Year 9 Science: Disease and immunity: pathogens, white blood cells and vaccines

Name: _____ Date: _____

Try these without your notes first, then check the answer key.

Practice

1. Sort into infectious or non-infectious, and name the pathogen type for the infectious ones: measles, asthma, athlete's foot, Giardia infection, type 2 diabetes.

2. Why will a doctor not give antibiotics for a cold?

3. Explain why someone who had chickenpox as a child usually does not get sick from it again.

4. School absences from flu over four days were 4, 8, 15 and 31. Describe the pattern, predict day 5, and suggest one measure to slow it.

5. Boot-cleaning stations stand at track entrances in the Waitākere Ranges. Which prevention strategy is this, and which spread route does it block?

Fix the mistake

6. Correct this statement: "Antibiotics will cure a cold or the flu."

7. Correct this statement: "A vaccine gives you a mild case of the disease."

8. Correct this statement: "You do not catch chickenpox twice because the antibodies stay in your blood forever."

9. Correct this statement: "You can catch asthma or type 2 diabetes from someone who has it."

Answer key (for parents and tutors)

1. Sort into infectious or non-infectious, and name the pathogen type for the infectious ones: measles, asthma, athlete's foot, Giardia infection, type 2 diabetes.
   Measles: infectious, virus. Asthma: non-infectious. Athlete's foot: infectious, fungus. Giardia infection: infectious, protist. Type 2 diabetes: non-infectious.
2. Why will a doctor not give antibiotics for a cold?
   Colds are caused by viruses, and antibiotics only work on bacteria.
3. Explain why someone who had chickenpox as a child usually does not get sick from it again.
   Memory cells made during the first infection stay in the body and respond so fast to a second exposure that the virus is destroyed before symptoms appear.
4. School absences from flu over four days were 4, 8, 15 and 31. Describe the pattern, predict day 5, and suggest one measure to slow it.
   The number roughly doubles each day, so about 60 on day
5. Boot-cleaning stations stand at track entrances in the Waitākere Ranges. Which prevention strategy is this, and which spread route does it block?
   Measures include staying home when sick, covering coughs, hand washing, better ventilation or flu vaccination. 5. Hygiene; it blocks spread in contaminated soil carried on footwear.
6. Correct this statement: "Antibiotics will cure a cold or the flu."
   Antibiotics only kill bacteria, and colds and flu are caused by viruses, so antibiotics do nothing against them.
7. Correct this statement: "A vaccine gives you a mild case of the disease."
   A vaccine shows your immune system the pathogen's antigens without causing the disease, so it makes antibodies and memory cells in advance.
8. Correct this statement: "You do not catch chickenpox twice because the antibodies stay in your blood forever."
   Antibody levels fall after an illness; memory cells stay behind and make new antibodies quickly if the pathogen comes back.
9. Correct this statement: "You can catch asthma or type 2 diabetes from someone who has it."
   They are non-infectious diseases with no pathogen behind them, so they cannot pass from person to person.