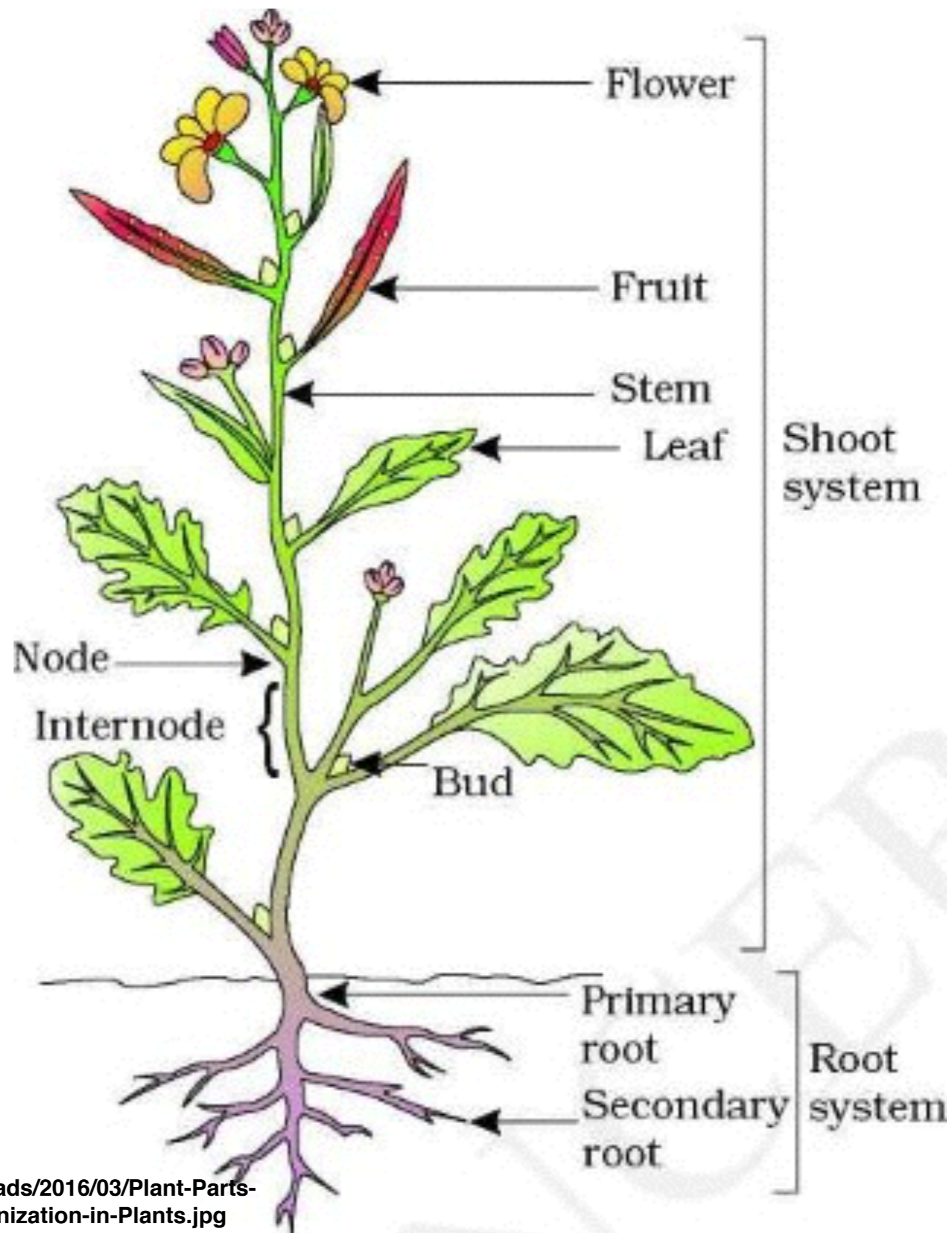


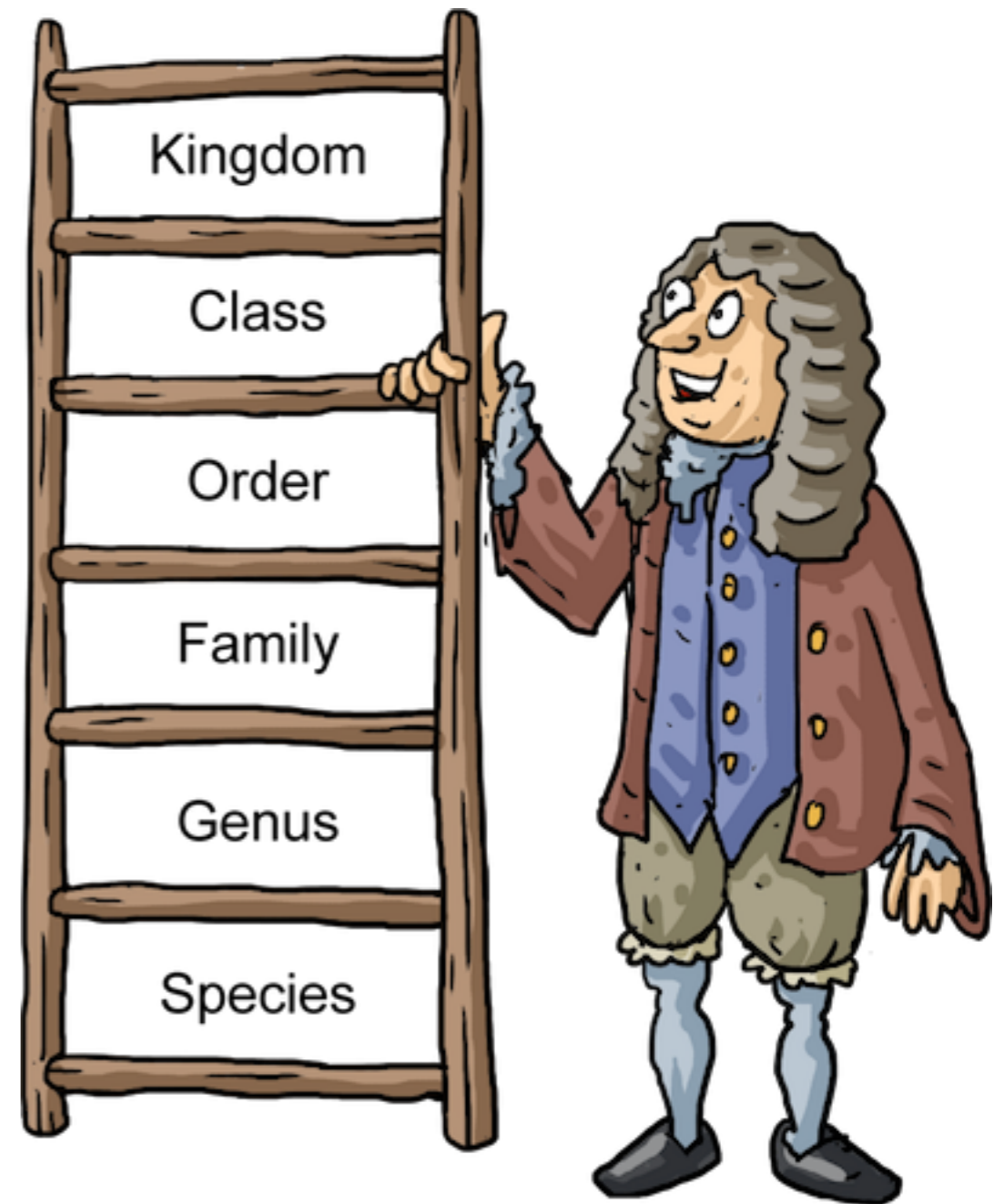
PLANTS

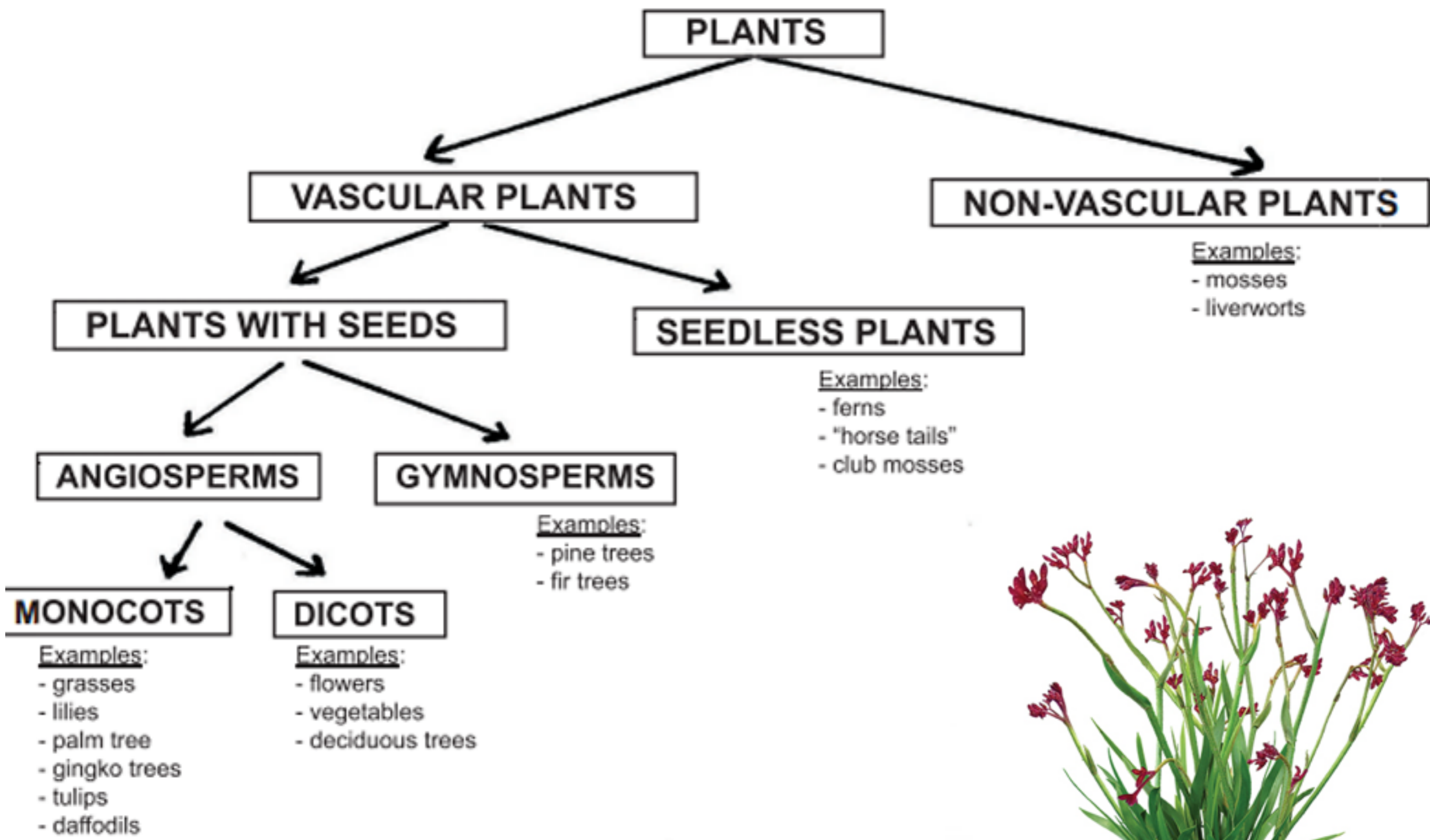


**GIMNASIO
CAMPESTRE**

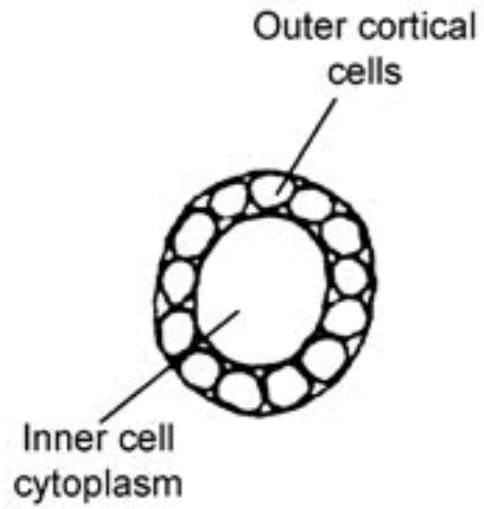


The way we look at plants now has a lot to do with the work of **Carl Linnaeus**. He was a 17th Century Swedish scientist, and he wanted to work out just how many different kinds of living things there were. He separated living things into plants and animals—in the same way that people had done for a very long time—but then went much further. He proposed groups and families where living organisms could be placed with their closest relatives. This was the beginning of modern scientific classification. Classification has changed as science has advanced, but the Linnaean system is still in pretty good shape. We will study the main groups of plants according to that system.

