

# 8.15 Pathogens and Infectious Diseases

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Name: \_\_\_\_\_ Class: \_\_\_\_\_ Date: \_\_\_\_\_

Total: 9 marks

## Objective

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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

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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

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Now apply the methods above.

2.1 What causes an infectious disease? [1]

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2.2 Give one example of a waterborne disease. [1]

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2.3 What is a vector? [1]

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### 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

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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]

### 4 Go further

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You are now ready for the real exam questions on this subtopic:

- work through the **8.15 Pathogens and Infectious Diseases** lesson on the **Learn**

page;

- read the **Pathogens and Infectious Diseases** section of the AP Environmental Science handout on the **Know** page.

## Solutions

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**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.