



Plant Groups

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Plant Kingdom

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graph TD; A[Plant Kingdom] --> B[Non-flowering Plants]; A --> C[Flowering Plants];
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A flowchart illustrating the classification of the Plant Kingdom. At the top, a light blue box with a dark blue border contains the text "Plant Kingdom". A vertical line descends from this box to a horizontal line. From the horizontal line, two arrows point downwards to two separate boxes. The left box is green with a dark green border and contains the text "Non-flowering Plants" in yellow. The right box is purple with a dark purple border and contains the text "Flowering Plants" in yellow.

**Non-flowering
Plants**

**Flowering
Plants**



3 groups

Non - flowering Plants

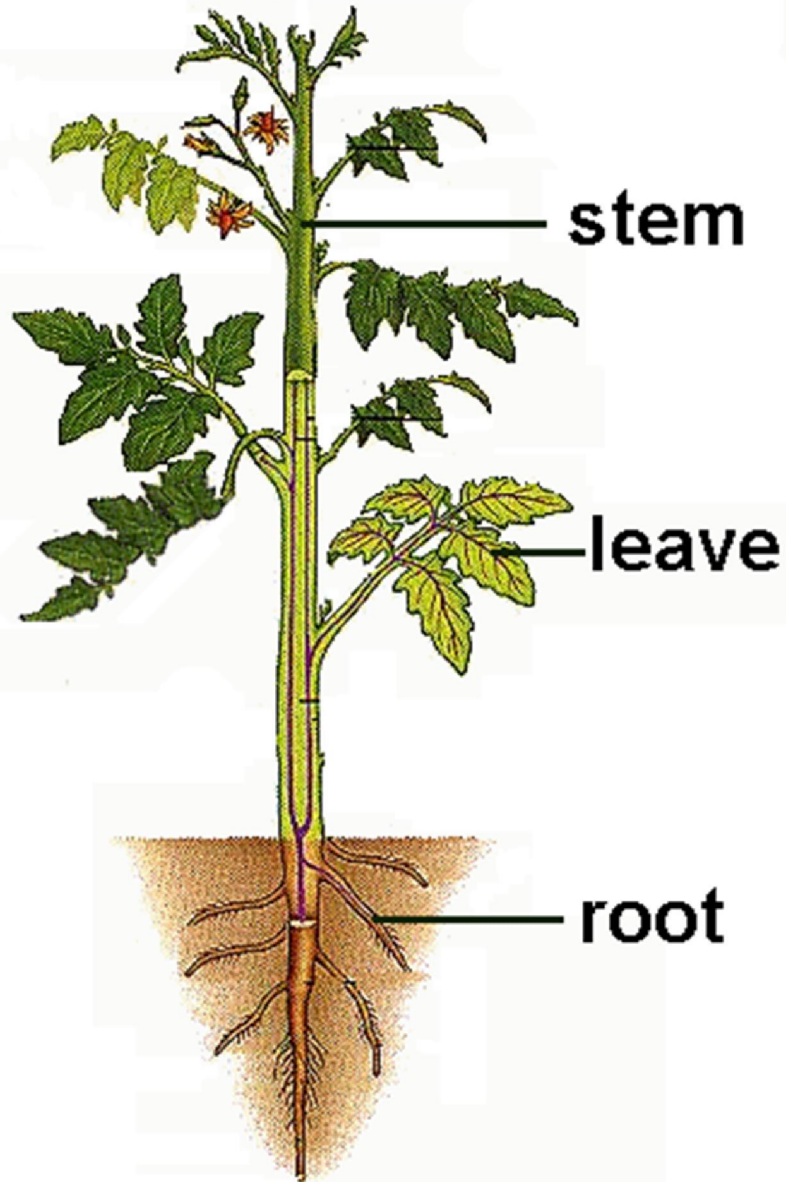
Mosses

Ferns

Gymnosperms

Do NOT produce flowers

A plant can be divided into 3 parts



Examples of Mosses



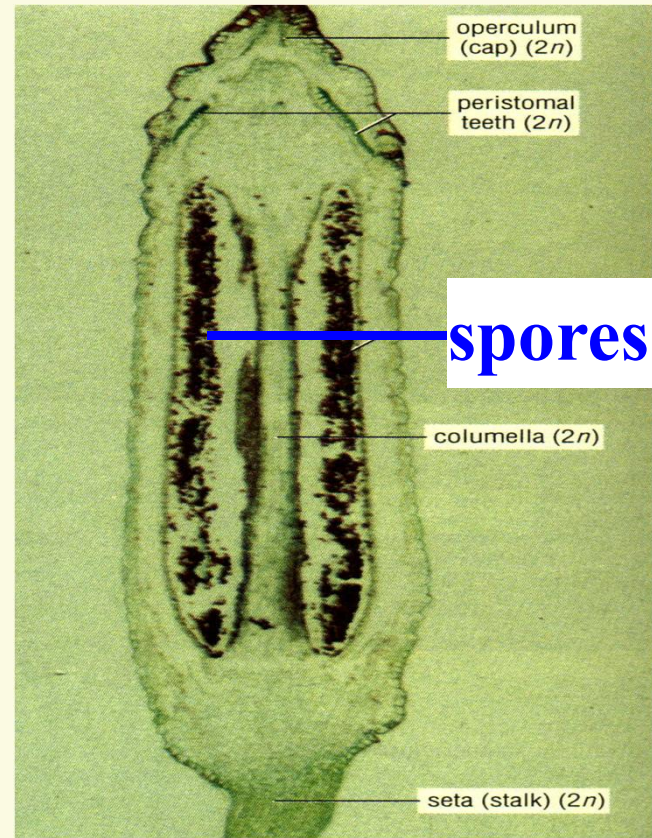
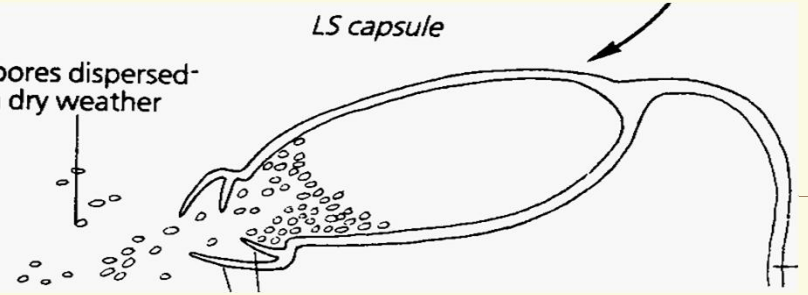
Moss

Spore-producing capsule



spores dispersed
in dry weather

LS capsule



Characteristics of Mosses

👉 Simplest plants

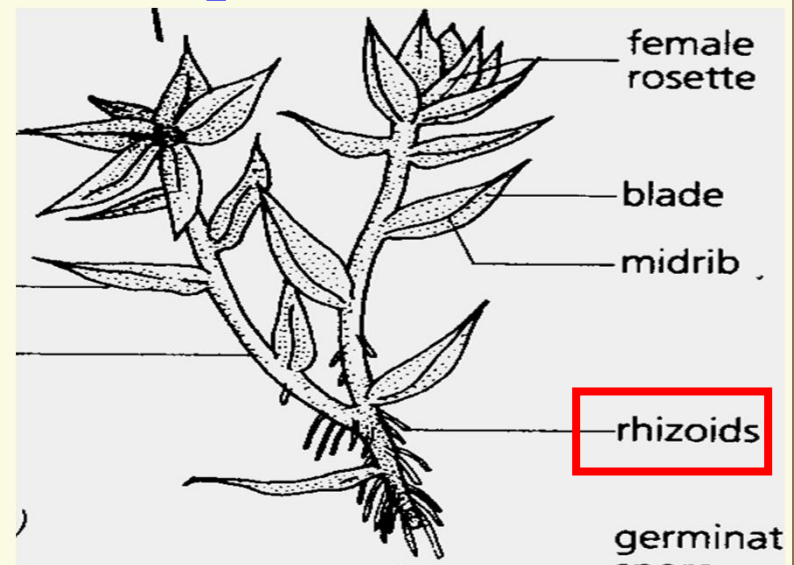
👉 No true roots, No vascular tissues (no transport)

👉 Simple stems & leaves

👉 Have **rhizoids** for anchorage

👉 **Spores** from capsules (wind-dispersal)

