1. Plants

- **Plants** originated 500 million years ago from green algae in the sea. Plants are multicellular organisms with particular characteristics:
  - They are **held in place** in the ground by **roots**.
  - They are **autotrophic**. They can make their own nutrients through **photosynthesis**.
- All plants, except for mosses, have **vessels**. A liquid called **sap** circulates through these vessels.
- These vessels are made up of two types of **vascular tissues**, **xylem** and **phloem**, each of which transports a different type of sap:
  - **Xylem sap**, also known as raw sap, travels upwards from the root to the leaves.
  - **Phloem sap**, also known as elaborated sap, travels from the leaves to all areas of the plant.

2. Plant groups. Mosses and ferns

- Plants can be classified into two groups:
  - **Vascular plants**. Plants with vessels for transporting sap, such as ferns.
  - **Non-vascular plants**. These do not have vessels for transporting sap, such as mosses.
- **Mosses** do not have any vegetative organs (no roots, no stem and no leaves) but they do have structures that carry out similar functions:
  - **Rhizoids**. Root-like structures.
  - **Phyllodes**. Small leaf-like appendages.
  - **Cauloids**. False stems that transport sap.
- Mosses can reproduce both sexually and asexually.
- **Ferns** are vascular plants and **non-flowering**. The **roots** develop along the stem at the bottom of the plant. The **stems** (**rhizomes**) are underground and the **leaves** are called **fronds**.
- Ferns live in humid areas and reproduce with a sexual phase followed by an asexual phase.

3. Seed-producing plants. Gymnosperms

- **Seed-producing plants** reproduce through seeds. There are two groups:
  - **Gymnosperms**. Plants with **unprotected** seeds.
  - **Angiosperms**. Plants with **protected** seeds.
- **Seeds** are reproductive structures that germinate when the temperature and humidity are more suitable.
- **Gymnosperms** have seeds that are not protected by a fruit but which may be protected in another way. Gymnosperms are the oldest type of seed-producing plants.
- **Conifers** are the most widespread gymnosperms. They include pines, firs and cedars. Conifers are evergreen trees that live in most parts of the world.

4. Seed-producing plants. Angiosperms

- **Angiosperms** are plants with **protected seeds** that produce **fruits**.
- As well as **vegetative organs** (root, stem and leaves), angiosperms have characteristic reproductive organs: the flowers and the fruits.
- There are two types of angiosperms. They are classified according to the number of cotyledons found in the seed:
  - **Monocotyledons** have only one cotyledon in the seed, such as irises and cereals.
  - **Dicotyledons** have two cotyledons in the seed, most plants such as poppies and roses.