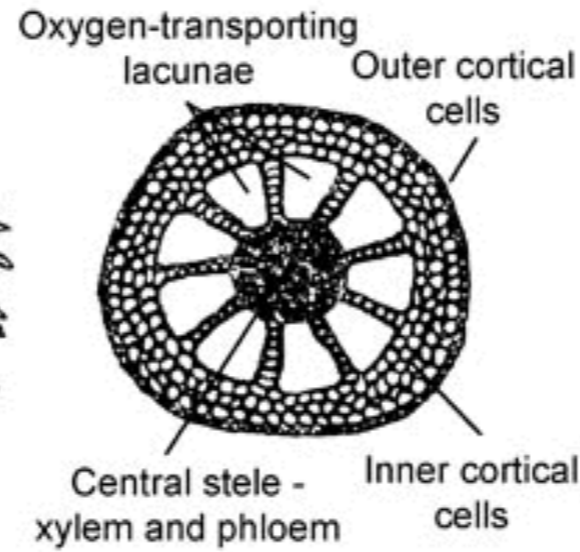




Non-vascular plant stem
(cross section)



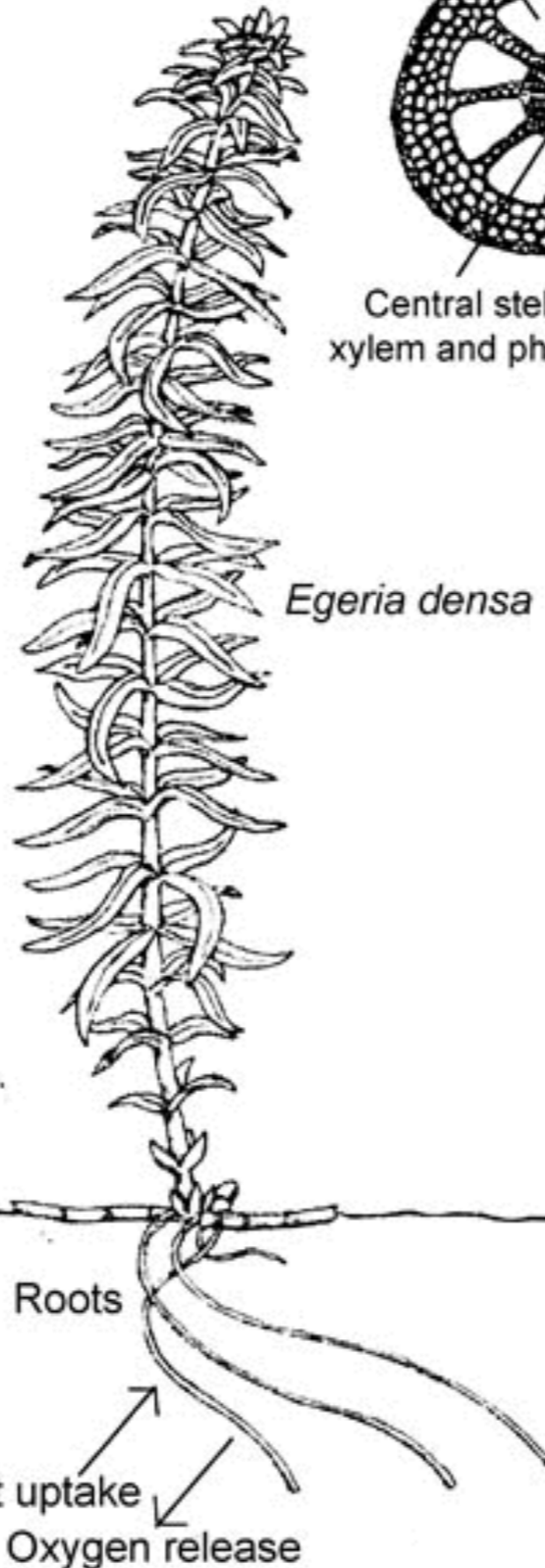
Vascular plant stem
(cross section)



Chara globularis



Egeria densa



Non - Vascular vs. Vascular plants

Water
Sediment

Non-Vascular plants

- Do not have a well developed system of transporting water and food
- Not true roots, stems or leaves
- Very small in size
- Spores



