UNIT 1. EARTH, AN INHABITED HABITAT

1. WHAT DO ALL LIVING THINGS HAVE IN COMMON?

1. Are **made up of one or more cells**.
2. Are able to **move**.
3. Carry out **three functions**: **NUTRITION, INTERACTION AND REPRODUCTION.**
4. They all **grow.**
5. They all **breathe.**
6. They all **expell waste substances** (CO_2, urine, sweat)**.**
7. They have a **similar chemical composition**.

ALL LIVING THINGS ARE MADE UP OF ONE OR MORE CELLS

A cell is the basic structural and functional unit of all organisms. Cells carry out the three vital functions: **nutrition**, **interaction** and **reproduction**.

CARRY OUT THREE FUNCIONS

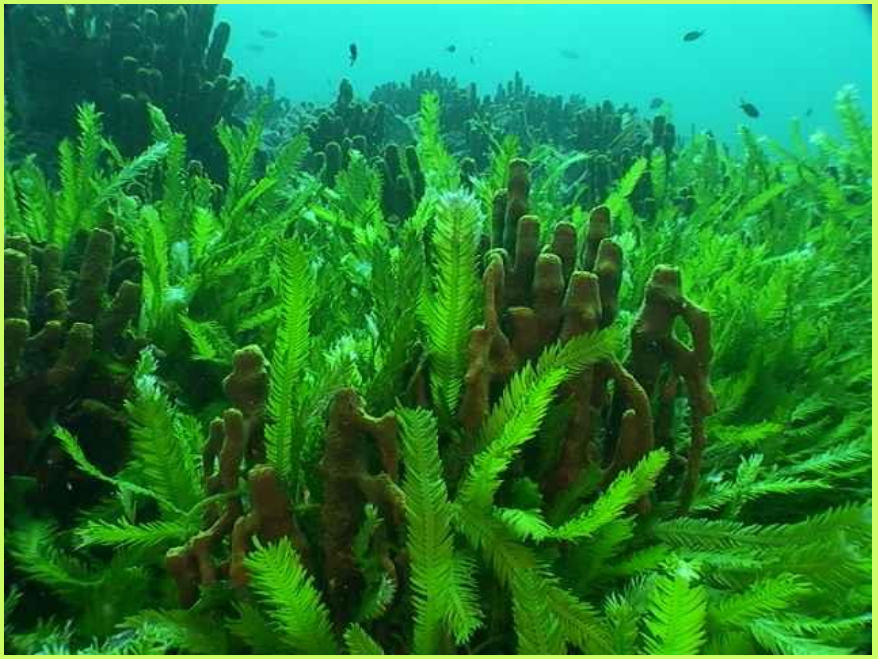
- **NUTRITION: Refers to all the processes which enable living things to obtain the energy they need to live.**

There are two types:

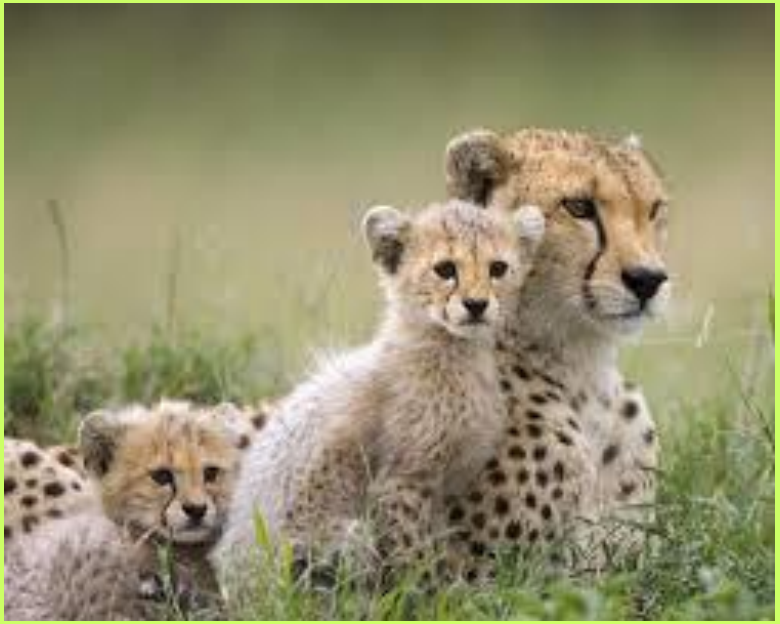
- Autotrophs: Produce organic substances from inorganic substances (water, mineral salts and carbon dioxide). For that they get energy from sunlight through a process called photosyntesis. EXAMPLE: ALGAE AND PLANTS.

