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.

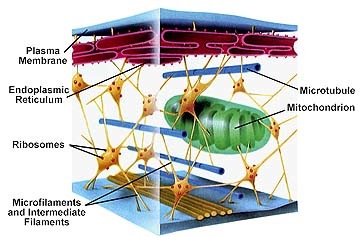
7. V\_\_\_\_\_

* + 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 \_\_\_\_\_.

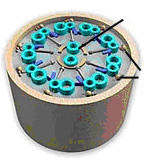
II. C\_\_\_\_\_

* 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 \_\_\_\_\_.

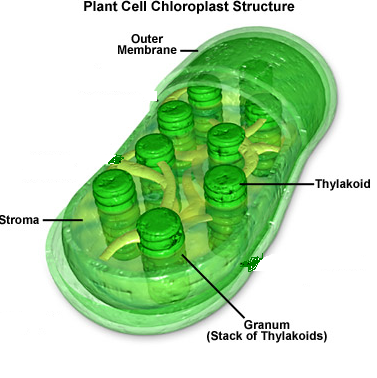
III. Cilia and Flagella

* 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 |