Epidemiology Simulation

Click to Start

This simulation might be triggering to those feeling sensitive to people becoming sick and/or passing away.

How this tutorial will work: Every slide you will be given an instruction and up to 3 choices to choose

[Instructor? Click here for the cheat sheet]

- **OK**: I Understood the instruction, finished the task and am ready to move on
- **How:** Give me a more in-depth explanation
- **Show:** Take me to a project that has this code

back

Takes you back to the previous slide

Setup Instruction 1: In the Google chrome browser, Go to agentsheets.com and make an account by clicking sign up. **Click OK when done or How for more help.**

OK

How

Click on the video to learn how to make an AgentSheets account

OK

back

Instruction 2 & 3: Click on New Project Button at the top right of the agentsheets webpage, name the project something Disease Spread related, and click the New Project Button. **Click OK when done or How for more help.**

OK

How

Instruction 2 & 3: Click on New Project Button at the top right, name the project something Disease Spread related, and click the New Project Button.

OK

Introduction to the disease spread simulation

OK

Summary

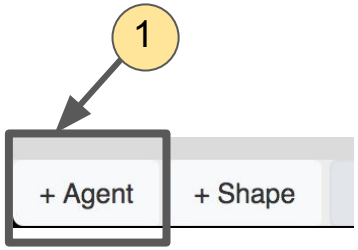
-We Will

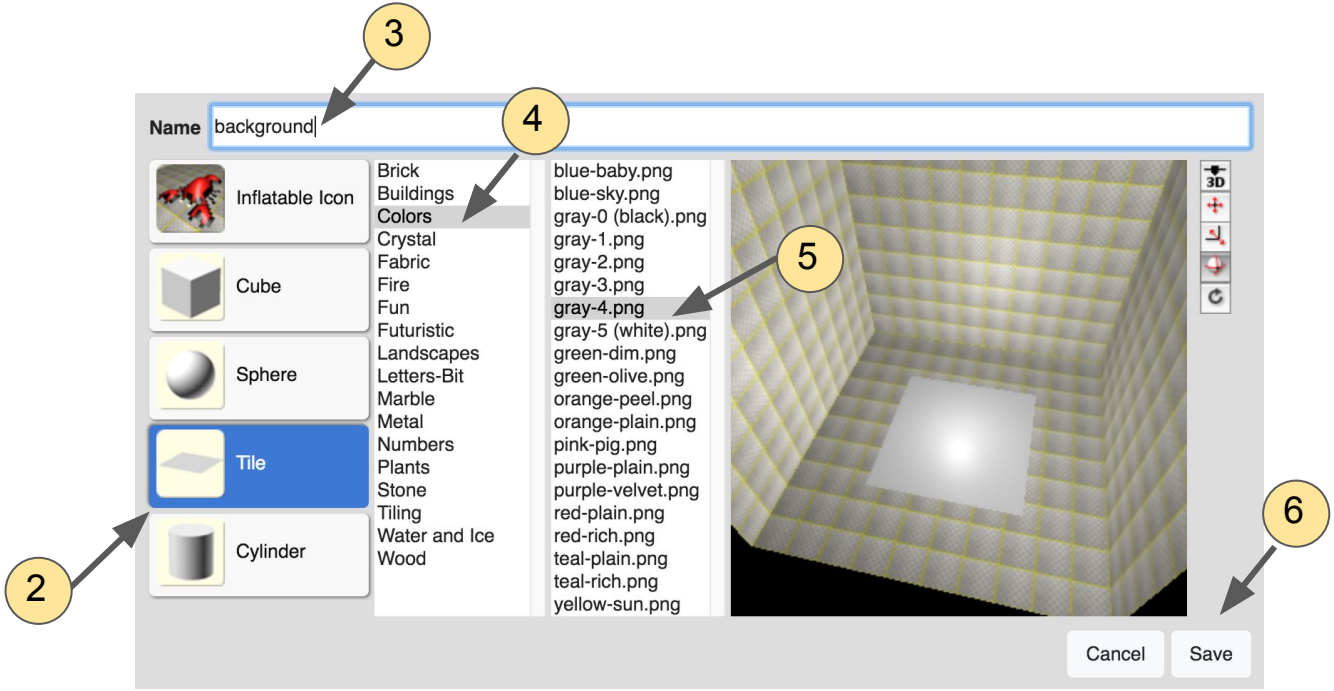
1. Create a background
2. Create a 3D person: Healthy, Sick and Recovered
3. Move Randomly
4. If a healthy student is next to a sick person, they will get sick with some %
5. A sick person will become healthy with some % chance
6. A sick person will disappear with some % chance

OK

Instruction 4: Create a background agent

In bottom left



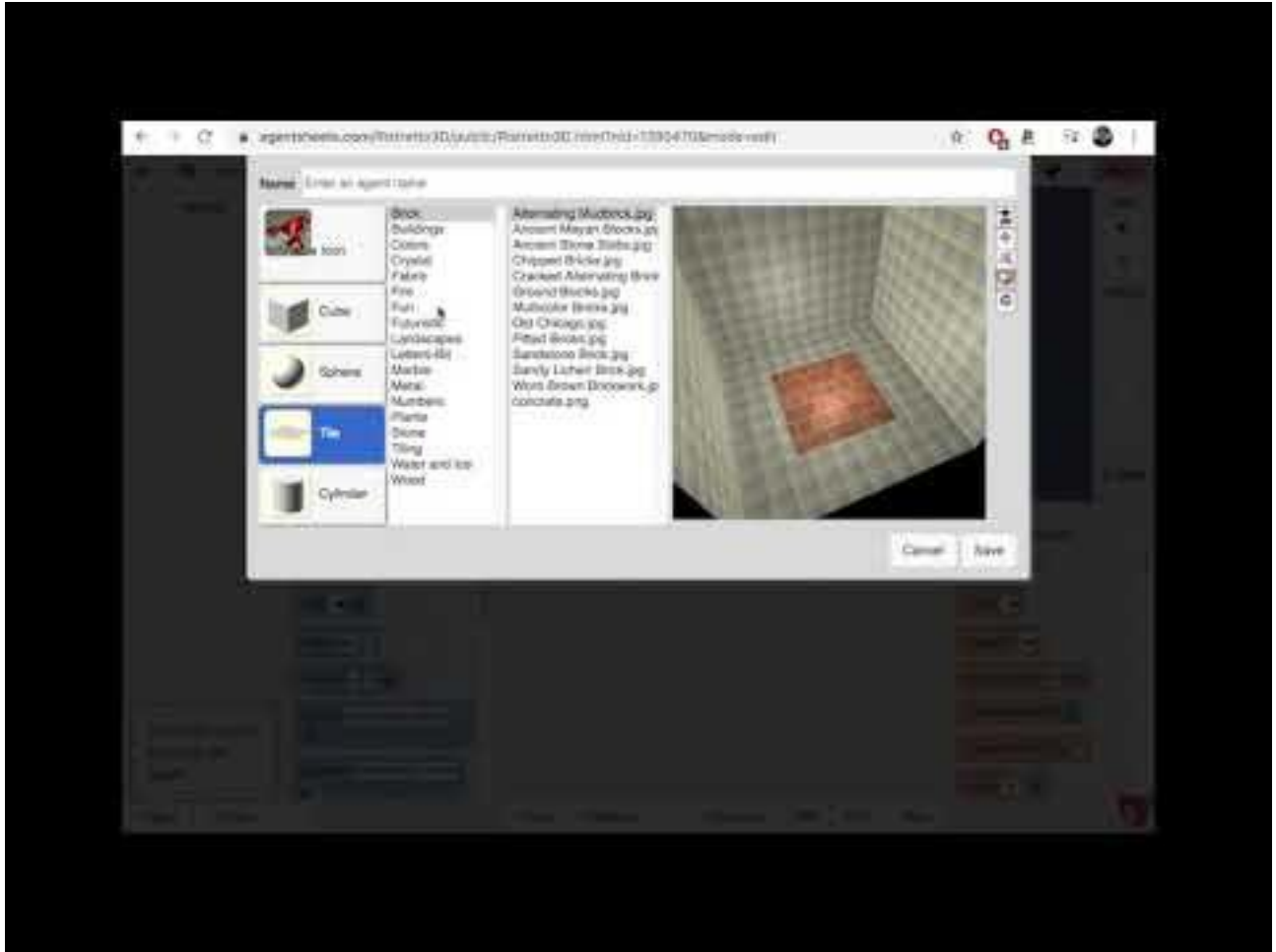


OK

How

back

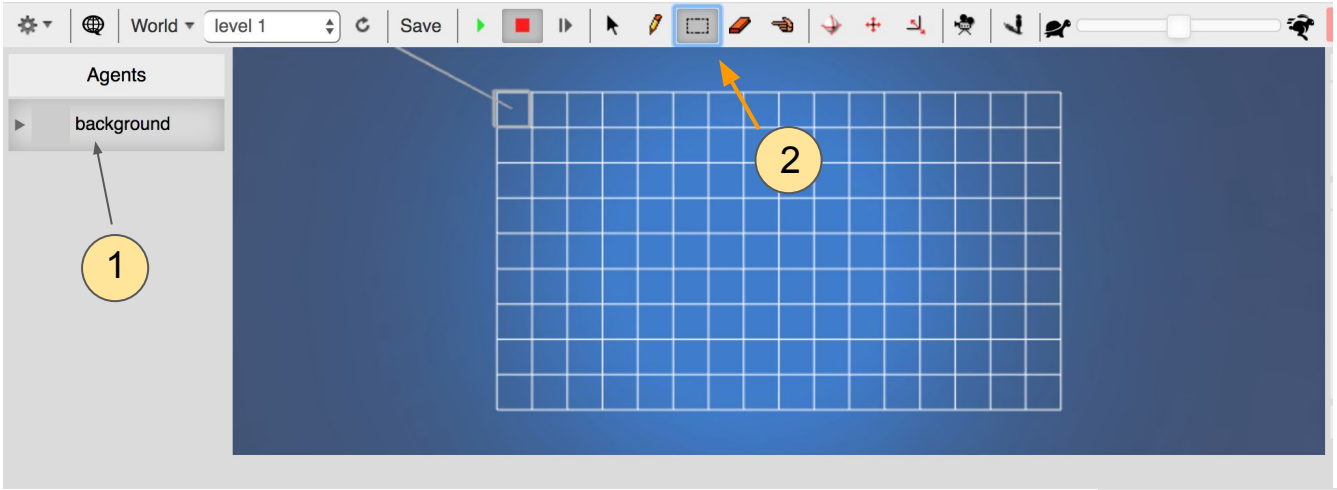
Instruction 4: Create a background agent



