# Plant Classification

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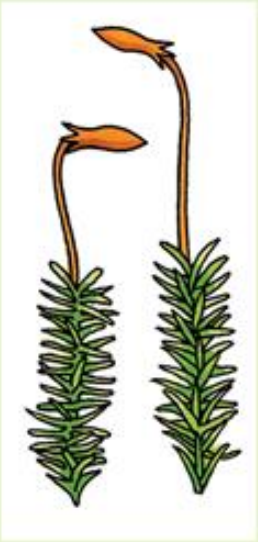
# Naming Plants and Animals

- Species are named using a system developed in1750 in Sweden by Linnaeus.
- Each species is given two names.
- The first is the *genus* name.
- Each genus contains a number of related species.
- For example Buttercups belong to the genus *Rannunculus*.
- Different types of buttercup then have a different species name e.g. Creeping Buttercup is *Rannunculus repens* while the common buttercup is called *Rannunculus flutans*.
- *The genus and species are always written in Italics but when hand - written they should be underlined.*
- *Also the genus should have a CAPITAL letter and the species should have a small letter.*

# The Plant Kingdom

## Mosses and liverworts



No proper roots or stems
Thin leaves that lose water
Reproduce by spores

## Ferns

Strong stem, roots, leaves
Reproduces by spores

## Gymnosperms (Conifers)

Strong stems and roots
Needle-like leaves
Seeds made inside cones

## Angiosperms (Flowering plants)

Strong stem, roots, leaves
Flowers, that make seeds

# Mosses - *Bryophyta*

- Mosses are non-vascular plants -- they cannot transport fluids through their bodies.
- Instead, they must rely on surrounding moisture to do this job for them.
- Though small in stature, mosses are very important members of our ecosystem.
- They lay the foundations for other plant growth, prevent erosion, and contribute to the lush green appearance of many forested areas.

# Mosses

# The Fern - *Pteridophyta*

- Ferns have a vascular system to transport fluids through their bodies but like the mosses, they reproduce from spores rather than seeds.
- The main phylum, the **Ferns** (*Pteridophyta*) includes around 12,000 species.
- Three other phyla are included as fern allies: the **Horsetails**, **Club Mosses** and **Whisk Ferns**
- Ferns also have a **gametophyte** and **sporophyte** stage, but the gametophyte stage is much reduced.

# Conifers - *Gymnosperms*

- The gymnosperms add the next level of complexity to plant evolution: they reproduce from seeds instead of spores.
- The seeds, however, are "naked" (Greek: *gummnos*) -- not covered by an ovary.
- Usually, the seed is produced inside a cone-like structure such as a pine cone hence the name "conifer."
- Some conifers, such as the Yew and Ginko, produce their seeds inside a berry-like structure.
- Conifers are fairly easy to identify: In addition to the aforementioned cones, these trees and shrubs typically have needle-like, scale-like or awl-like leaves.
- And they never have flowers.