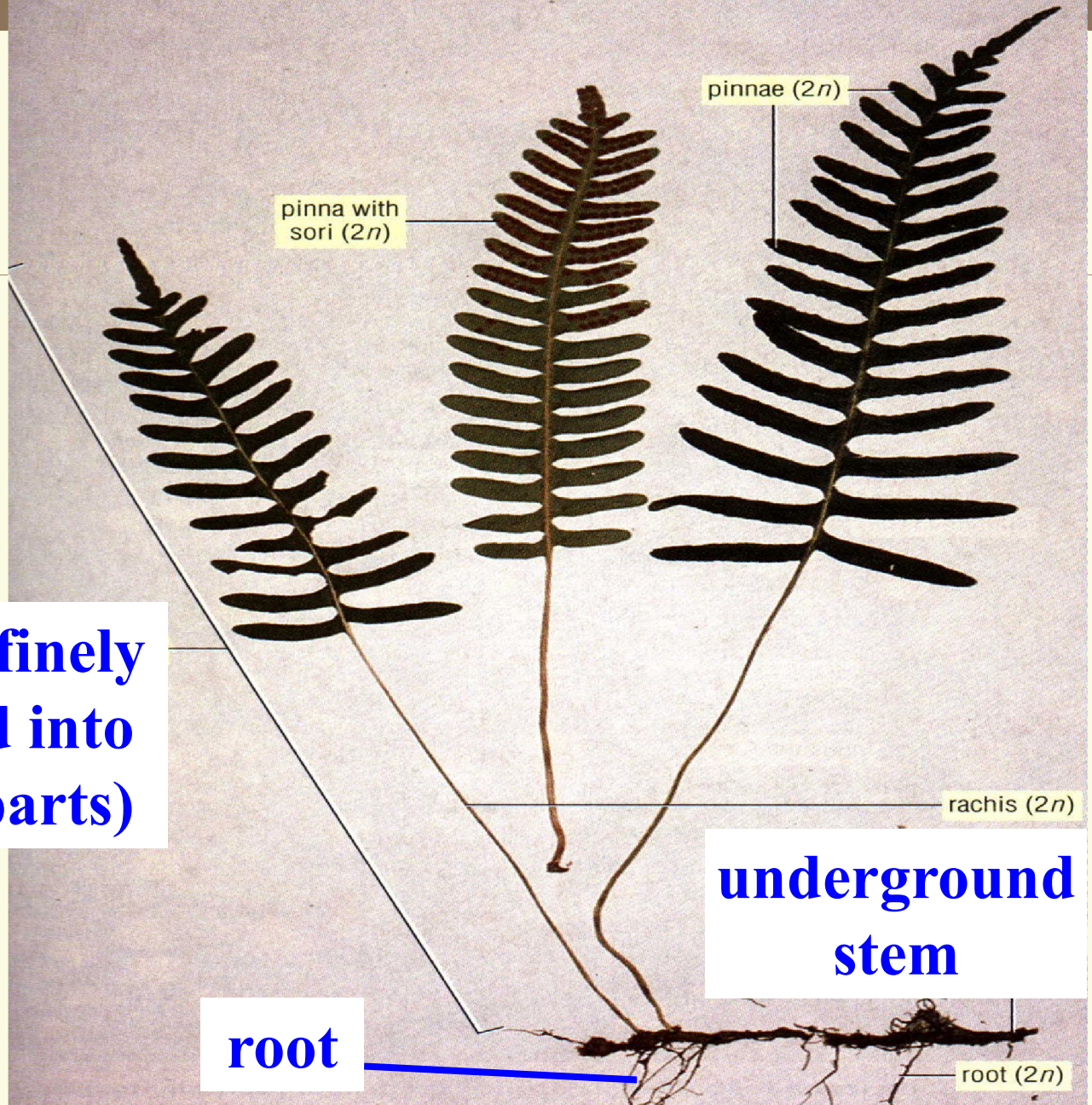
👉 **Damp** terrestrial land



Fern



Fern



A leaf (finely divided into small parts)

underground stem

root

root (2n)