OK

back

Instruction 5: Place the background agent in the world and save

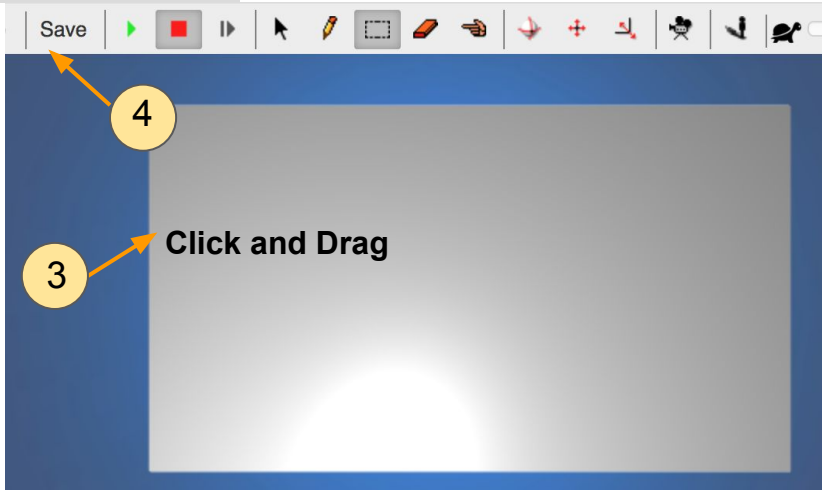


OK

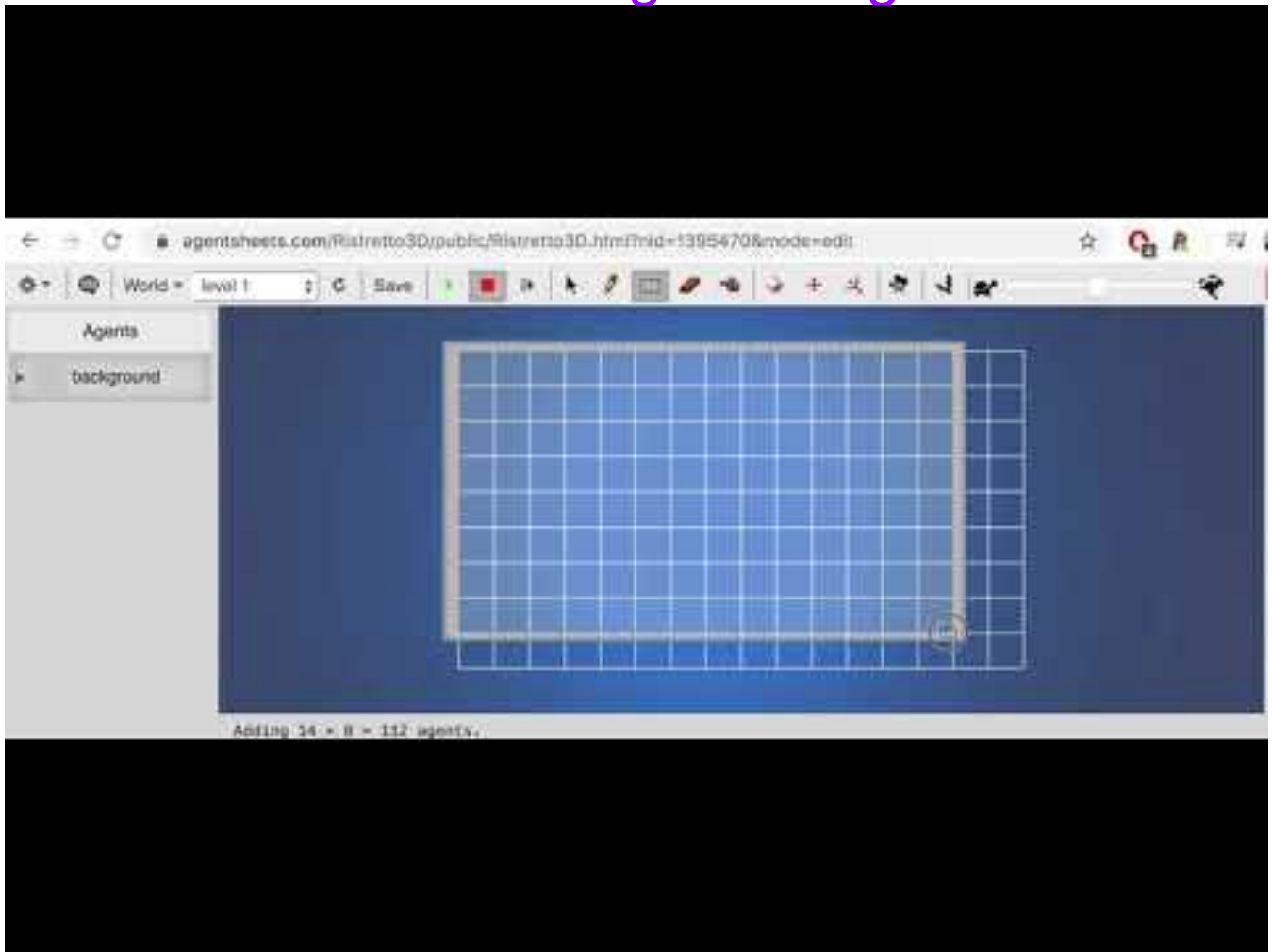
How

Show

back



Instruction 5: Place the background agent in the world and save

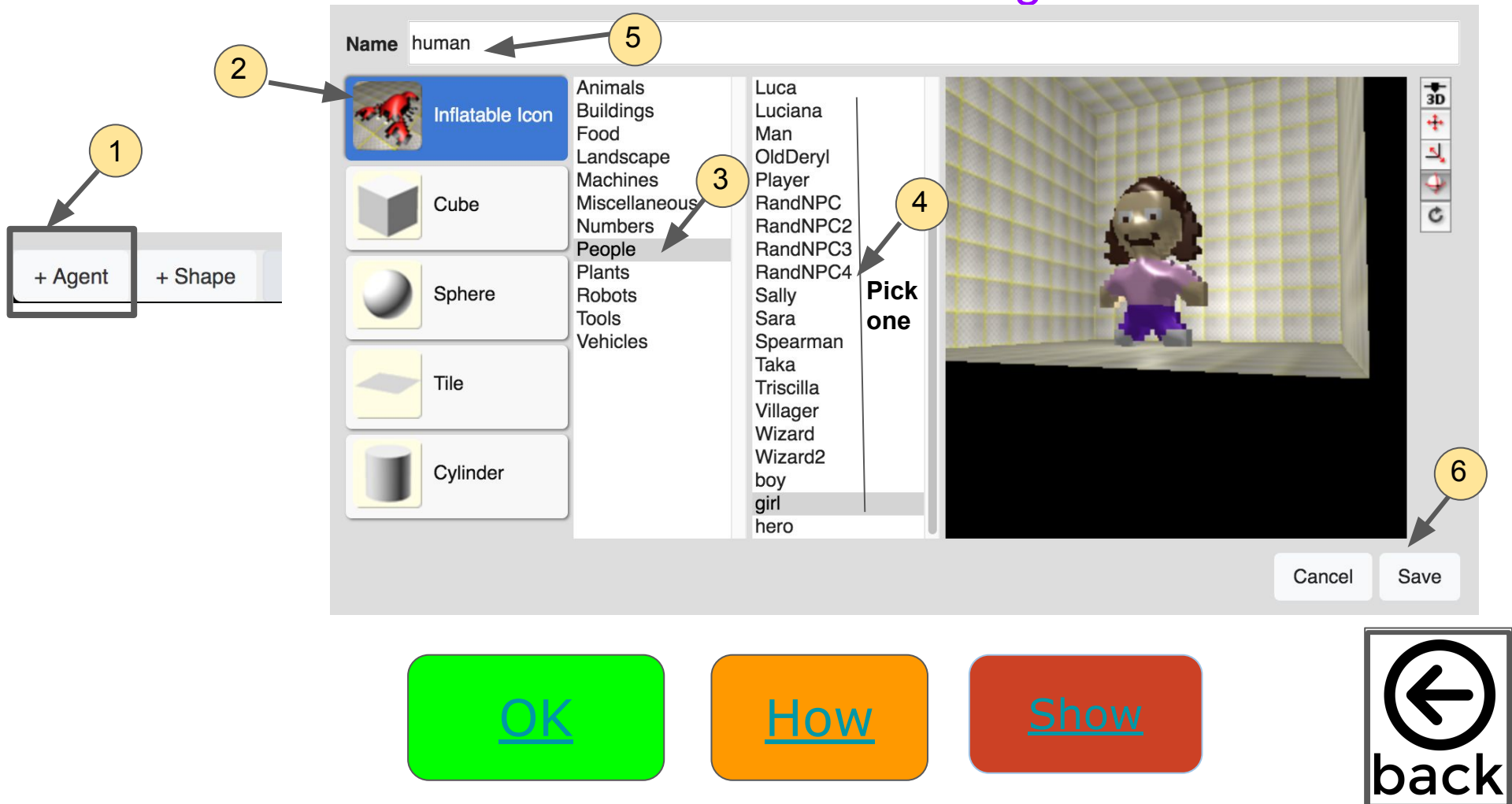


OK

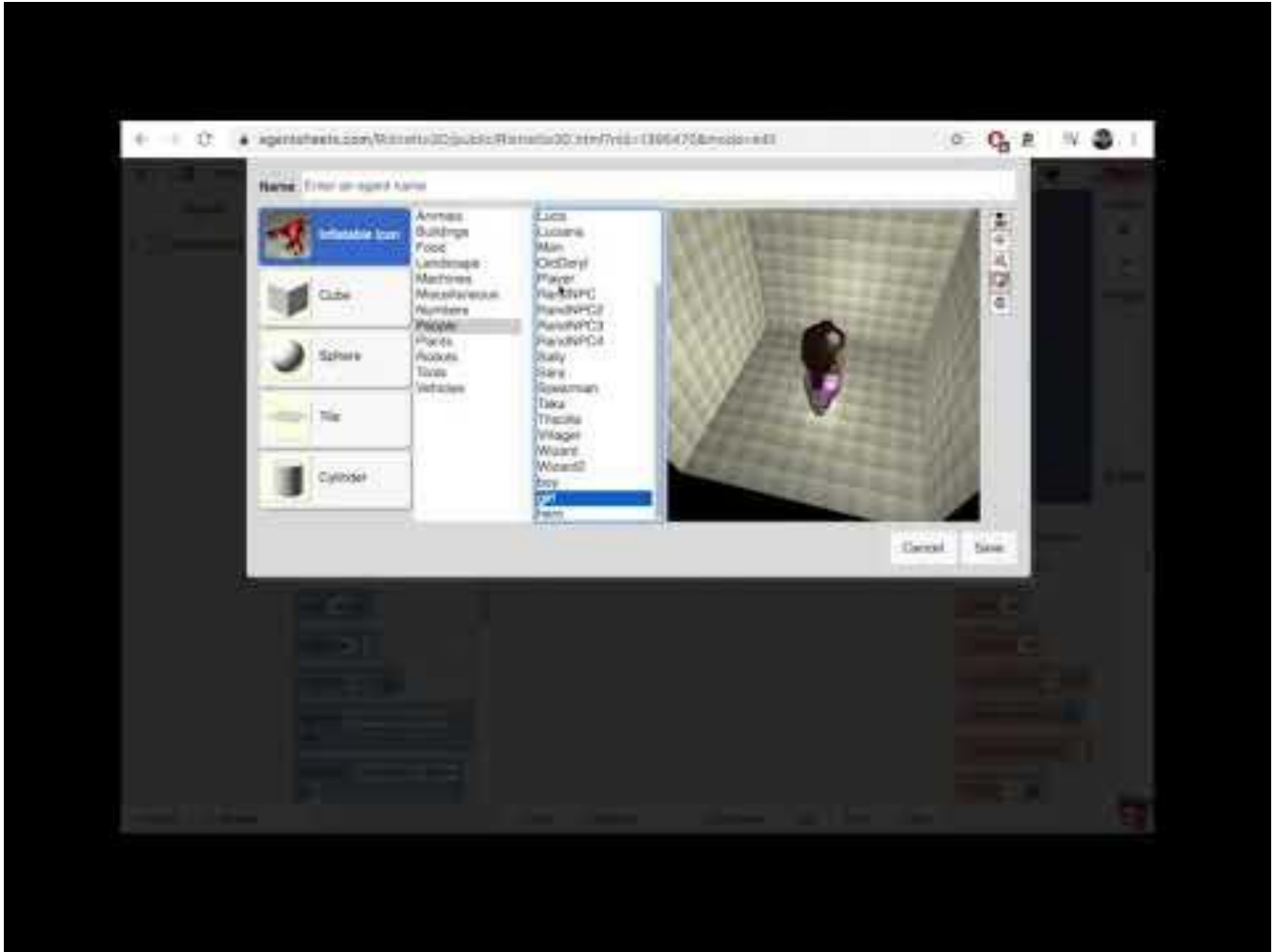
Show

back

Instruction 6: Add a Human Agent



Instruction 6: Add a Human Agent

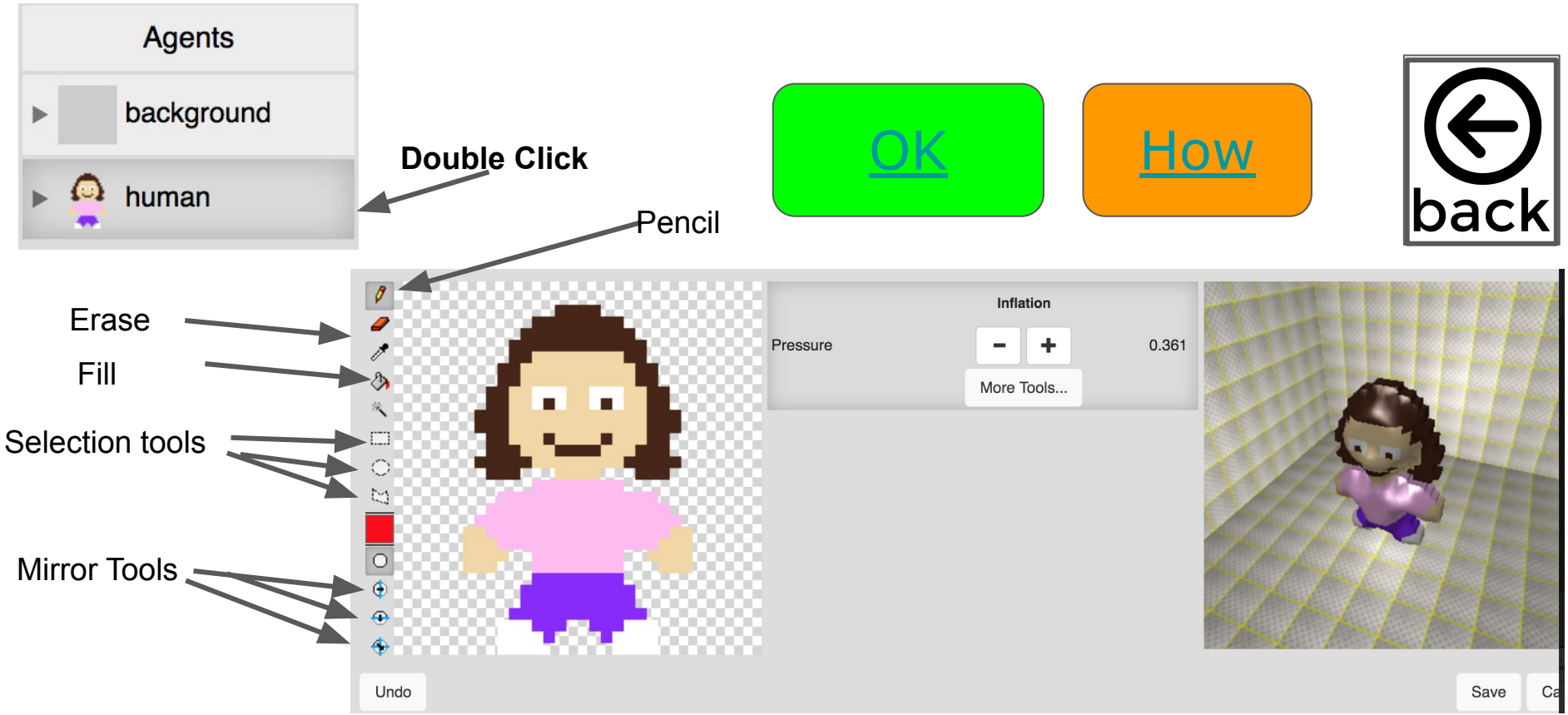


OK

Show

back

Instruction 7: **Optional-** draw your own 3D human agent

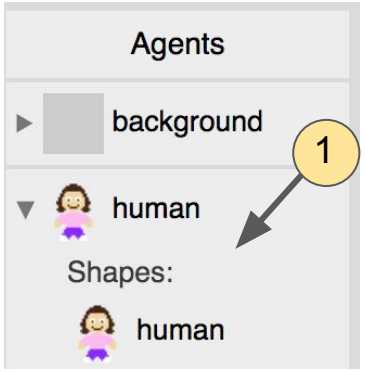


Instruction 7: **Optional-** draw your own 3D human agent

