Lists Tutorial

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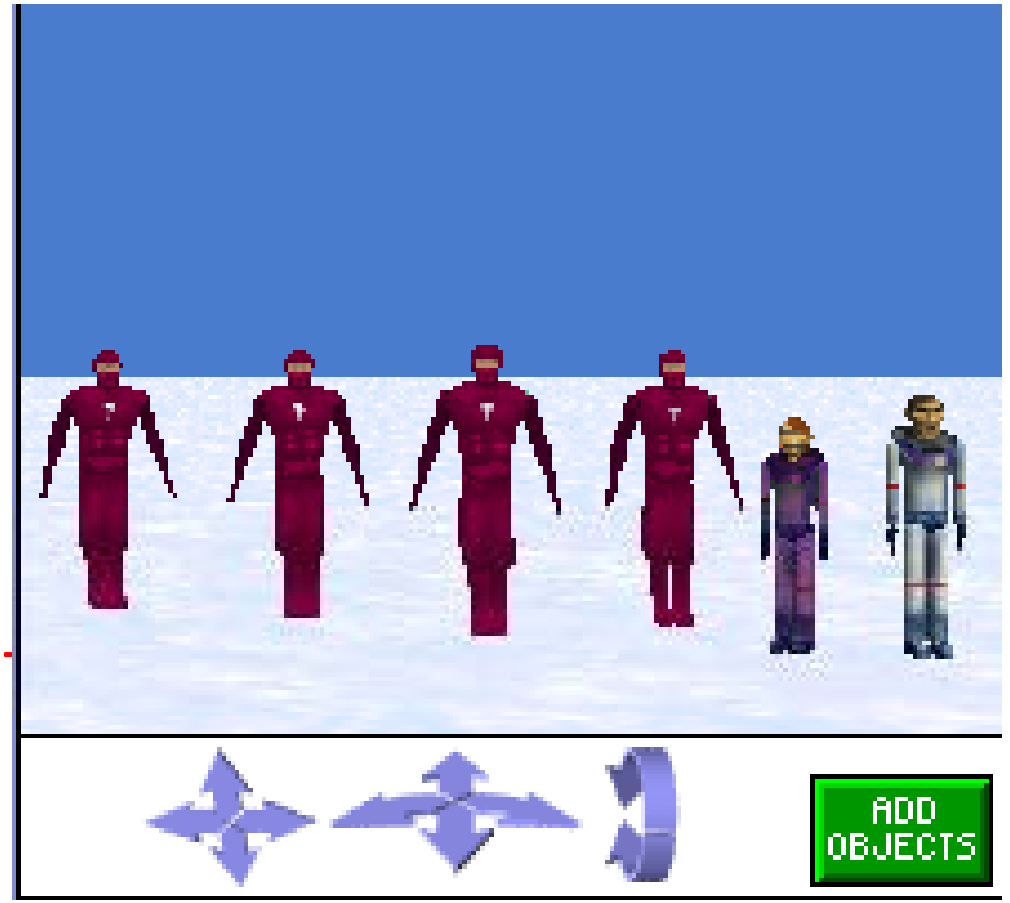
Loading the World

- Open a new world, with any template
- Save it in a directory that you can find again,
- After you have opened the file go into the "Layout" mode by clicking on the green button Add Objects (toward the middle of screen)
- Click more controls. Click drop a dummy at the camera. Rename the dummy 'originalPosition.' To leave the layout mode, click done

Adding the Objects

- Go to the gallery and add four evilNinjas to your world (from the People folder)
- Add two other people to your world

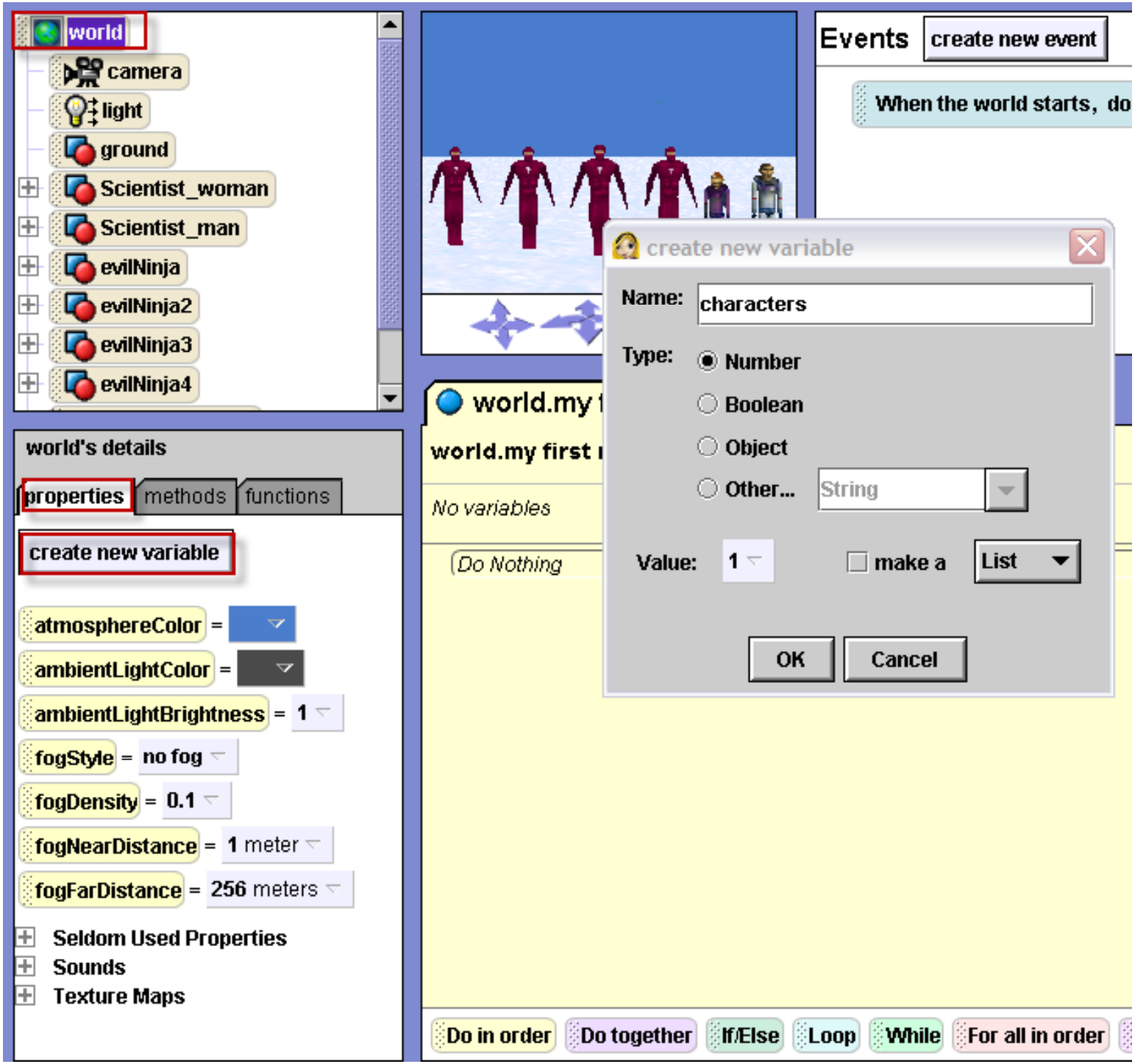
➢ I've added the scientist-man and scientist-woman



Part 1: Making a List

- We will use a list to make all four of the ninjas jump up and down together and then kick and spin one at a time
- Click on the world in the object tree and on the properties tab
- Click create new variable
- Name it ‘characters’

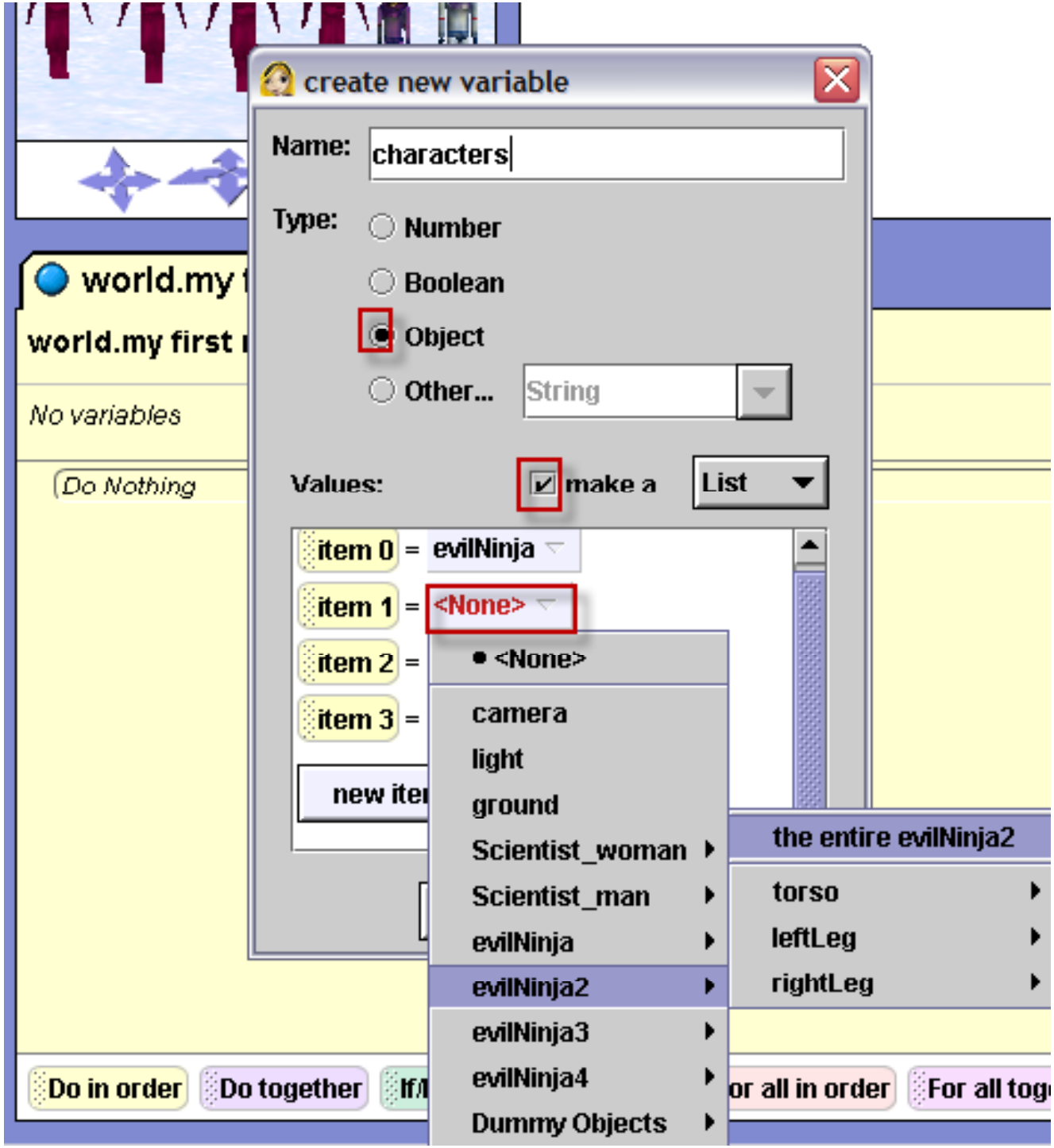
➢ See the screenshot on the next slide for an illustration


world
camera
light
ground
Scientist_woman
Scientist_man
evilNinja
evilNinja2
evilNinja3
evilNinja4
world's details
properties
methods
functions
create new variable
atmosphereColor =
ambientLightColor =
ambientLightBrightness = 1
fogStyle = no fog
fogDensity = 0.1
fogNearDistance = 1 meter
fogFarDistance = 256 meters
Seldom Used Properties
Sounds
Texture Maps
Events
create new event
When the world starts, do
world.my
world.my first
No variables
Do Nothing
create new variable
Name: characters
Type:
Number
Boolean
Object
Other...
String
Value: 1
make a
List
OK
Cancel
Do in order
Do together
If/Else
Loop
While
For all in order

Making a list (cont 1)

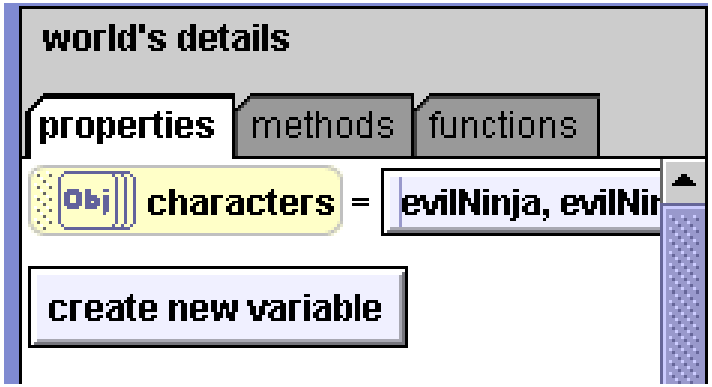
- Select "object" as the type
- Check the box "make a List"
- Click the "new item" button four times
- For item0 select evilNinja
- For item1 select evilNinja2
- For item2 select evilNinja3
- For item3 select evilNinja4

➢ See the screenshot on the next slide for an illustration


create new variable
Name:
characters
Type:
Number
Boolean
Object
Other...
String
Values:
make a
List
item 0 = evilNinja
item 1 = <None>
item 2 =
item 3 =
new iter
<None>
camera
light
ground
Scientist_woman
Scientist_man
evilNinja
evilNinja2
evilNinja3
evilNinja4
Dummy Objects
the entire evilNinja2
torso
leftLeg
rightLeg
world.my
world.my first
No variables
Do Nothing
Do in order
Do together
or all in order
For all tog