spore-producing organs



(circinate) young leaf



Characteristics of Ferns

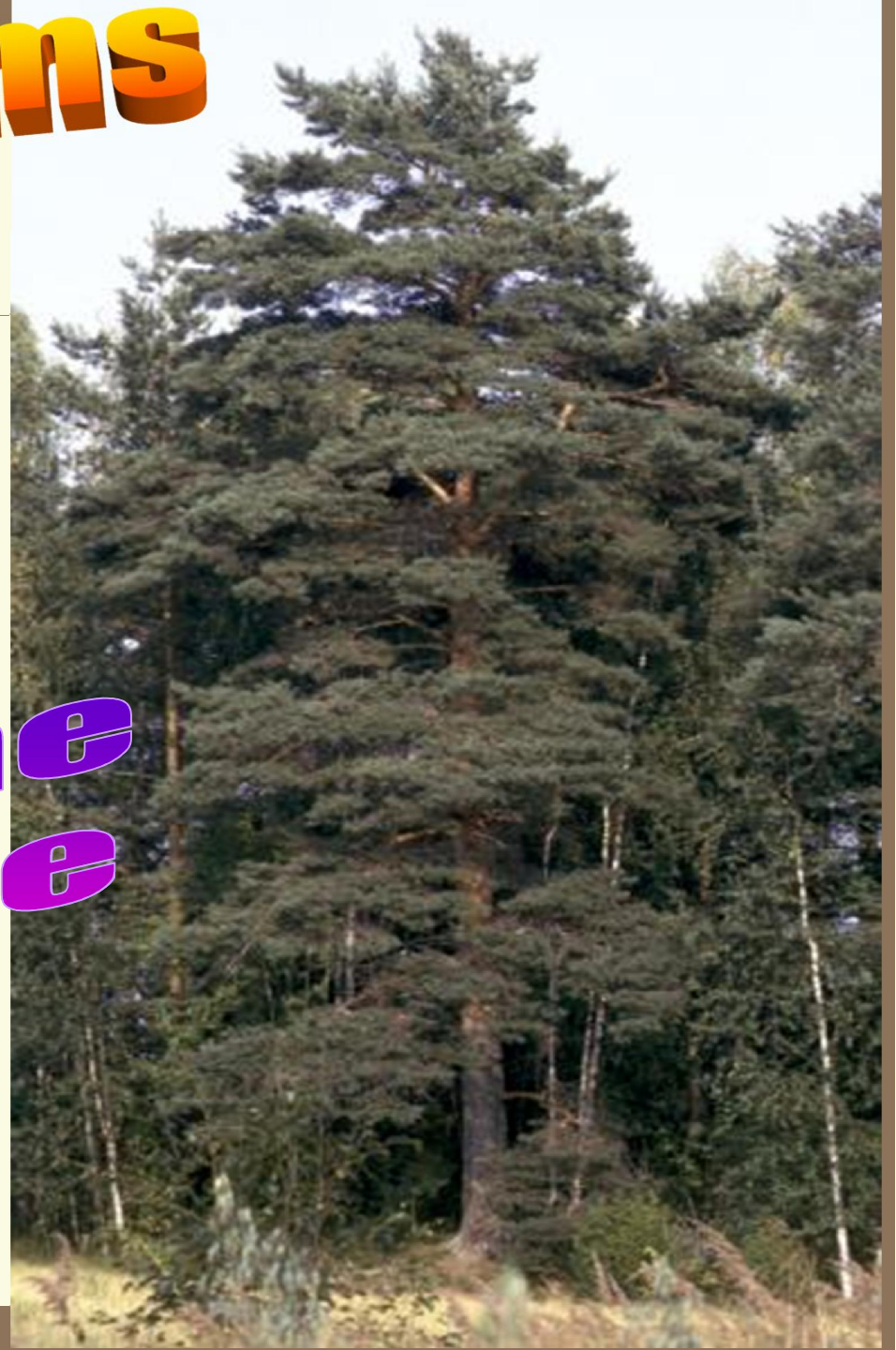
- 📖 roots, feathery leaves & underground stems
- 📖 have **vascular tissues** (transport & support)
- 📖 **Spore-producing organ** on the underside of leaves (reproduction)
- 📖 **Damp & shady** places



