

Life Science Unit:

What are living things  
made of?

# **Cells, Tissues, Organs, and Systems**

# Living Things

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- A living thing is an **organism**.
- Many organisms have a body with different **parts**.
- A **structure** is a body part that does a certain job for an organism.
- The **function** of a structure is the *job* it does for the organism.

# What are living things?

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- Most living things share certain characteristics.
- They all have basic needs for food, water, a place to live, and oxygen.
- They are made up of cells, the building blocks of living things.
- They are made up of parts that have specific jobs to help keep them alive.

# Living things have five basic life functions:

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- **Grow and develop**
- **Use energy** (they get energy by eating or making food)
- **Reproduce** (make more of their own kind)
- **Respond to the environment**
- **Get rid of waste**

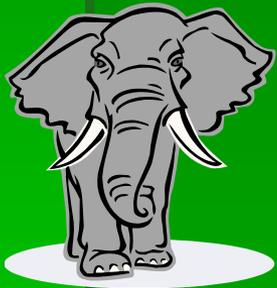
# Cells

- All organisms are made of cells.
- A cell is the smallest unit of living matter; the basic unit of life.
- Some kinds of organisms, like bacteria, are made of only one cell.
- Other types of organisms, like people and trees, are made up of trillions of cells.

# Many-Celled Organisms have different types of cells...

## Animals have:

- **Bone cells**
- **Nerve cells**
- **Muscle cells**
- **Blood cells**



## Plants have:

- **Leaf Cells**
- **Root Cells**



# How are organisms organized?

Many-celled organisms are organized in cells, tissues, organs, and organ systems.

## Cells:

- Animals and plants are many-celled organisms.
- Animals are made up of many kinds of cells.
- You are made of blood cells, bone cells, skin cells, and many others.
- A plant also has different cells in its roots, stems, and leaves.

# Tissues:

- In your body, a single skin cell or blood cell does not work alone.
- Cells work together in groups called tissues.
- A *tissue* is a group of similar cells that work together carrying out a certain job.
  - For example, skin cells work together as skin tissue that covers and protects your body. Other kinds of tissue in an animal's body include muscle, bone, nerve and blood.
- Plant cells are also organized into tissues.
  - For example, leaves of plants are made of tissues that help the plant make food.

# Organs

Throughout your body, tissues are grouped together so they can work together.

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- An organ is a group of tissues that work together doing certain jobs.
- Roots, stems, and leaves are organs of a plant.
  - A leaf is an organ that makes food for the plant.
  - The roots of a plant are the main organ in the root system of a plant.
- The heart, lungs, and brain are examples of animal organs.
- Your heart is an organ:
  - It contains muscle tissue, nerve tissue, and blood tissue.
  - Its job is to pump blood throughout your body.

# Organ Systems

Organ systems work together so life processes like breathing and digestion can be carried out, keeping many-celled organisms, like you, healthy and alive.

- When a group of parts work together, they form a system.
- A group of organs working together to carry out a specific life function is called an organ system.
- A plant's roots, stem, and leaves are an organ system.
- Your **digestive system** is an organ system:
  - It contains your mouth, esophagus, stomach, small and large intestines, and liver.
  - Digestion breaks down food and absorbs nutrients you need to live.

# Cells, Tissues, Organs, and Systems

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- A **cell** is the smallest unit of living matter; the building blocks of living things.
- **Tissues** are groups of cells working together to perform a certain job.
- **Organs** are groups of tissues that perform a certain function.
- Organs working together to carry out a certain life function are an **organ system**.