BIOLOGY YEAR 12 - MODULE 7 - LESSON 8

How Plants Respond to Pathogens

Use this worksheet after reading the lesson to practise the key ideas and prove you can meet the success criteria.

Name _____

Date _____

Class _____

1. Key Ideas

A Banksia has no white blood cells, no antibodies, no fever response. Yet when Phytophthora cinnamomi invades its roots, it fights back — using chemistry, cell walls, and sacrifice. Plants mount defences as sophisticated as any immune system, just entirely different in design.

- Physical defences plants use to prevent pathogen entry
- Why physical and chemical defences are complementary

2. Success Criteria

By the end, you should be able to:

- Physical defences plants use to prevent pathogen entry
- Chemical defences plants produce in response to infection
- The hypersensitive response and systemic acquired resistance

3. Key Terms

Systemic acquired resistance (SAR)
the plant equivalent of immunological memory — though the mechanism is entirely different

Phytophthora cinnamomi
an oomycete (a water mould — not a true fungus, but classified similarly as a pathogen) that causes

Natural selection
organisms change because they want or need to

These systems
analogous to the castle analogy — but in plant biology, both layers are active and sophisticated

released when cells
damaged, toxic to many pathogens

Some plant defences
constitutive — always present, whether or not infection is occurring (e

4. Activity: Build the Lesson Map

Use the lesson to complete the table. Keep answers brief but specific.

Prompt	Your answer
Main concept	
Important example	
Common mistake to avoid	
How this links to the next lesson	

5. Short Answer Questions

1. Explain this lesson goal in your own words: "Physical defences plants use to prevent pathogen entry". Use one specific example from the lesson.

BAND 3 2 MARKS

2. Apply this idea to a new example: "Chemical defences plants produce in response to infection". Show your reasoning clearly.

BAND 4 3 MARKS

3. Analyse why this idea matters for understanding How Plants Respond to Pathogens: "The hypersensitive response and systemic acquired resistance".

BAND 5 4 MARKS

6. Extend: Apply the Idea

BAND 5/6 5 MARKS

A student gives a memorised answer about How Plants Respond to Pathogens but does not use evidence or reasoning.

Improve the answer by writing a stronger response that uses accurate terminology, a relevant example and a clear explanation.

7. Multiple Choice

1. What is the best first step when answering a question about How Plants Respond to Pathogens?

☐ A. Identify the key concept being tested

☐ B. Write every fact from memory

☐ C. Ignore the command word

☐ D. Skip examples and evidence

2. Which answer would show stronger understanding of How Plants Respond to Pathogens?

☐ A. An answer with accurate terms and reasoning

☐ B. A copied definition only

☐ C. A single-word response

☐ D. An answer with no example

3. What should you do if a question asks you to explain?

☐ A. Link the idea to a reason or cause

☐ B. List unrelated facts

☐ C. Only draw a diagram

☐ D. Write the shortest possible answer

8. Success Criteria Proof

Finish with evidence that you can do each success criterion.

SUCCESS CRITERION 1

Prove that you can: Physical defences plants use to prevent pathogen entry

BAND 3 2 MARKS

SUCCESS CRITERION 2

Prove that you can: Chemical defences plants produce in response to infection

BAND 4 3 MARKS

SUCCESS CRITERION 3

Prove that you can: The hypersensitive response and systemic acquired resistance

BAND 5 4 MARKS

One thing I still need help with: