

**Chapter 6  
Part A**

Overhead notes

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**I. The Importance of Cells**

- All organisms are made of cells.
- The cell is the simplest collection of matter that is “alive”.

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**II. The study of cells using microscopes.**

- Scientists use microscopes to visualize cells too small to see with the naked eye.
- Most Euk. Cells =
- Most Prok. Cells =
- Organelles =

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II. The study of cells using microscopes.

- **Light microscope (LM)**

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II. The study of cells using microscopes.

- **Electron microscope (EM)**

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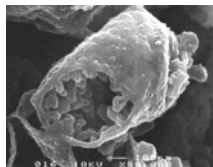
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Question 6.1

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mitochondrion

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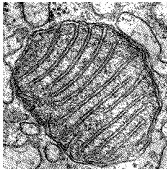
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mitochondrion

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III. Comparing Prokaryotic and Eukaryotic Cells

- **Why are most cells microscopic?**
  - As cell size increases, the volume grows proportionately more than the surface area.
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III. Comparing Prokaryotic and Eukaryotic Cells

- **A smaller cell has a higher surface to volume ratio, which facilitates the exchange of materials into and out of the cell.**

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III. Comparing Prokaryotic and Eukaryotic Cells

- ALL Prokaryotic & Eukaryotic cells have...

- 1.
- 2.
- 3.
- 4.
- 5.

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III. Comparing Prokaryotic and Eukaryotic Cells

- ALL Prokaryotic & Eukaryotic cells have...

- 6.

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III. Comparing Prokaryotic and Eukaryotic Cells

- Prokaryotic cells ...

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III. Comparing Prokaryotic and Eukaryotic Cells

- **ONLY Eukaryotic cells contain...**

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Question 6.2

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IV. The Nucleus...

- **is the largest organelle in animal cells.**
- **contains chromosomes.**

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**IV. The Nucleus...**

- **has a nucleoplasm.**
  - **Nucleoplasm = entire region within the nucleus.**
  - **Cytoplasm = Entire region between the nucleus and plasma membrane.**
  - **Cytosol = viscous liquid found in the cytoplasm.**

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**IV. The Nucleus...**

- **has a nuclear envelope.**
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- (2 slides)

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**IV. The Nucleus...**

- **has a nucleolus.**
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### Question 6.3

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### V. Ribosomes

- Carry out protein synthesis.

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### VI. The Endomembrane System

- Are a group of organelles that share membranes, either by direct contact, or through indirect contact by sharing vesicles.

- Nuclear envelope
- Rough and smooth ER
- Golgi Apparatus
- Plasma Membrane
- Vacuole
- Lysosome

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VII. The endoplasmic reticulum (ER)

- is continuous with the nuclear envelope
- There are two distinct regions
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VII. The endoplasmic reticulum (ER)

- Smooth ER
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VII. The endoplasmic reticulum (ER)

- Rough ER
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  - Secretory Proteins = Proteins that are eventually transported outside the cell.

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VIII. Secretory Proteins; The Journey Begins.

- See Ch 6a Pictures

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VIII. Secretory Proteins; The Journey Begins.

**Definitions:**

- Glycoprotein =
- Transport Vesicles = **Membrane-enclosed sacs that are pinched-off portions of organelle membranes. Moves from one organelle to another.**

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IX. Golgi Apparatus

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X. Secretory Proteins; *The Journey Continues.*

- See Ch 6a Pictures

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Question 6.4

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