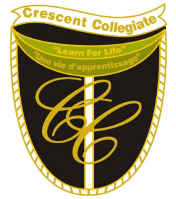


Science 8
Unit 4: Cells, Tissues, Organs and Systems

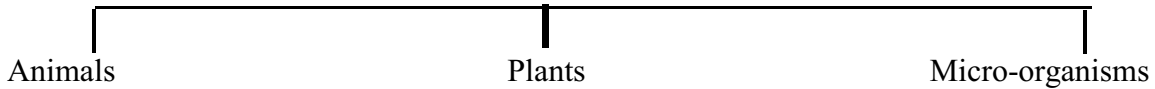


Student Name: _____

CELL is defined as a tiny, living building block which makes up all living things.

The cell is the most important basic “**unit of life**”. There are millions of different types of cells and cell shapes. There are some micro-organisms that are one celled. Meanwhile plants and animals consist of many cells. We will be focusing on plant and animal cell structures.

LIVING THINGS THAT ARE MADE OF CELLS

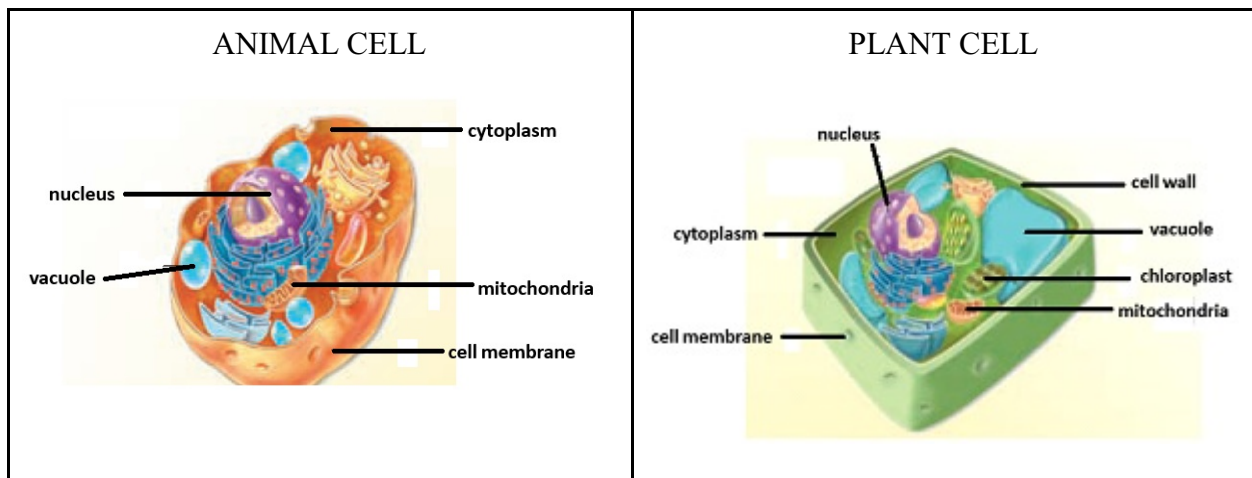


The cell theory is one of the key ideas of biology. It helps scientists to describe and explain their observations of living things

The Cell Theory states:

- The cell is the basic unit of life.
- All living things are made up of one or more cells.
- All cells come from other living cells.

ANIMAL AND PLANT CELL



CELL STRUCTURES AND FUNCTIONS

1) STRUCTURES COMMON IN PLANTS AND ANIMALS:

- Nucleus:** is the “control centre” of the cell. It organizes and directs all functions of the cell and is vital in the production of new cells. Within the nucleus are the chromosomes containing the genes that are responsible for all inherited characteristics. Under a microscope, the nucleus looks like a dark blob.
- Cytoplasm:** jelly like material surrounding the nucleus and where many processes occur. The cytoplasm receives materials from the cell membrane and expels waste materials back through the cell membrane.
- Cell membrane:** regulates the passage of certain substances inside and outside the cell. It separates one cell from another. Basically, it holds the cell together.
- Vacuoles:** is a space within the cell that is empty of cytoplasm. It is used as a storage place for food for a cell.
- Mitochondria:** produce energy for the cell by breaking down food particles to release their stored energy.

2) STRUCTURES COMMON ONLY IN PLANTS:

Cell wall: A structure of a non-living material surrounding the cell membrane of plants.

Chloroplast: a structure found in green plants that contain chlorophyll necessary for photosynthesis.

