

What is understood by the term “cell theory”?

Explain why striated muscle, giant algae, fungal hyphae don't quite fit.

Is this enough evidence to falsify cell theory?

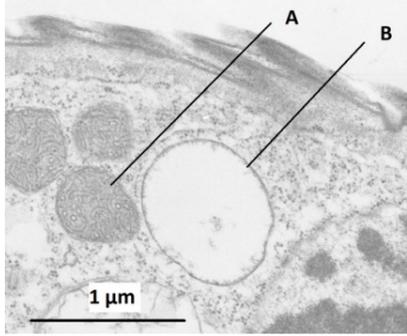
Explain why a small surface area to volume ratio limits cell size.

Describe an example of an emergent property?

Briefly explain each of the following:

- Specialized tissues can develop by cell differentiation
- Stem cells can divide and differentiate along different pathways
- Use of stem cells to treat Stargardt's disease

Name organelles A & B. Calculate the size of each.



The image shows a cross-section of a cell with various organelles. Two organelles are labeled: 'A' points to a large, clear, circular structure (likely a central vacuole or a large nucleus), and 'B' points to a smaller, darker, circular structure (likely a mitochondrion). A scale bar at the bottom left indicates a length of 1 μm.

Draw a simple labelled diagram of a Prokaryote cell

What is the difference in resolution between electron microscopes and light microscopes?

Explain how phospholipids form bilayers due to the **amphipathic** properties

Describe three locations & five functions of membrane proteins.

| Location | Function |
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Describe how molecules move across membranes by

- simple diffusion,
- facilitated diffusion,
- osmosis
- active transport.

Theories are modified in the light of new evidence and gradually improve.
List 5 discoveries in the development of the fluid mosaic model of membranes

List the stages in cell division by mitosis? Give a detail about each stage.

| Mitosis phase | Detail(s) |
|---------------|-----------|
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What causes the cell cycle & division to go wrong and cause 1° and 2° tumors in cancer? Use the terms cyclins, mutagens, oncogenes and metastasis