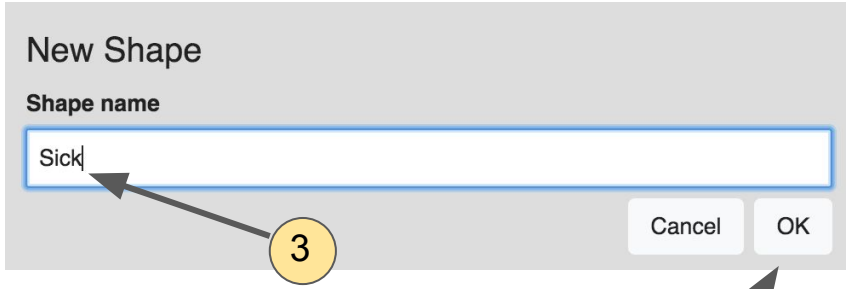
OK

back

Instruction 8: Create a sick human Shape

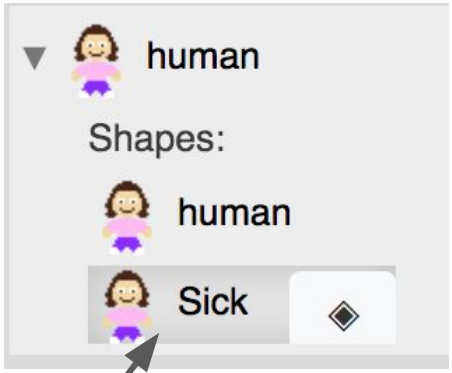


1



3

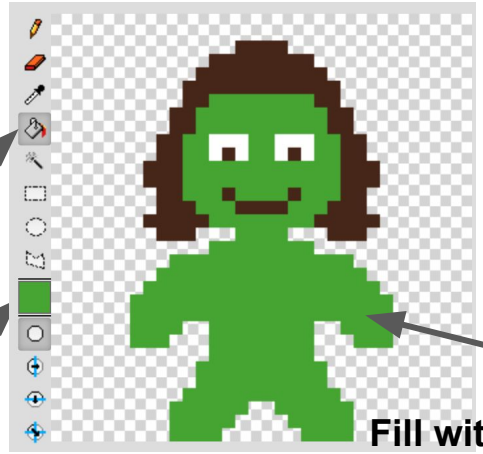
4



5

Double click

2

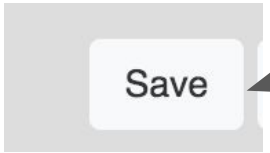


7

6

8

Fill with green



9

OK

How

Show

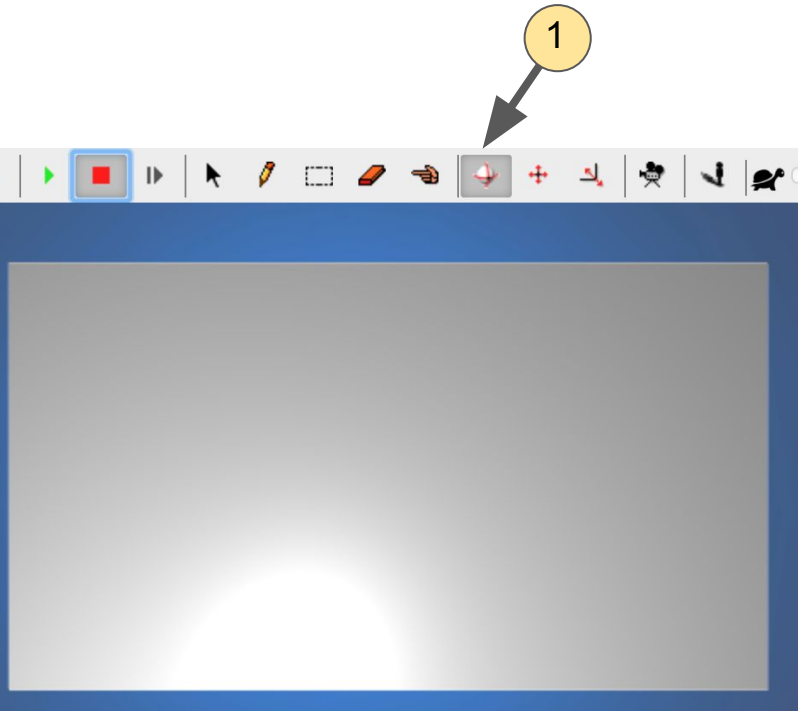
back

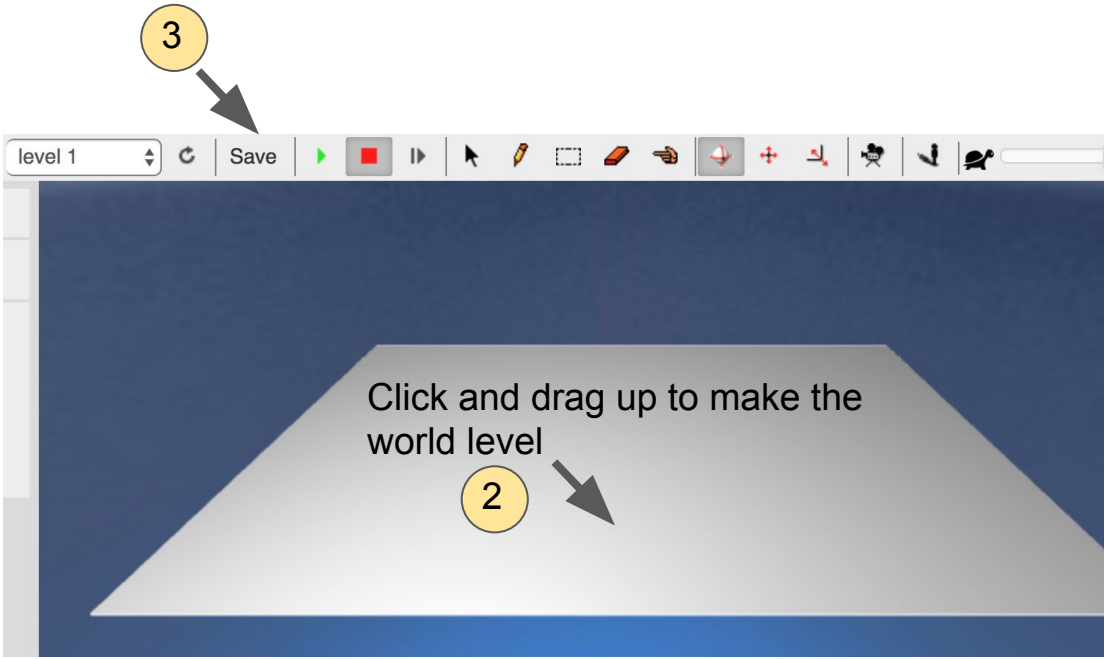
Instruction 8: Create a sick human Shape

OK

Show

Instruction 9: Rotate the world and save



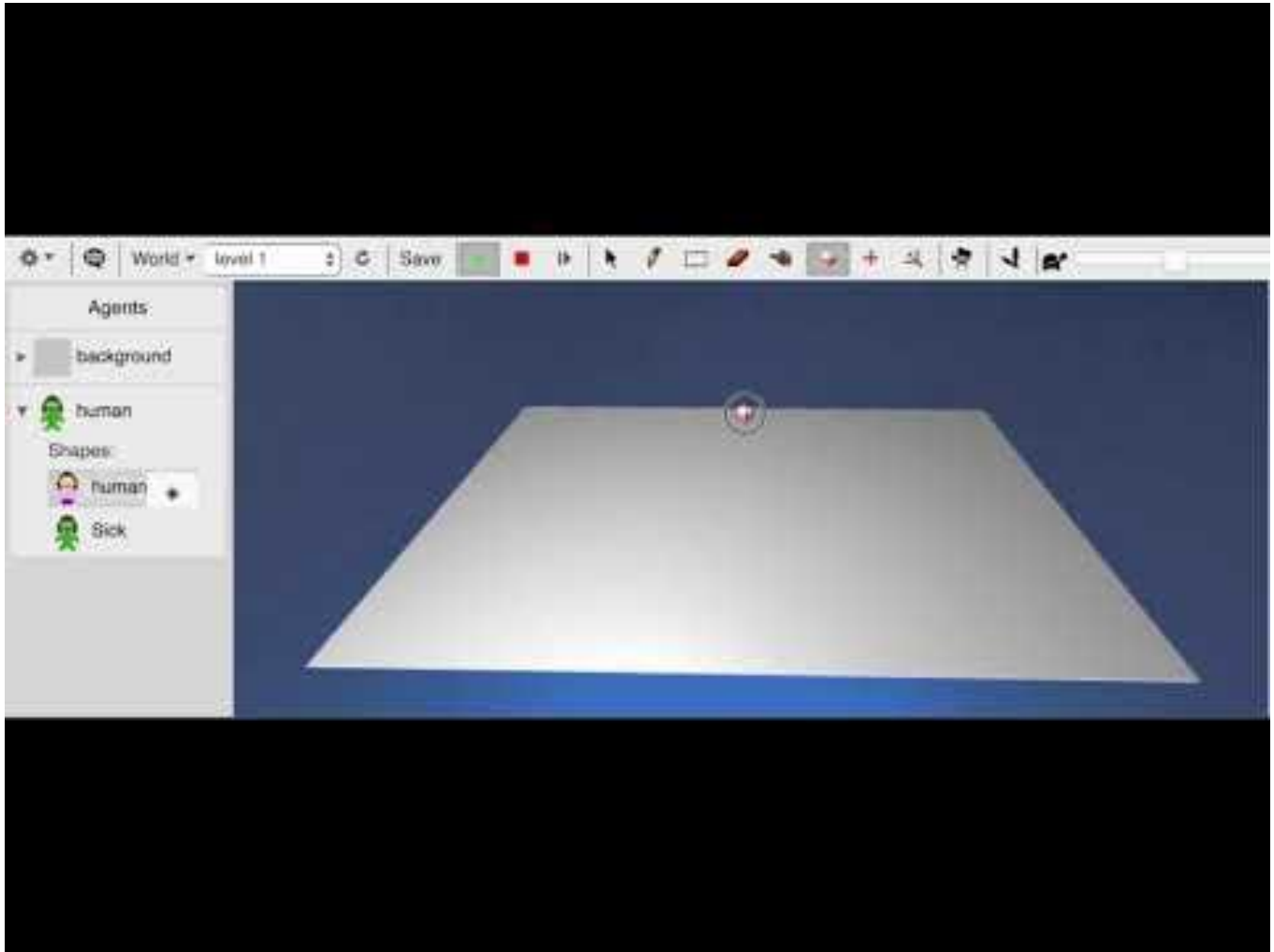


OK

How

back

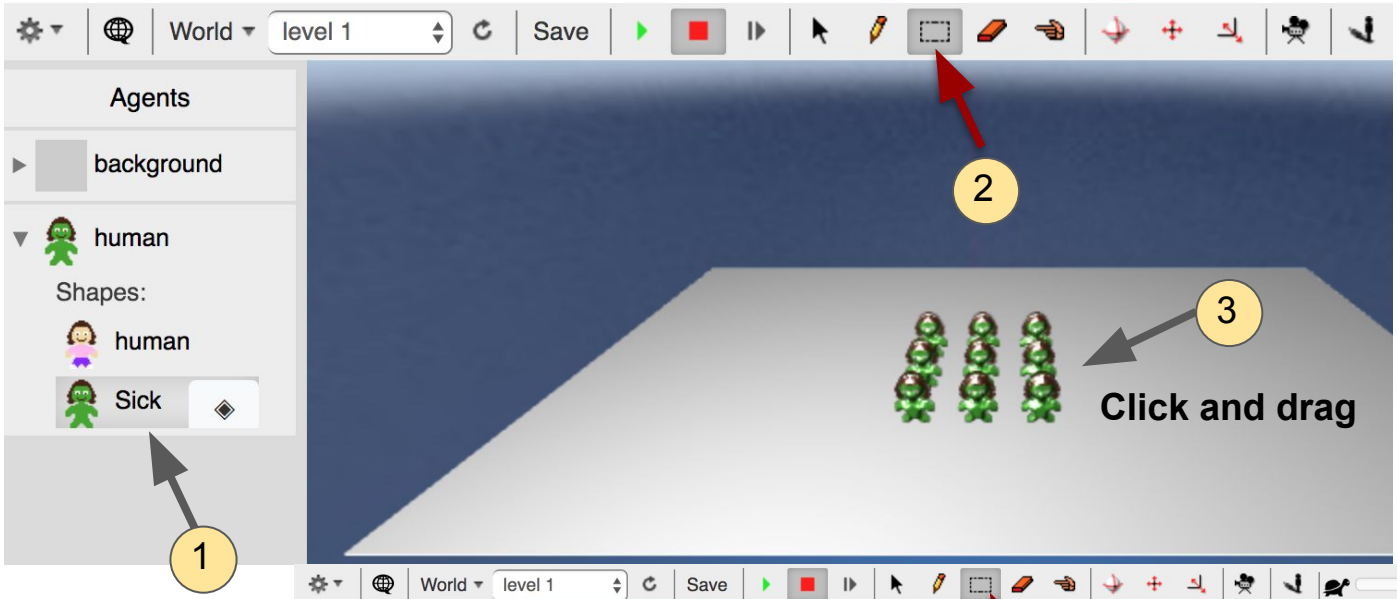
Instruction 9: Rotate the world and save

