# 1.2.1 A search for a Definition of Life

All organisms have many features or characteristics in common

# The Variety of Life

All living things are divided into two main groups

Plants

Animals

# The Animal Kingdom

- Over 1 million species

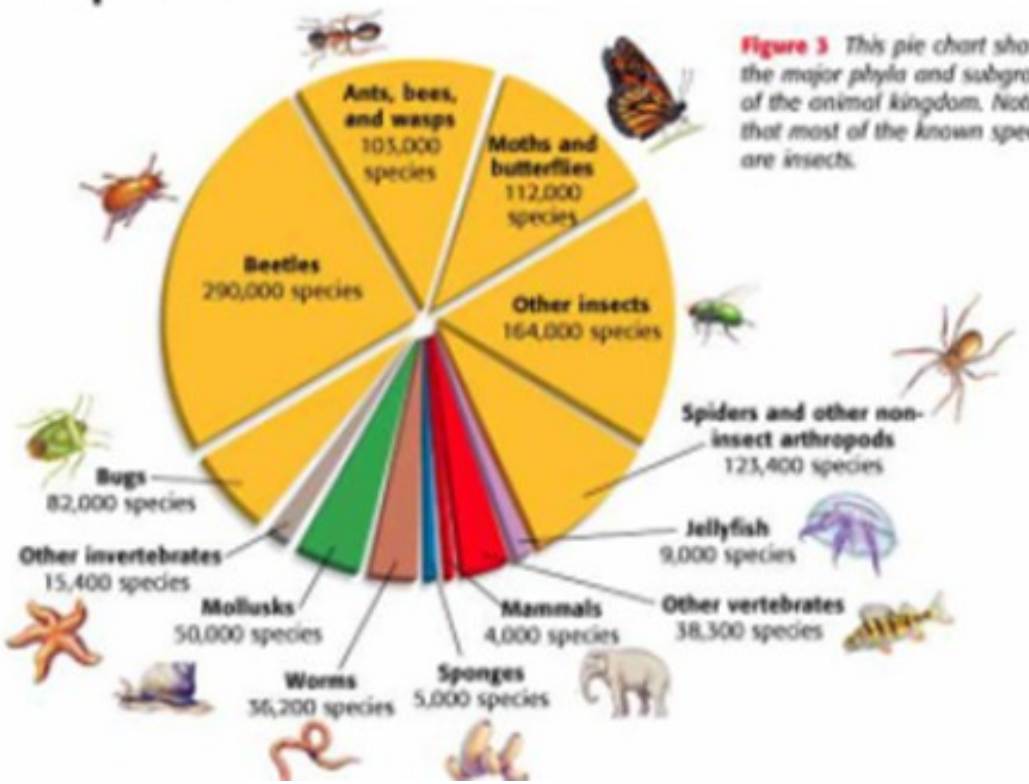



**Figure 3** *This pie chart shows the major phyla and subgroups of the animal kingdom. Notice that most of the known species are insects.*

