

Unit 2: Module 1

Which organisms are classified as prokaryotes?

- ☐ Fungi and algae
- ☒ Bacteria and archaea
- ☐ Archaea and fungi
- ☐ Bacteria and fungi
- ☐ Bacteria and helminths

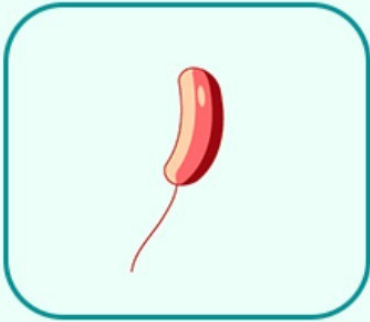
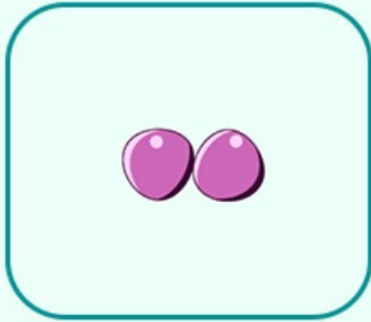
What are the cellular structures found in prokaryotes? Select all that apply.

- ☐ Nucleus
- ☒ Ribosomes
- ☒ Glycocalyx
- ☐ Lysosomes
- ☒ Fimbriae

Archaea can live in which environments? Select all that apply.

- ☒ Low pH
- ☒ Extreme salinity
- ☒ High pressure
- ☒ High temperatures

Match each prokaryote with its shape.

		
Curved 1	Bacillus 2	Coccus 3

Match each external bacterial cell structure with its function.

Cell Structure	Cell Function
Flagella	Locomotion
Fimbriae	Attachment to surfaces
Pili	Transfer of genetic material
Capsule	Protection from the immune system

Complete each sentence using the drop-down menus.

- Gram-negative bacteria have a thin peptidoglycan layer in their cell wall and an outer membrane containing lipopolysaccharide.
- Gram-positive bacteria have a thick peptidoglycan layer that includes lipoteichoic acid and teichoic acid.
- Some bacteria, like *Mycoplasma*, have no cell wall.
- Some bacteria, like *Mycobacterium* and *Nocardia*, have mycolic acid in their cell envelopes.

Which are found in bacterial inclusion bodies?

- ☐ Ribosomal RNA
- ☐ Glycoproteins
- ☐ Nucleic acids
- ☐ Peptidoglycan

☒ Glycogen

Which of the following is mismatched?

- ☐ Methanogens – convert CO₂ and H₂ into methane
- ☐ Hyperthermophiles – adapt to high temperatures
- ☐ Psychrophiles – adapt to very low temperatures
- ☐ Halophiles – adapt to salty habitats

☒ Thermoplasmas – adapt to warm-blooded animal environments

Which of these pairs is mismatched?

- ☒ Membrane – DNA synthesis
- ☐ Plasma membrane – transport
- ☐ Cell wall – protection
- ☐ Capsule – protection
- ☐ Pili – reproduction

Which group of microorganisms is known for producing methane gas as a metabolic byproduct?

- ☐ Acidophilic fungi
- ☐ Sulfate-reducing bacteria
- ☒ Methanogens
- ☐ Phototropic bacteria
- ☐ Nitrogen-fixing bacteria

A new microorganism has been discovered. How has it been identified as bacteria? Select all that apply.

☒ It has a cell membrane.

☒ It has capsules.

☐ It has mitochondria.

☒ It has no nucleus.

☒ It has cell walls.