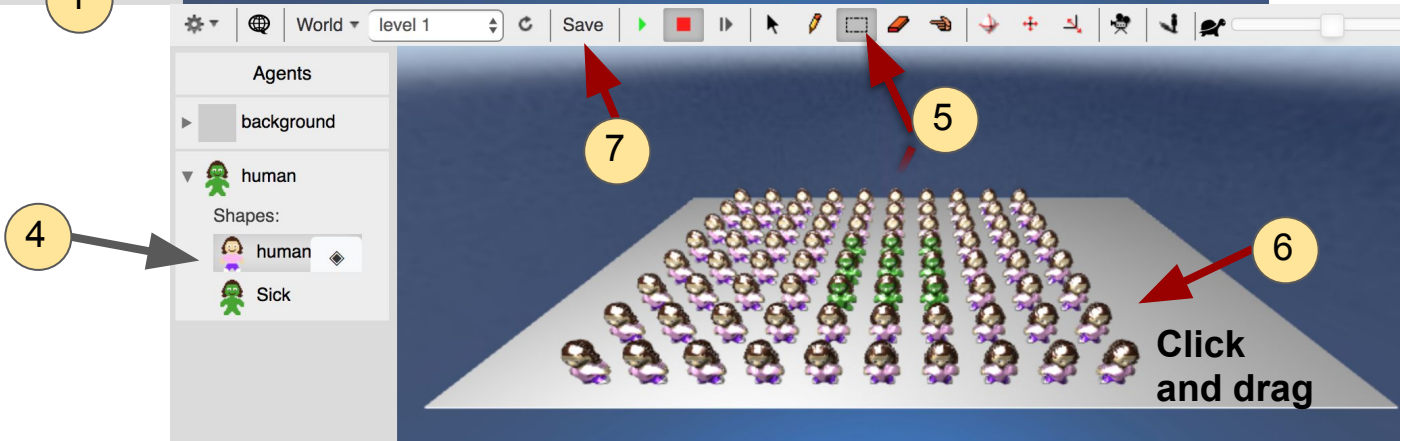


OK

back

Instruction 10: Add a few sick people and a bunch of healthy people to the level





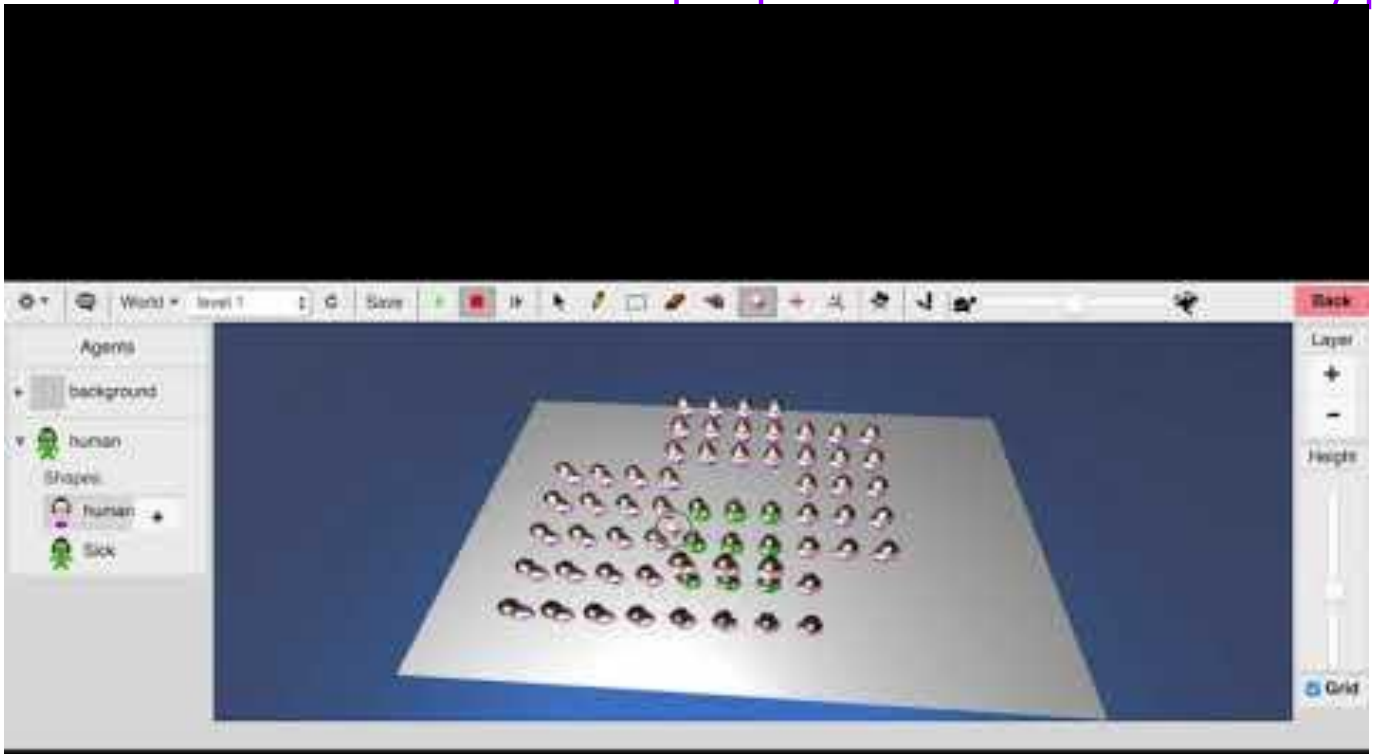
OK

How

Show

back

Instruction 10: Add a few sick people and a bunch of healthy people to the level

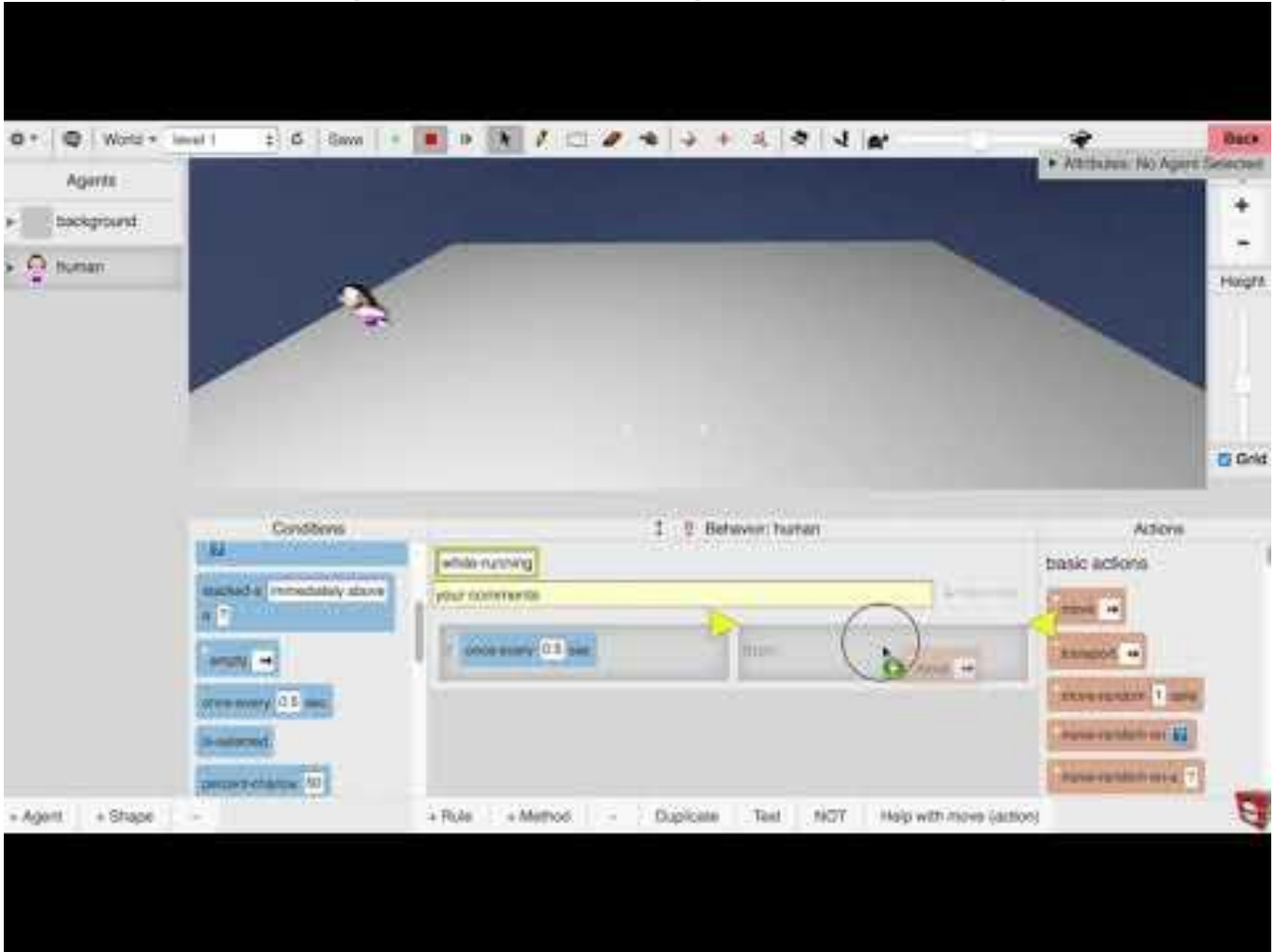


OK

Show

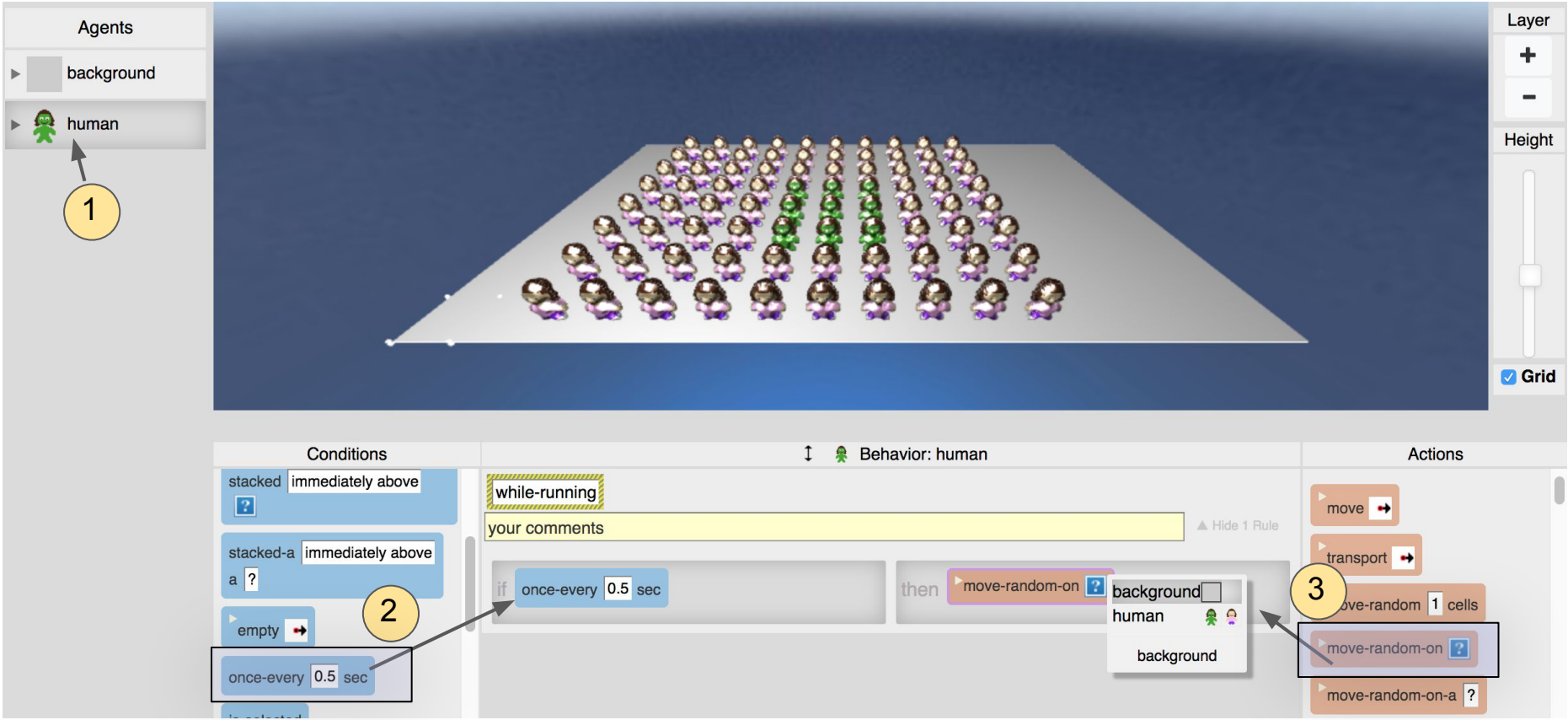
back

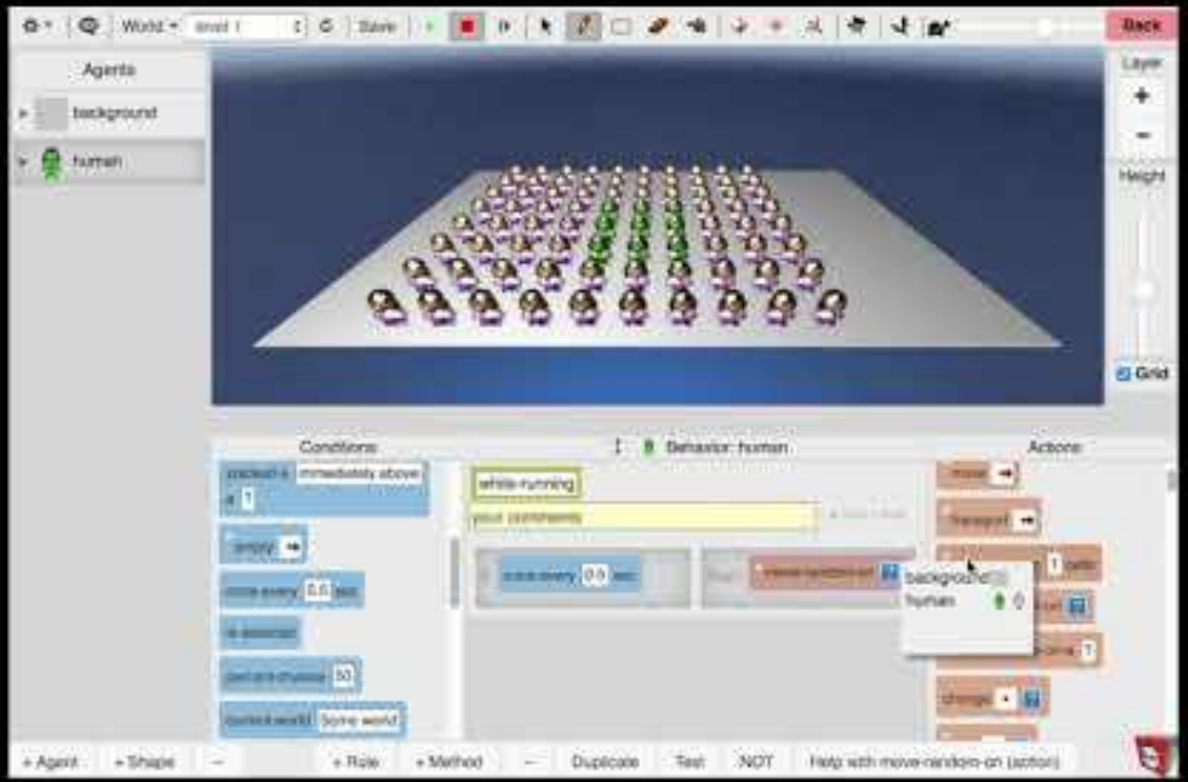
How we program our agents in agentcubes



Instruction 11: Programming the human agent to move random on the background every 0.5 seconds

OK | How | Show | back





Instruction 11: Programming the human agent to move random on the background every 0.5 seconds

OK

Show

back

Methods in AgentCubes

Methods (also called functions) allow us to organize a rule or group of rules in one place