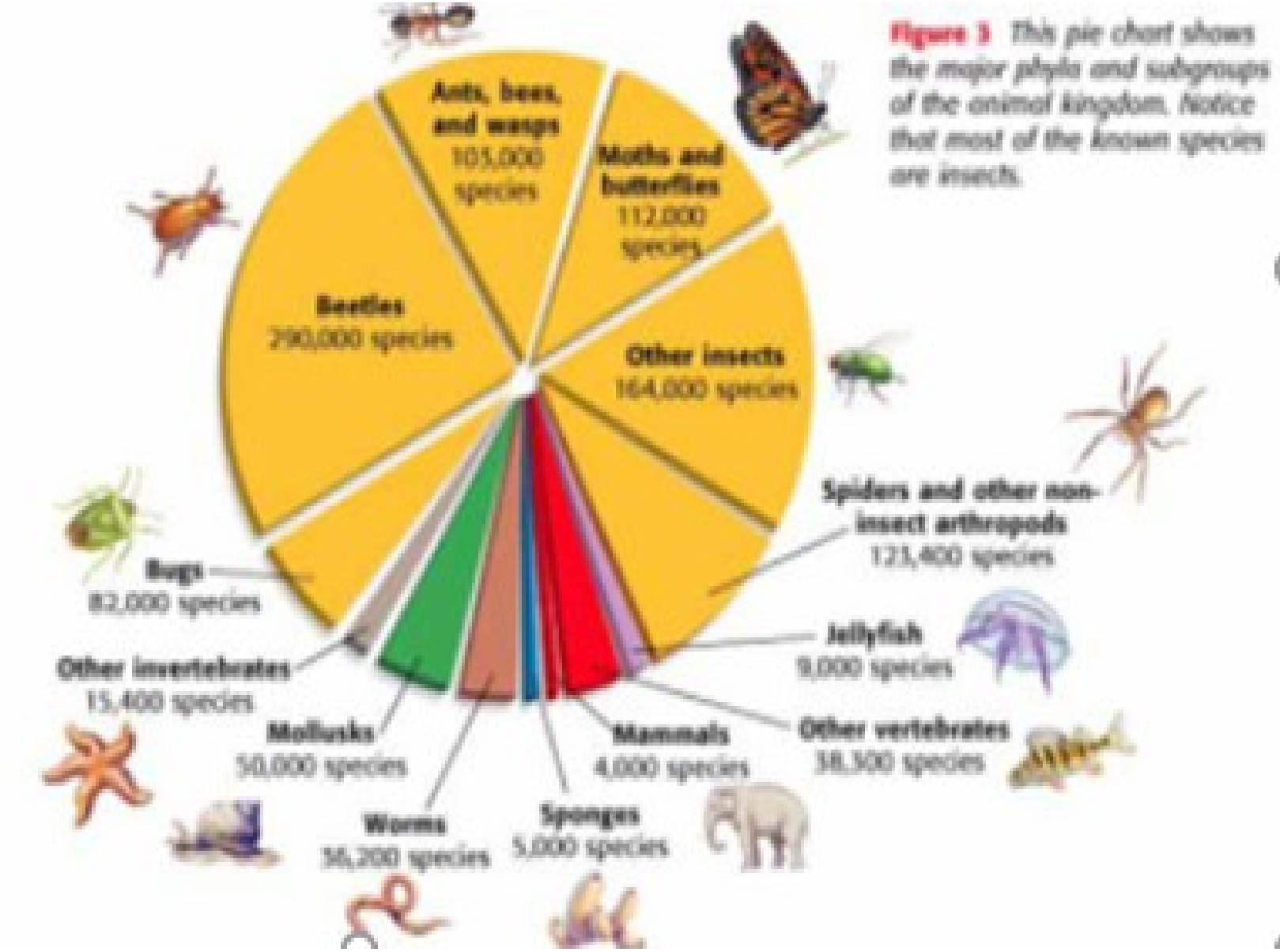



**Figure 3** *This pie chart shows the major phyla and subgroups of the animal kingdom. Notice that most of the known species are insects.*

# The Diversity of Animals

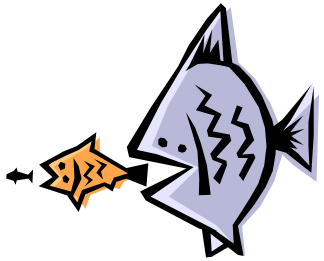
- There are more than a million different species of animals on earth
- Scientists have organised all these animals according to how they are related
- The animal kingdom is divided into groups called classes for example

Reptiles  Birds  Mammals

These all have similar features which distinguish them from animals in other classes

# The Diversity of Animals

## Vertebrates

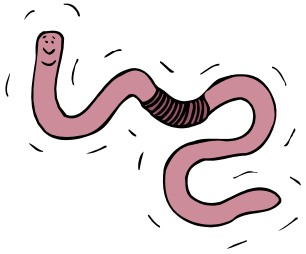


Fish

Reptiles

Birds

## Invertebrates



Worms

Insects

Arachnids

# The Diversity of Plants

Algae

Ferns

Moss

Conifers

Flowering Plants

# What is Life?

**Bio= Living**

**Biology- Study of living things**

***There are many different branches***

**Zoology-Animals**

**Botany-Plants**

**Microbiology- micro-organisms**

- **Def: Biodiversity-** the range of different types of organisms (living things) in an area

# What makes Plants & Animals ‘living’?

- Do they have common features?
- Do they have common behaviours?