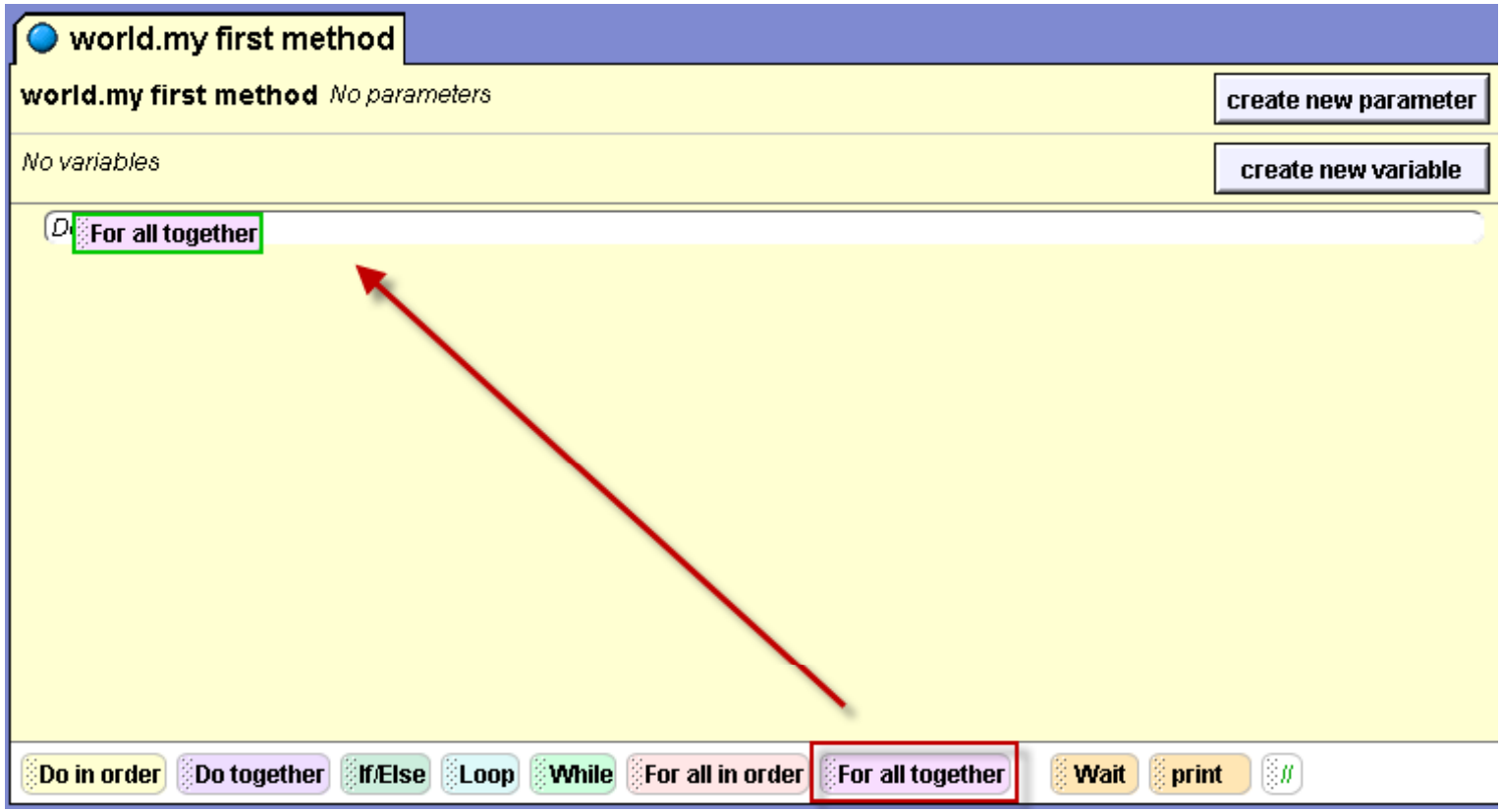
Making a List cont(2)

- Now, there is a "characters" list variable at the top of the world "properties" tab



Part 2: Writing the method

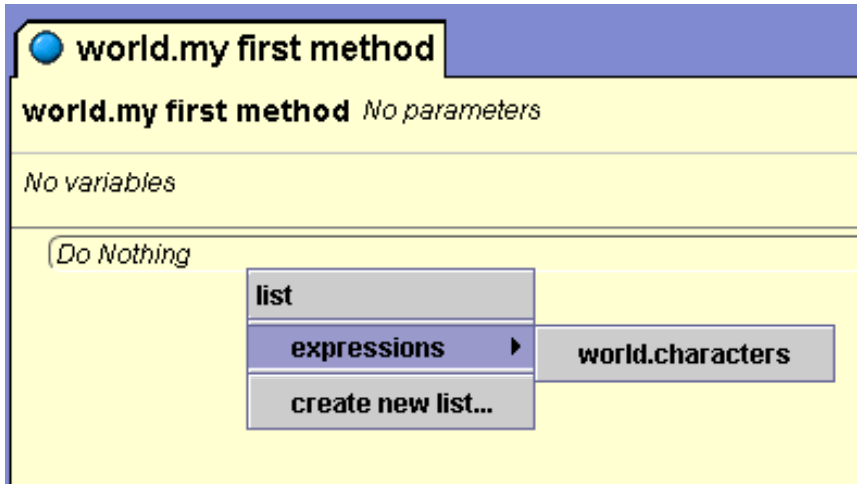
- Drag “for all together” into “world.my first method”



Writing the method (cont 1)

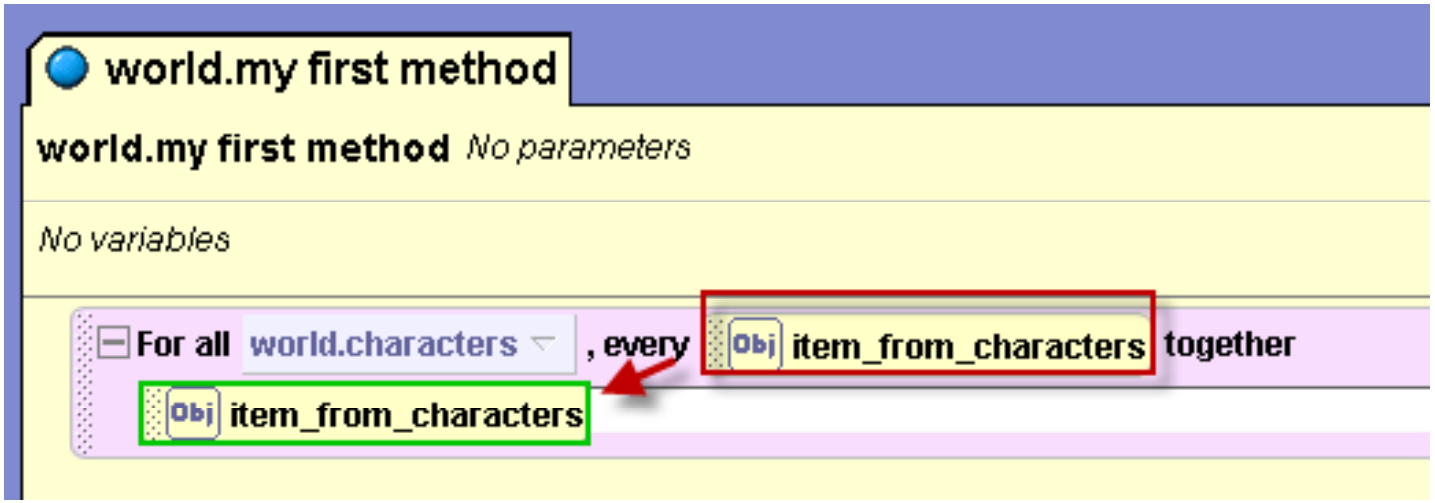
- In the drop down menu, select “expressions”, then select the list world.characters

➢ “For all together” means that all of the items in the list will perform the instructions at the same time.