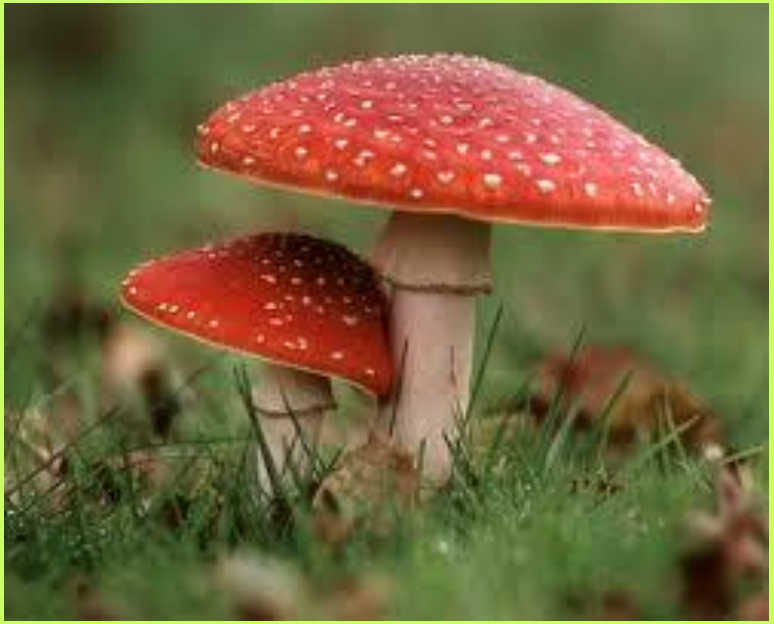
- **Heterotrophs:** **Feed on organic matter which is already elaborated. EXAMPLE: ANIMALS, FUNGI, SOME BACTERIA AND ALL PROTOZOA.**