Gymnosperms



Pine
tree



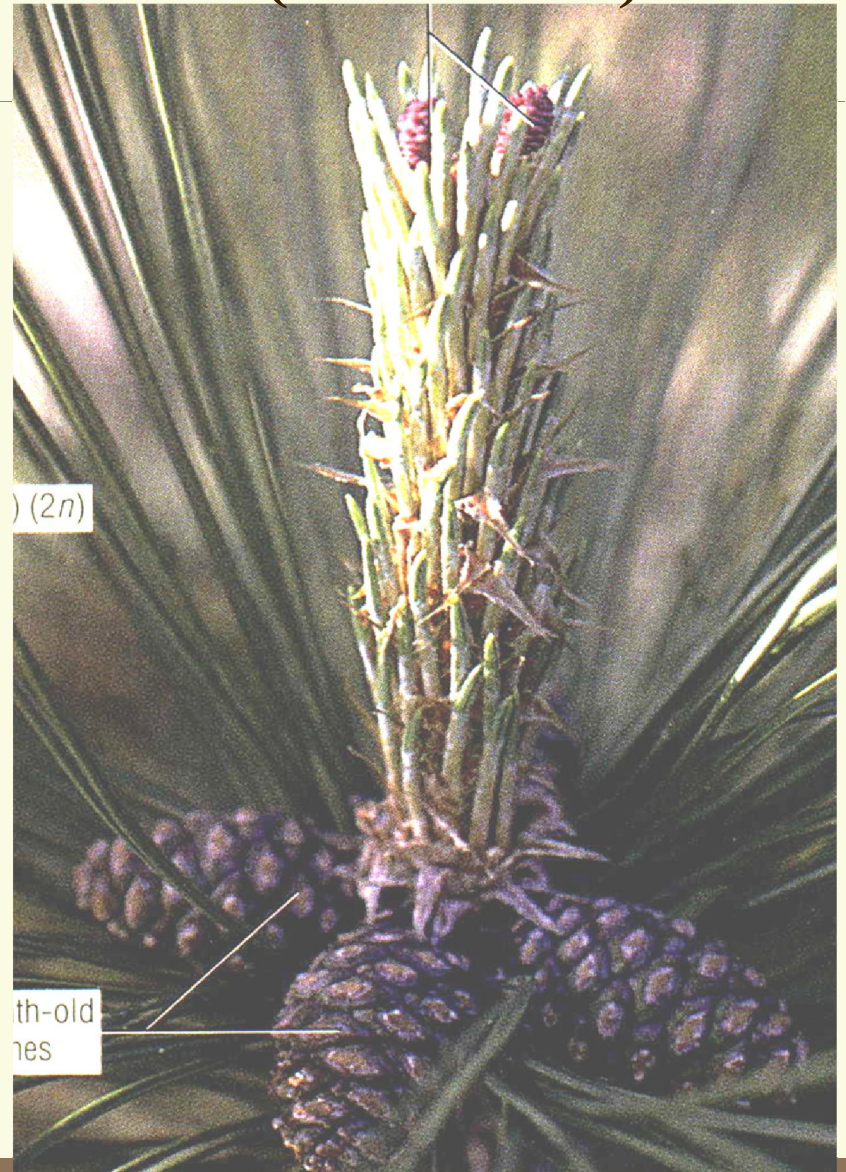
needle-shaped leaves



Male cones (in clusters)



Female cones (scattered)



Characteristics of Gymnosperms

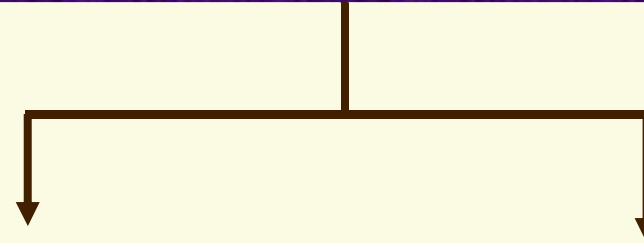
- 📁 tall evergreen trees
- 📁 roots, woody stems
- 📁 **needle-shaped** leaves
- 📁 **vascular tissues** (transport)
- 📁 **cones** with reproductive structures
- 📁 **naked seeds** in female cones
- 📁 dry places





2 groups

Flowering Plants



Monocotyledons

Dicotyledons



roots, stems, leaves



vascular tissues (transport)



flowers, fruits (contain seeds)