Liverwort



Hornwort

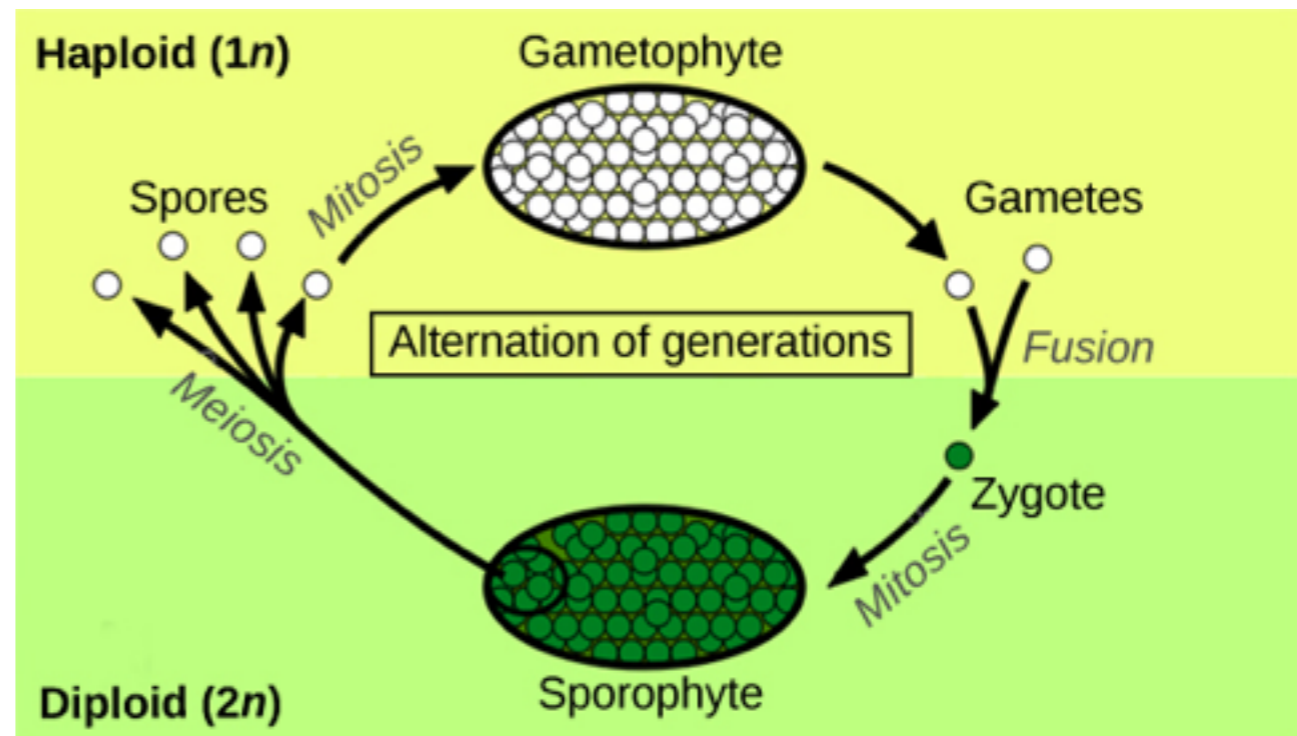


Moss

Vascular seedless plants



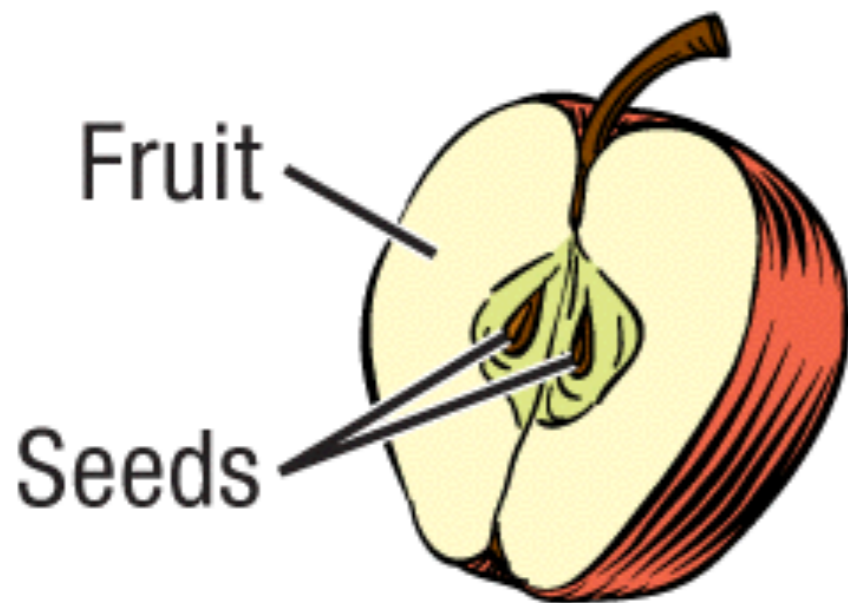
- Can grow tall due to vascular tissue
- Have strong cell walls
- Grow in moist areas
- Release spores into their surroundings



ANGIOSPERM SEEDS AND FRUIT

VS.

