# 1-Hour of Code Part 1: Frogger Lesson using AgentCubes

The instructions can be used or without the instructional video at [http://youtu.be/LsR1J3AiPvc](http://youtu.be/LsR1J3AiPvc)

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<th>Task</th>
<th>Step-by-Step</th>
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<td>Install AgentCubes</td>
<td>1. Go to <a href="http://code.org/api/hour/begin/agentcubes">http://code.org/api/hour/begin/agentcubes</a> from your web browser (Firefox or Google Chrome) to access <strong>AgentCubes</strong>.</td>
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<tr>
<td>Using Video with Instructions - <strong>Optional</strong></td>
<td><strong>Optional:</strong> When you access AgentCubes from the link above a video will appear that you can watch along with these instructions. Click the <strong>pause</strong> button and the <strong>hide video</strong> link to go directly to <strong>AgentCubes</strong> after each step and then click <strong>show video</strong> to have the video reappear.</td>
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| AgentCubes Layout | **Agent Lists:** On the left of the screen contains your agents (*i.e.* Frog).  
**Grid:** The blue grid is where you will create your 3D world.  
**Behavior Editor:** Where you will create the programming rules that will guide your agent’s behavior.  
**Conditions and Actions Panels:** The conditions and actions will allow you to create rules in the **Behavior Editor** for your agents. |
| Create World | 2. Click the **+ button** to the right of **World:** from the top toolbar to add your world. **Name** your world **Frogger** and click **OK**. Leave everything else as it is. |
| Add Frog Agent | 3. Click the **Agent** button on the lower left of the **Agent Lists** screen.  
4. From the **New Agent Shape Browser** window, select the **Inflatable Icon** from the first column. Leave the 2nd and 3rd column as they are.  
5. To make your own **Frog**, leave the ladybug (**Akako**) selected and name your agent **Frog** to the right of **Name:** on window. |
6. Click **OK** on the lower right of screen. Now you will see the image under the **Agents List**. Remember you will change the image to a **Frog** in the next step.

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<th>Creating Frog Agent</th>
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<td>7. Double-click the <strong>Agent’s icon</strong> <em>(not on the name but the actual image of the ladybug)</em> to open the illustration of your image. The <strong>Inflatable Icon Editor</strong> appears:</td>
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![Inflatable Icon Editor](image)

**Note:** If you don’t see all the tools *(clear, flatten)* in the window above click the **More tools...button**.

8. Click the **Clear** button in the middle of your screen to remove the ladybug.

9. On the left side of the screen is the 2D editor, from the toolbar on the left click the **Mirror Vertically tool**. This will add a blue line in the center of the screen.

**Note:** Anything you draw on the left side of the blue line will be mirrored on the right side of the line.

10. Select the **pencil tool** from the left side toolbar and click the **color box** to **select the color green**. The color box will turn green.

11. Using the **pencil tool**, draw the left side of the Frog and it will be duplicated on the right side. As you draw on the 2D platform you will see the 3D version on the right of the screen. Make sure to add some eyes to the **Frog**.

**Note:** To step back a step **press Ctrl+Z**, use the **bucket to fill in**, use the **eraser tool to erase**. To change a color remember to go back to the **color box**.
12. When finished creating the Frog, click the + symbol located in the center of the screen a number of times to inflate the Frog. Watch the 3D platform on the right side to see the Frog inflate.

13. To inflate the Frogs’ legs even more, select the Magic Wand from the toolbar on the left side of the 2D platform. Next, click on the left leg to select it. Then hold down the Shift key on your keyboard and click the right leg. You should have both legs selected (see illustration below).

14. With both legs selected, click the + button in the center of the screen to inflate the legs. Watch the 3D platform on the right side to see the legs inflate.

15. To deselect the Frog’s legs, press Ctrl+D on your keyboard.

16. To view the Frog in 3D, select the Rotate Camera tool from the toolbar on the right side of the screen. Click the preview area (the space where the Frog is located) and drag to rotate the Frog.

17. Click Save to save your work and the Inflatable Icon Editor closes.

**Building World: Frog Movement**

18. Select the Frog in the Agents List on the left side of the screen.

19. From the top toolbar, select the pencil tool.

20. Click in the grid where you would like the Frog to be located. The Frog should be placed in the center of the bottom row of the grid.