Monocotyledons

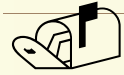


Parallel veins

Characteristics of Monocotyledons



one seed-leaf



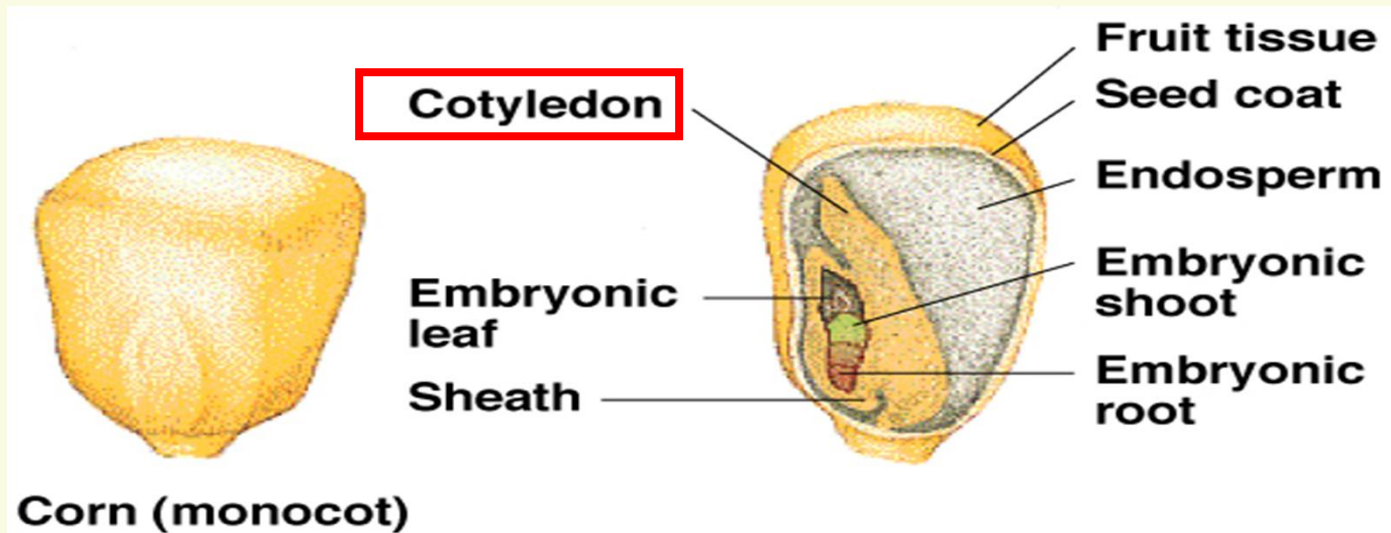
leaves have **parallel** veins



herbaceous plants



e.g. grass, maize



Dicotyledons



Veins in network

Characteristics of Dicotyledons



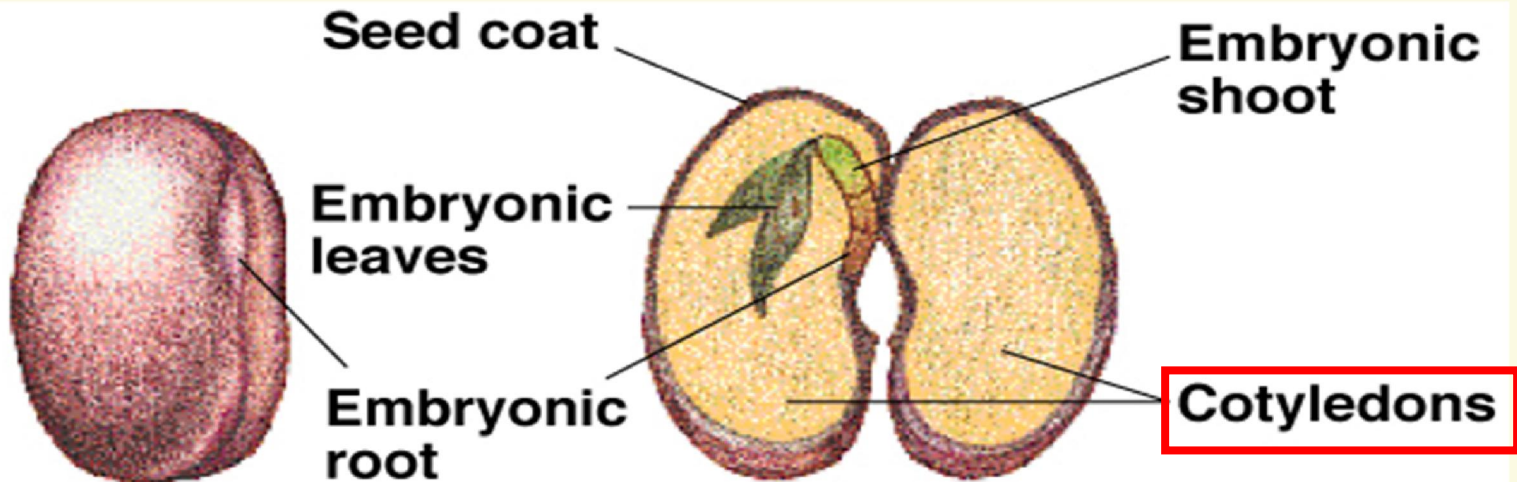
two seed-leaves



leaves have veins in network



e.g. trees, sunflower, rose



Common bean (dicot)

Plant Classification

Plants

Non-flowering

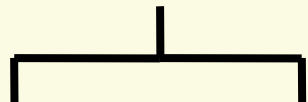
Flowering

Spore-bearing

Naked seeds

1 seed-leaf

2 seed-leaves



Gymnosperms

Monocots

Dicots

No roots

with roots

Mosses

Ferns