![cell_structure[1]]()Chapter 5 Study Guide

Cell Interior and Function

I. O\_\_\_\_\_

A. Specialized structures found \_\_\_\_\_ a cell in the \_\_\_\_\_.

B. Each has a specific job or \_\_\_\_\_.

C. May or may not be \_\_\_\_\_-\_\_\_\_\_.

D. \_\_\_\_\_Cell Organelles

 1. C\_\_\_\_\_:

* + 1. \_\_\_\_\_substance enclosed by the \_\_\_\_\_.
		2. Provides a medium for \_\_\_\_\_ \_\_\_\_\_ to take place.
		3. Contains \_\_\_\_\_ to carry out specific jobs.
		4. Found in \_\_\_\_\_ cells.

 2. N\_\_\_\_\_

* + 1. \_\_\_\_\_ Center of the cell.
		2. Contains nearly all the cell’s \_\_\_\_\_.
		3. DNA has the instructions for making \_\_\_\_\_ and other important molecules.
		4. Surrounded by a\_\_\_\_\_ \_\_\_\_\_.
			1. \_\_\_\_\_ membrane surrounding the nucleus
			2. Contains \_\_\_\_\_ \_\_\_\_\_ that allow materials to move \_\_\_\_\_ and \_\_\_\_\_ of the nucleus.
		5. DNA is found \_\_\_\_\_ the nucleus
			1. DNA is spread out and appears as \_\_\_\_\_ in non-dividing cells
			2. DNA is condensed and wrapped around proteins forming \_\_\_\_\_ in dividing cells.
			3. The Chromosomes/Chromatin have two functions
				1. Contain the \_\_\_\_\_ \_\_\_\_\_ that is passed from one generation to the next (\_\_\_\_\_)
				2. Controls the cells \_\_\_\_\_ and \_\_\_\_\_.
		6. N\_\_\_\_\_
			1. Inside the \_\_\_\_\_
			2. The cell may have \_\_\_\_\_ to \_\_\_\_\_ nucleoli
			3. \_\_\_\_\_ when the cell divides.
			4. Manufactures the subunits that make up \_\_\_\_\_.

 3. R\_\_\_\_\_

* + 1. The most \_\_\_\_\_ organelle in the cell.
		2. Ribosomes are responsible for \_\_\_\_\_ \_\_\_\_\_ where amino acids are joined together to make \_\_\_\_\_.
		3. They are found in two locations
			1. free floating in the \_\_\_\_\_.
			2. attached to the \_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_ (RER)

 4. E\_\_\_\_\_ \_\_\_\_\_ (ER)

* + 1. Internal \_\_\_\_\_ \_\_\_\_\_ of a cell
		2. Connects the \_\_\_\_\_ \_\_\_\_\_ to the cell membrane
		3. Two Types of ER
			1. \_\_\_\_\_ Endoplasmic Reticulum (RER)
				1. RER is studded with \_\_\_\_\_.
				2. This type of ER is involved in making \_\_\_\_\_.
				3. Newly made proteins leave the ribosome and are inserted into spaces of the ER where they are \_\_\_\_\_ and **\_\_\_\_\_\_\_\_** into a functioning \_\_\_\_\_**.**
			2. \_\_\_\_\_ Endoplasmic Reticulum (SER)
				1. Lacks \_\_\_\_\_ on its surface
				2. Functions in:

\_\_\_\_\_ \_\_\_\_\_ that will be used in the cell membrane.

\_\_\_\_\_ of drugs and pesticides (especially in human liver cells).

 5. G\_\_\_\_\_ A\_\_\_\_\_

* + 1. Stacks of \_\_\_\_\_ sacs (like a stack of pancakes)
		2. \_\_\_\_\_ produced in the RER move to the Golgi apparatus.
		3. The Golgi Apparatus is responsible for \_\_\_\_\_ \_\_\_\_\_ produced in the RER.
			1. The golgi apparatus \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_ proteins made by the RER.
			2. The finishing touches are put on \_\_\_\_\_ here before they are \_\_\_\_\_ off to their final destination:
				1. stored \_\_\_\_\_ the cell
				2. secreted to the \_\_\_\_\_ of the cell

 6. L\_\_\_\_\_

* + 1. “\_\_\_\_\_” of the cell
			1. Contains \_\_\_\_\_ \_\_\_\_\_.
			2. \_\_\_\_\_ carbohydrates, proteins, and lipids into small molecules that can be used by the rest of the cell.
		2. Cell’s demolition sites.
			1. \_\_\_\_\_ the cell’s own organic materials, breaking them down into building blocks and returning them to the cytoplasm to be used again.
			2. \_\_\_\_\_ old organelles that can no longer carry out their functions.

 7. V\_\_\_\_\_

* + 1. \_\_\_\_\_ filled sacks for \_\_\_\_\_.
		2. \_\_\_\_\_ of sugars, proteins, minerals, lipids, wastes, salts, water, and enzymes.