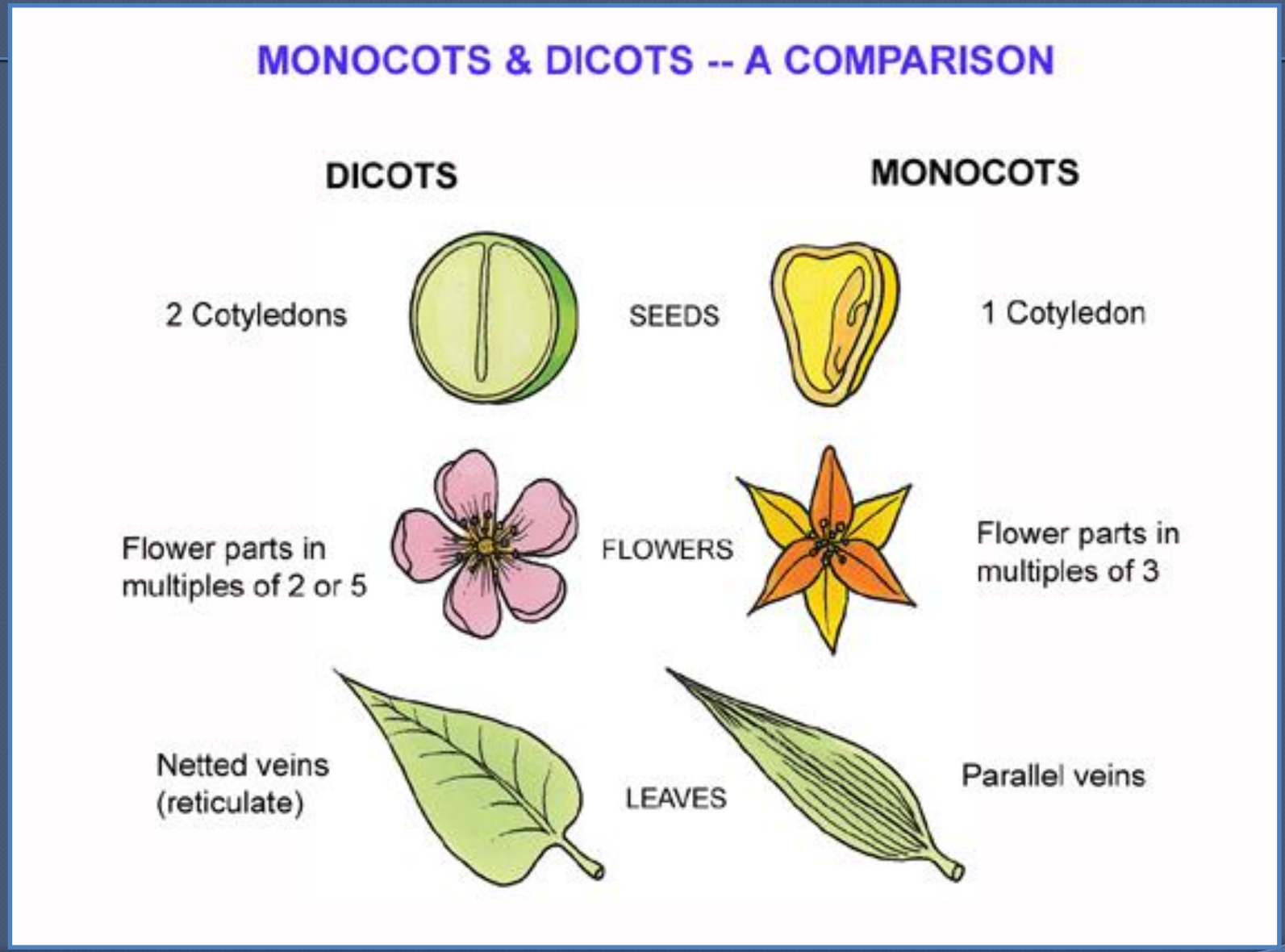
# Angiosperms

- Angiosperms are plants that produce flowers.
- They produce seeds, enclosed within a fruit or nut.
- Angiosperms include all broadleaf trees, grasses, roses, vegetables etc.
- They are important agricultural crops too!

# Angiosperms: Monocots & Dicots

- Seed bearing plants of the Order Angiosperm are further classified into two group called Monocotyledons and Dicotyledons.
- Angiosperms in the class *Dicotyledoneae* grow two seed-leaves (*cotyledons*).
- In addition, foliage leaves typically have a single, branching, main vein originating at the base of the leaf blade, or three or more main veins that diverge from the base.
- The vast majority of plants are Dicots. Most trees, shrubs, vines, and flowers belong to this group of around 200,000 species.
- Most fruits, vegetables and legumes come from this class.
- These groups are divided into FAMILIES.

