10 Immunity and vaccination – Part 2

Name: _____ Class: _____ Date: _____

Vocabulary

Write each word three times.

English	**Write it 3 times** (English)		
antigens			
Antibodies			
lymphocytes			
complementary			
phagocytes			
vaccine			
memory cells			
active immunity			

Recall

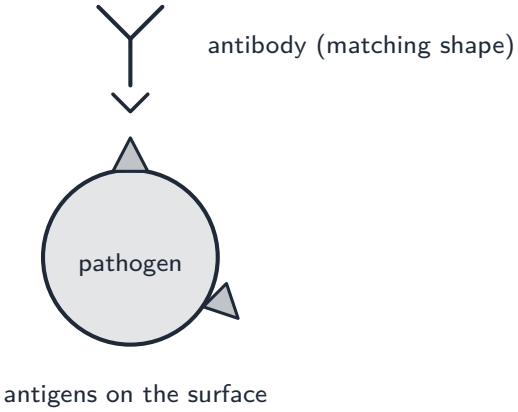
When a pathogen gets inside, special white blood cells fight it. This builds up your immunity.

New ideas

Read these first, then do the Practice.

1 Antigens and antibodies

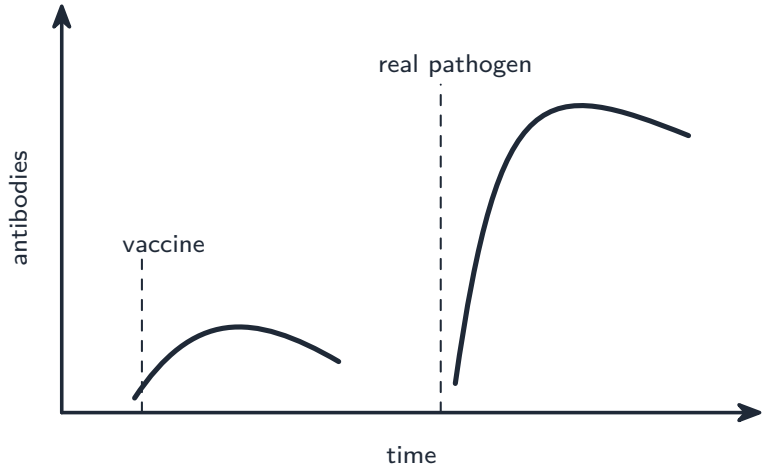
Every pathogen carries **antigens** on its surface. **Antibodies** (made by **lymphocytes**) have a shape **complementary** to one antigen, so each fits only that pathogen – like an enzyme and its substrate:



When antibodies bind, they destroy the pathogen or mark it for **phagocytes**.

2 Vaccination

A **vaccine** puts weakened pathogens (or their antigens) into the body. Your lymphocytes make antibodies and **memory cells** that stay for years:



If the real pathogen comes later, the memory cells make antibodies **fast**, so you do not become ill. This is **active immunity**.

Watch out: an **antibody** fits only **one** antigen (like a key in a lock), so it works on just one pathogen. After a vaccine, **memory cells** stay for years and make antibodies *fast* if the real pathogen arrives – that is active immunity.

Practice

Try these in order.

10.6 What is found on the surface of every pathogen? [1]

10.7 Which cells make antibodies? [1]

10.8 Why does an antibody fit only one kind of antigen? [1]

10.9 What do memory cells do if the real pathogen returns? [2]

10.10 What is *active immunity*? [1]

10.11 Challenge. Explain why a person who has been vaccinated against measles does not become ill when they later meet the measles pathogen. [3]