BIOLOGY YEAR 11 - MODULE 2 - LESSON 2

Cell Specialisation and Differentiation

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

Every cell in your body contains identical DNA — yet a neuron looks nothing like a red blood cell. How does one genome produce hundreds of different cell types, and why does structure always follow function?

- Define cell differentiation and explain its genetic basis
- Relate structure of cells and cell specialisation to function

2. Success Criteria

By the end, you should be able to:

- Define cell differentiation and explain its genetic basis
- Explain how identical DNA produces different cell types
- Describe the structure of at least four specialised cells

3. Key Terms

Cell differentiation
the process by which a cell becomes structurally and functionally specialised by selectively activating certain genes wh

palisade mesophyll cell
packed with green organelles

Explain why specialised cells
permanently committed

gene
used to synthesise a functional gene product, such as a protein, leading to specific cell structures and functions

specific genes
switched on or off, causing cells to produce different proteins and develop different structures

What
differentiation -->

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: "Define cell differentiation and explain its genetic basis". Use one specific example from the lesson.

BAND 3 2 MARKS

2. Apply this idea to a new example: "Explain how identical DNA produces different cell types". Show your reasoning clearly.

BAND 4 3 MARKS

3. Analyse why this idea matters for understanding Cell Specialisation and Differentiation: "Describe the structure of at least four specialised cells".

BAND 5 4 MARKS

6. Extend: Apply the Idea

BAND 5/6 5 MARKS

A student gives a memorised answer about Cell Specialisation and Differentiation 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 Cell Specialisation and Differentiation?

☐ 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 Cell Specialisation and Differentiation?

☐ 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: Define cell differentiation and explain its genetic basis

BAND 3 2 MARKS

SUCCESS CRITERION 2

Prove that you can: Explain how identical DNA produces different cell types

BAND 4 3 MARKS

SUCCESS CRITERION 3

Prove that you can: Describe the structure of at least four specialised cells

BAND 5 4 MARKS

One thing I still need help with: