then another color, and then another color.
 - Hint: Nest an array loop inside of another array loop. For each color, paint all tall animals at the same time.
- Next have all the animals disappear instantly at the same time.
- Next have all the items on the ground (from itemsOnGround array) appear at the same time.
- Have bunny appear.

8) Write the **bunny** procedure named **eatFood**

- There is one parameter of type **Prop** named **itemToEat**
- This procedure should do the following:
 - The bunny should face the item to eat.
 - Use a while loop to have the bunny walk over close to the item
 - If the item is painted red, bunny says “can’t eat that”
 - If the item is painted green, bunny says “too prickly”
 - Otherwise the bunny turns towards the item, eats the item (it disappears) and turns back up. Then the bunny says “yum”

9) Add the rest of code in myFirstMethod

- Use an array loop to have the bunny go to each of the items in itemsOnTheGround and eat it or not (based on conditions explained)
- Then the bunny faces front
- The tortoise appears standing next to the bunny (move tortoise over to the bunny first then make it visible) and at the same time all the items from the itemsOnGround array disappear (some were already invisible).
- The bunny and tortoise at the same time resize themselves trying all the numbers in the number array one at a time
- Then the tortoise says “The End of Array Adventures”

That's it. Here are some pics

