

8.15 Pathogens and Infectious Diseases

Name: _____ Class: _____ Date: _____

Total: 9 marks**KEY WORDS** infectious 传染性 • cholera 霍乱 • malaria 疟疾 • mosquito 蚊子 • dysentery 痢疾

Objective

Build the skills to answer exam questions on **pathogens and infectious diseases**.**You must be able to:**

- distinguish **infectious** 传染性 from **non-infectious** diseases
- give examples of waterborne and vector-borne diseases
- link environmental change to disease spread

1 Worked examples

Study these first. Each one shows the method for a question type used later — follow the steps and you can do the Practice and Exam-style questions yourself.

■ Infectious vs non-infectious

- **Infectious** diseases are caused by **pathogens** (bacteria, viruses, parasites) and can **spread** (e.g. cholera, malaria).
- **Non-infectious** diseases do not spread between people (e.g. cancer, heart disease).

■ Waterborne diseases

Spread by **contaminated water** (poor sanitation): **cholera**, dysentery, typhoid. Clean water and sewage treatment prevent them.

■ Vector-borne diseases

Spread by a **vector** (an organism that carries the pathogen), often insects: **malaria** and dengue (mosquitoes). Controlling the vector controls the disease.

■ Environmental links

Climate change can expand mosquito ranges (spreading malaria); poor **sanitation** spreads waterborne disease; deforestation can increase human-wildlife contact.

2 Practice

Now apply the methods above.

2.1 What causes an infectious disease? [1]**2.2** Give one example of a waterborne disease. [1]**2.3** What is a vector? [1]

3 Exam-style questions

3.1 Malaria is spread by mosquitoes, which act as a [1]

- **A** pathogen
- **B** vector
- **C** host only
- **D** nutrient

3.2 A region with poor sanitation has frequent cholera outbreaks.

(a) Explain how cholera spreads there. [2]

(b) State one way to prevent it. [1]

3.3 Explain how climate change could increase the spread of a vector-borne disease. [2]

Solutions

2.1 A pathogen (bacterium, virus, or parasite).

2.2 Any one: cholera, dysentery, typhoid.

2.3 An organism that carries and transmits a pathogen.

3.1 B — a vector.

3.2 (a) Sewage contaminates the drinking water with the cholera bacterium; people drink the contaminated water and become infected, spreading it further. (b) Any one: clean water supply, sewage treatment, sanitation.

3.3 Warmer temperatures can expand the range and breeding season of the vector (e.g. mosquitoes), so the disease reaches new areas and more people.