

## 6. Classification of Plants

- **Diversity:** It refers to the variety and variability among living organisms from all sources including land, water, and other ecosystems.
- **Classification**
  - It refers to the identification, naming, and grouping of organisms into a formal system based on similarities in internal and external structures or evolutionary history
  - It helps in organising the diversity of life forms in detail.
  - **Characteristic** - A feature that helps identify or describe a person or a thing
  - There are certain characteristics that are considered more fundamental than others. These fundamental characteristics make broad divisions in living organisms.
- **Principles of classification**
  - **Nature of cell (Fundamental characteristic):** On the basis of the nature of cell, living organisms are classified as: **prokaryotes and eukaryotes**
  - **Cellularity:** On the basis of cellularity, organisms are classified as: **unicellular and multicellular**
  - **Mode of nutrition:** On the basis of mode of nutrition, organisms are classified as: **Autotrophs and heterotrophs**

**Kingdom Plantae:** It include five divisions:

**1. Division Thallophyta:** Includes *Spirogyra*, *Cladophora*, *Ulva*

- Characteristic feature of Thallophyta:
  - Plant body is not differentiated into true root, stem, and leaves
  - Spores are produced as a result of fertilization

**2. Division Bryophyta (also called amphibians of plant kingdom):** Includes mosses, *Riccia*, *Marchantia*

- Characteristic feature of Bryophyta:
  - Specialised vascular tissues (such as xylem) for the conduction of water are absent
  - Body is differentiated into stem and leaf-like structures
  - Naked embryo i.e. spores are present.

**3. Division Pteridophyta:** Includes ferns, *Marsilea*, *Equisetum*

- Characteristic feature of Pteridophyta
  - Specialised vascular tissues for the conduction of water are present.
  - Naked embryo i.e. spores are present
  - The plant body is differentiated into roots, stems, and leaves.



**4. Division Gymnospermae:** Includes *Pinus*, cedar, fir, Juniper, *Cycas*, etc

- Characteristic feature of Gymnospermae:
  - Seed bearing, non-flowering plants.
  - Bear naked seeds, not enclosed inside fruits.
  - Vascular bundles are present, but xylem lacks vessels and phloem lacks companion cells.
  - Flowers are absent. Instead, male and female cones are found.

**5. Division Angiospermae:** Includes all flowering plants

- Characteristic feature of Angiospermae:
  - Flowering plants in which seeds are enclosed inside fruits.
  - These plants bear flowers that consist of four whorls – calyx, corolla, androecium, and gynoecium
  - Seeds develop inside the ovary, which develops into a fruit
- Major groups of Angiosperms
  - **Monocotyledons:** Seeds that have one cotyledon. E.g. maize, wheat etc
  - **Dicotyledons:** Seeds that have two cotyledons. E.g. Sunflower, gram etc