21. It is a good practice to save your work, click the Save button from the top toolbar.
22. To verify you have the Frog behavior selected, you should see Behavior: Frog indicated on the top of the Behavior Editor window located in the center of the screen.

23. The Frog is now on the grid, to have the Frog move you will need to program behaviors. Click the arrow button from the top toolbar and then select the Conditions Panel on the left side of the screen.

24. From the Conditions Panel, scroll down to select the key condition under the title keyboard and drag to the if section of the rule in the Behavior Editor window. Make sure the key condition has the up arrow value selected.

25. Next, go to the Actions panel and select the Move Action at the top of the panel. Drag the Move Action to the then section of the rule.

26. Click the Move Action under the then section of the rule and select the up arrow as the value of this action. This will tell the Frog to move up in the world.

27. To check that the Frog will move up, click the Run button from the top toolbar and press the up arrow to see the Frog move up in the world.

28. Next, create 3 more movements on your own, the left, right, and down movements. Click the red Stop button from the top toolbar and click the Refresh/Reload button on the toolbar to reset the Frog in its original position at the bottom center of the world.

29. Click a blank area of the current Rule in the Behavior Editor window and click the Duplicate button at the bottom of the screen to duplicate the rule 3 times.

Note: You can also create new rules by selecting the Rule button at the bottom of the screen. Make sure they are separate rules (see illustration below).

30. Edit the 3 rules to include the last 3 movements of left, right, and down. When finished it should look like this:

![Behavior Editor screenshot with rules for left, right, and down movements]

31. To test the Frog’s movement in your world, click the Run button from the top toolbar and use your arrow keys on the keyboard to move the Frog.

32. Click the Stop button from the top toolbar and the Refresh/Reload button to get the Frog back to where it started.
### 1-Hour of Code Part 1: Frogger Lesson using AgentCubes

| Create Grotto                                                                 | 33. Create a new **Agent** by clicking the **Agent** button on the lower left of window.  
|                                                                             | 34. Select **Cube**, **Brick** and **Ancient Mayan Blocks**.  
|                                                                             | 35. Name the **Agent Grotto** and click **Save**.  
|                                                                             | 36. The **Grotto** should show in the **Agent List**. |
| Add the Grotto to World                                                     | 37. Make sure the **Grotto** is selected in the **Agent List**.  
|                                                                             | 38. Select the **pencil tool** from the top toolbar and click in the top center row of your grid to add the **Grotto**. |
| Add Rule for Frog reaching Grotto                                           | 39. Make sure the **Frog** is selected in the **Agent List**.  
|                                                                             | 40. In the **Behavior Editor** window select the first rule.  
|                                                                             | 41. Next, click the **+Rule** button at the bottom. That creates a new rule under the selected rule.  
|                                                                             | 42. Then, select the new rule and drag it above all the other rules. It should be the first rule in the **Behavior Editor** window.  
|                                                                             | 43. For the new rule, drag **Stacked Immediately above the Grotto** *(make sure to select Grotto)* from the **Conditions panel** on the left to the **If column** in the rule.  
|                                                                             | 44. On the right **Actions panel**, drag **play-sound** under the **Then column** in the rule. Select the **trara.mp3** as your sound by using the drop down  
|                                                                             | 45. Again, from the **Actions panel**, drag the **show-message** under the **Then column**. Type in the message "**You win**".  
|                                                                             | 46. From the **Actions panel**, drag **reload-world** under the **Then column**, so the game resets itself when it is finished. |
| Run Game using the First Person View                                       | 47. Select the **Arrow tool** from the top toolbar and select the **Frog** in the World.  
|                                                                             | 48. Click the **Camera tool** from the top toolbar to switch to the first person view.  
|                                                                             | 49. Select the **Rotate Camera tool** from the top toolbar to rotate the **Frog** forward toward the **Grotto**.  
|                                                                             | 50. Click the **Run button** to run your game. Click the up arrow on your keyboard to move the **Frog** forward. When the **Frog** reaches the **Grotto**, you should see the message "**You Win**".  
|                                                                             | 51. Click the **OK** at the message window "**You Win**" and select the **Stop button** from the top toolbar.  

**Note:** Use the **Hand tool** to move the **World** and the **Zoom tool** to zoom in the **World**.