

# **Unit A**

# **Basic Principles of Animal Husbandry**

## **Lesson 1**

## **Identifying Differences Between Plants and Animals**

# Terms

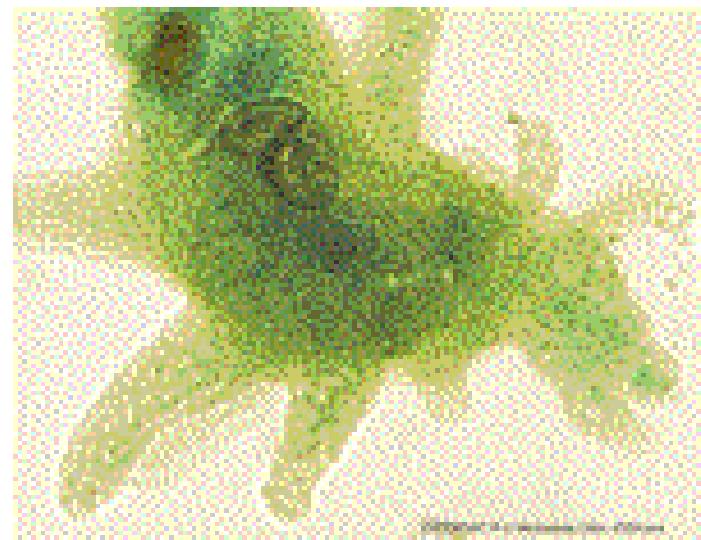
- Animal
- Cell
- Circulation
- Food
- Growth
- Life process
- Locomotion
- Organism
- Plant
- Protoplasm
- Repair
- Reproduction
- Respiration
- Secretion
- Sensation

# What is an organism? What are the characteristics of organisms?

- An organism is a living thing that varies in size and shape.
  - It is a structural unit that carries out chemical and life processes.
  - When the life processes stop, they die.
  - All organisms are unique, though they share many similarities.

# What is an organism? What are the characteristics of organisms?

- Organisms have a number of characteristics that classify them as living or nonliving condition.



# What is an organism? What are the characteristics of organisms?

- Organisms are unique and made of cells.
- A cell is a unit or building block with a definite structure and function.
- The number of cells in an organism varies from one to millions, depending on the size of the organism.

# Cells

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- Cells have membranes and substances that carry out chemical activities needed for life processes.

# Cells

- The cells of organisms contain protoplasm.
- Protoplasm is a liquid-like material inside a cell that contains various suspended solid materials that carry out chemical processes needed for living.

# What is an organism? What are the characteristics of organisms?

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- Organisms need energy to carry out life processes.
- Energy for plants and animals comes from food.
- Organisms have a life span.

# What is an organism? What are the characteristics of organisms?

- Organisms grow and reproduce.
- Growth is the process of an organism increasing in size by adding cells.
- Reproduction is the process of similar organisms giving rise to new individuals of the same kind.

# What is an organism? What are the characteristics of organisms?

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- Organisms respond to their environment.
- The environment may promote growth and life processes or it may prevent growth or cause death.

# What is an organism? What are the characteristics of organisms?

- Organisms carry out life processes.
- A life process is a function that is essential for an organism to remain in the living condition and produce new members of the species.

# What is an organism? What are the characteristics of organisms?

- This varies among plants, animals, and other organisms.
- These are the distinguishing characteristics between plants and animals.

# What is a plant? What is an animal?

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- Plants and animals have both similarities and differences.



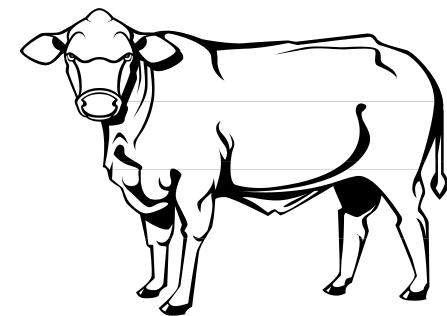
## What is a plant?

- A plant is an organism that uses nutrients to make the food needed for life processes.



## What is a plant?

- The nutrients are taken in as a liquid.
- Structural characteristics and functions allow plants to use the nutrients in making food in the appropriate environment.
- Plants are in the Kingdom Plantae.
- Some 350,000 species of plants have been identified on Earth.