We will add the following methods to our person agent

A Method Called **Get Sick**

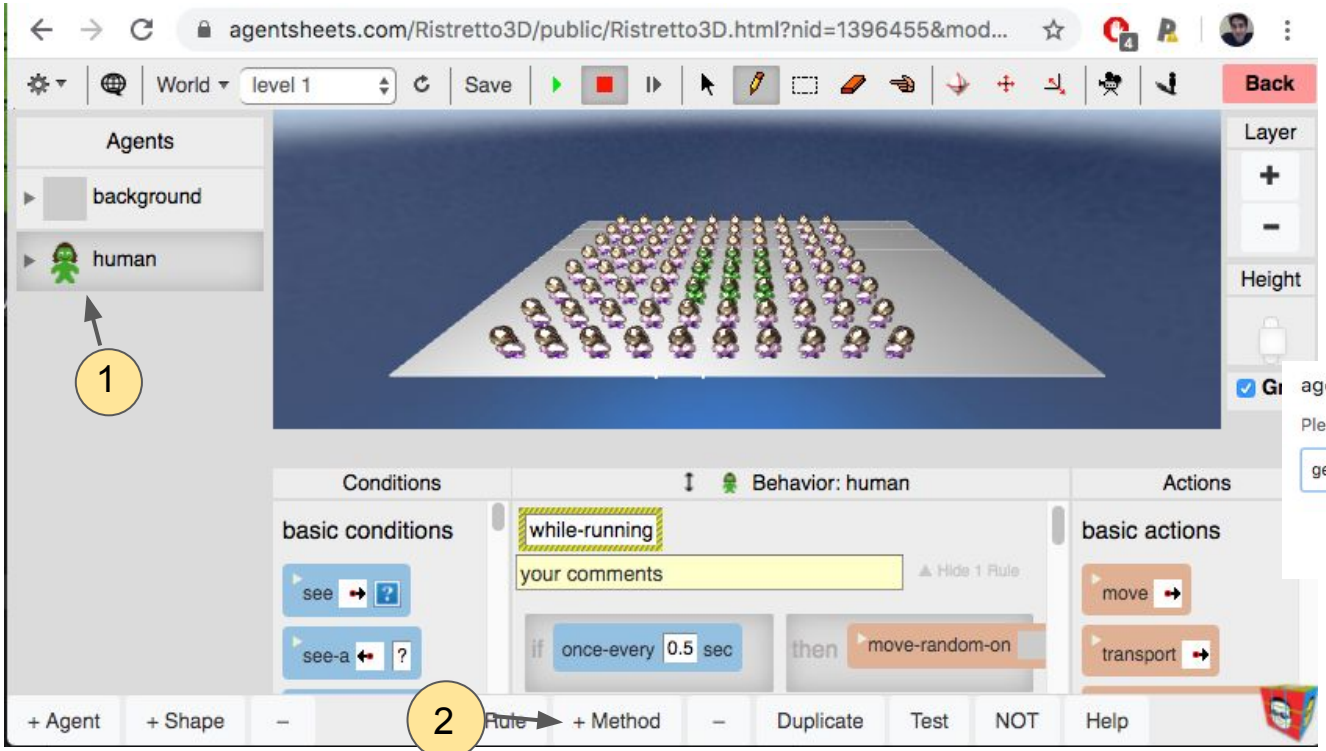
A Method Called **Recover**

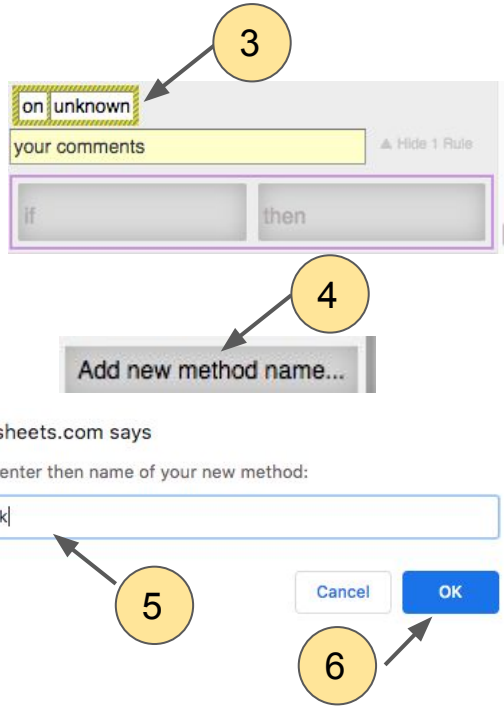
A Method Called **Erase**

OK

back

Instruction 12: Add a 3 methods to your project: 1 named “getSick” one named “recover” and one named “erase”





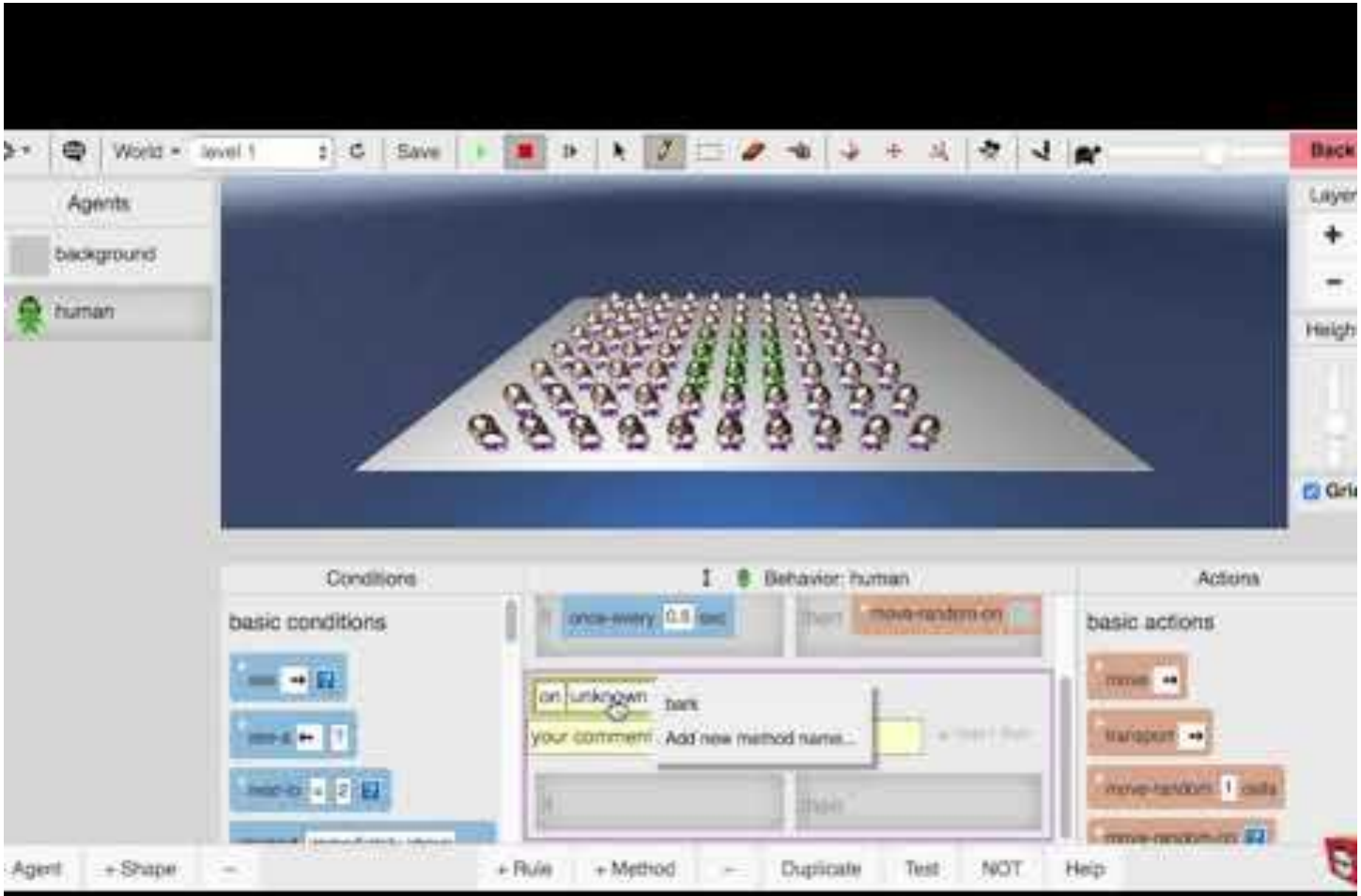
7 → Repeat 1-6 for recover and erase

OK

How

back

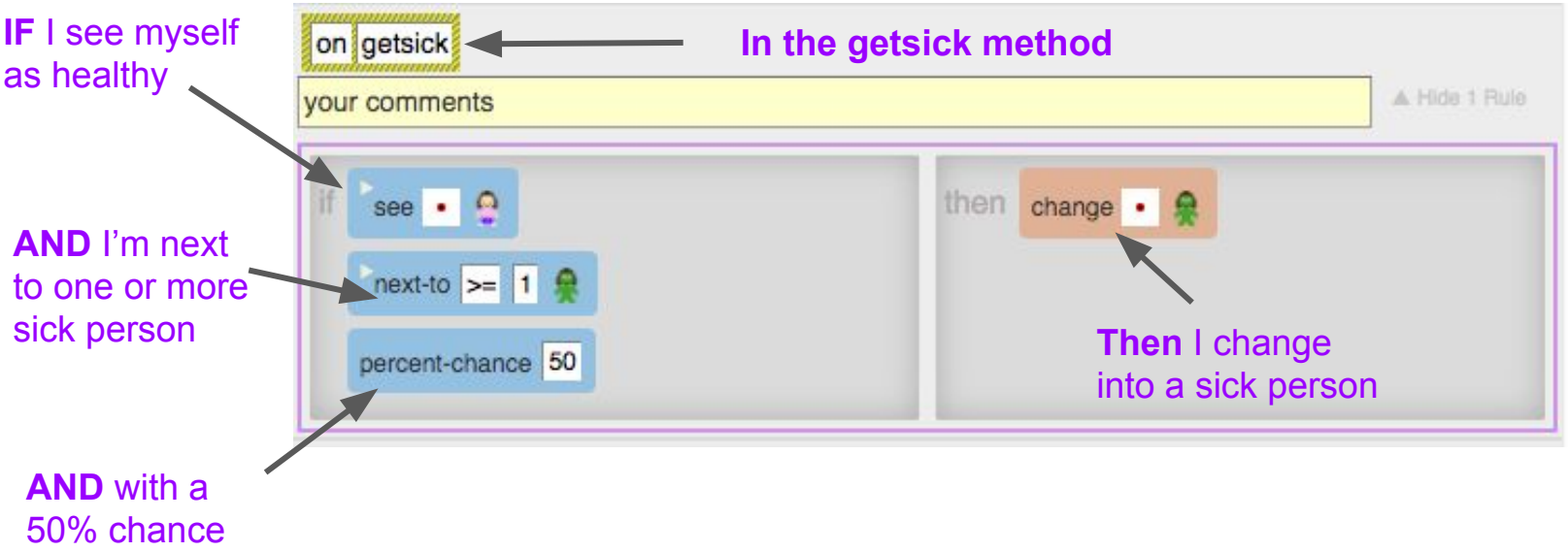
Instruction 12: Add a 3 methods to your project: 1 named *“getSick”* one named *“recover”* and one named *“erase”*



OK

back

Instruction 13: Program the following rule in the getSick method: *If I see myself as healthy and am next to at least 1 sick person, with some % chance I get sick*

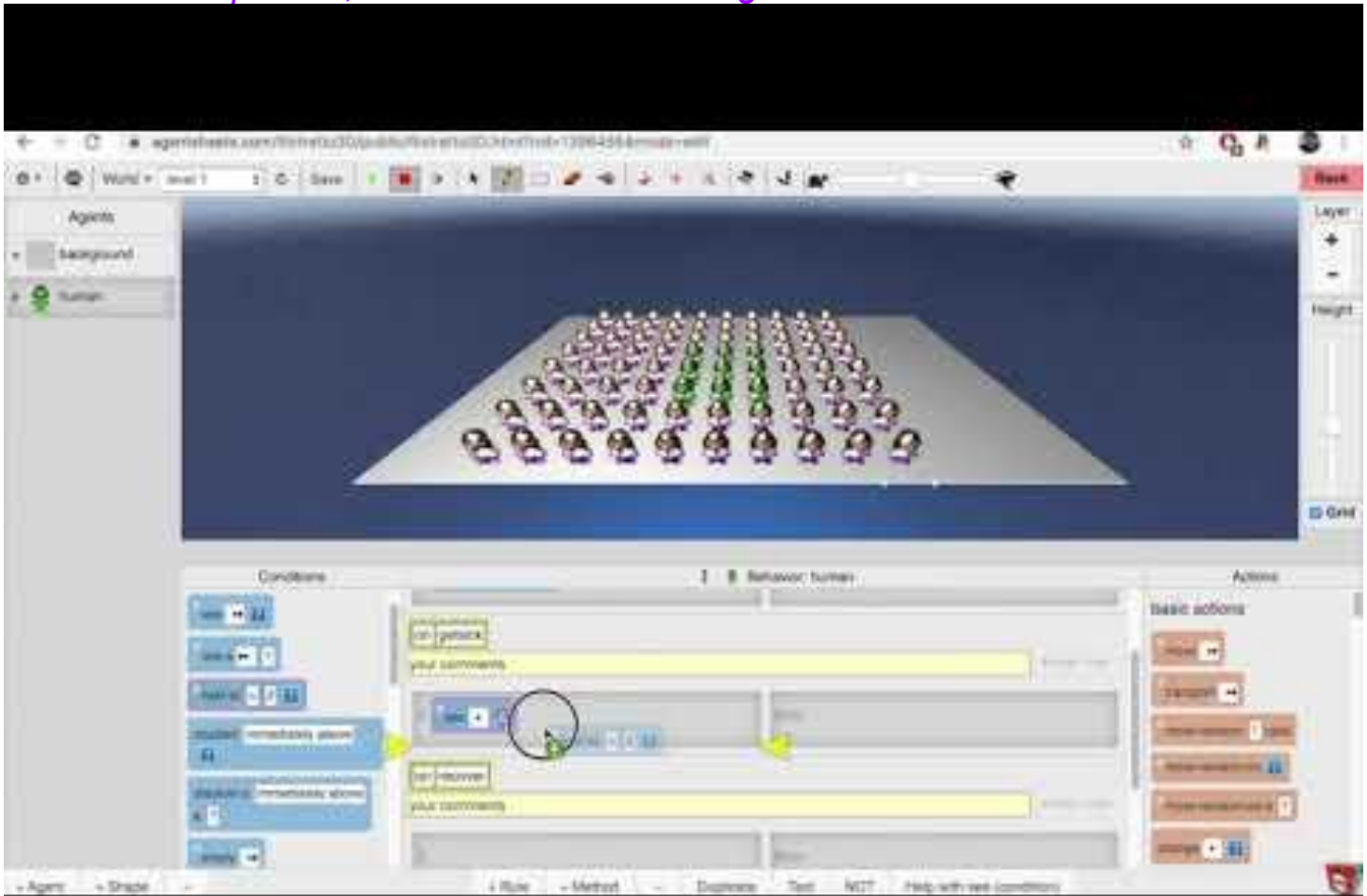


OK

How

back

Instruction 13: Program the following rule in the getSick method: *If I see myself as healthy and am next to at least 1 sick person, with some % chance I get sick*



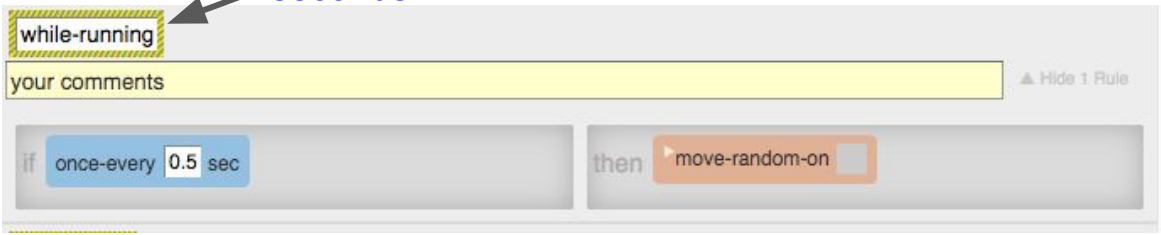
OK

back

Instruction 14: Invoke the getSick method from the **while running** method

Methods must be ***invoked*** for their code to run.