# Angiosperms - Monocots & Dicots



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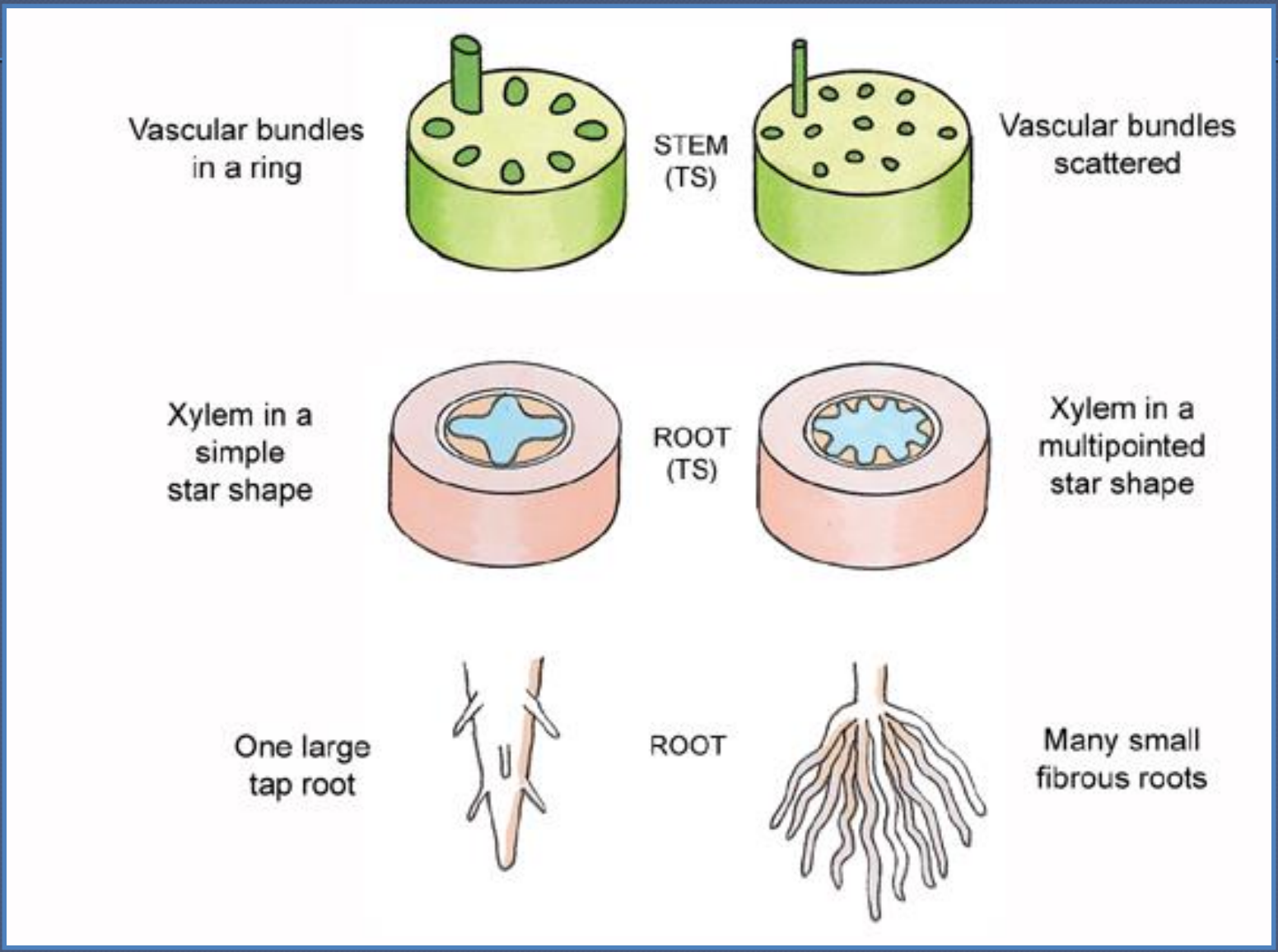

# Cruciferae

- This family include wallflowers and many *Brassica* vegetables like Cabbage, Brussels sprouts, Cauliflower, Turnips, Mustard plants etc.
- They are classified by floral parts, arranged in fours. (4 sepals, petals & stamen).
- Their flowers are in the shape of a cross, hence the name *Cruciferae*.


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# Rosacae

- Also known as the **Rose** Family.
- It includes apple, pear, peach, plum, cherry, apricot, almond, nectarine, prune, raspberry, blackberry, dewberry and the strawberry.
- They are characterised by five sepals and petals and numerous carpels and stamen.


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# Leguminosae

- Also called the pea family, they are characterised by five petals (One large, two small and two even smaller “wings”).
- A common feature in the family is the presence of root nodules containing bacteria of the genus *Rhizobium*.
- These bacteria convert atmospheric N, which cannot be used by the plants, into nitrate ($NO_3^-$), a form that can be used.
- This family is the second most economically important family after grasses and has over 18,000 species.
- Important species include peas, clover, vetch as well as gorse, a pest in some farms


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# Liliaceae

- This is a monocot family, whose members include onions, garlic, lilies, tulips, bluebells and hyacinths.
- This family is characterised be **fused** petals and sepals.
- Their floral parts are in multiples of three – six sepals, six petals, six stamen and three carpels.