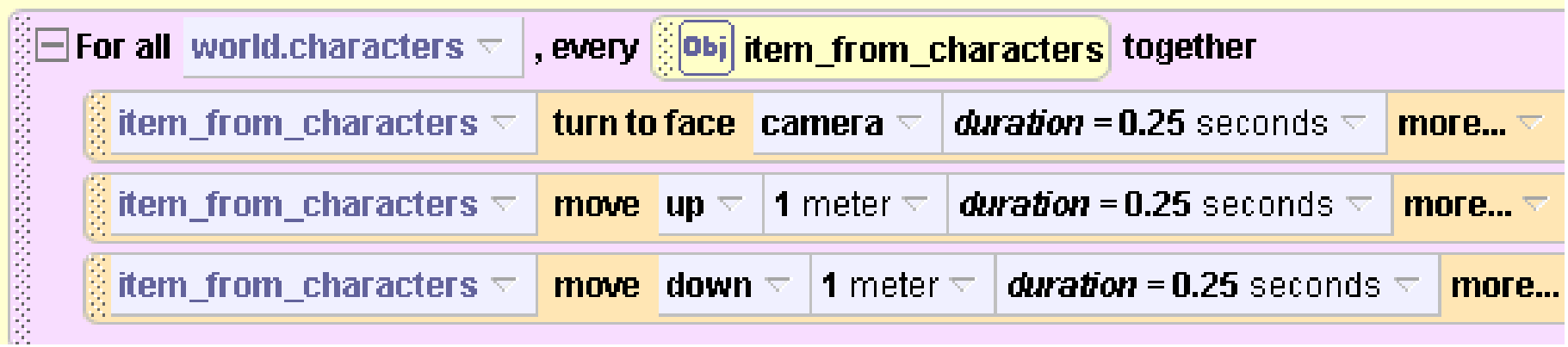
Step 1: For all together

- Click on “item_from_characters”
- And drag it on top of the “Do nothing”



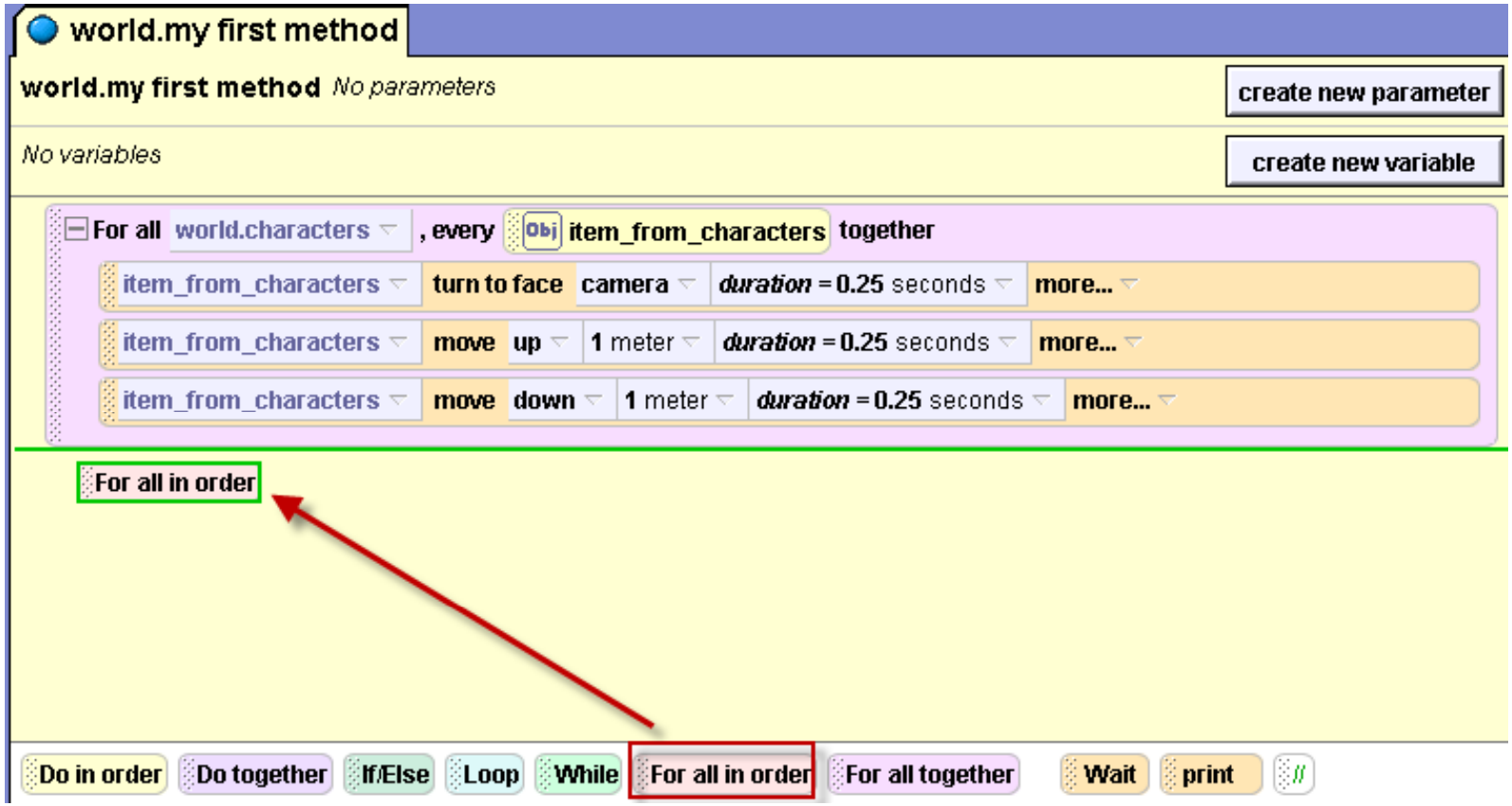
For all together (cont 1)

- In the drop down menu, select “turn to face” and then select “camera”
- Click on “more" to change the duration to 0.25
- Drag “item_from_characters” again and select the “move” up and “move” down instructions.
- Play your world. Your method should look like this:



Step 2: For all in order

- Now drag “for all in order” underneath the “for all together” and select “expressions”, then world.characters



For all in order (cont 1)

