

LIFE SCIENCES 11

THE REALM OF BIOLOGY

Learning Outcomes:

- I can identify and describe the 8 characteristics that define life.

Where does the term “biology” come from?

Greek	Meaning
bio	life
logos	study

Characteristics of Living Organisms

1. Living Things are Made of Cells

- **All living organisms are made up of one or more cells.** In multicellular organisms, there can be different types of cells performing different functions that work together to keep an organism alive.

2. Living Things are Organized – The Spectrum of Life

- **Biology can be studied at various levels: atoms, molecules, cells, tissues, organs, organ systems, organisms, populations, communities, ecosystems, biomes and biospheres.**

3. Living things Grow and Develop

- Organisms all begin as a single cell which is capable of developing into a larger cell or organism. **Development includes all changes that an organism goes through in its lifetime. Growth refers to an increase in size or number of cells.**

4. Living Things Reproduce (Continuity)

- **Organisms pass their genetic makeup to their offspring in the form of DNA.** The similarity from generation to generation is called continuity.

5. Living Things Respond to Stimuli (Interactions)

- **Organisms react to conditions or events around them caused by their environment (surroundings).** A condition or event which causes a reaction is called a stimulus. How organisms react with each other and their environment is the study of ecology.

6. Living Things Require Energy

- **Living things (organisms) require a constant supply of materials to grow and produce energy through a process called respiration.**

7. Living Things Demonstrate Homeostasis

- **Organisms maintain an internal set of conditions that remain relatively constant despite changes in the external environment.**

8. Species Change Through Time (Adaptation and Evolution)

- **Organisms change over time in response to changes in the environment to increase their chance of survival.**
- **Called Natural Selection or Survival of the Fittest.**