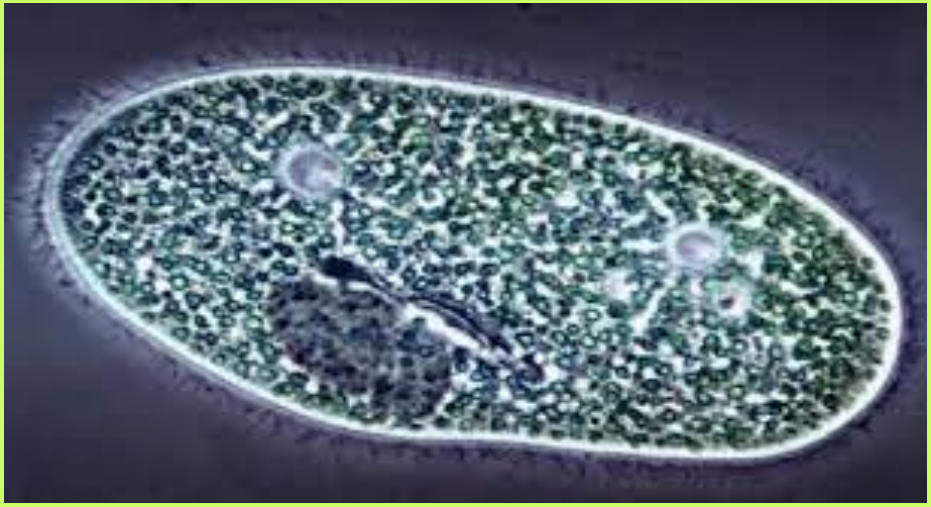
AUTOTROPHS



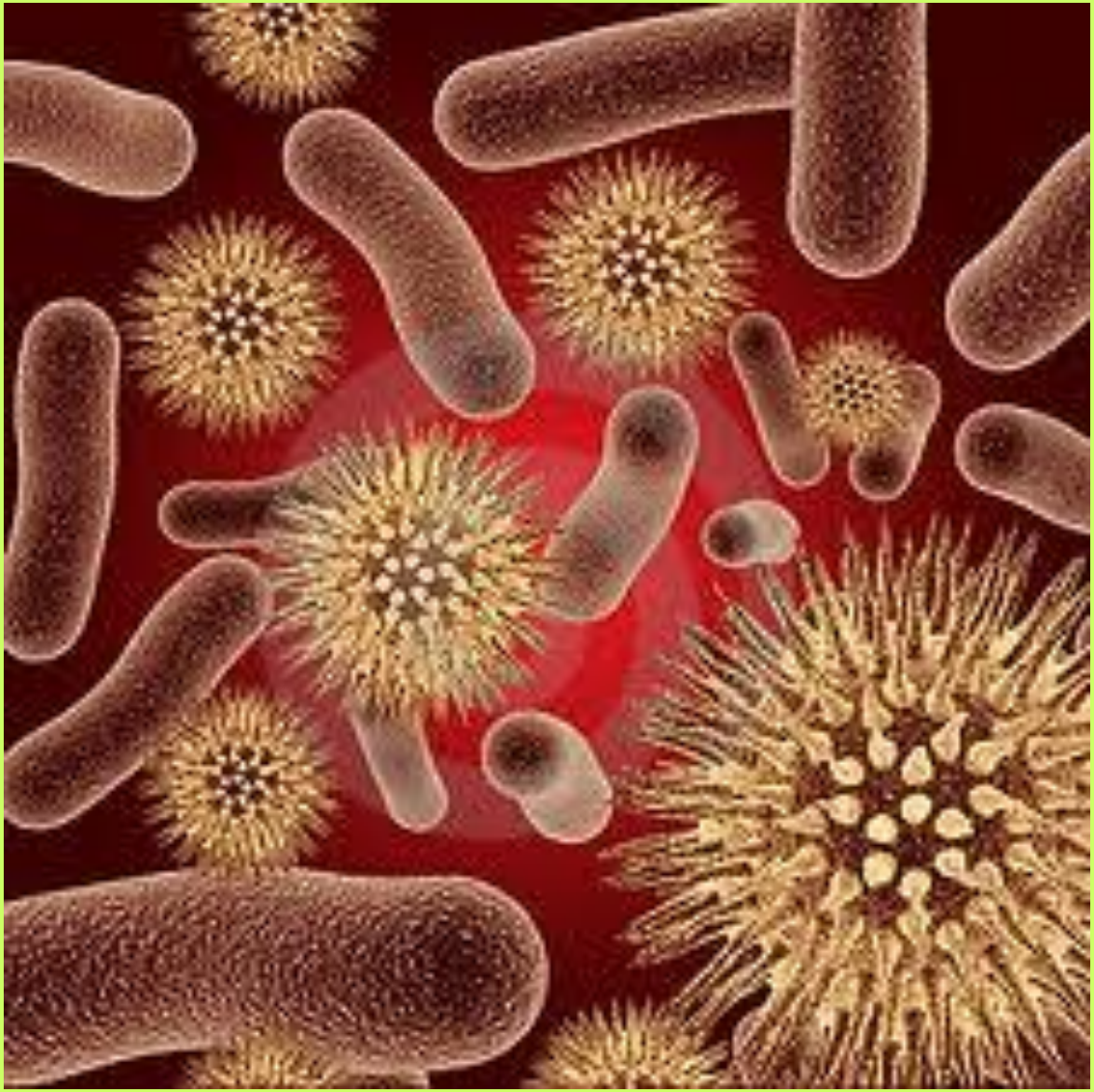
HETEROTROPHS







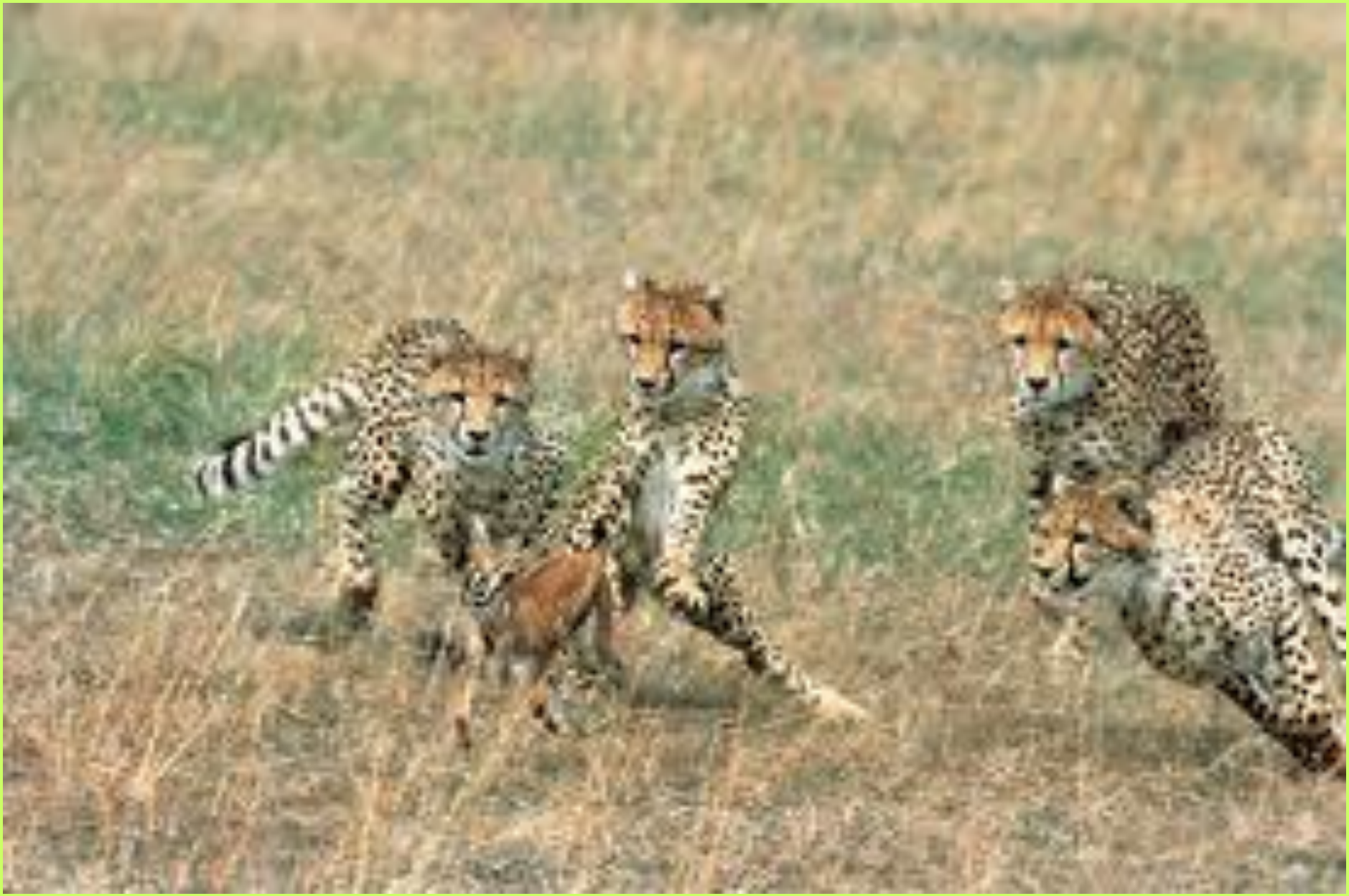
AUTOTROPHS OR HETEROTROPHS

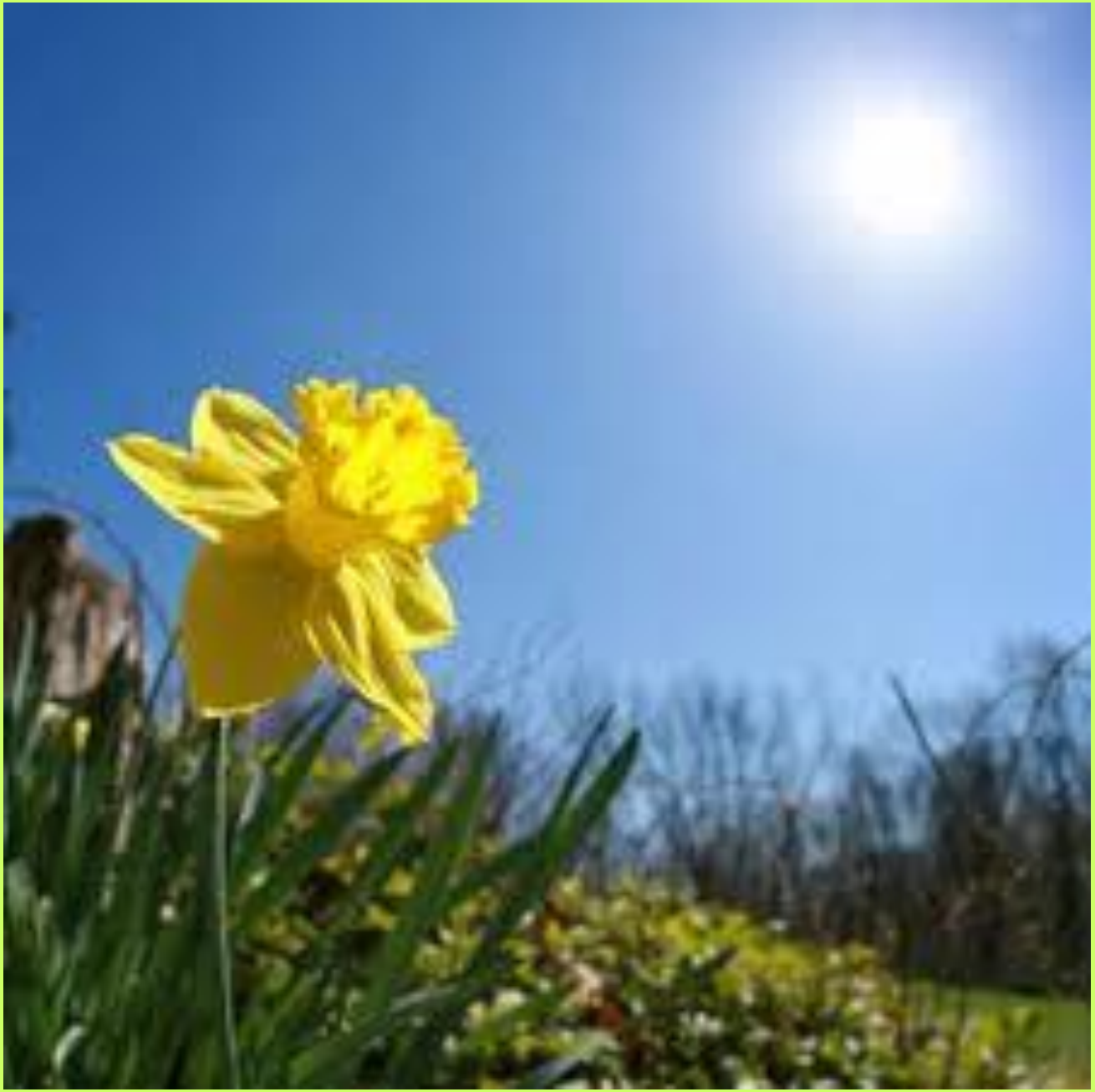


- **INTERACTION: All the processes which enable living things to react to changes in their environment. These changes a called ESTIMULI.**

ESTIMULUS  **REACTION**

EXAMPLE: plants grow towards the light, animals flee from predators.