# Characteristics of living things

**Living things:**

1)Organisation: are highly organised and are composed of tiny units called cells

2) Feed (nutrition)

3) Excretion

4 Responsiveness (react to their surroundings)

5) Reproduce

- Def Life – The possession of all these characteristics

- Not accepted in exam
- Growth, respiration, movement

# Metabolism

Def: METABOLISM

*Metabolism is the chemical reactions that occur in the cells of living organisms*

These reactions are responsible for the process of

- Growth
- Repair
- Responsiveness
- Reproduction

All living things metabolise

# There are 2 types of Metabolic Reactions

## Anabolic Reactions

These reactions use energy to join small molecules together to form larger molecules

Example: Photosynthesis

## Catabolic Reactions

These reactions use energy to break down large molecules into smaller ones

Example: Respiration

# Continuity of Life

*Continuity of life is the ability of an organism to exist from generation to the next*

You need reproduction and heredity to achieve continuity

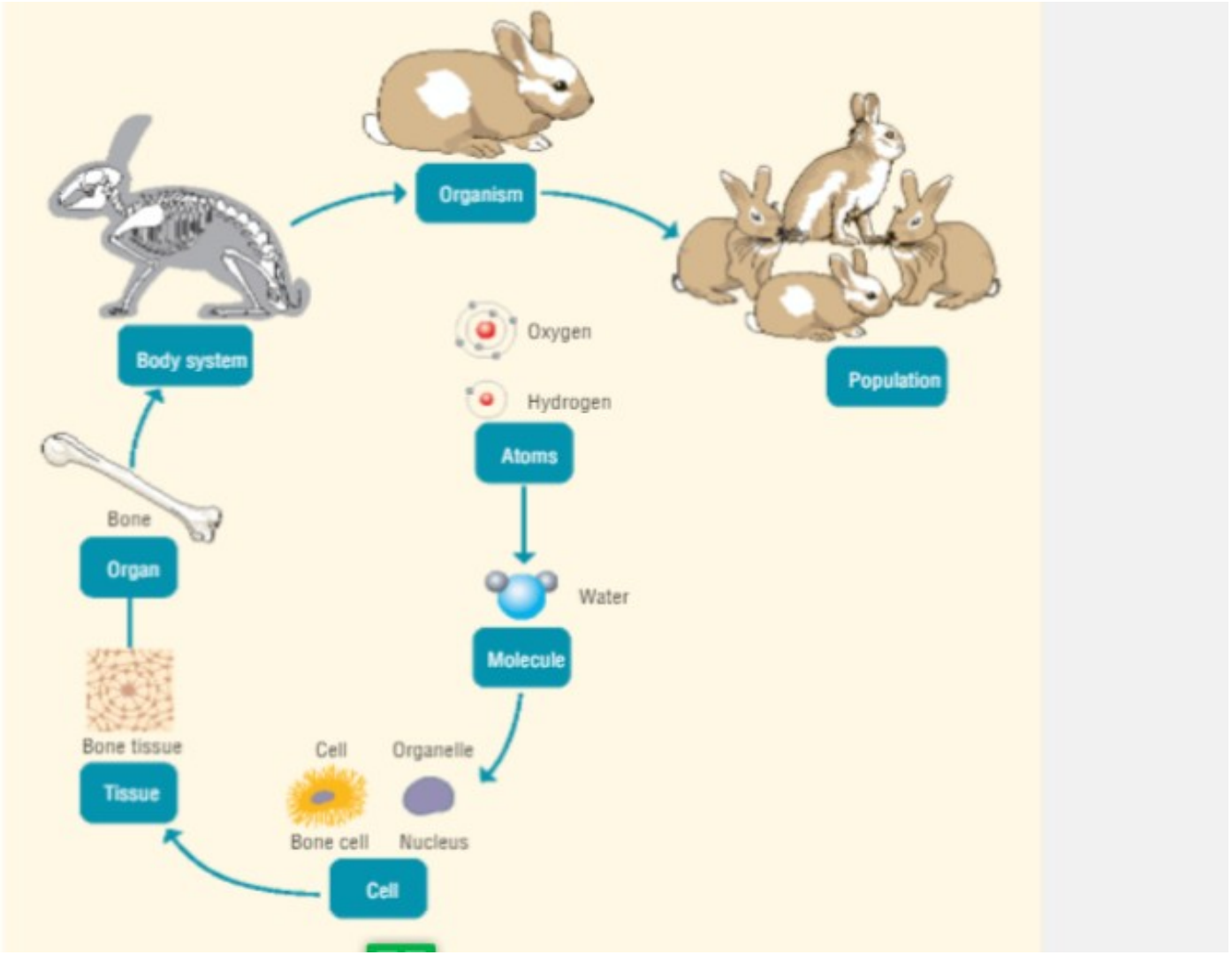
Genes are hereditary factors that are passed on from one generation to the next during reproduction