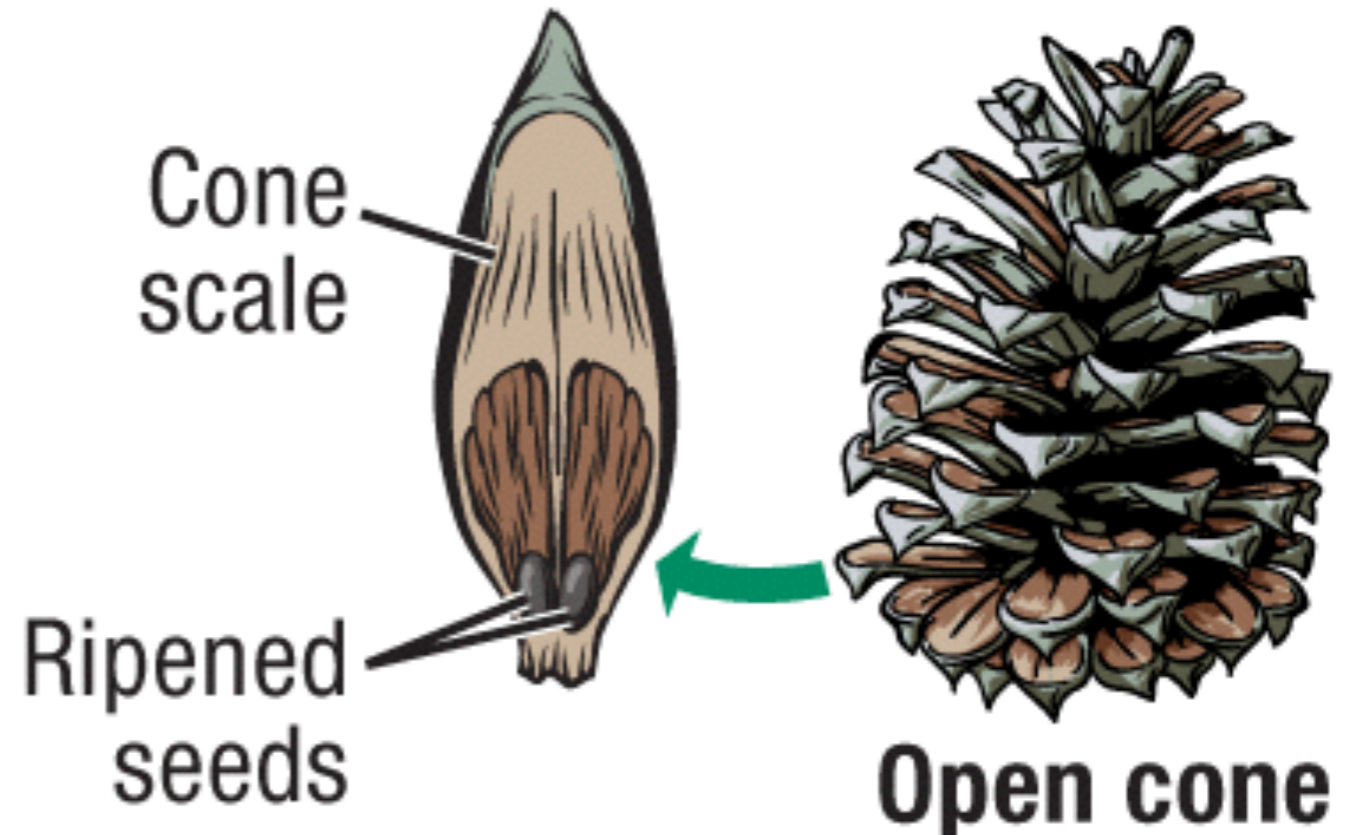
GYMNOSPERM SEEDS



Fruit

Seeds

Apple



Cone scale

Ripened seeds

Open cone

Gymnosperms

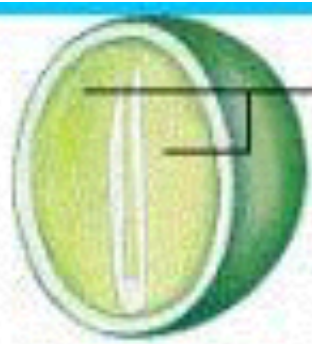
- Cone bearing plants
- Reproduce with scales
- Called naked seeds
- Don't have leaves, only needles
- Ever green plants