The **while-running method** is a special method that runs many times a second after you hit the play button. Currently it has a rule that moves the person agent randomly every .5 seconds



We can update the while-running method as follows to invoke the getSick method

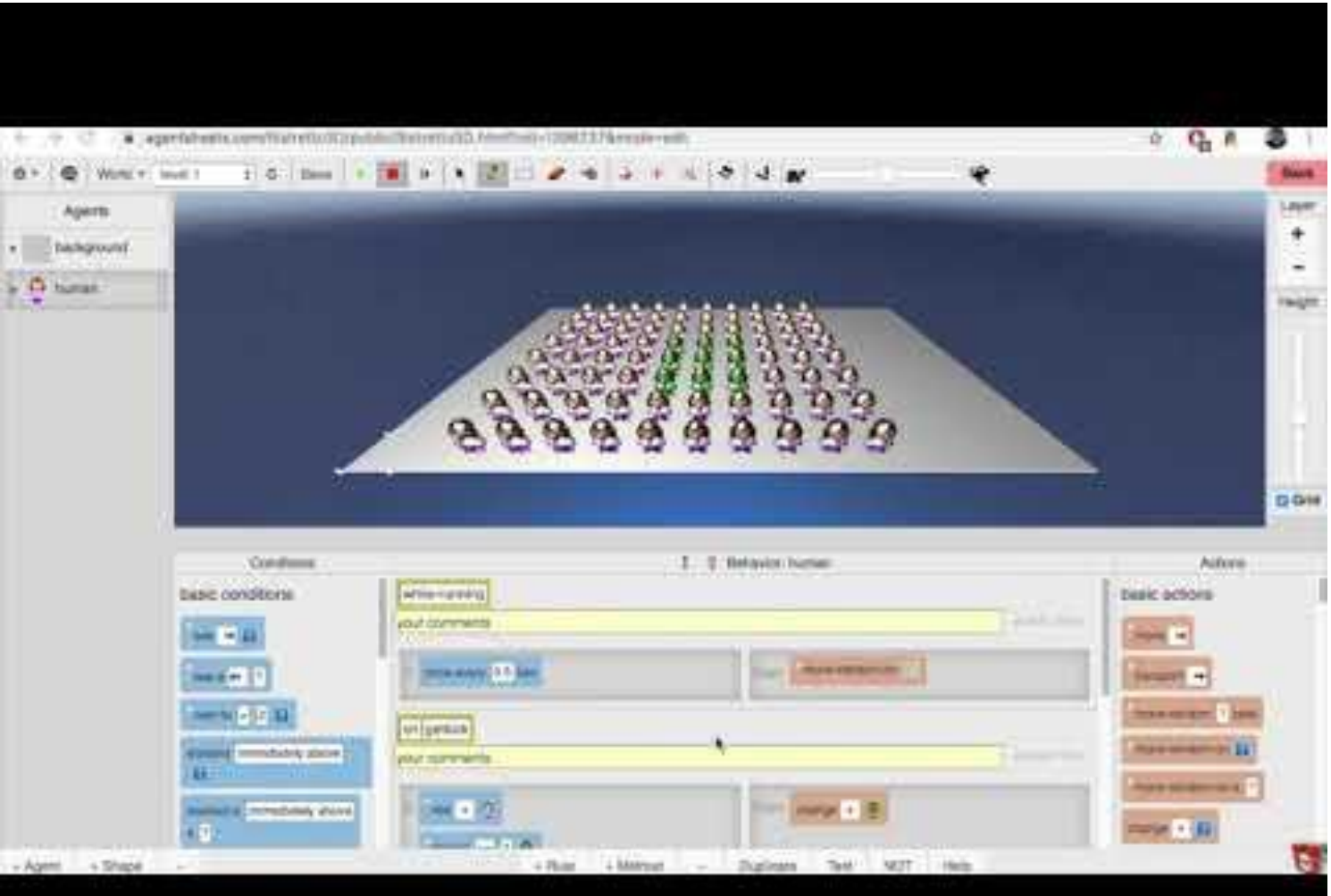
OK

How

Show

back

Instruction 14: Invoke the getSick method from the **while running** method

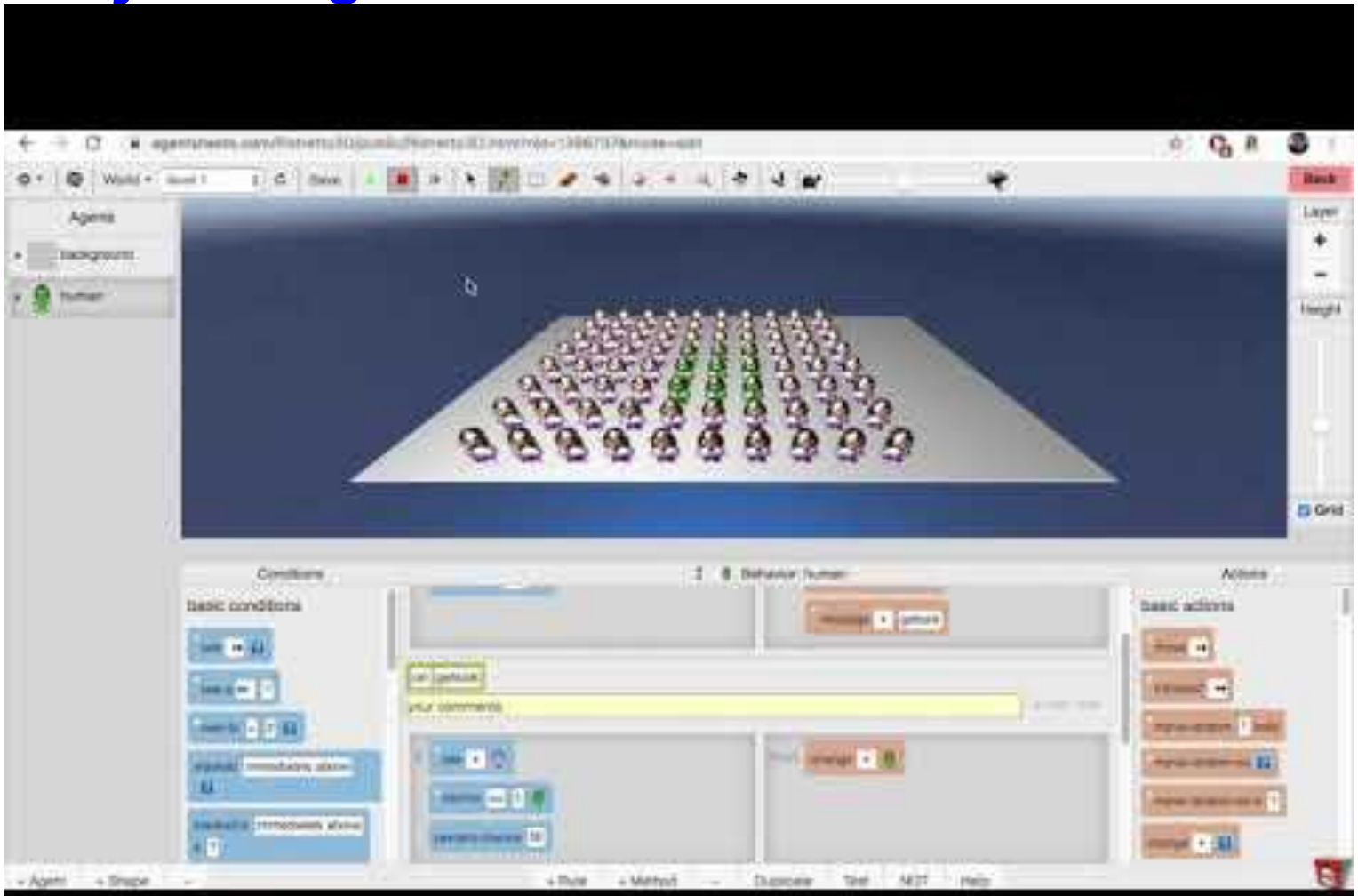


OK

Show

back

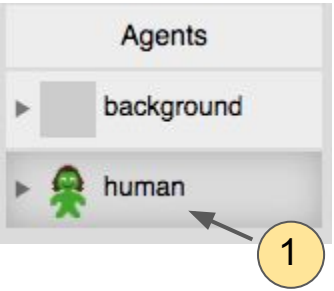
Playtesting

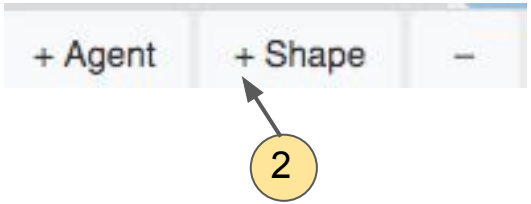


OK

back

Instruction 15: Create a recovered human shape that looks different from the other shapes

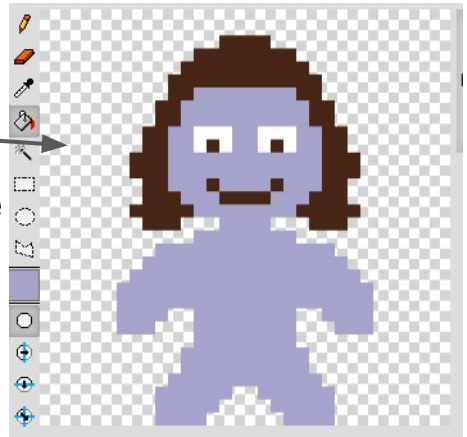




Double click

6

Make it unique



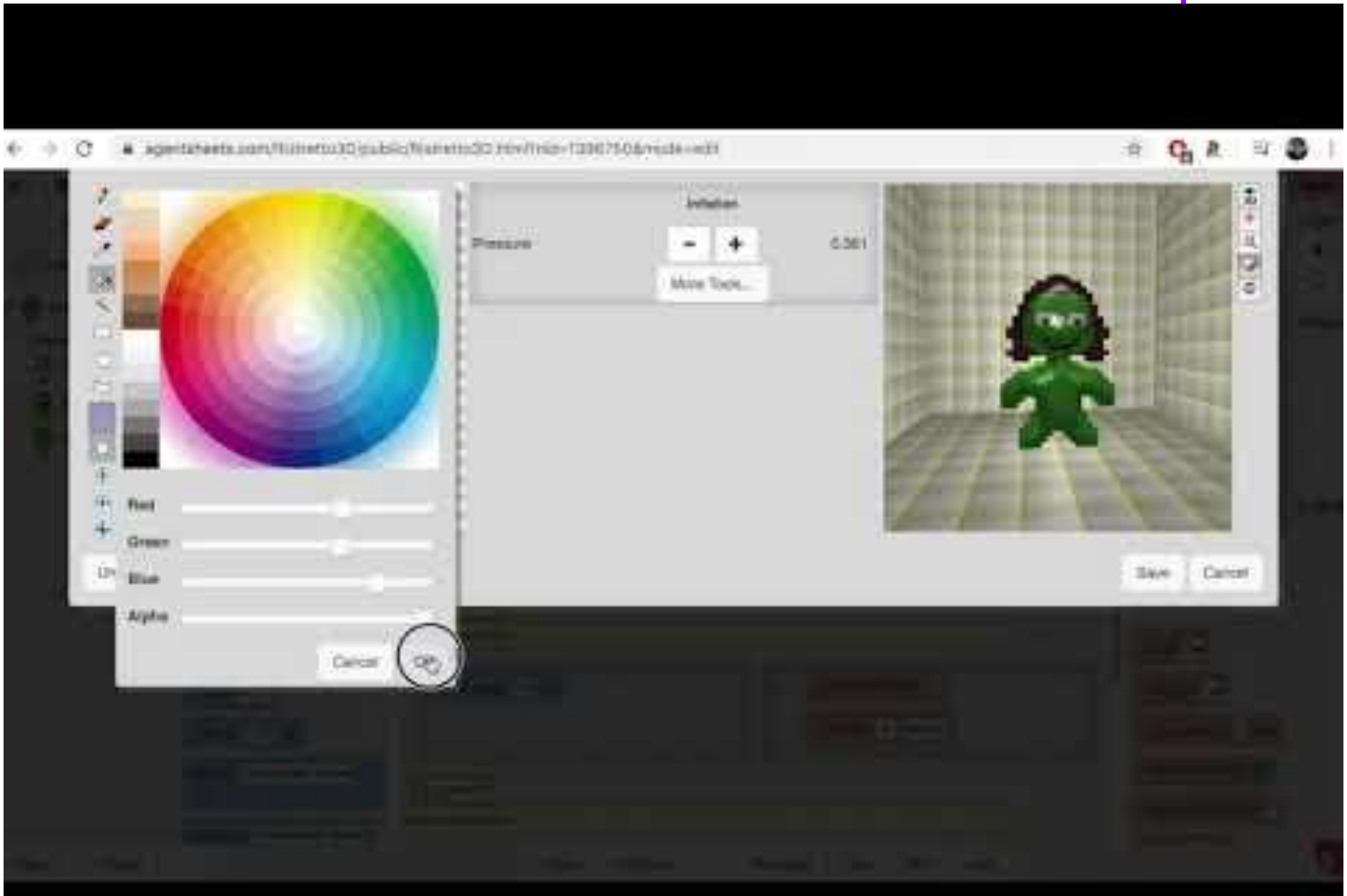
OK

How

Show

back

Instruction 15: Create a recovered human shape

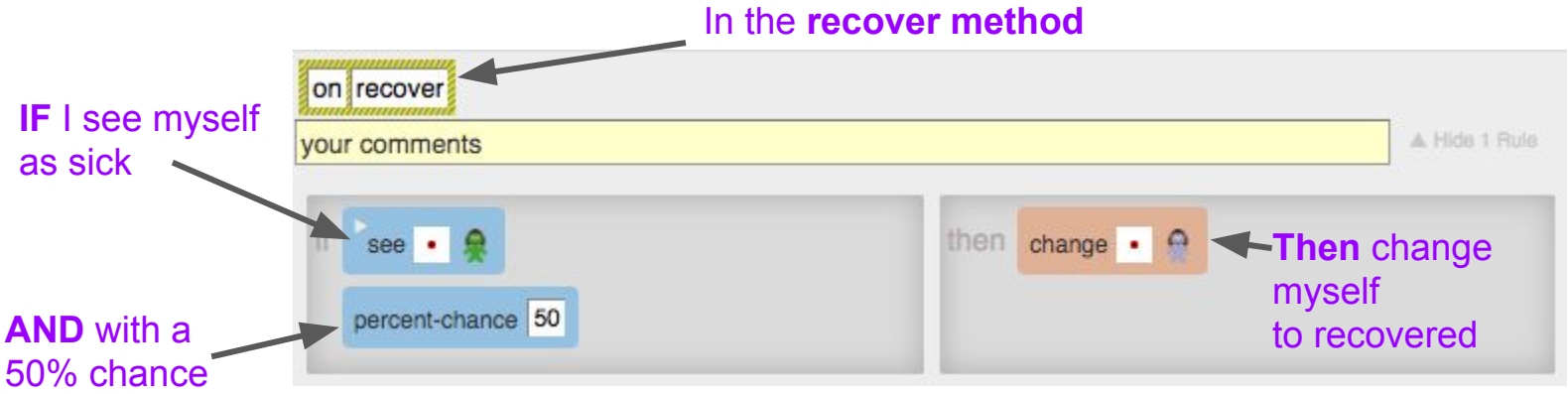


OK

Show

back

Instruction 16: Program a rule in the recover method that says *If I see myself as sick, with a 50% percent chance, I change to recovered*, and invoke the recover method in the while-running method



