Tutorial on Kangaroo visiting his animal friends - parameters, events

Susan Rodger
Duke University
June 2009

Start with a new world

• Add a Kangaroo, a cow, and several animals of different heights, spread around the world
• I picked bunny, cow, horse, ladybug, tortoise, turtle – any animals will do but make sure you have some tall animals.
Problem

• The kangaroo wants to visit each animal where “visit” means: the kangaroo and the animal face each other, the kangaroo moves close in front of it, the kangaroo says “hi” and then the Kangaroo jumps over it. However, the kangaroo can only jump 1 meter high.

Parts of the Tutorial

• Part 1: Kangaroo visit each friend
• Part 2: Kangaroo either go around or jump over
• Part 3: Create an event to click on animal to visit
Part 1: Kangaroo visit Cow

- Create a “Kangaroo” method called visit for the Kangaroo to visit the cow

See the new Kangaroo visit method tab appear
Enter the following code

- The kangaroo turns to visit the cow and moves toward it.

- To test it out, change the event “when the world starts” to “kangaroo.visit” and PLAY

How to move the Kangaroo all the way to the cow

- Click on Kangaroo, and under Kangaroo’s details, click on Functions.
- Click and drag “kangaroo distance to” on top of the 1 meter.
• Click Play

• Yikes, The Kangaroo goes into the Cow!
• We want the Kangaroo to stop 2 meters in front of the cow (make sure the cow is more than 2m away).

Use Math and subtract 2

• Click on white arrow
• Select “math”, then “minus sign” then “2”
Resulting in the following code

<table>
<thead>
<tr>
<th>kangaroo.visit</th>
<th>No parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>No variables</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>kangaroo</th>
<th>turn to face</th>
<th>cow</th>
<th>more...</th>
</tr>
</thead>
<tbody>
<tr>
<td>cow</td>
<td>turn to face</td>
<td>kangaroo</td>
<td>more...</td>
</tr>
<tr>
<td>kangaroo</td>
<td>move forward</td>
<td>{ kangaroo distance to cow } - 2</td>
<td></td>
</tr>
</tbody>
</table>

- The kangaroo will stop two meters in front of the center of the cow...

Next add a greeting and jump over

- Have the kangaroo say a greeting
- Then have the Kangaroo jump over the cow
  - The kangaroo must jump up
  - The kangaroo must jump 2m to the cow, plus the cow’s depth, plus another 2m past the cow
    - Total distance: 4 + cow’s depth
    - Find cow’s depth in the cow functions...
  - The kangaroo jumps down

(code on the next page)
Add the remaining code
Change “when the world starts” to Kangaroo.visit and “Play”

How to visit any friend –
Add a parameter named friendToVisit - type should be Object – click ok
Now click and drag friendToVisit on top of the four occurrences of Cow

Click and drag from here

Change “when the world starts” back to myFirstMethod

Click on myFirstMethod tab,

Drag in visit for each friend and “Play”
Add another parameter of type String so Kangaroo can give a different greeting to each animal

• Click on the tab for Kangaroo.visit first
• Click on “create new parameter”
• The type is “Other” then “String” since the Kangaroo will say worlds
• Then click ok

The result is...

• Notice “greeting” is of type “ABC” or words
• Now click and drag “greeting” over the phrase the Kangaroo says “How are you doing?”
• Result is:
Back to MyFirstMethod, add greetings

• Replace “greeting=default string” to a different greeting for each animal.

• Then Click Play

Part 2: Going around or over friend

• Kangaroo can only jump 1 meter high
• If friend is shorter than 1 meter, it is ok to jump over
• If friend is 1 meter or taller, then go around them
First drag in an If/Else from the bottom of the window, placing after the “say”

Select “world”, “functions” and scroll to find math functions, then click and drag “a<b” selecting 1’s
Drag in “cow’s height” from the cow functions, then drop “friendToVisit” over cow

Move the kangaroo jump over code and put after the if. Then add code after the else to “go around”. Then Play
Part 3 – create an event to visit friend clicked on

First, disable the event “when the world starts” so the movie will not play

Events [create new event]

- When the world starts, do [world.my_first_method]
- delete
- change to
- disable

- You can get the movie back, by enabling the event.

Create a new event
When the mouse is clicked on something

Events [create new event]
- When the world starts
- When a key is typed
- When the mouse is clicked on something
- While something is true
- When a variable changes
- Let the mouse move <objects>
- Let the arrow keys move <subject>
- Let the mouse move the camera
- Let the mouse orient the camera
Drag over the visit code into the do nothing and select “expressions”, “object under mouse cursor”, then a greeting

Here is the event. Now click “play” and click on different animals, but not the kangaroo...

- The Kangaroo will go visit the animal you click on.
- Click on another animal and it will go visit that animal.