Angiosperms



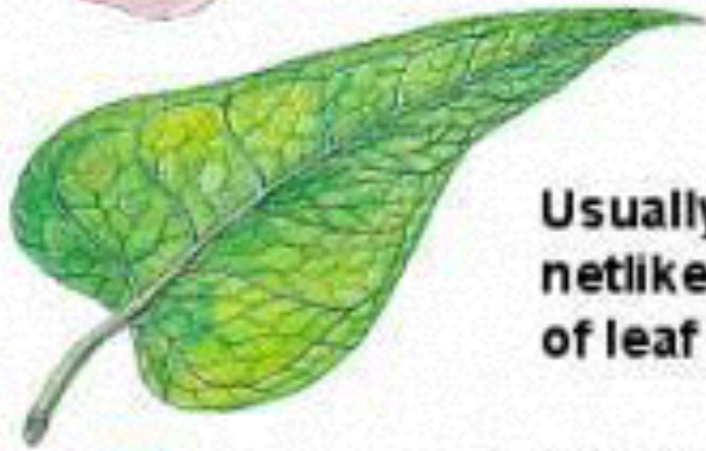
- Vascular, seeds plant that produce flowers and fruits
- Enclosed seeds and protected inside a fruit
- Sexual reproduction
- They are by far the most diverse and geographically widespread of all plants
- 250.000 known species



In seeds, two cotyledons (part of the embryo)



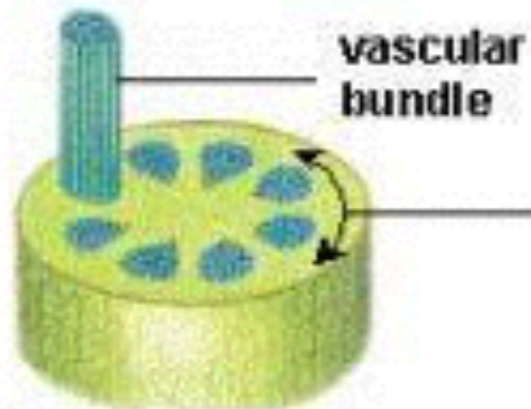
Usually four or five floral parts (or multiples of these)



Usually a netlike array of leaf veins



Basically, three pores or furrows in pollen grain



Vascular bundles arrayed as a ring in stem

DICOTS



In seeds only one cotyledon



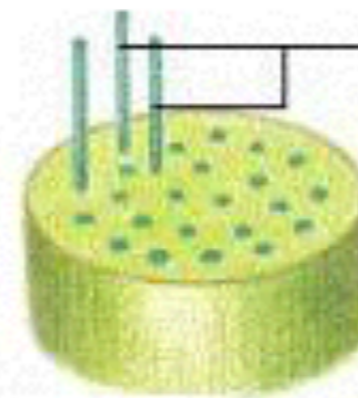
Usually three floral parts (or multiples of three)



Usually a parallel array of leaf veins



Basically, one pore or furrow in pollen grain



Vascular bundles distributed ground tissue of stem

MONOCOTS

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Video: What is a Plant?

All About Plants

<https://www.youtube.com/watch?v=qULkjDccCeY>

Mosses



Ferns



Gymnosperms



Angiosperms



| | | | | |
|----------------------------------|--------|---------|----------|-------------------|
| Support tissues | Absent | Present | Advanced | Advanced |
| True leaves | Absent | Present | Advanced | Advanced |
| Stems | Absent | Present | Advanced | Advanced |
| Roots | Absent | Absent | Advanced | Advanced |
| Pollen | Absent | Absent | Present | Present |
| Seeds | Absent | Absent | In cone | Enclosed in fruit |
| Fruits and flowers | Absent | Absent | Absent | Present |
| Water required for fertilization | yes | yes | No | No |