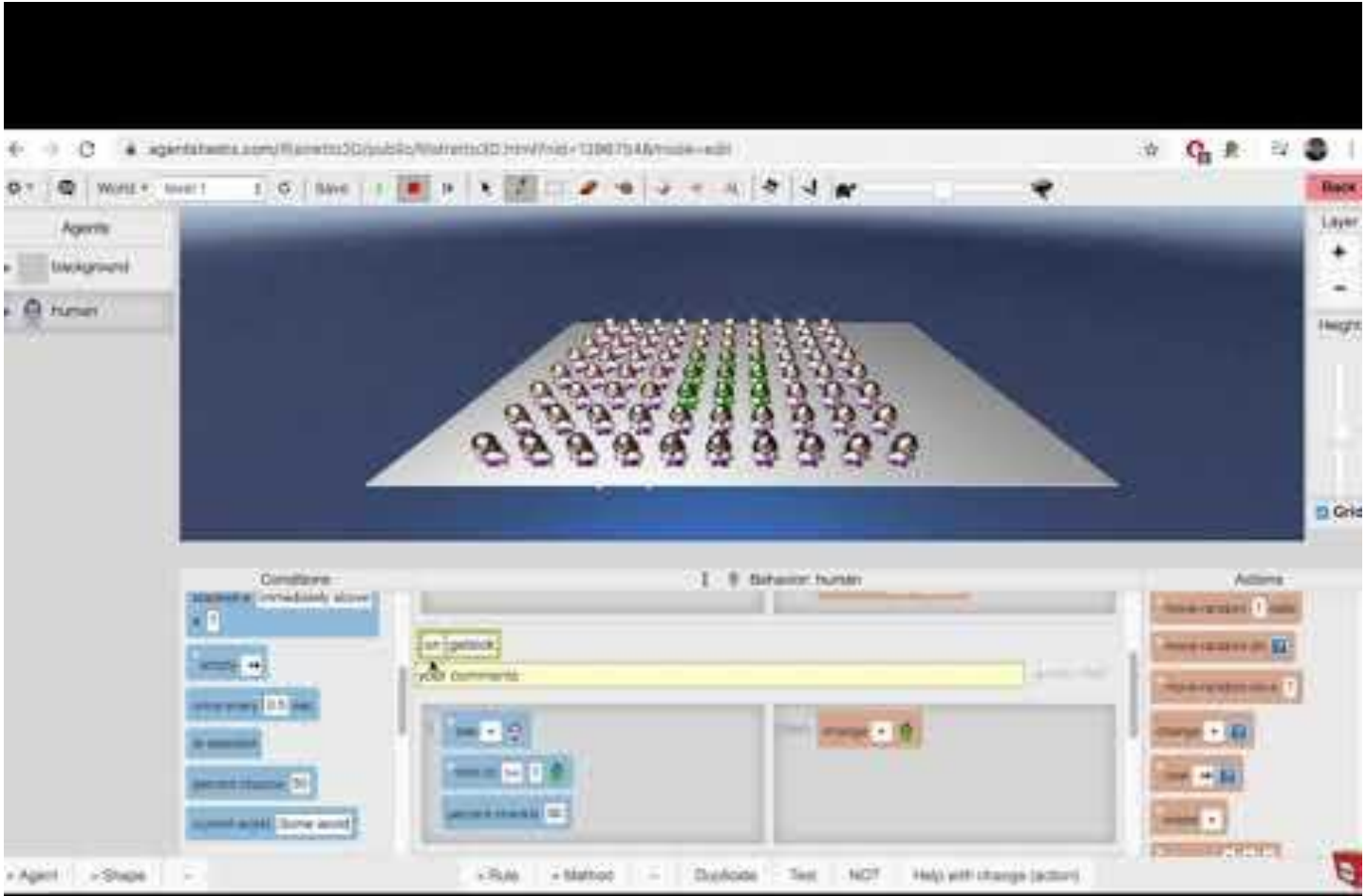
OK

How

Show

back

Instruction 16: Program a rule in the recover method that says: *If I see myself as sick, with a 50% percent chance, I change to recovered*

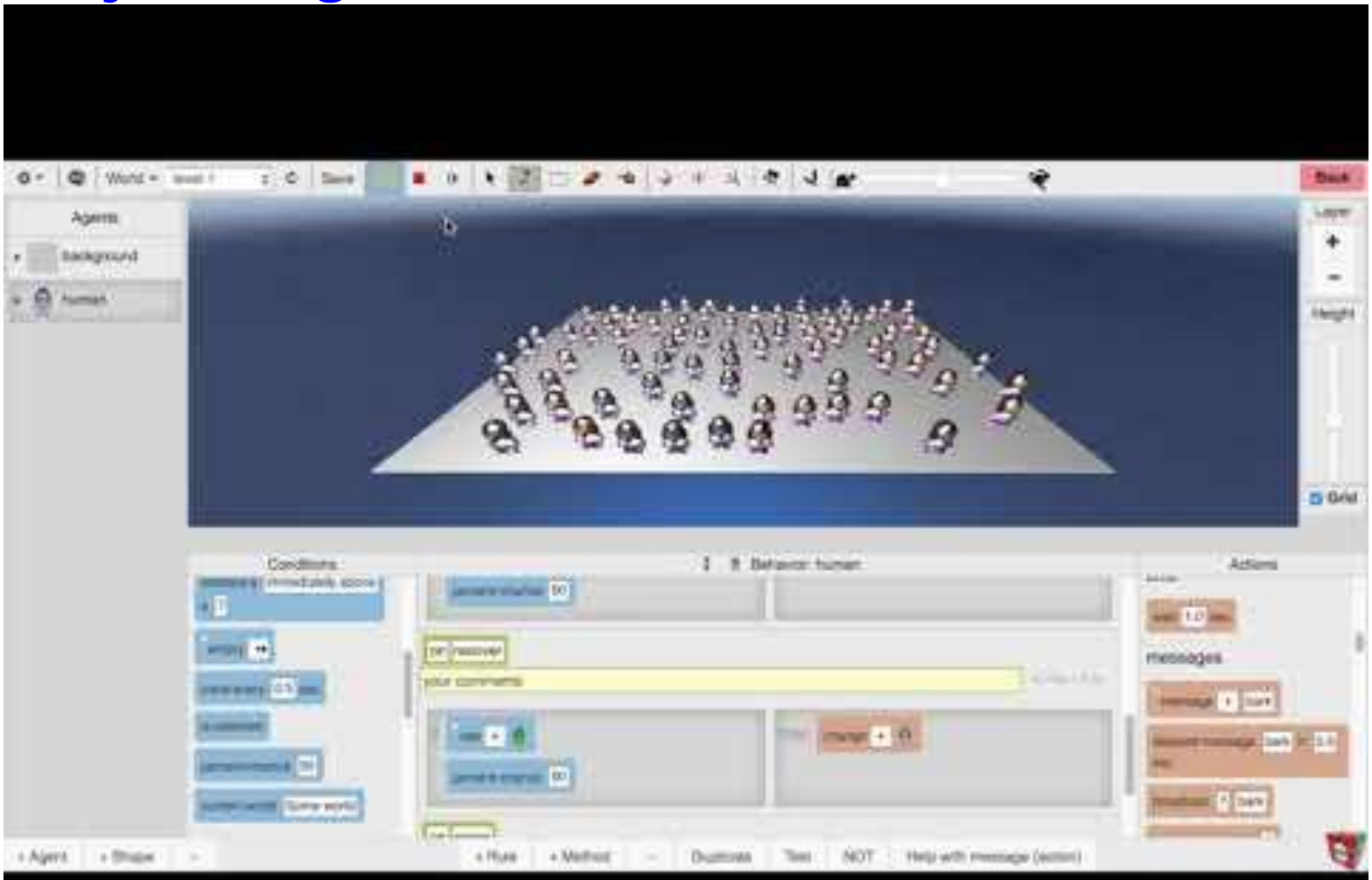


OK

Show

back

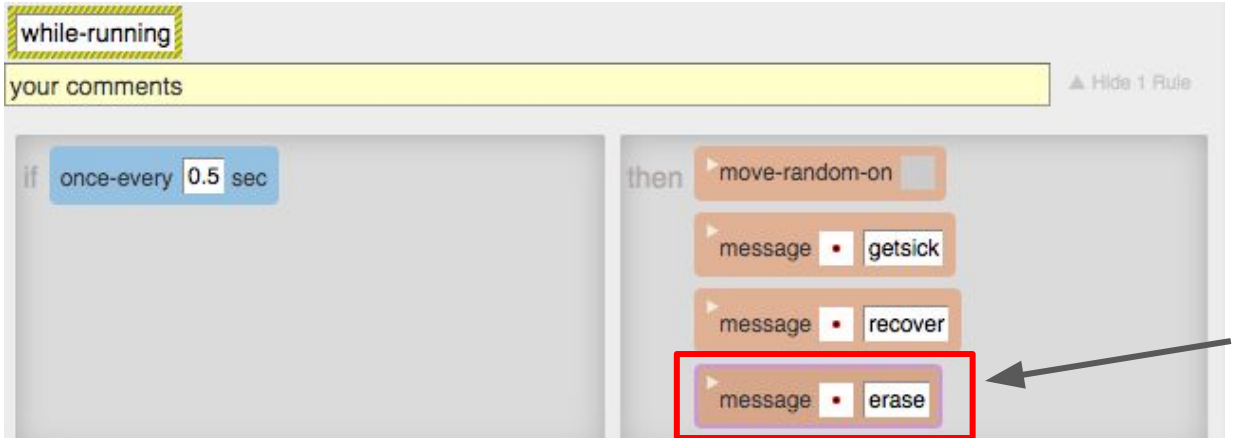
Playtesting



OK

back

Instruction 17: Program a rule in the erase method that says *If I see myself as sick, with a 50% percent chance, I erases myself, and invoke the erase method in the while-running method*



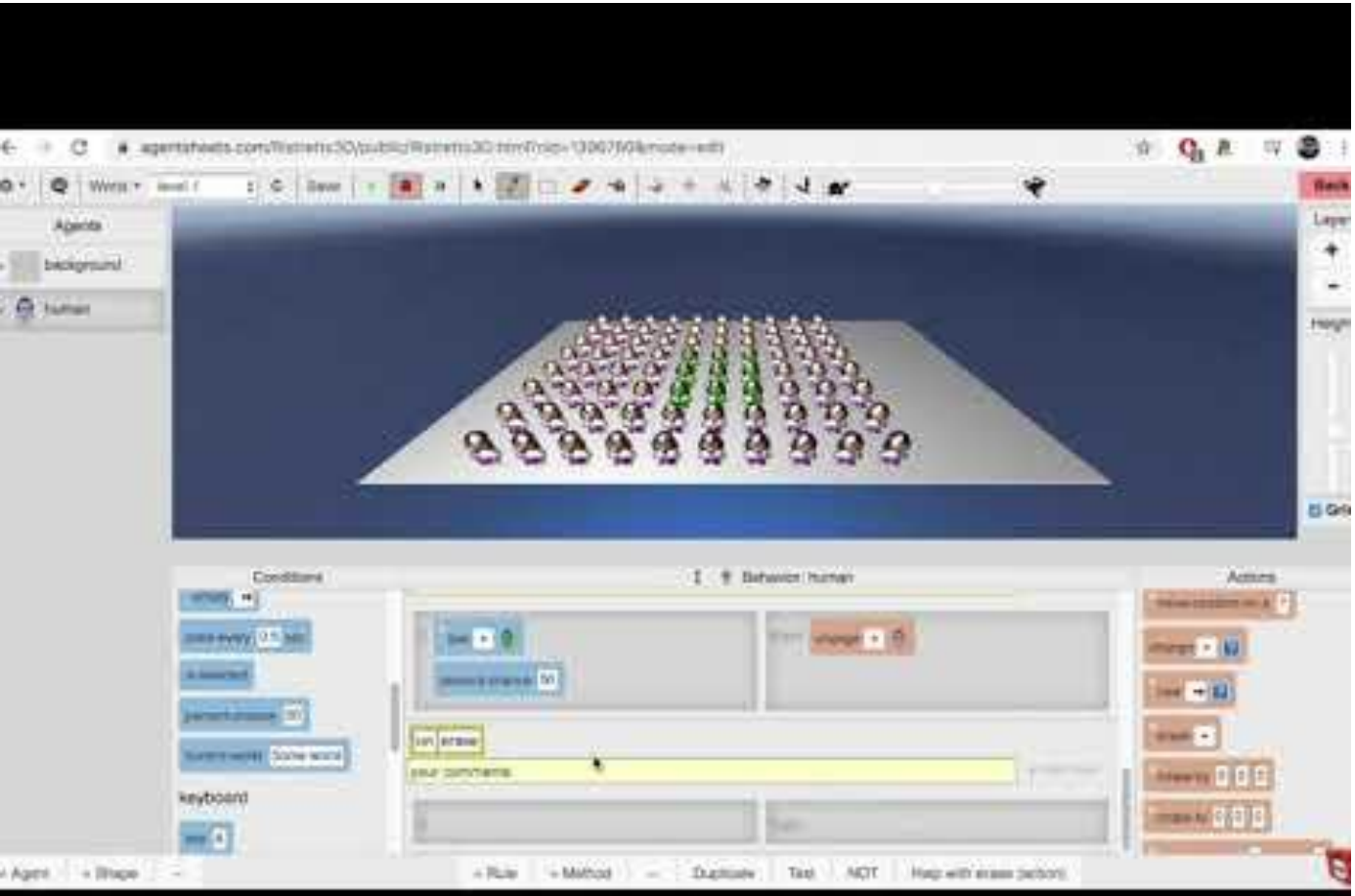
OK

How

Show

back

Instruction 17: Program a rule in the erase method that says *If I see myself as sick, with a 50% percent chance, I erases myself, and invoke the erase method in the while-running method*