PART A: MULTIPLE CHOICE

Instructions: Shade the letter of the correct answer on the computer scorable answer sheet provided

- The basic life functions of an organism are carried on by
 - Atoms
 - Cells
 - Hormones
 - Nutrients
- Which of the following is not a component of cell theory?
 - All organisms are composed of one or more cells.
 - All cells come from other living cells.
 - All cells have permeable cell membranes.
 - The cell is the basic unit of life.
- Which of the following is the "control center" of the cell?
 - Cell membrane
 - Cell wall
 - Chloroplast
 - Nucleus
- What is the name of the part of the cell that regulates the passage of certain substances inside and outside the cell. It separates one cell from another. Basically, it is what holds the cell together.)
 - Cell membrane
 - Chloroplast
 - Cytoplasm
 - Vacuoles
- The jelly-like substance that fills the cell is called
 - Chloroplast
 - Cytoplasm
 - Mitochondria
 - Vacuoles
- The cell structures that break down food to produce energy are the
 - Chloroplast
 - Cytoplasm
 - Mitochondria
 - Vacuoles
- What makes a plant cell different from an animal cell?
 - Cell Membrane
 - Cell Wall
 - Cytoplasm
 - Nucleus

8. What is the name of the structure found in green plants that contain chlorophyll necessary for photosynthesis.

- (A) Cell membrane
- (B) Cell wall
- (C) Chloroplast
- (D) Nucleus

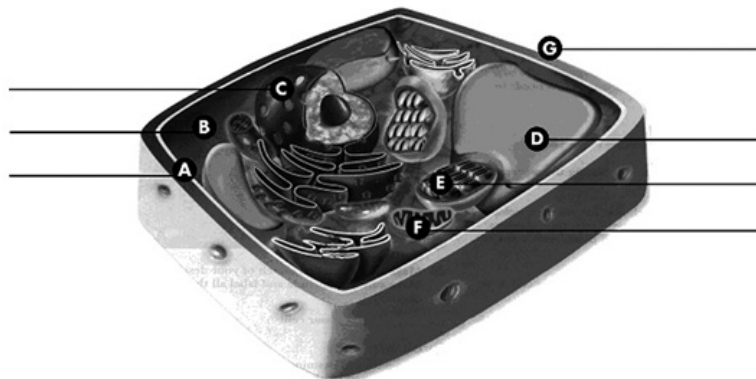
PART C: MATCHING

Fill in the blanks on the left with the terms on the right. Please, place your answers on the scantron

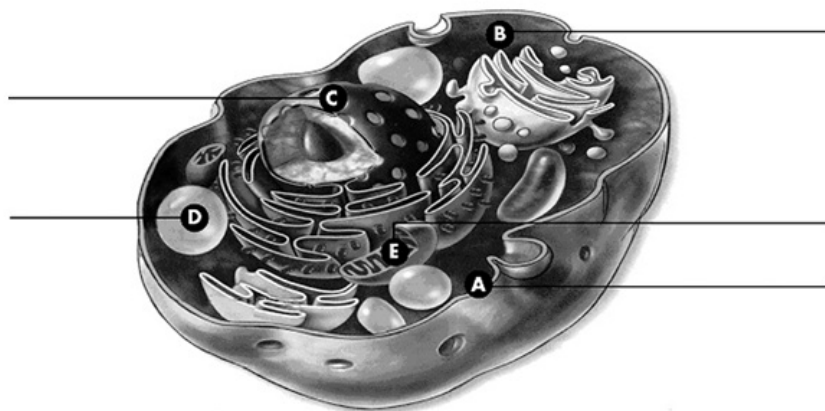
9. _____	Vacuole	A.	Controls all activity of the cell
10. _____	Chloroplast	B.	Jelly-like substance that helps keep the cell alive
11. _____	Nucleus	C.	Tiny sacks which store liquid or food
12. _____	Cell membrane	D.	A thin layer which holds the cell together
13. _____	Cytoplasm	E.	Changes energy from the sun into food for the cell

PART C: WRITTEN RESPONSE

1. Below is a diagram of a plant cell. Label the parts of the cell indicated by each letter.



2. Below is a diagram of an animal cell. Label the parts of the cell indicated by each letter.



3. Why is the cell theory valuable to scientists?

4. List the key points of the cell theory

5. Why do scientists consider the cell theory to be a main idea of modern biology

6. Which cell organelle produces the energy that the cell needs to carry out its life activities?

7. Which organelle is like a storage container?

8. What is the role of the nucleus in a cell?

9. Why would you not find chloroplast in an onion root cell?
