Unit 2: Lesson 3 – Development of Vaccines

Vocabulary: Influenza and HIV

Using resources suggested by your teacher, define the terms below.

Cell culture adaptation	
Herd immunity	
Conjugate vaccine	
Immunity	
Inactivated vaccine	
Live, weakened viral vaccine	
Plasmid	
Recombinant vaccine	
Toxin	
Toxoid vaccine	
Vaccine	

Refer to the online glossary and compare your definitions with those in the glossary. Make any necessary corrections to your definitions above.

Activity 1: Types of Vaccines

Materials

- Types of Vaccines worksheet
- Presentation worksheet for each member of class during presentations
- Computer with Internet access

Instructions

1. Work in small groups.
2. Choose from one of the five types of vaccines you researched for the lesson vocabulary.
3. Research this vaccine and complete the worksheet for your specific vaccine (inactivated, weakened virus, recombinant, conjugate, or toxoid).
4. Based on your research and worksheet responses, create a presentation to share your findings with the class. Use a presentation method as directed by your teacher.
5. Share your presentation with the class.
6. When other groups share their presentations, complete the Presentation Worksheet.

Activity 2: Understanding Herd (Community) Immunity

Consider the following scenario. Three schools participate in a basketball tournament. High School's students are almost totally vaccinated. Low School's students are mostly unvaccinated. A student from the third school is unknowingly infected with measles. After the tournament, several people in Low School become infected with measles. Even some people who did not attend the tournament are infected. Yet no-one in High School becomes infected, even unvaccinated students. High School's students are protected by herd immunity. Because enough people are immune, the population (even the unvaccinated) is protected from a disease outbreak.

In this activity, you will run a computer simulation to test how different immunization rates determine:

1. The percentage of the total population that becomes infected
2. The percentage of the unvaccinated population that becomes infected

Materials

Per group:

- Herd Immunity simulation worksheets
- Computer with Internet access

Instructions

1. Visit the History of Vaccines website to learn about herd immunity: http://www.historyofvaccines.org/content/herd-immunity-0
2. Work in pairs to conduct the simulation activity.
3. When you complete the simulation, share your results with the class to complete the class data analysis.
4. Complete the questions in the Simulation Activity Worksheet.