- **REPRODUCTION:** **Refers to all the processes which enable living things to create new living things.**

HAVE A SIMILAR CHEMICAL COMPOSITION

Carbon (C), oxygen (O), hydrogen (H) and nytrogen (N) make up more than **95 %** of the mass all living matter. These elements join together to make molecules of living matter called **biomolecules**.

Living things are made up of two kinds of substances: **INORGANIC** and **ORGANIC**.

- **Inorganic substances:** Do not contain carbon. They are present in living things and non-living things. **EXAMPLE: mineral salts and water**. Water is the main inorganic compound in living things: plants a between 60-80 % and animals are about 90 % water).

-Organic substances: Carbon is their main element. They are unique to living things.

- **Sugars:** give energy to the organism.
- **Fats:** provide energy reserves.
- **Proteins:** form muscles, hair, skin, etc.
- **Nucleic acids:** responsible for reproduction and heredity (such as DNA).

3. WHAT CHARACTERISTICS MAKE THE EARTH HABITABLE?

The Earth has certain characteristics that allow life to develop.

* **Liquid water:** Water is the major compound in living beings and it is esential for vital processes to occur (seed germination, expulsion of waste substances, etc.)

- **Oxygen:** Nitrogen and oxygen are the most abundant gases in the air. All living beings need oxygen to obtain energy from organic compounds, through breething.
- **Light and carbon dioxide:** Both of them are essential for plant nutrition.
- **Mineral salts:** Plants obtain them through the roots; animals eat plants or other animals to obtain mineral salts.

- **A layer of gases (the atmosphere)**: It **protects** the planet from harmful ultraviolet and infrared radiation. This layer also helps to **greenhouse effect**, maintaining and average temperature for life on Earth (15 ºC). The temperature where most organisms live is between -18ºC and 50ºC.

THE BIOSPHERE is the layer on Earth where environmental conditions are appropriate for living beings to live.

8. What is a species?

Is the first level of classification for living things.

Is a set of living things which are physically similar. They reproduce and have fertile descendants.

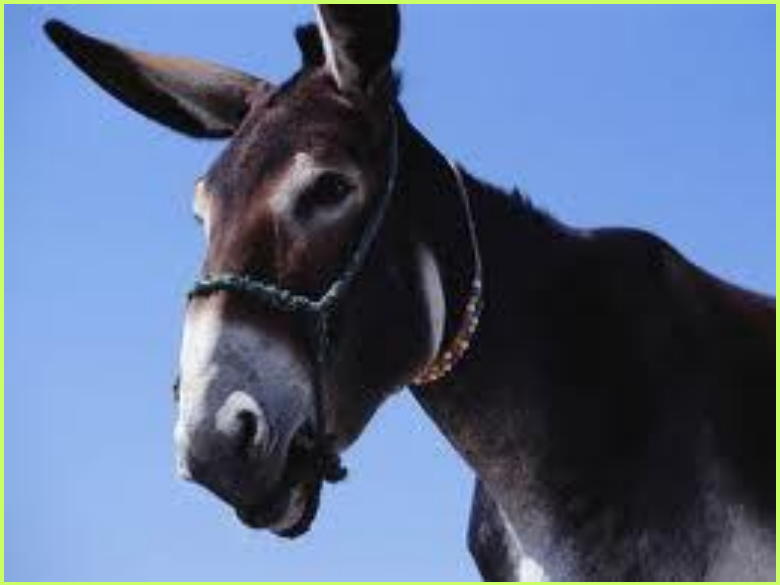
EXAMPLE:

-common name: wolf

-scientific name: *Canis lupus*

Curiosity:

Do you know why mules are sterile??



Donkey and female-horse (mare) are not the same species!!!