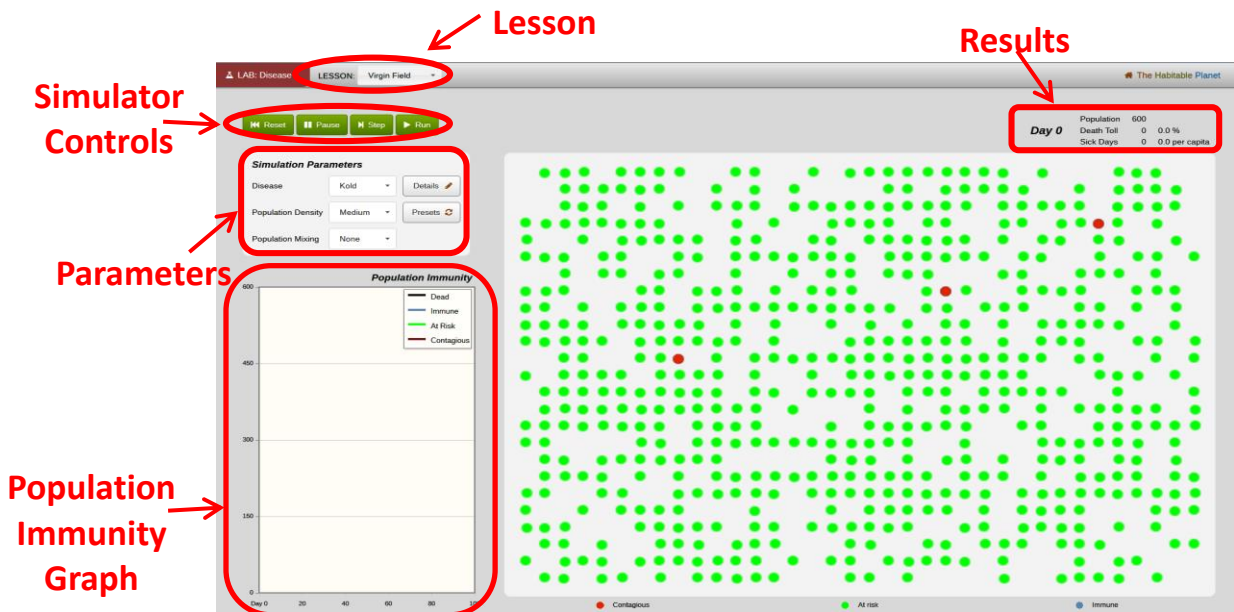


Disease Lab Simulator Components



Lesson

Identifies which exercise is currently set to run. This corresponds to different sections of the laboratory: Virgin Field, Vaccination, or Pandemic.

Simulator Controls

Reset button:

Returns the simulator to Day 0.

Stop button:

Arrests the progression of the simulator at the moment it is clicked.

Step button:

Simulates the progression of population as determined by the parameters for one day.

Run button:

Simulates the progression of population as determined by the parameters for 100 days.

Simulator Data (upper right-hand corner)

Day:

Indicates which day you are currently looking at within the simulator's 100-day scenario.

Population:

The starting number of people within the scenario.

Sick Days:

The total number of sick days taken for the entire population. The number per capita tells you the average number of sick days an individual has taken throughout the duration of the simulation.

Death Toll:

The total number of people in the population who have died as a result of the disease. The percentage next to Death Toll tells you the percentage of the total population that are deceased due to the disease. Note that dead individuals are removed from the illustration as they expire. They are, however, represented on the Population Immunity Graph.

Simulator Parameters

Disease parameter:

A drop-down menu lists four diseases you can explore: Kold, Impfluenza, Neasles, and Red Death. The Details button next to the drop-down menu allows you to alter the parameters of the disease. Click the pencil icon to open a window labeled Disease Details.

Disease name: Indicates which disease is currently being explored.

Contagious, sick: Use this slider to control the number of days from when an individual is contagious (can transmit the disease to others and/or fall victim to it him/herself, but is not yet ill) to when the individual gets sick (has the disease). Slide the circle left (fewer days between contagious and sick) or right (more days between contagious and sick). The number in the box next to the slider indicates how many days you have chosen. You may also click on the box and enter a number of days.

The screenshot shows a 'Disease Details' dialog box with a red header. It contains the following elements:

- Disease name:** A text input field containing 'My Kold'.
- Contagious, sick:** A text input field containing '5' followed by 'days', and a horizontal slider with a green circle marker.
- Transmission rate:** A text input field containing '10' followed by '%', and a horizontal slider with a green circle marker.
- Death rate:** A text input field containing '0' followed by '%', and a horizontal slider with a green circle marker.
- Buttons:** 'Cancel' and 'Apply' buttons at the bottom right.

