Bacteria: structure and roles

Teacher / technician

YEAR 10 / LESSON 4 / BIOLOGY + SCIENCE (DOUBLE AWARD)

Staff preparation and answer guidance. Keep separate from student sheets. Paper and model activity. No live culture, specimen collection or clinical interpretation.

Coverage and delivery

Shared Biology / Double Award: 1.3. Prokaryotic cells and bacterial examples.

Allow about 60 minutes. Follow the student sequence and use the answers to check reasoning.

Requisition • class of 30, working in 15 pairs

Item	Per pair / setup	Class total
Student booklets	1 per learner	30 copies
Paper / model sets	1 per pair	15 sets
Writing tools / rulers	1 per learner	30 sets

Immediate safety

Use paper or clean reusable models. No body samples, microbial cultures or unknown biological material are handled.

Preparation and delivery

Read alongside the student method

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1. Provide 30 student booklets and 15 sets of reusable models or blank paper cards. All examples needed are supplied in the task text.

2. Allow 10 minutes recall, 25 minutes pair reasoning, 15 minutes explanation and 10 minutes corrections. Keep answers separate until discussion.

3. No follow-up culture handling is required; use the supplied model and named examples.

4. Do not equate all bacterial walls with cellulose or state that every bacterium contains plasmids/flagella.

Close of lesson

• Return reusable materials and retain your corrected reasoning.

Check before teaching

Check the cards, reference data and quantities against this requisition. Keep the staff answer guide separate until the checking stage. Supplied numerical practice datasets are labelled examples; they are not class measurements.

Answers and teaching notes

Expected explanations • do not give as experimental observations

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- Cells lack a membrane-bound nucleus.
- In the cytoplasm, in a nucleoid region.
- It is a separate smaller DNA molecule, often circular, carrying additional genes.
- Any two of membrane, cytoplasm, ribosomes or DNA.
- Lactobacillus bulgaricus in yoghurt; pneumococcus can cause pneumonia.
- No. Bacteria have DNA and carry out metabolic reactions without membrane-bound organelles.

References and provenance

Pearson Biology specification

Prepared 22 November 2026. Original wording, tables and questions. Sources inform the concepts and technique; the lesson scope and classroom quantities are explicitly described here. No laboratory trial or final school risk approval is claimed.