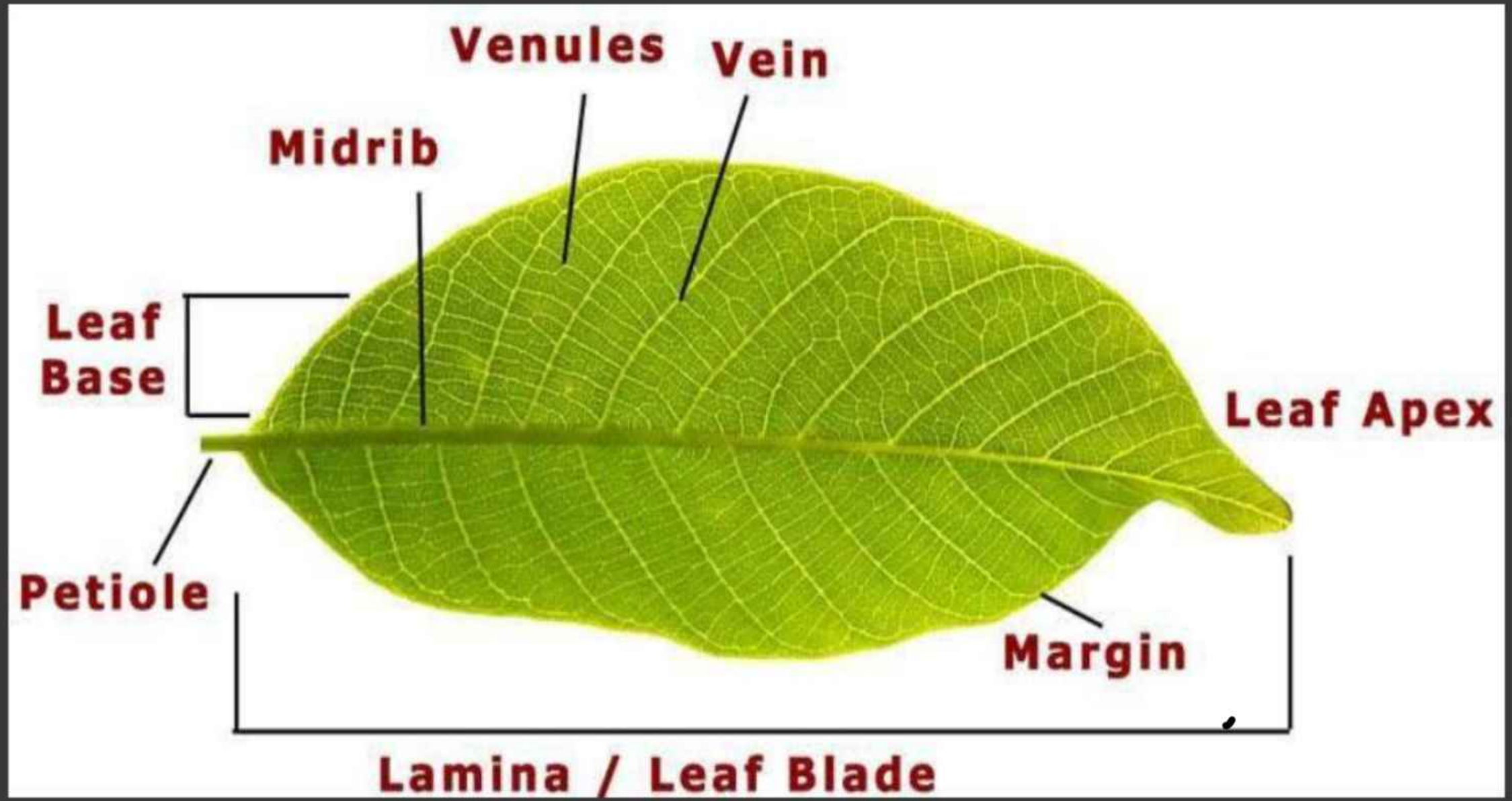
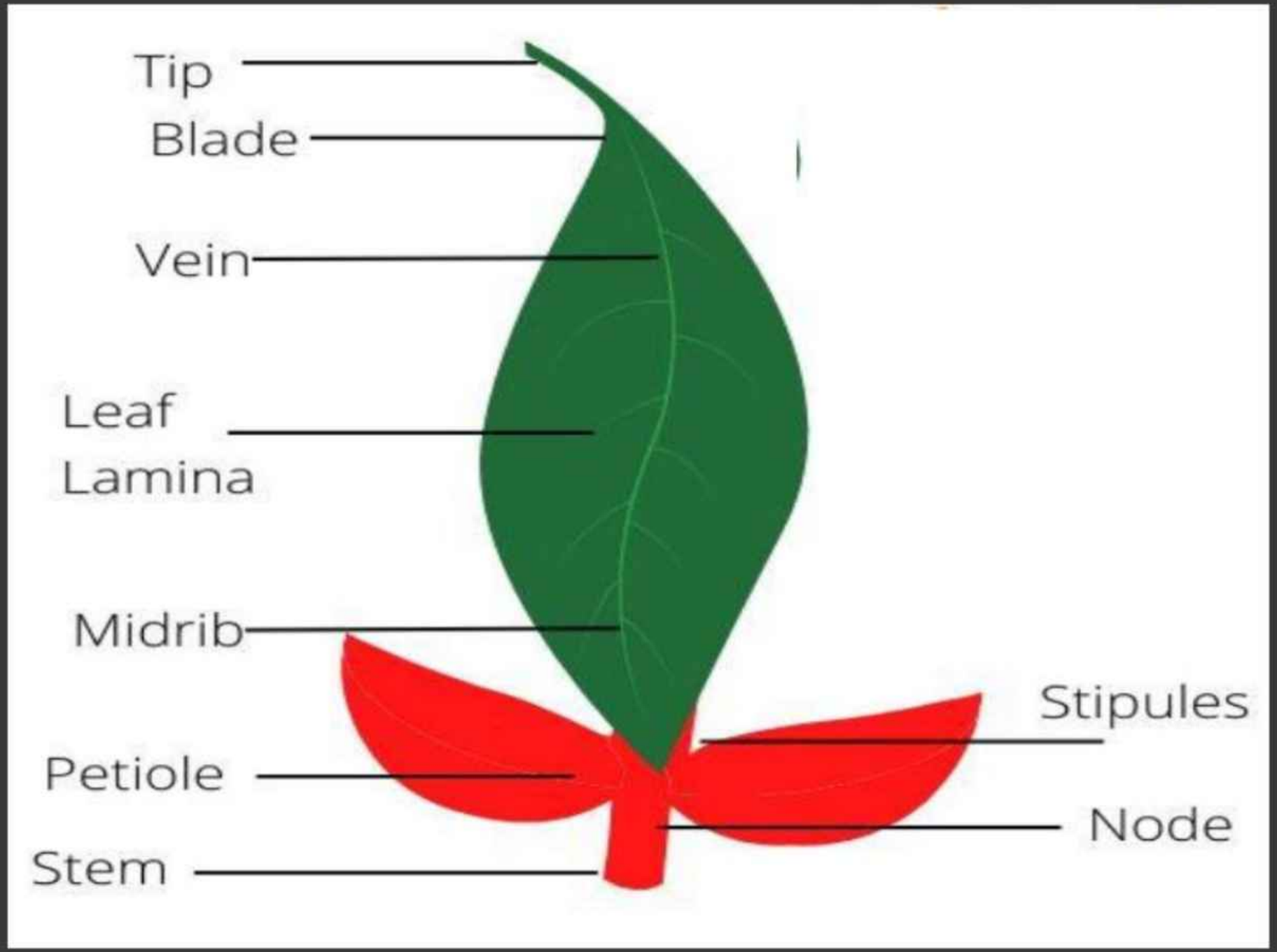
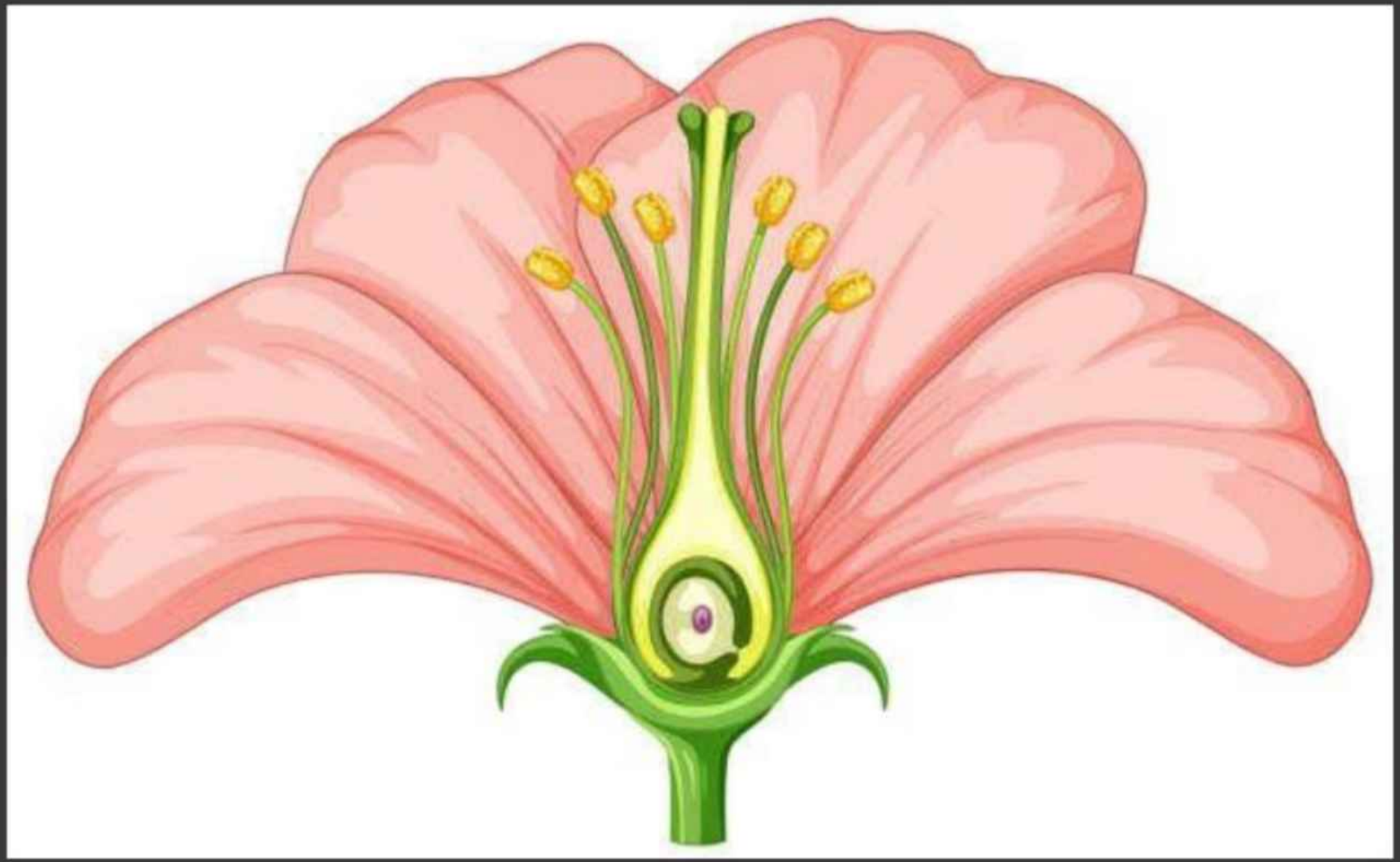
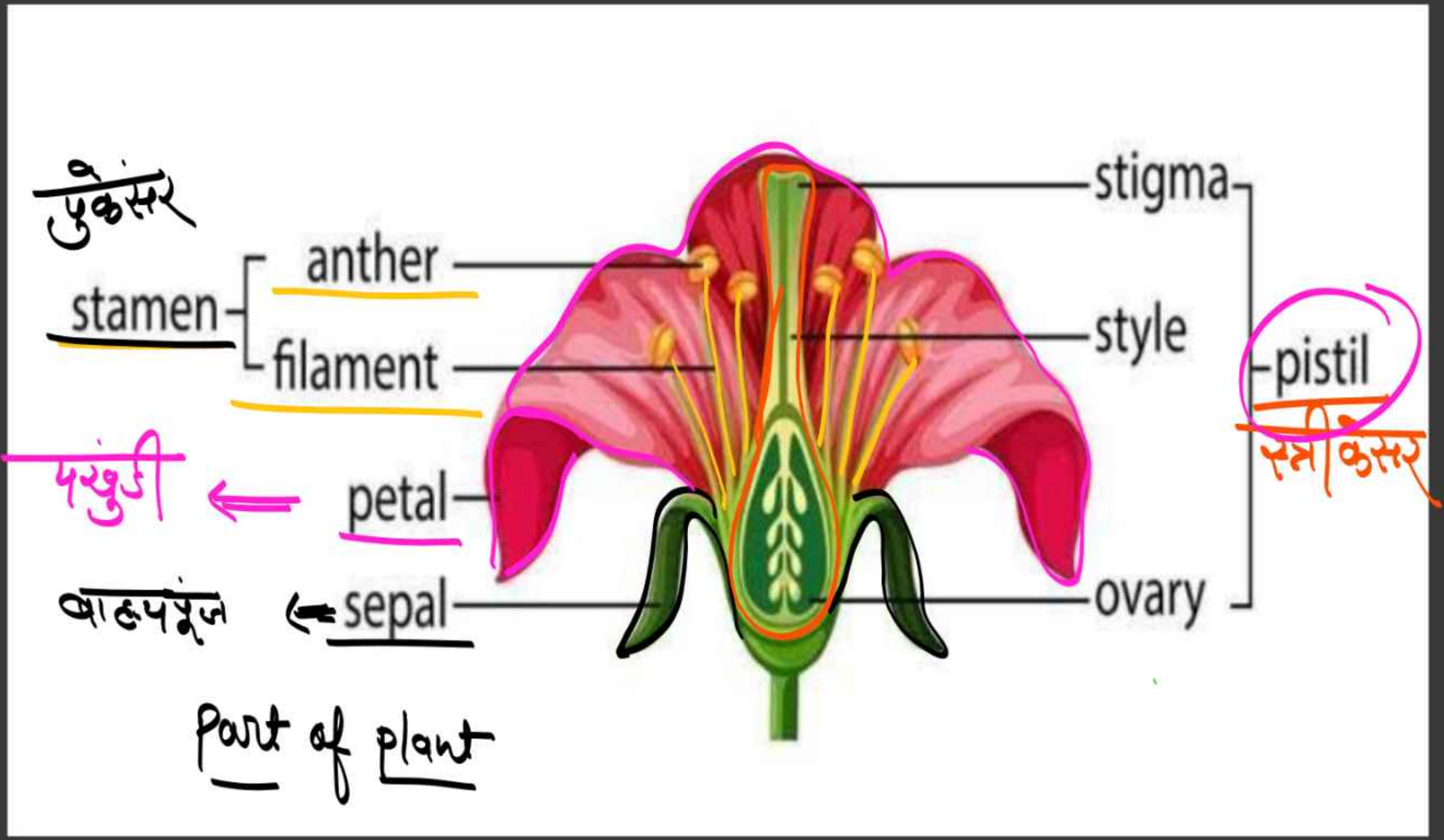

Venules
Vein
Midrib
Leaf
Base
Leaf Apex
Petiole
Margin
Lamina / Leaf Blade


Tip
