BIOLOGY YEAR 12 - MODULE 5 - LESSON 9

DNA in Prokaryotes and Eukaryotes

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

All cells use DNA, but they do not organise it in the same way. Prokaryotes package DNA for fast cell function and gene exchange, while eukaryotes organise DNA into linear chromosomes inside a nucleus.

- How DNA is organised in prokaryotes and eukaryotes.
- Why nucleus and nucleoid are not the same thing.

2. Success Criteria

By the end, you should be able to:

- How DNA is organised in prokaryotes and eukaryotes.
- The difference between circular DNA, plasmids and linear chromosomes.
- Why nucleus and nucleoid are not the same thing.

3. Key Terms

Prokaryote
An organism whose cells lack a membrane-bound nucleus, such as bacteria.

Eukaryote
An organism whose cells contain a membrane-bound nucleus and other organelles.

Nucleoid
The region in a prokaryotic cell where the main DNA is located.

Plasmid
A small circular DNA molecule in many prokaryotes that is separate from the main chromosome.

Chromatin
DNA associated with proteins in eukaryotic cells before full chromosome condensation.

Chromosome
A packaged DNA-protein structure carrying genes.

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: "How DNA is organised in prokaryotes and eukaryotes.". Use one specific example from the lesson.

BAND 3 2 MARKS

2. Apply this idea to a new example: "The difference between circular DNA, plasmids and linear chromosomes.". Show your reasoning clearly.

BAND 4 3 MARKS

3. Analyse why this idea matters for understanding DNA in Prokaryotes and Eukaryotes: "Why nucleus and nucleoid are not the same thing.".

BAND 5 4 MARKS

6. Extend: Apply the Idea

BAND 5/6 5 MARKS

A student gives a memorised answer about DNA in Prokaryotes and Eukaryotes 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 DNA in Prokaryotes and Eukaryotes?

☐ 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 DNA in Prokaryotes and Eukaryotes?

☐ 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: How DNA is organised in prokaryotes and eukaryotes.

BAND 3 2 MARKS

SUCCESS CRITERION 2

Prove that you can: The difference between circular DNA, plasmids and linear chromosomes.

BAND 4 3 MARKS

SUCCESS CRITERION 3

Prove that you can: Why nucleus and nucleoid are not the same thing.

BAND 5 4 MARKS

One thing I still need help with: