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# Natural Science

## UDI 3 – DIA DE SAFARI

UNIT 1,2 Living organisms and vertebrates/invertebrates

# 1. Living organisms and cells

We can distinguish a living organisms from non-living things because:

- **A) Perform the vital functions.**

NUTRITION: Obtaining energy to survive.

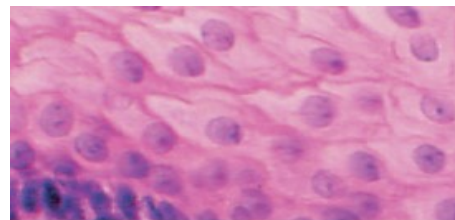
INTERACTION: Reacting to changes in environment

REPRODUCTION: producing offspring



- **B) Are made up of cells**

A cell is a small unit that can perform vital functions



Animal cells



Plant cells

## 2. Types of living organisms

Animals



Some examples are insects, fish, birds, monkeys and human beings.

Plants



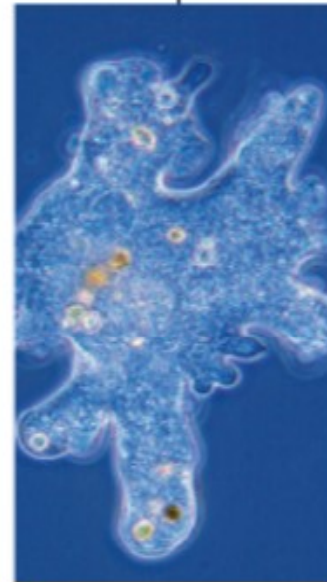
Some examples are oak trees, rose bushes and grass.

Fungi



Some examples are mushrooms, mould and yeast.

Algae and protozoa



These are very small organisms that live in water, such as amoebas. Only some are visible to the naked eye.

Bacteria

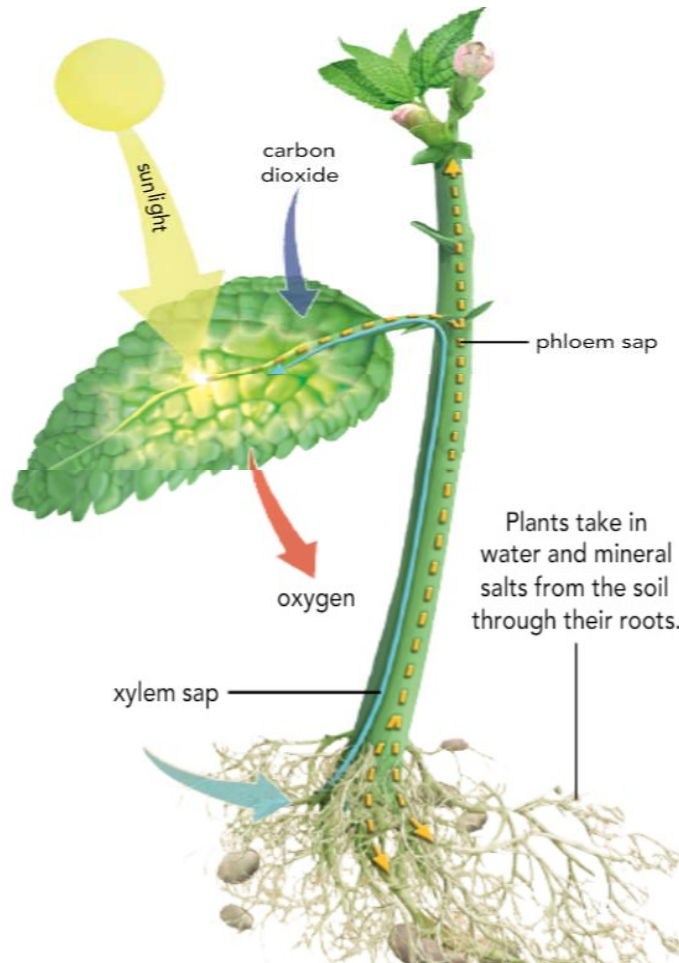


These are very simple microscopic organisms. An example is E.Coli. They can be found in water, on land and in the air.



# 3. Plants

## Nutrition



Plants make their own food through the **photosynthesis**.

**PHOTOSYNTESIS:** plants uses the **energy** from sunlight, **carbon dioxide**, **water** and **mineral** to convert **xylem sap** into **phoem sap**. This happen in the leaves.

## Respiration

- During respiration plants take in oxigen and release carbon dioxide.
- During photosynthesis plants take in carbon dioxide and release oxigen.

# 3. Plants

## Interaction

Plants react to environmental factors like:

- **Reacting to light:** Some leaves and flower moves slowly to follow the sun

- **Reacting to water:** roots grow in soil that have enough water.

- **Reacting to physical contact:** some plants have flower/leaves that close when touched.



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## Reproduction

### How do plants reproduce?

Most flowering plants use **pollination** to reproduce.

Pollination is when **pollen** from the **stamen** of one flower is transported to the **stigma** of another flower of the same type.

### Phases of reproduction



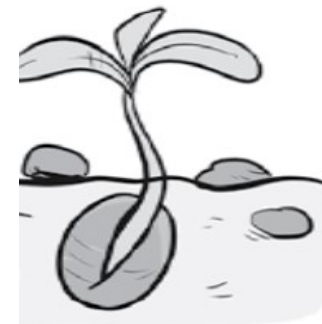
1- Pollination



2- Fertilisation



3- Seed Formation



4- Germination

# 4. Vertebrate Animals

## What are vertebrates?

All **vertebrates** have:

- an internal **bone skeleton**.
- a **backbone**.

Vertebrates' bodies usually have:

- a head with a **skull**.
- a **trunk** with or without a **tail**.
- four **limbs**.

There are five groups of vertebrates.



Mammals



Birds



Amphibians



Fish

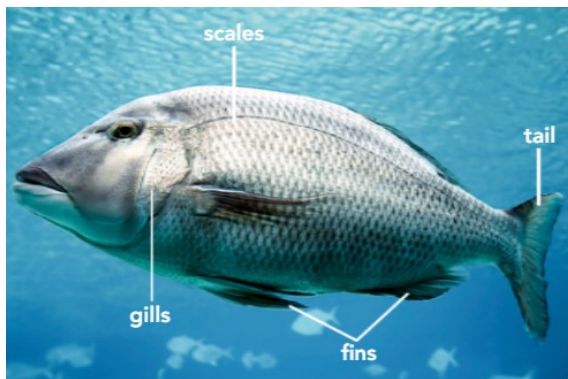


Reptiles

# 4. Vertebrate Animals

## Fish

- live in water
- have fins and tails
- are oviparous
- breathe with gills
- have scales



## Amphibians

- live in water and on land
- have limbs
- are oviparous
- breathe with gills, lungs and damp skin
- have smooth, wet skin





# 4. Vertebrate Animals

## Birds

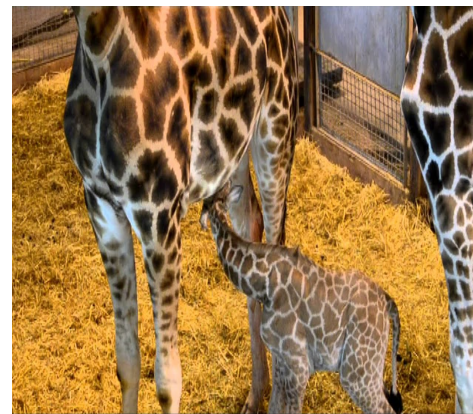
- live on land
- have limbs
- are oviparous
- breathe with lungs
- have feathers and wings



Penguins are birds, but they use their wings as flippers for swimming.

## Mammals

- live in water and on land
- have limbs
- are viviparous
- breathe with lungs
- have fur and hair
- the young feed on their mother's milk.



Bats are the only mammals that can fly.



# 4. Vertebrate Animals

## Reptiles

- live on land
- have limbs or no limbs
- are oviparous
- breathe with lungs
- have dry scales



