From Cell to Organism
Section 7-3

DIVERSITY IN CELLS

Key Idea: The different organelles and features of cells enable organisms to function in unique ways in different environments.

The flagellum is a long, hair-like structure that grows out of the cell and enables the cell to move through its environment.

DIVERSITY IN PROKARYOTES

- Prokaryotes can vary in shape, the way they obtain and use energy, and their ability to move.

DIVERSITY IN EUKARYOTIC CELLS

- Eukaryotic cells can vary in shape and external features and their internal organelles.
- Animal and plant cells are two types of eukaryotic cells.

LEVELS OF ORGANIZATION

Key Idea: Plants and animals have many highly specialized cells that are arranged into tissues, organs, and organ systems.

- Tissue is a distinct group of similar cells that perform a common function.
- An organ is a collection of tissues that work together to form a structure which performs a specific function.
- An organ system is composed of a group of organs that work together to perform major body functions.

TISSUES

- Muscle tissue is a group of many cells that have bundles of cytoskeleton structures.
- When the bundles contract at the same time, they help animals move.

ORGANS

- The heart is an organ made of muscle, nerve, and other tissues.
- Tissues work together to pump blood.

ORGAN SYSTEM

- The circulatory system is made up of the heart, the blood vessels, and blood.
- In plants, the shoot system consists of stems, leaves, and the vascular tissue that connects them.

BODY TYPES

Key Idea: A multicellular organism is composed of many individual, permanently associated cells that coordinate their activities.

Colonial organism is a collection of genetically identical cells that are permanently associated but do not work together or integrate cell activities.

CELL GROUPS

- Unicellular organisms can thrive independently or live together in groups.
- Example: slime molds

MULTICELLARITY

- In a multicellular body, cells are interdependent.
- Distinct types of cells have specialized functions to help the organism survive.