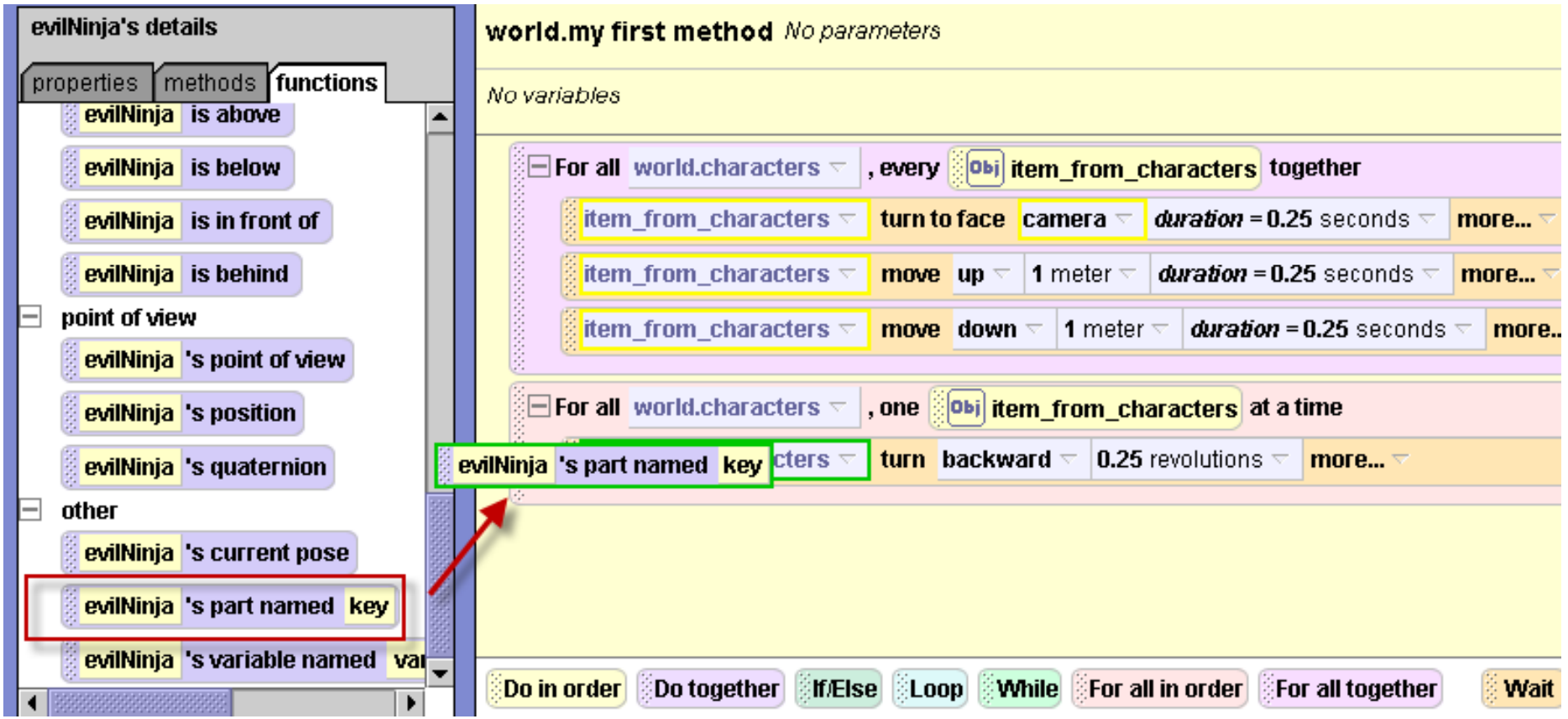
- For all in order means the ninjas will perform all of the instructions, one right after the other (in the order that they were added to the list)
- We want the ninjas to each turn their left leg and spin one at a time.
- However, "item_from_characters" does not have any parts
- We will have to use a class level built in function to turn only a part of the object.

For all in order (cont 2)

- First, drag “item_from_characters” into the “for all in order” and select “turn backward” 1/4
- Click on “evilNinja” in the object tree.
- Select the “functions” tab and scroll down to “evilNinja’s part named key”

Step 3: Object part named key

- Drag that function on top of the item_from_character in your instruction

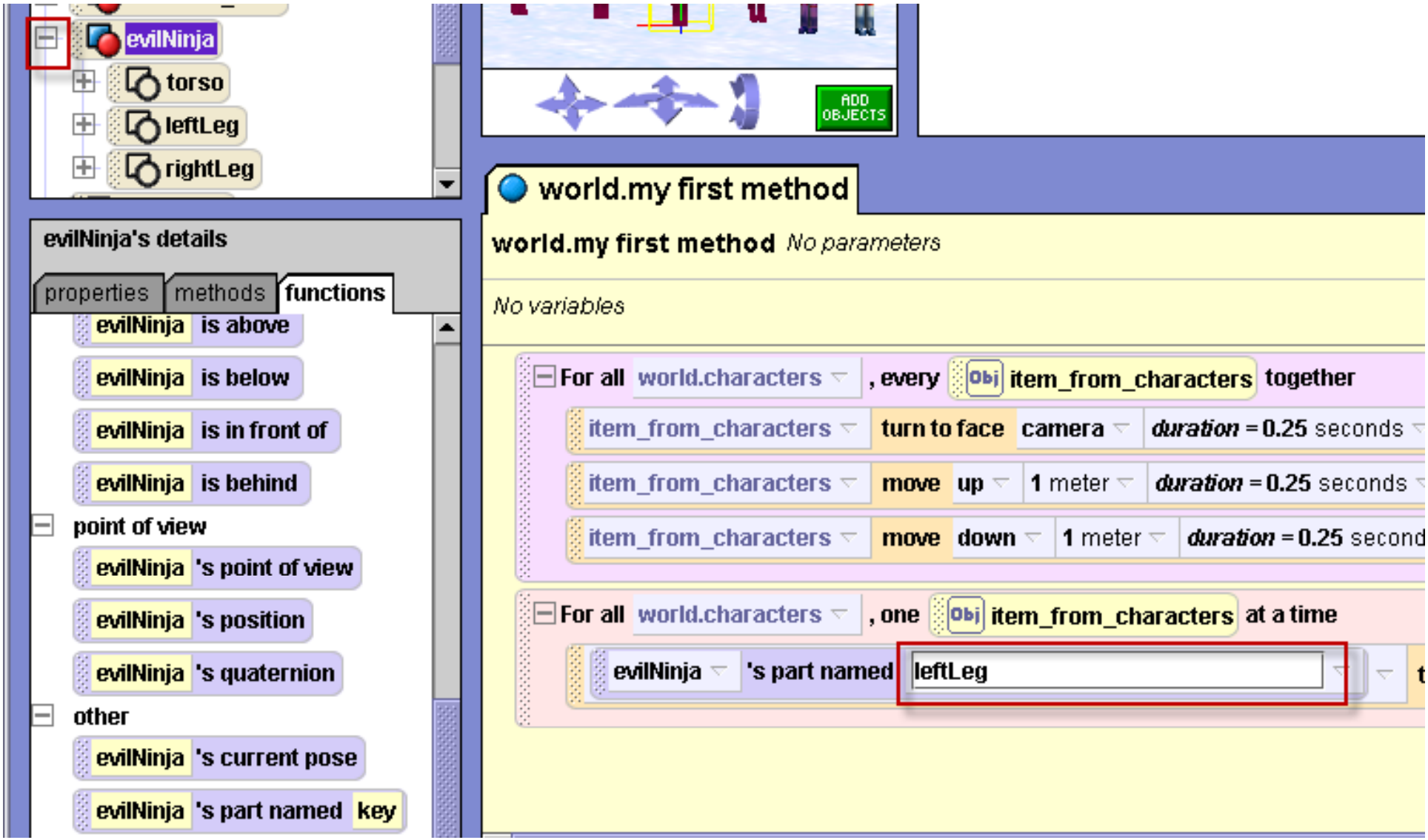


Object part named key (cont 1)

1) In the object tree, expand the + beside evilNinja to see that it's body part is named "leftLeg"
2) In the turn backward instruction, click on the box and type leftLeg with the same capitalization and spacing as it appears in the object tree – no spacing, the second L must be capitalized

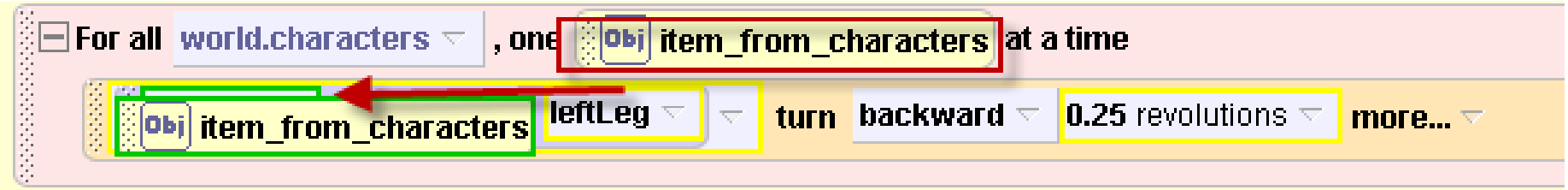
- See the screenshot on the next slide for an illustration

Object part named key (cont 3)



For all in order (cont 1)

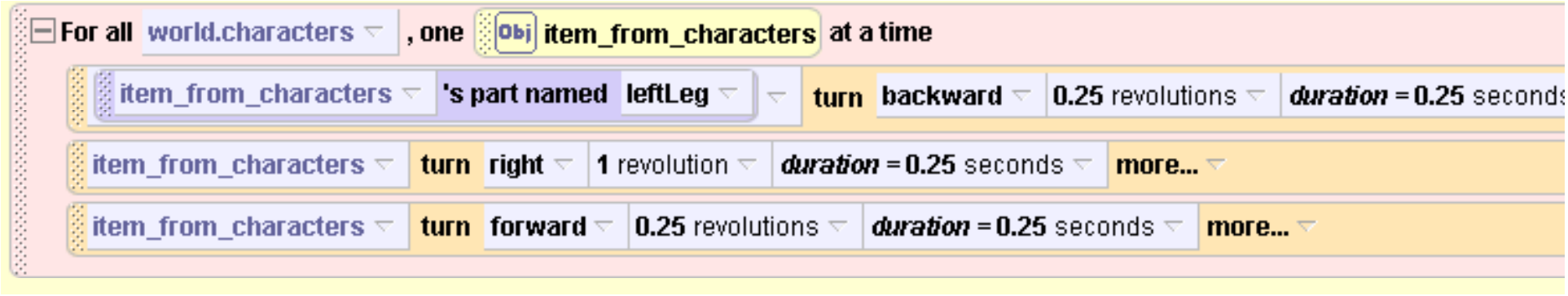
- Drag “item_from_characters” on top of evilNinja



- Drag “item_from_characters” into the “for all in order” again and select “turn right” 1 revolution

For all in order (cont 2)

- Then drag “item_from_characters” again and select “turn forward” ¼. Your loop should look like this so far:

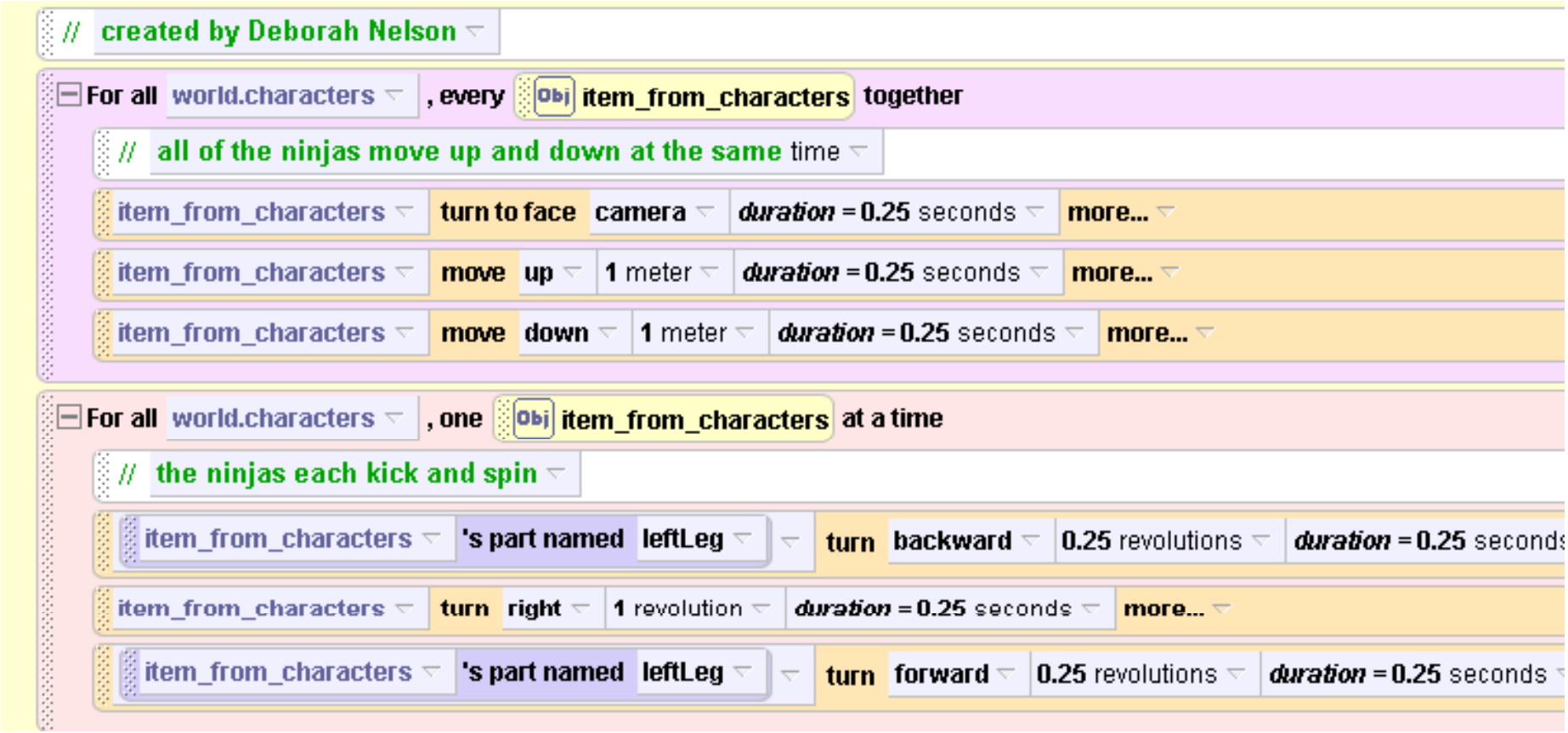


For all in order (cont 3)