A turtle



An iguana



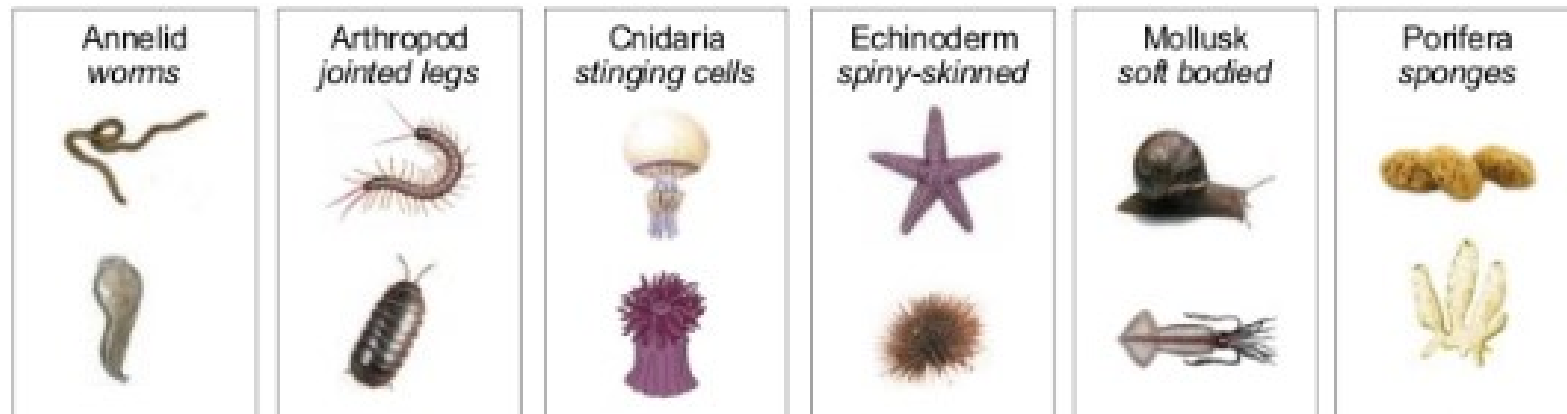
A snake

# 5. Invertebrate animals

## What are invertebrates?

Most of the world's animals are **invertebrates**

- Invertebrates do not have a backbone or an internal bone skeleton.
- All invertebrates are oviparous.
- Many have shells or armour plates\*, called an **exoskeleton**, to protect their bodies.



# 5. Invertebrate Animals

## Cnidarians

- live in water
- can be fixed or moving



Jellyfish float\* in water and move with the currents\*. Some have poisonous **tentacles**, which they use to catch other aquatic organisms for food.

- Corals and anemona are fixed

## Worms

- live on land or in water
- have segmented bodies





# 5. Invertebrate Animals

## Equinoderms

- live in water
- are mostly covered in spines



Most starfish have five arms, but some have more.



Sea urchins are scavengers.

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## Molluscs

- live on land and in water
- have soft bodies
- some protected by a shell



Snail



Octopus / Squid



Mussels

●



# 5. Invertebrate Animals

## Arthropods

- live on land and in water
- have legs
- have an exoskeleton
- some can fly



Lobsters, shrimp and crabs are all aquatic arthropods.



Spiders, centipedes, flies and bees are

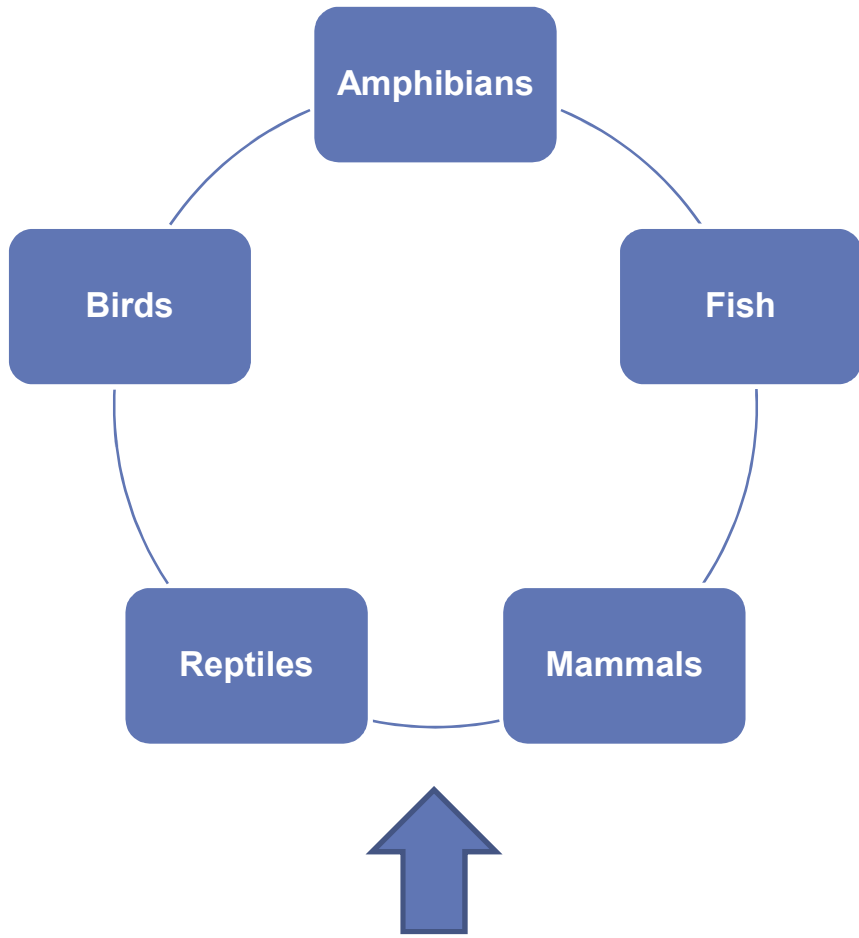
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## Porifera / Sponges

- live in water
- do not move



Sea Sponges



**Vertebrate  
animals**

**Invertebrate  
animals**

