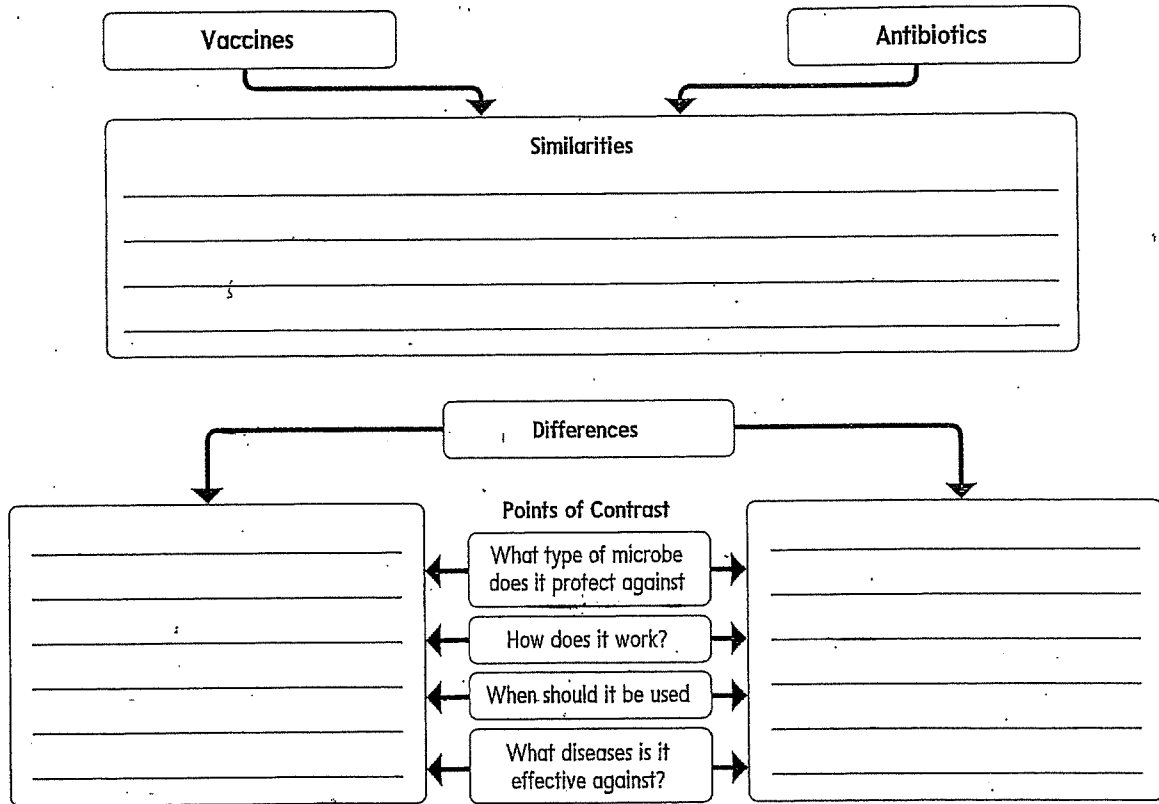


How Vaccines and Antibiotics Work

1. Compare and contrast how vaccines and antibiotics work by completing the different parts of the graphic organizer shown below.



2. Create your own definition for:

a) vaccine

b) antibiotic

3. Your friend has a cold and thinks that she should see a doctor about getting a prescription for antibiotics. What would you say to your friend about using antibiotics to treat a cold?

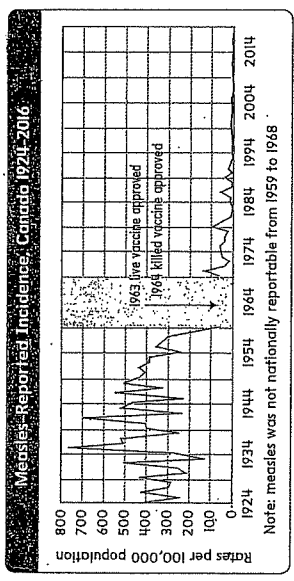
Name _____ Date _____

How Effective are Vaccines?

Use with textbook pages 64-71.

Measles is a highly contagious disease caused by the measles virus. Measles symptoms include fever, runny nose, cough, sore throat, and a rash in the form of small red spots that appear all over the body. In a small percentage of people, if left untreated, measles can cause pneumonia, brain damage, deafness, and even death. Measles is usually spread when an infected person breathes, coughs, or sneezes. The virus can last up to two hours in a room after the person has left.

Before the measles vaccine was introduced in 1963, measles affected almost everyone. It would hit in two to three year cycles and would infect at least 350 000 people each year. Since the introduction of the vaccine, the rate of measles has dropped by over 99%.



1. Looking at the pattern on the graph, what do you notice about the number of cases of measles since the introduction of the measles vaccine in 1963?

2. Based on the graph, how effective do you think the measles vaccine is at reducing infection? Explain why you think the vaccine is effective or not effective.

3. Do you think that measles is largely controlled in Canada by the use of the vaccine? Explain your answer.

Name _____ Date _____

Use the following data to answer questions 4 to 8.

Number of Measles Cases Reported in B.C.

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Number of Reported Cases	1	2	4	2	0	0	78*	10	2	17	343**

*2010 Data: A large outbreak occurred at the 2010 Winter Olympics in Vancouver and then spread throughout the province.

**2014 Data: About 343 confirmed measles cases were reported. This is the highest number since the introduction of the measles vaccine. Of the 343 reported cases, 325 were from a single community. Other areas in the province had 18 cases that year.

2014 Outbreak by Age

Age	Infant <1	1-4	5-19	20-59
Number of People Infected	5	17	280	41

4. a) During which two years were there no reported cases of measles?

b) What can you infer about the vaccination rates during these two years?

5. Which two years had the most reported cases of measles?

6. Why do you think there was an outbreak of measles at the 2010 Winter Olympics?

7. Look at the 2014 data. Which age group had the majority of the outbreak? Why do you think this is so?