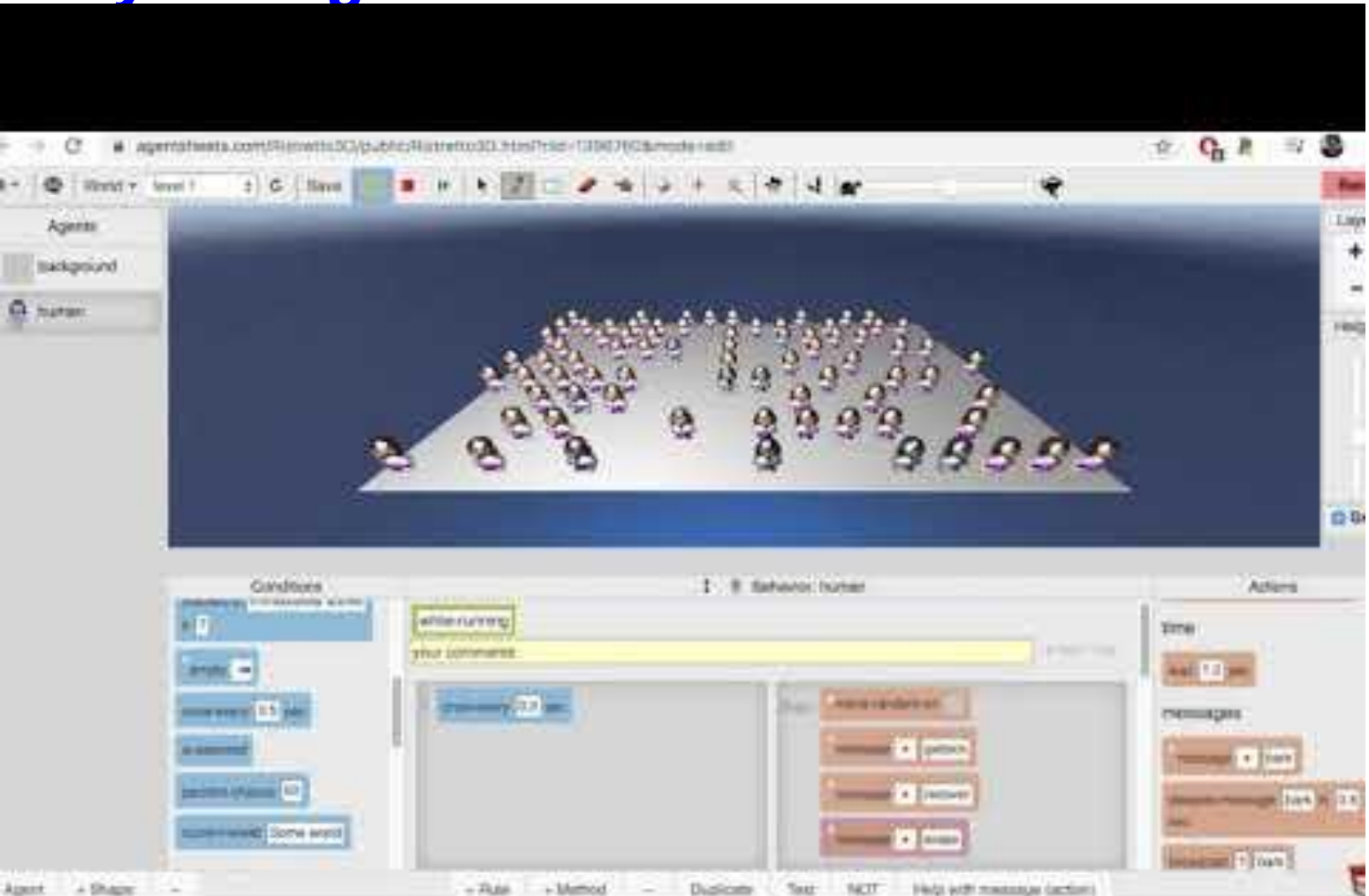


OK

Show

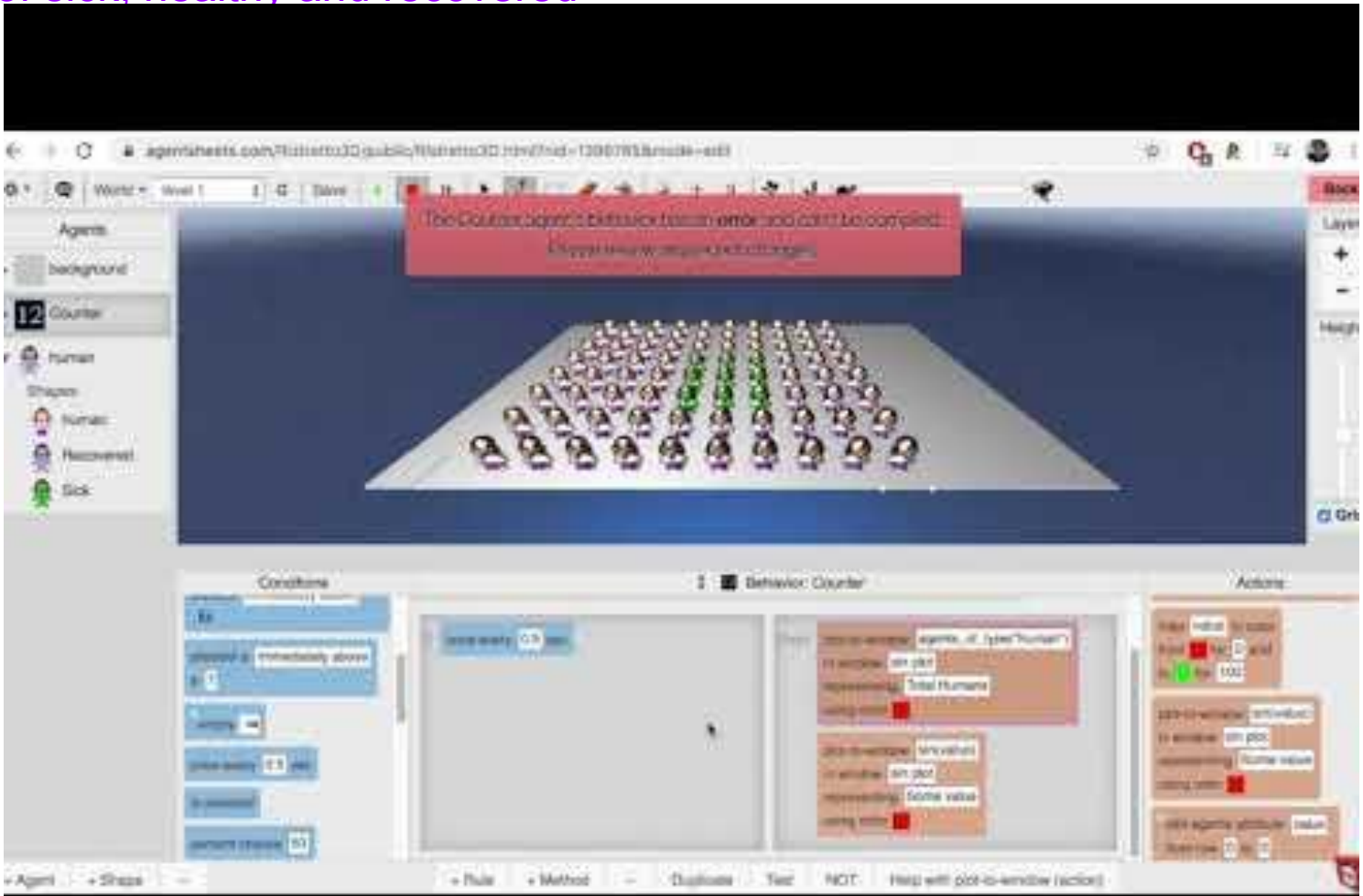
back

Playtesting



OK

Instruction 18:FINAL STEP: Follow the video to Create an Agent to plot the populations of sick, healthy and recovered



OK

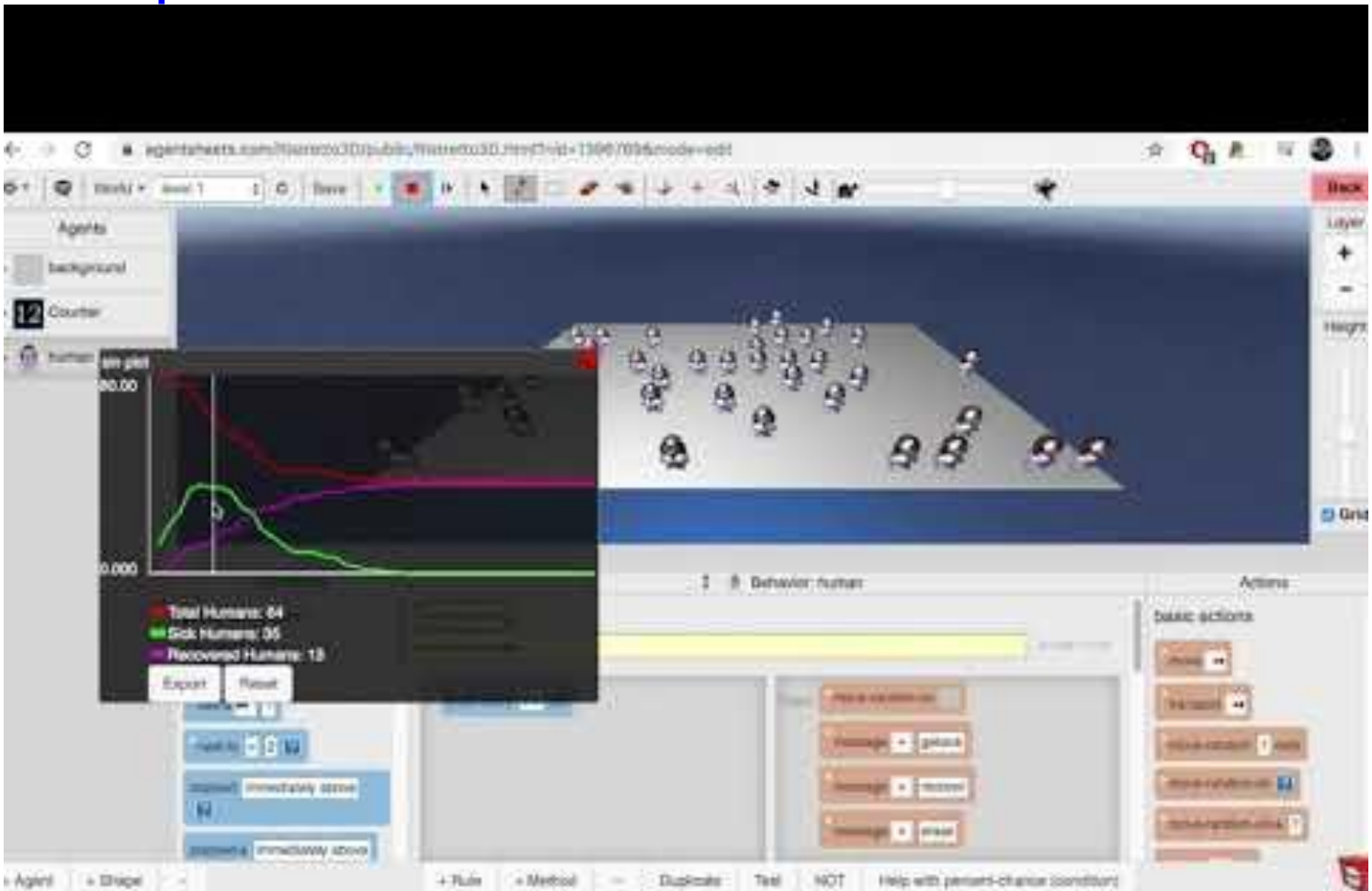
Show

Experiment 1: What do you think would happen if you decrease recover percent and decrease erase percent to 10% and run the simulation? Was your prediction correct?

OK

back

Experiment 1:



OK

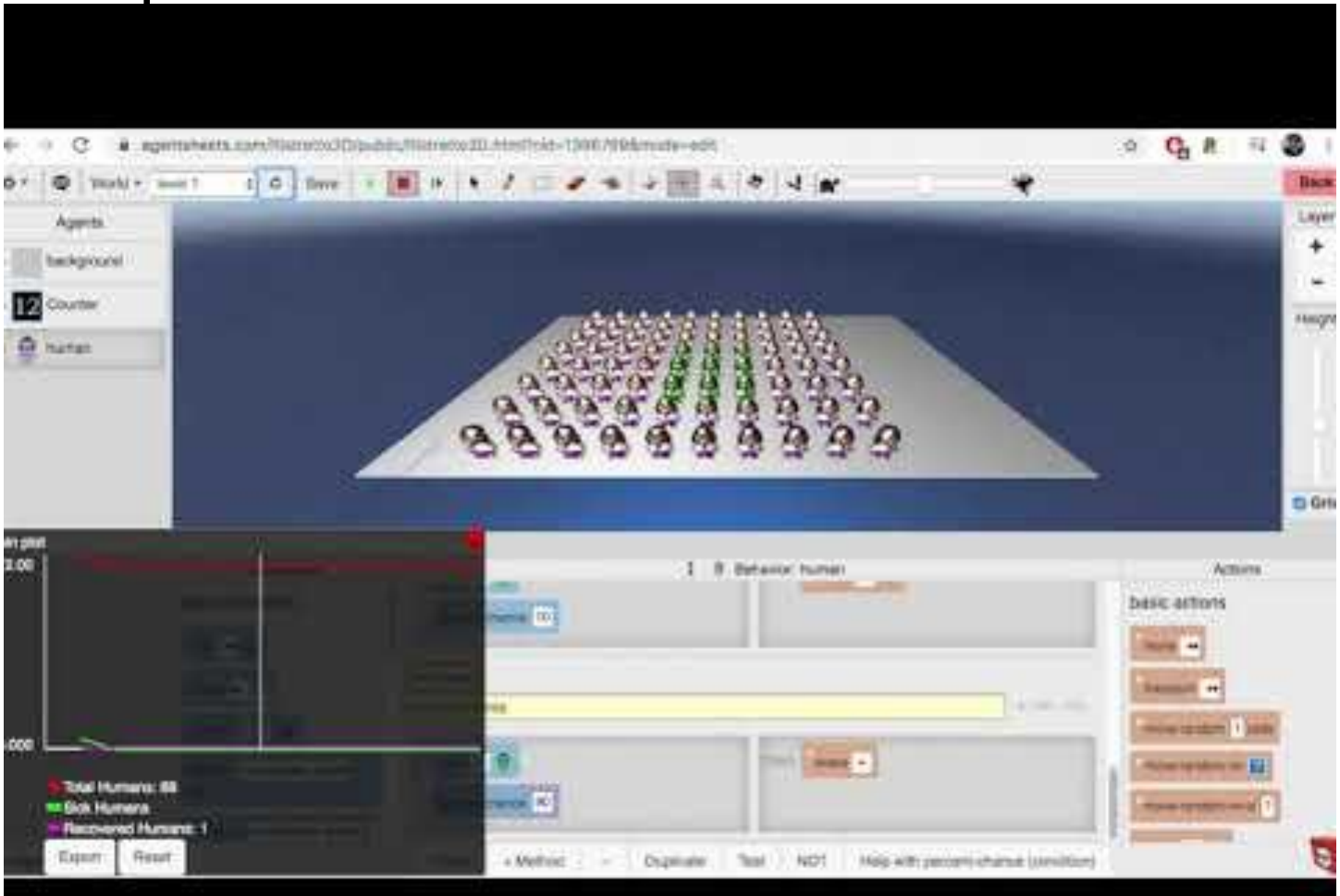
back

Experiment 2: What if we increase the erase percent to 90%, what would you think would happen as compared to experiment 1?

OK

back

Experiment 2



OK

back

Experiment 3: A Quarantine Experiment