IGCSE BIOLOGY • EXERCISE SHEET

10.1 Diseases and immunity

Name: _____ Class: _____ Date: _____ **Total: 9 marks**

Objective

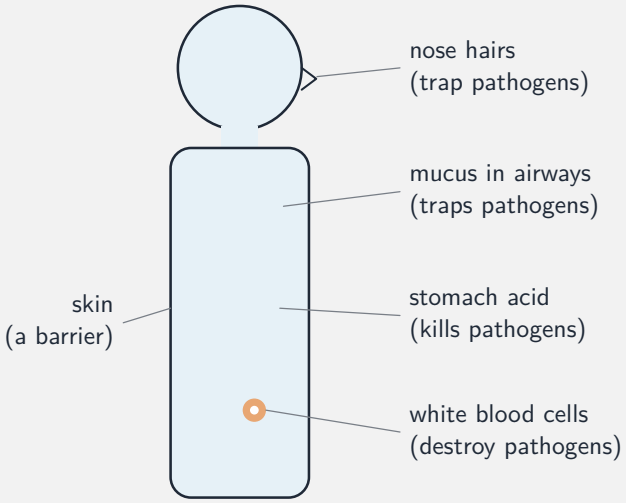
Build the skills to answer exam questions on **diseases and immunity** 疾病与免疫—**pathogens** 病原体, the body's **defences** 防御, **antibodies** 抗体, **vaccination** 疫苗接种, and active vs passive immunity.

You must be able to:

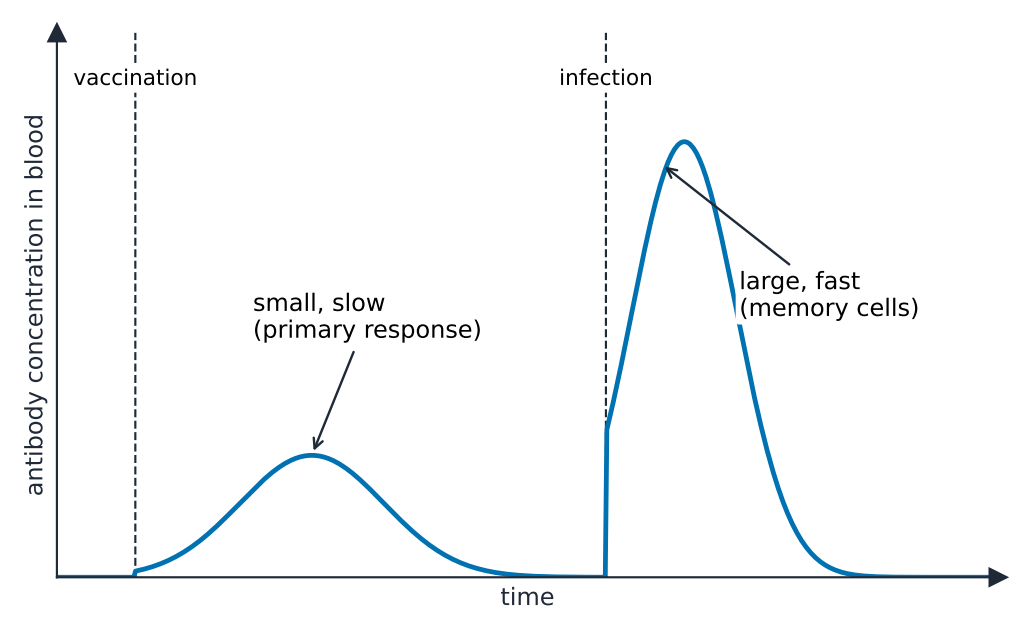
- define pathogen and transmissible disease; list the body's defences
- explain antigens/antibodies and how vaccination works
- compare active and passive immunity

1 Worked examples

Defences and vaccination



Defences: skin, nose hairs, mucus, stomach acid, white blood cells



Vaccination makes memory cells → a fast, large response if the real pathogen arrives (active immunity)

- **passive immunity** (placenta, breast milk): short-term, no memory cells.

2 Practice

2.1 Define a pathogen. [1]

2.2 State two of the body's defences against pathogens. [2]

3 Exam-style questions

3.1 An antibody is able to bind to one pathogen because its shape is: [1]

- **A** the same as the antibody
- **B** complementary to the pathogen's antigen
- **C** larger than the pathogen
- **D** always changing

3.2 A child is vaccinated against measles.

(a) Describe how the vaccine gives long-term protection. [3]

(b) State the difference between active and passive immunity. [2]

4 Go further

You are now ready for the real exam questions on this subtopic. Open the **10.1 Diseases and immunity** past-paper sheet in the Library, or try these in **Practice mode**:

- 0610/21 N25 —Q14 (disease / defences)
- 0610/21 N25 —Q16 (immunity)

Solutions

2.1 an organism that causes disease.

2.2 any two of: skin; nose hairs; mucus; stomach acid; white blood cells.

3.1 B. An antibody's shape is complementary to the pathogen's antigen.

3.2 (a) the vaccine's antigens make lymphocytes produce antibodies; and memory cells form; if the real pathogen arrives, the memory cells make antibodies fast, so you don't become ill.
(b) active immunity is made by your own body (long-term, memory cells); passive immunity comes from another body's antibodies (short-term, no memory cells).