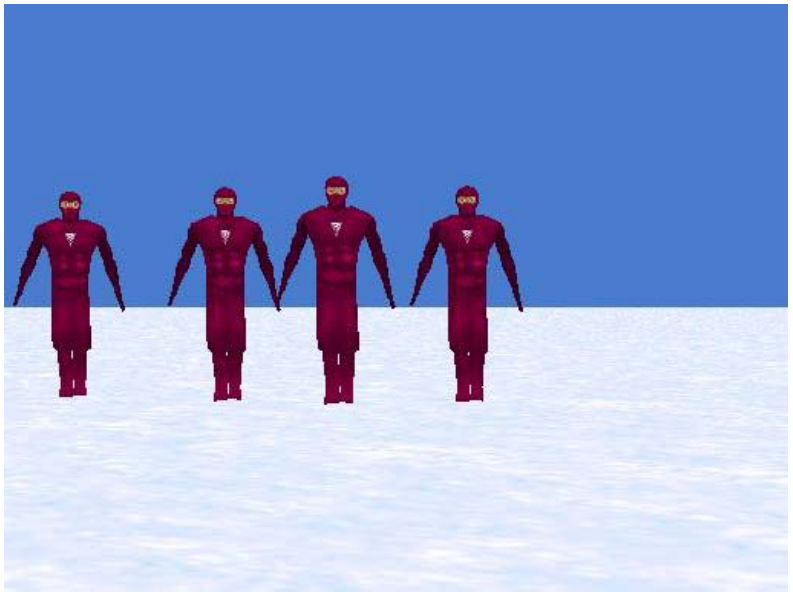
- That last instruction should be for the leftLeg only.
- So drag the function “evilNinja’s part named key” on top of the “item_from_characters” and type in leftLeg again.
- Drag “item_from_characters” on top of evilNinja in the “part named key”

The complete method

- Here is the complete method. Don't forget to comment your code



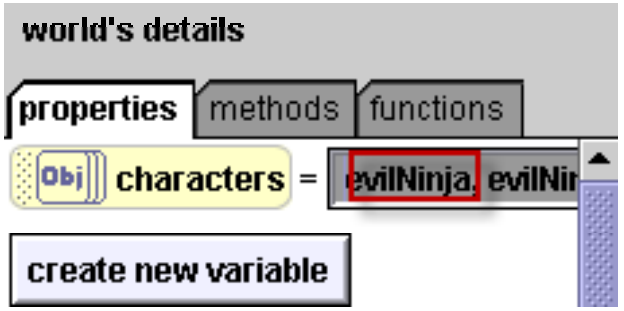
Play your world now



Step 4: Objects with different parts

- So far, our list only has evilNinjas in it. Add the other objects to the list:

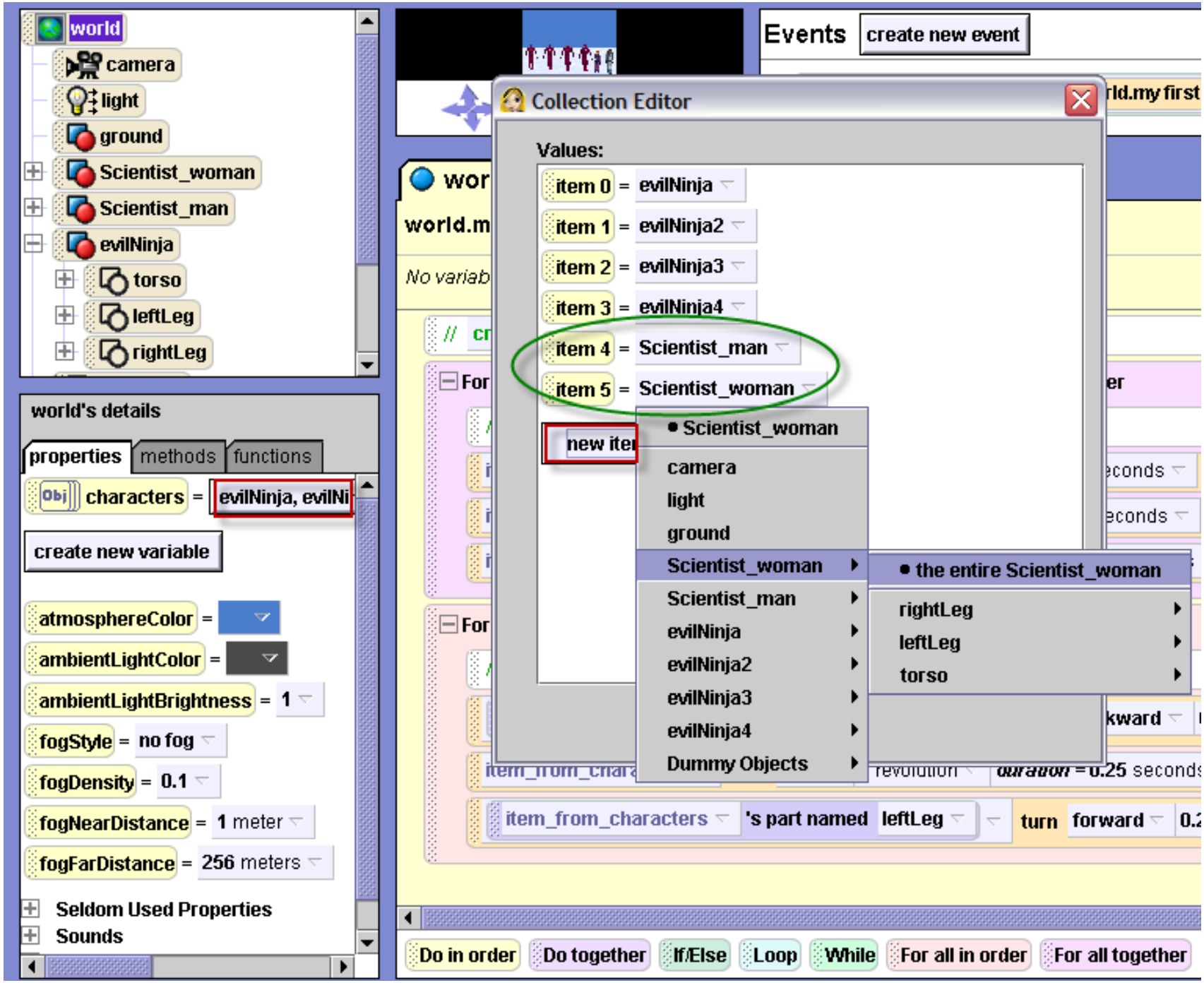
1) Click on world in the object tree
2) Go to the "properties" tab



and click on the box beside characters

1) Click on "new item" and select the object you want to add

➢ See the screenshot on the next slide for an illustration


world
camera
light
ground
Scientist_woman
Scientist_man
evilNinja
torso
leftLeg
rightLeg
world's details
properties
methods
functions
characters = evilNinja, evilNi
create new variable
atmosphereColor =
ambientLightColor =
ambientLightBrightness = 1
fogStyle = no fog
fogDensity = 0.1
fogNearDistance = 1 meter
fogFarDistance = 256 meters
Seldom Used Properties
Sounds
Events
create new event
Collection Editor
Values:
item 0 = evilNinja
item 1 = evilNinja2
item 2 = evilNinja3
item 3 = evilNinja4
item 4 = Scientist_man
item 5 = Scientist_woman
new iter
Scientist_woman
camera
light
ground
Scientist_woman
Scientist_man
evilNinja
evilNinja2
evilNinja3
evilNinja4
Dummy Objects
the entire Scientist_woman
rightLeg
leftLeg
torso
item_from_characters
's part named
leftLeg
turn
forward
Do in order
Do together
If/Else
Loop
While
For all in order
For all together