## What is an animal?

- An animal is an organism that acquires food from other sources and has other qualities that distinguish it from plants and organisms in other kingdoms.
  - Animals are members of the Kingdom Animalia.
  - Scientists have identified nearly a million different species of animals.

# Life Processes

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- All living organisms carry out life processes in different ways.
- Life processes are the characteristics of organisms.

# Life Processes

- Living organisms carry out eight life processes, they are as follows:
  1. Getting and using food
    - Food is the material that provides nourishment for a living organism.
      - Some organisms require food in a ready-to-use form.
      - Other organisms can manufacture food from nutrients.

# Life Processes

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## 2. Movement

- Movement refers to internal processes as well as locomotion.
- Locomotion is the ability for an organism to move itself from one place to another.
- Movement involves a complex system of responding to stimuli.

# Life Processes

## 3. Circulation

- Circulation is the movement of necessary materials throughout an organism.
- Animals have circulatory systems that move blood while plants have vascular systems that move water and nutrients and manufactured food.

# Life Processes

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## 4. Respiration

- Respiration is the process by which the cells of an organism receive oxygen so that the energy in food or digested food can be released.
- Respiratory structures vary among species.

# Life Processes

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## 5. Growth and repair

- Growth processes occur from the beginning to the end of life.
- Growth is increasing in size.
- Growth occurs when cells become larger or multiply or specialize into organs and tissues.

# Life Processes

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## 5. Growth and repair

- In mature organisms, most growth is the process of repairing tissues.
- Repair occurs when parts of an organism wear out or are damaged and are replaced by growing new cells.

# Life Processes

## 6. Secretion

- Secretion is the production of substances by an organism that it needs for the living condition to occur.
- Secretions are often important in how an organism carries out other life processes, such as saliva is important in good ingestion in some animals.

# Life Processes

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- 7. Sensation
  - Sensation is the awareness of an organism to its environment and the responses it makes to it.
  - Organisms respond to stimuli received through their senses.

# Life Processes

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- 7. Sensation
  - Animals have higher developed systems for sensation in five areas: vision, hearing, touch, smell, and taste.
  - Plants are responsive to light and deficiencies or conditions in its environment.

# Life Processes

## 8. Reproduction

- Reproduction processes vary but all sexual reproduction involves the union of a male and female sex cell regardless of the species involved.
- Some organisms reproduce asexually, such as plants that send out runners or bulbs that divide.

# Life Processes

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- Seven of the processes are essential for an organism to remain in the living condition.
  - Reproduction is not essential for an organism to live but is required for new members of a species to be produced.
  - Disruption of any of the eight processes results in organisms failing to live and reproduce.

# What are the similarities of plants and animals?

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- All living organisms share similar needs and functions.
- These can be used as the basis for listing similarities of plants and animals.

# What are the similarities of plants and animals?

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- Plants and animals are similar or alike in several ways.
  - Both have life cycles.
  - Both carry out processes to remain in the living condition.
  - Both are made of cells.
  - Both must have food.

# What are the similarities of plants and animals?

- Animals depend on plants to manufacture food which enters the food chain.
- Animals eat plants.
- Upon death, the animals decompose to provide nutrients for plants.

# What are the similarities of plants and animals?

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- Plants use the nutrients from the decaying remains of animals and other plants.
- Nutrients in manure is also used by plants for growth.

# What are the differences in the life processes of plants and animals?

- Plants and animals differ in important ways.
  - The major differences are:
    - Plants take up nutrients in water and make their own food.
    - Animals ingest (eat) food and cannot make food.

# Major differences in plants and animals

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- Animals are capable of locomotion (moving about).
- Plants cannot move about on their own.

# Major differences in plants and animals

- Both plants and animals have cells but the structure varies in one important way:
  - Plant cells have cell walls.
  - A membrane is located inside the wall.
  - Animal cells do not have walls.
  - Walls provide rigidity that keep plants standing and retaining their shape.
  - Animals have soft membranes and have skeletons to give body shape.

# Major differences in plants and animals

- Photosynthesis and respiration both occur in plants.
  - Animals only have respiration.
  - Plants take in carbon dioxide and release oxygen during photosynthesis.
  - Both animals and plants take in oxygen and release carbon dioxide during respiration.

# Review/Summary.

- Explain the meaning of an organism and list its characteristics.
- Define plant and animal.
- Name and describe the life processes of living organisms.
- List the similarities of plants and animals.
- List and explain differences in the life processes of plants and animals.