

Handout Activity 1

Walk & Turn Example

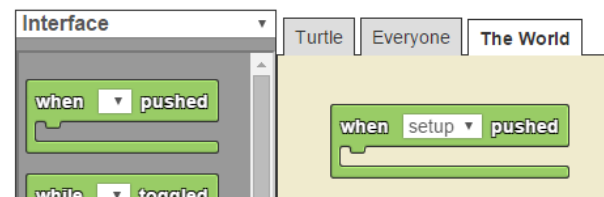
You should have started a new project on www.slnova.org. Follow the steps below to create your walk & turn simulation.

Coding instructions

Go to the programming space area of your project.

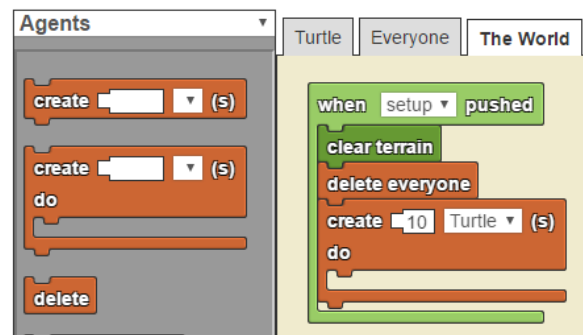
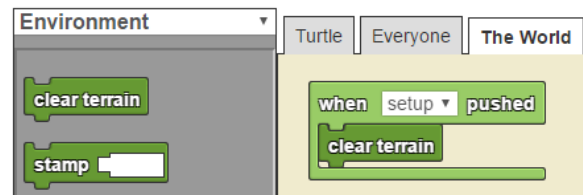
Step 1

1. Click on the **world tab**.
2. Select **Interface** from the drop-down menu on the left.
3. Drag the **when __ pushed** block on the programming area.
4. Select **setup** from the dropdown in the **when __ pushed** block you just dragged over.
5. From the **Environment** drop down menu select **clear terrain** and stick it inside the setup block as shown.



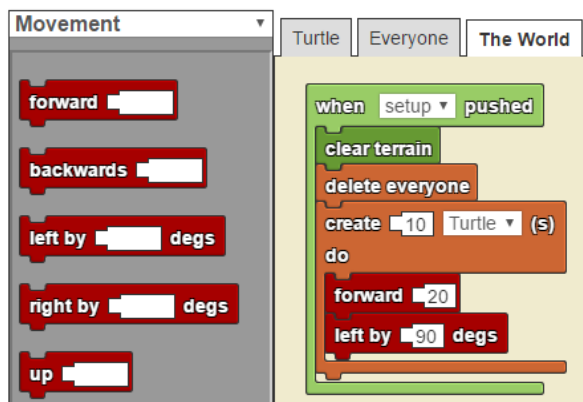
Step 2

1. Select Agents from the drop-down menu.
2. Drag the **delete everyone** inside the **when __ pushed** block.
3. Drag the **create __ do block** inside the **when __ pushed** block.
4. In the **create __ do** block, type in the number **10** where shown and select turtle from the drop down inside the block.

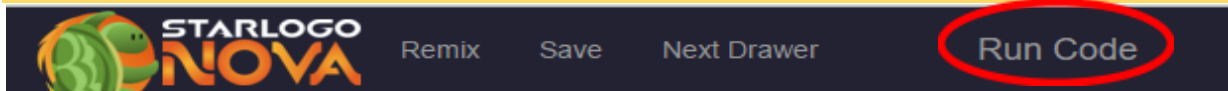


Step 3

1. Select Movement from the drop-down menu.
2. Drag the **forward __ block** inside the **create __ do** block as shown.
3. Enter the number **10** into the **forward __ block**.
4. Drag the **left by __ degs** block and dock it as shown.
5. Enter the number **90** into the degrees field.



Testing Code



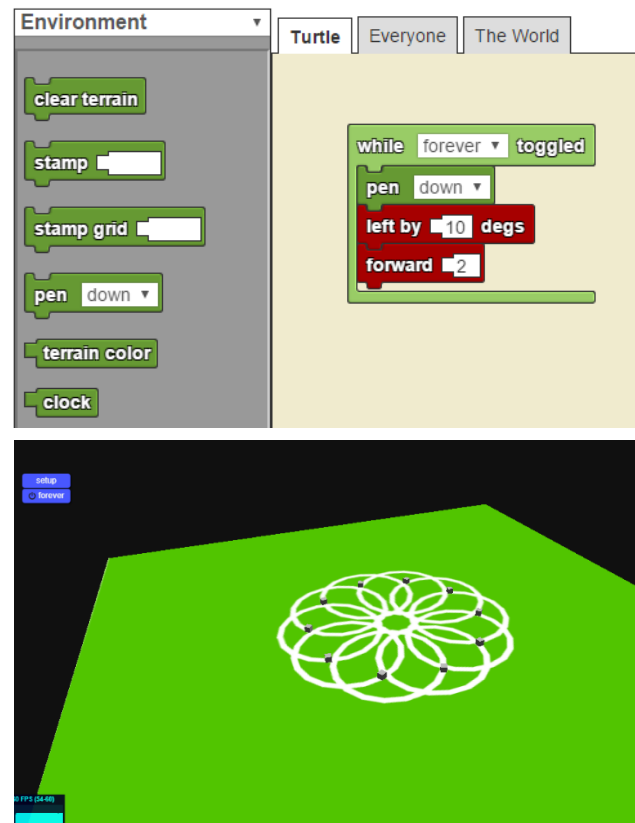
First, what do you think your program will do if run at this point. To test your prediction, go up to the SpaceLand area and press the Run Code button. Next click the setup button in SpaceLand and you should see your 10 agents/turtles forming a circle with a radius of 10 steps.

Exercises: Change the number of agents and/or change the number of steps forward. Describe what you expect to change in the simulation and then verify.

Step 4

Now we need to add the instructions for the agents. Note that we have selected the **Turtle** tab now.

1. Change to the **Turtle tab**.
2. Drag the **when __ toggled** block from the Interface drawer (select Interface from the drop-down menu).
3. Select **forever** in the **while __ toggled** block.
4. Drag the **pen down** block from the Environment drawer inside the block.
5. Drag a **left by __ degs** and **forward __** block from the **Movement** drawer into the **while __ toggled** block as shown.
6. Change the numbers inside the **left by __ degs** and **forward __** blocks as shown.



Note that 'face the agent to the left' from our exercise is somewhat complex to implement, so we are simplifying the rule for each agent to: **turn left __ degrees** and **go forward __ steps**.

Testing Code

Run the code by going up to the space land area and pressing the Run Code button. Next click the setup button in SpaceLand which will create the initial circle of agents. Then press the forever button to run the simulation.

Exercises: Create different figures by changing the number of degrees for the turn and/or the number of steps forward.