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# Gramineae

- This is the grass family, and includes all grass species as well as cereals such as wheat, oats, barley maize and rice (and bamboo).
- Grass species have flower structures based on the use of wind pollination.
- Therefore they do not contain bright, colourful petals to attract insects, as this is not required.
- Grass plants produce high levels of pollen to increase its chances of reproduction – this high level of pollen can cause hay fever.
- Grass flowers are said to be hermaphrodite – they contain both male and female parts.
- These are formed on an *inflorescence*.


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# Compositae

- This is the largest family of plants (NB) and includes daisies, dandelions, thistles, lettuce and sunflowers.
- The family is called *Compositae* because each flower is actually a composite of many "florets".
- If you look at a daisy, you will find to different types of floret (the white "ray" floret and the yellow "disc" floret.


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# Umbelliferae

- Members of this family have a distinctive florescence (collection of flowers) shaped like an umbrella.
- Each of the flowers are small but contain five sepals, stamen and petals and two carpels.
- Members of this family include parsley, dill, celery, carrots and parsnips.
- Giant hogweeds and cow parsnip (parsley) are also weeds belonging to this family.


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# Other Families

**Raunculaceae**

- The buttercup family.

**Solanaceae**

- This family contains potatoes, tomatoes, tobacco and the “deadly nightshade”.

**Polygonaceae**

- Rhubarb family – rhubarb, dock and buckwheat.


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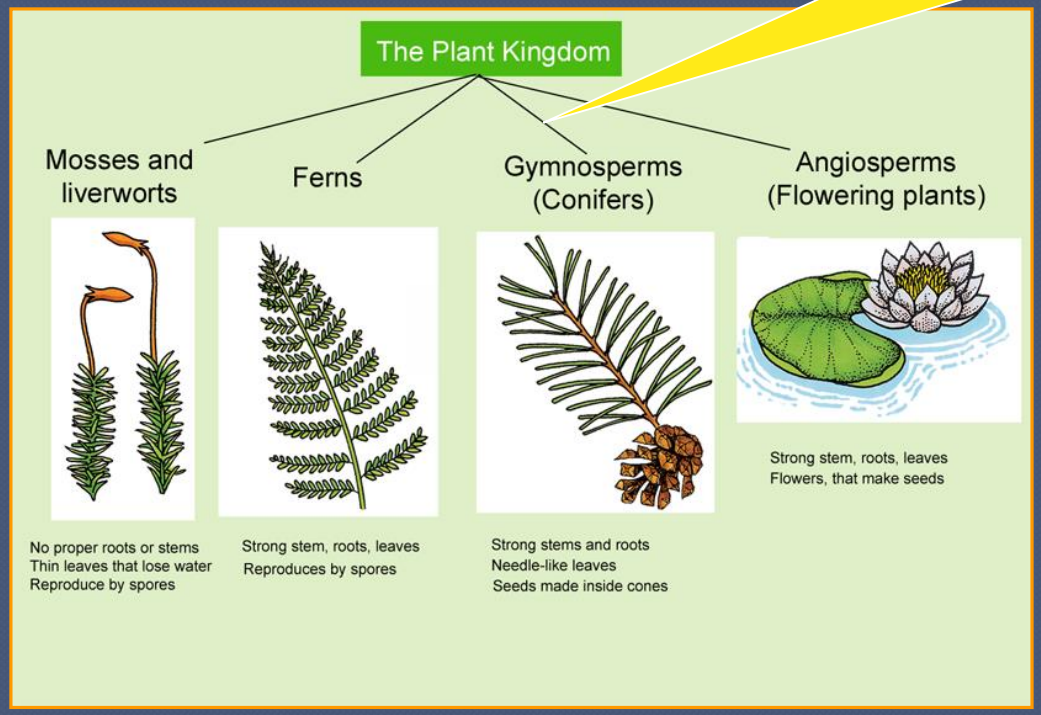
Finally, I made it! You got any questions?



# THANK YOU FOR YOUR ATTENTION