Blade
Vein
Leaf
Lamina
Midrib
Stipules
Petiole
Node
Stem




पुंकेसर
anther
stamen
filament
पंखुडी
petal
बाह्यदल
sepal
stigma
style
pistil
स्त्रीकेसर
ovary
Part of plant

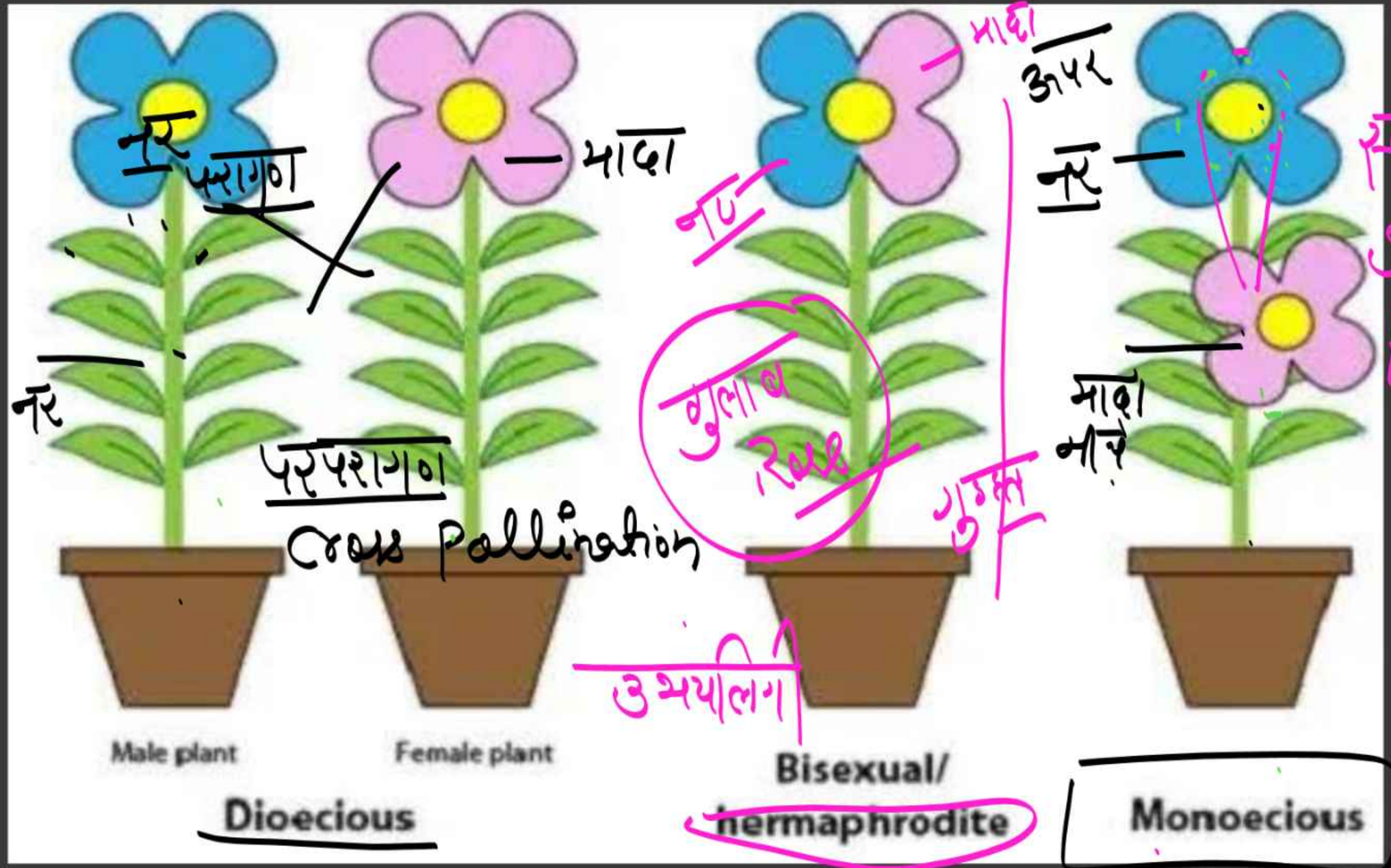
Monoecious	Dioecious
Male and female flowers occur on the same plant. Eg: coconut.	Male and female flowers occur on different plants. Eg: *Papaya*, date palm.