 8. M\_\_\_\_\_

* + 1. “\_\_\_\_\_” of the cell.
		2. The site of \_\_\_\_\_ \_\_\_\_\_.
			1. the process of converting \_\_\_\_\_ into a usable form of \_\_\_\_\_ for the cell (\_\_\_\_\_).
			2. Generates cellular \_\_\_\_\_ (ATP).
		3. Found in both plant and animal cells.
		4. 100’s or 1000’s may be found in a cell.
		5. Structure of the mitochondria
			1. Double \_\_\_\_\_: surrounds the mitochondria
				1. smooth \_\_\_\_\_ membrane
				2. folded \_\_\_\_\_ membrane, called \_\_\_\_\_ which helps to increase the surface area for cellular respiration.
			2. Has its own \_\_\_\_\_
			3. Interior is called the \_\_\_\_\_.

II. C\_\_\_\_\_

* 1. The organelles of the cell do not flow freely in the cytoplasm.
	2. The cells must have an internal \_\_\_\_\_ and \_\_\_\_\_ system to give shape and \_\_\_\_\_ to it.
	3. There is a network of \_\_\_\_\_ tubes and fibers that extend throughout the cytoplasm and help the cell to maintain its \_\_\_\_\_.
	4. It is also involved in \_\_\_\_\_.
	5. Two types of elements in the framework:
		+ 1. \_\_\_\_\_ (smallest)
				1. Threadlike
				2. Made of \_\_\_\_\_ (protein)
				3. Structure, support, Intracellular transport
				4. Helps bear the mechanical \_\_\_\_\_ of the cell.
			2. \_\_\_\_\_ (largest)
				1. Tube-like (hollow)
				2. Made of \_\_\_\_\_ (protein)
				3. They can assemble and disassemble rapidly causing \_\_\_\_\_.
				4. Functions

cell shape

Separation of Chromosomes during \_\_\_\_\_ \_\_\_\_\_.

Formation of \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.

III. Cilia and Flagella

* 1. Made of \_\_\_\_\_ arranged in a 9 + 2 arrangement.
	2. Cilia
		1. move materials across the cell \_\_\_\_\_.
		2. Shorter and more numerous
		3. Example: the \_\_\_\_\_ system uses cilia to move mucus out of the lungs.
	3. Flagella
		1. \_\_\_\_\_ cells
		2. Longer and fewer
		3. Example: human sperm

IV. Centrioles

* 1. Found only in \_\_\_\_\_ cells.
	2. \_\_\_\_\_ structures near the nucleus
	3. Made of 9 \_\_\_\_\_ of microtubules
	4. Appears during \_\_\_\_\_ \_\_\_\_\_ forming mitotic spindle.
	5. Helps pull \_\_\_\_\_ pairs apart to opposite ends of the cell.

V. Distinctive Organelles to Plant and Animal Cells

* 1. Structures only found in animal cells:
		1. L\_\_\_\_\_
		2. C\_\_\_\_\_
		3. F\_\_\_\_\_
	2. Structures only found in plant cells:
		1. C\_\_\_\_\_ \_\_\_\_\_
			1. When filled with water it creates \_\_\_\_\_ \_\_\_\_\_ to give strength and support to the cell.
			2. This allows the plant to \_\_\_\_\_ heavy structures such as flowers and leaves.
			3. It also serves as a \_\_\_\_\_ area for organic molecules.
		2. C\_\_\_\_\_
			1. found only in \_\_\_\_\_ (ie. plants or other organisms that perform photosynthesis)
			2. absorb energy from the \_\_\_\_\_ and covert it to the \_\_\_\_\_ energy of a molecule of glucose.
			3. Similar to a \_\_\_\_\_ power plant.
			4. Contains enzymes and pigments for \_\_\_\_\_.
			5. Contains its own \_\_\_\_\_.
			6. Never in animal or bacterial cells.
			7. The Chloroplast Structure
				1. Surrounded by a \_\_\_\_\_ membrane.

\_\_\_\_\_ outer membrane

Inner membrane: modified into sacs called \_\_\_\_\_, which contain the green pigment, \_\_\_\_\_ which is required for photosynthesis.

* + - * 1. \_\_\_\_\_: Stacks of thylakoids
				2. \_\_\_\_\_: gel like material surrounding thylakoids
		1. Cell W\_\_\_\_\_
			1. \_\_\_\_\_ and \_\_\_\_\_ cells of plants and fungi.
			2. Found \_\_\_\_\_ of the cell membrane.
			3. In plants, it is mostly composed of \_\_\_\_\_, a tough carbohydrate fiber.

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| Component | Type of Cell | Function |
|  | All | Boundary; Gatekeeper; Protection; Selectively Permeable |
|  | Prokaryotes, Plants, Fungi | Protection; Support |
|  | All | Site of most chemical reactions; Contains molecules and ions |
|  | Eukaryotes | Houses Genetic Material; Controls ALL cell activities |
|  | Eukaryotes | Manufactures Ribosomes |
|  | All | Cell Structure; Internal Transport |
|  | Mostly Animal | Cell Division |
|  | All | Locomotion of cell |
|  | Eukaryotes | “Powerhouse of Cell”; Energy Production; Cell Respiration |
|  | All | Protein Synthesis; Attached to RER or Free-floating |
|  | Eukaryotes | Internal Transport; Smooth or Rough |
|  | Eukaryotes | Storage and Packaging; “Stack of Pancakes” |
|  | Animal | Intracellular Digestion; “Stomachs” |
|  | Plant, Fungi, Protists, Animal | Storage |
|  | Plant | Photosynthesis |