All living things reproduce

- Viruses are not living-  do not have cells (we will come across this again later)

**Terminology**

- Organisation- Living things are composed of cells, tissues, organs and organ systems


Organism
Population
Body system
Oxygen
Hydrogen
Atoms
Water
Molecule
Bone
Organ
Bone tissue
Tissue
Cell
Organelle
Bone cell
Nucleus
Cell

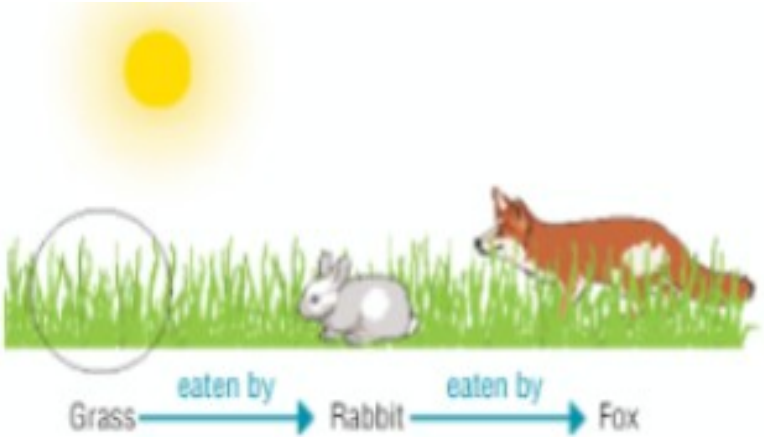
- **<u>Cells</u>**- the basic unit of living things and contain smaller structures called organelles
- **<u>Tissues</u>**-groups of similar cells working together to carry out a particular function-Ex. muscle tissue and the xylem tissue in plants

- **Organs** are groups of different tissues working together to carry out a particular function Ex. Brain and flowers
- **Organ Systems** are groups of organs that work together to carry out a particular function Ex. Circulatory System
- **Organisms** are individual living entities Ex. Unicellular bacteria , multicellular- humans

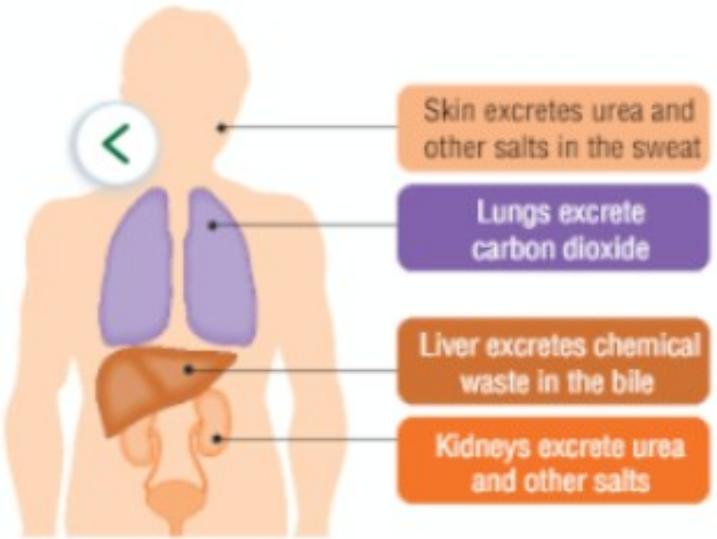
# Growth

- In increase in the size or number of cells of an organism

- **<u>Nutrition</u>**-The way organism obtain (get) and use food




2.5 A simple food chain




2.6 The excretory system

**<u>Excretion</u>**-the removal of the waste products of metabolism from the body

- **<u>Response-</u>**The activity of a cell or organism as a result of a stimulus


- **<u>Reproduction</u>**-The ability of an organism to make new organisms of the same type

- One
- Nutty
- Elephant
- Ran
- Riot

# Learning check

Explain Metabolism

Explain ‘Continuity of Life’

# Need to know

- Present an outline of the diversity of living things
- What defines a living thing?
- List the common features & behaviours identified as living
- How are living things classified?
- Define the terms

  Metabolism

  Continuity of life

END