Transmission rate: Use the slider to indicate the rate at which a contagious or sick person would transmit the disease to the healthy – although "at risk" – people surrounding him/her. Slide the circle left (fewer surrounding people infected) or right (more people infected). For example, if the transmission rate were 100 percent, every dot around the starting contagious dot (red) in the illustration would be infected by Day 2. The number in the box next to the slider indicates the transmission rate you have selected. You may also click on the box and enter a transmission rate.

Death rate: Use this slider to indicate the percentage of total people afflicted with the disease who will die as a result of the disease. Slide the circle left (fewer people will die from the disease) or right (more people will die from the disease). The box next to the slider tells what percentage of the total population will die from the disease. You may also click on the box and type in your chosen death rate.

Apply: This button accepts the parameters given in the window for the disease and will then run the simulator according to those parameters.

Cancel: This button brings you back to the main simulator screen without altering any parameters. The simulator will run numbers and approximations from whatever parameters were previously set.

Population Density:

A drop-down menu that shows how many people per square area will be involved in the simulation (how crowded and populated an area will be). There are three options: Low, for which the starting population is 200, Medium, for which the starting population is 600, and High, for which the population is 900.

Population Mixing:

A drop-down menu that tells how often those within the simulation will travel to different parts of the simulation and interact with others. There are four options: None (individuals are isolated and stay within their own homes at all times), Low (minimal interaction with others), Medium (average interaction in the community), and High (intense interaction and travel within and throughout the community).

Vaccinated:

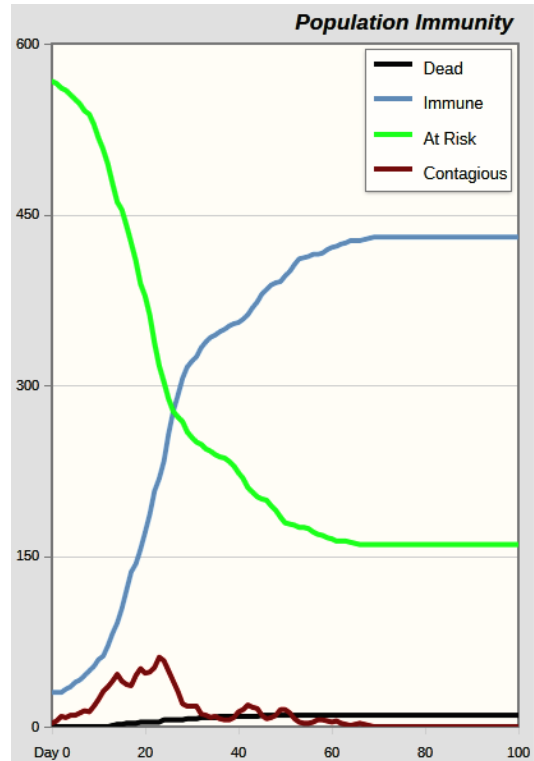
A drop-down menu that tells what percent of the population has been vaccinated at the beginning of the simulation. There are eight options: None, 5%, 10%, 25%, 50%, 75%, 90%, and 100%. A setting of None is equivalent to the Virgin Field.

Presets box:

Reestablishes original settings of the simulator, including simulation parameters, graph, and illustration.

Population Immunity Graph

The graph shows the progression of the disease within your chosen parameters. The legend may be moved by dragging it with your mouse. The y-axis is the population and the x-axis is the day. In the Virgin Field and Vaccination tableaus, four lines appear on the graph. You can determine the value of any point on each line. For example, to determine the number of immune at the end of the run, click on the gray line at Day 100.



Contagious: This line represents the number of people in the population who are either exposed to the disease or have compromised immune systems but have not yet become ill with the disease.

Immune: In the Virgin Field tableau, this line represents those in the population who have either a natural immunity to the disease or a developed immunity (an immunity that comes from exposure to the disease—a person may be exposed to a disease and naturally develop antibodies to it). They will not have received the vaccine and are now immune to the disease.

At Risk: This represents people who can still be infected upon exposure.

Dead: This line represents the number of people in the population who have died as a result of the disease.

Interactive Illustration

Each dot represents an individual. As each day progresses, the individuals move both within their immediate environment and throughout the community. The status of each individual is indicated by its color. The color legend is at the bottom of the illustration. In the Virgin Field and Vaccination tableaus, Contagious is red, Immune is blue, and At Risk is green.