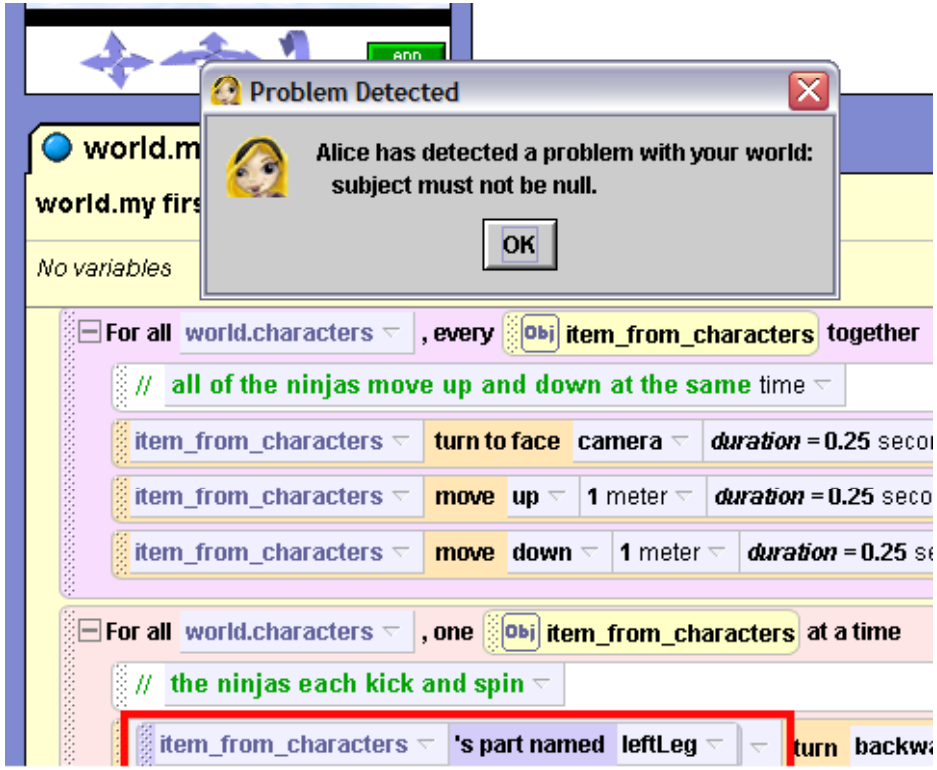
Warning

- Play your world.
- If you did not use the same objects as this demonstration, you may get an error highlighting the "parts named" function.
- Adding the scientist-man and scientist-woman to the list only works because they both have leftLeg as the label for one of their body parts
- If your character does not have a part named leftLeg you get the error

Fixing the error

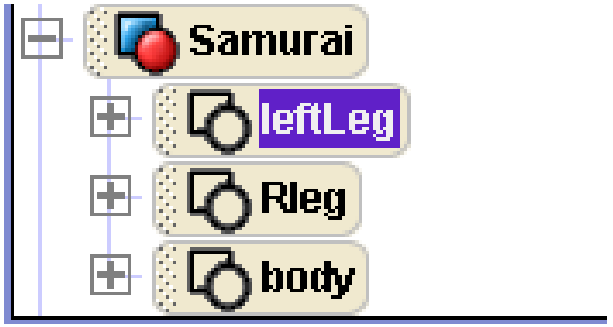
- For example, I've added the Samurai (from the web gallery People folder).
- When I add him to my list and play the world, I get the following error:

➢ Because the Samurai does not have a part named leftLeg



Fixing the error (cont 1)

- In the object tree, click on the + beside Samurai
- Double click on the body part named Lleg
- Rename it leftLeg



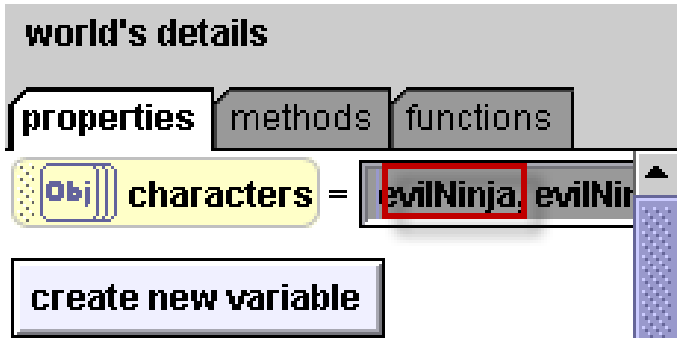
- Now play your world
- Success!

How to remove an obj

- To delete an object from your list:

1) Click on world in the object tree

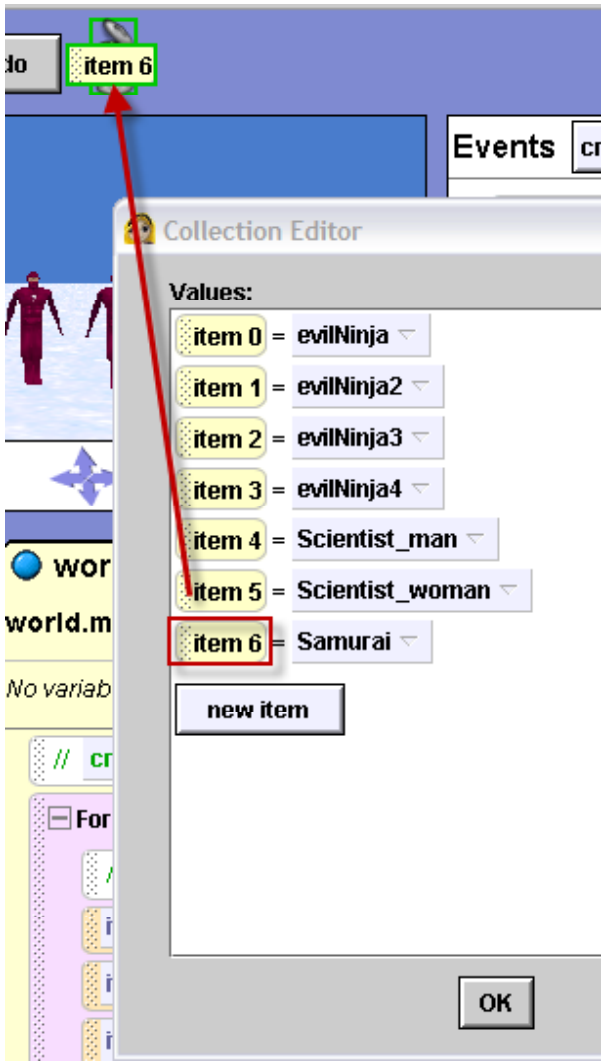
2) Go to the "properties" tab and click on the box beside Characters



➢ See the screenshot on the next slide for details.

Deleting an object from your list

- 3) Drag the item you want to delete to the trash can.
- This object is still in your world, but it was removed from the list



Recap

- Lists are useful for having multiple characters perform the same set of actions.
- For all together means everything in the list will perform at the same time
- For all in order means everything in the list will happen one right after the other
- To make the sub parts of an object move, use the function part named key. But make sure all of the characters have the same parts labeled the same way
- WARNING: Do not add too many objects to your list because doing so will slow your world down significantly