

## STUDENT INSTRUCTIONS

- 1) Log in to Whyville → Go to the BioPlex→BioPlex Lobby→Virus Lab.
- 2) Make sure to watch the Virus Tutorial and the Immune Response tutorials. Clicking on the virus and macrophage in the background will take you to the tutorials. If you don't understand the material on the first try, watch the tutorials again.  
Hint: the information in the tutorial will be useful for your worksheet!
- 3) Once you feel like you understand viruses and the immune system response, go to the Make-A-Virus activity within the Virus Lab.
- 4) Read the introduction text and make sure you understand it before moving on to the game.
- 5) Click on "Level 1" and enter the Virus Design Game.
- 6) On the left you will see sample viruses and on the right you will see your sample population. Choose one of the viruses you think looks like a good choice. You can change the virus's receptor by clicking on the colored blocks within the large box. (need image here) Once you are happy with your virus, click on "Test virus" to see how many people it infects!
- 7) In Level 2 you can design your own virus. Use the color palette to set the colors for the virus receptor. Remember that the virus will attach to the colors on someone's avatar. Get the virus to attach to three subjects. Tip: If you aren't having success, try testing one virus multiple times before making changes to it.
- 8) In Level 3 and 4 your goal is to make a virus that infects subjects and also gives them symptoms. The possible symptoms are: sneezing, coughing, pox, and confusion.

Level	Subjects infected	Symptoms	Duration	Note
One	1	1	1	Pick from the pre-made viruses, change it in the editor if you want.
Two	3	0	0	Design your own virus.
Three	1	1	1	Brighter colors affect symptoms and duration.
Four	2	2	2	Brighter colors affect symptoms and duration. This level is hard!

Name		Date
Whyville ID		Class Period
1. What was this lesson about?		
2. What did you need to know to succeed?		
3. What new questions did you think of while playing through this lesson?		
4. What is <i>specific immunity</i> and how does it help us create effective vaccines?		
5. Explain the stages you must go through to get a vaccine approved.		
6. Why is it important to use bioethics when designing clinical trials?		
7. Were you able to create a vaccine? a. What percentage of the population did it help? b. Did it have any side effects? c. Did a patent already exist for this vaccine?		
8. At the Pharmacy there are medications and vaccines for sale. What is the main difference between the two?		