In some plants caster and maize autogamy is prevented. But geitonogamy occurs.	In this both autogamy and geitonogamy are prevented.

Monoecious
द्विलिंगी

→ नर पुष्प मादा पुष्प एक ही पौधे पर पाये जाते है.

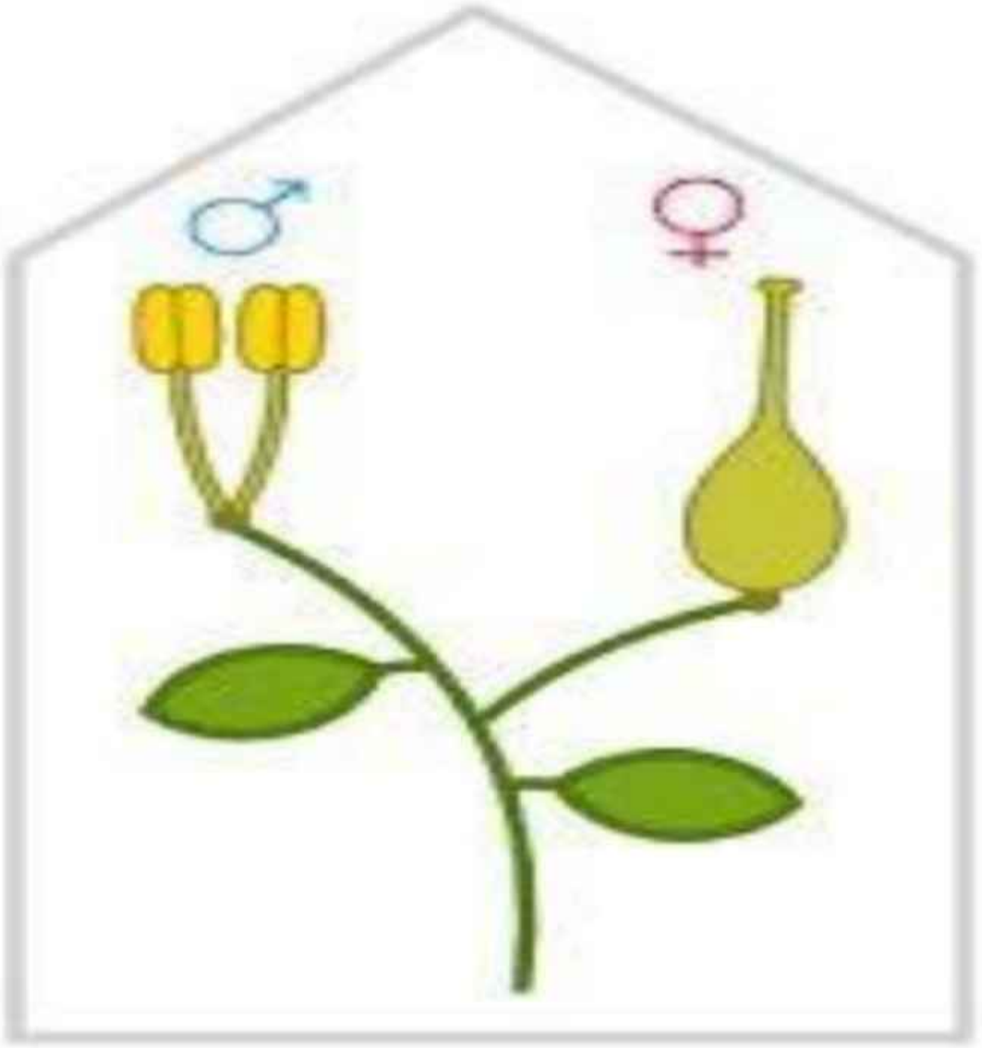
Dioecious एकलिंगी

नर पुष्प और मादा पुष्प अलग-2 पौधे पर पाये जाते है

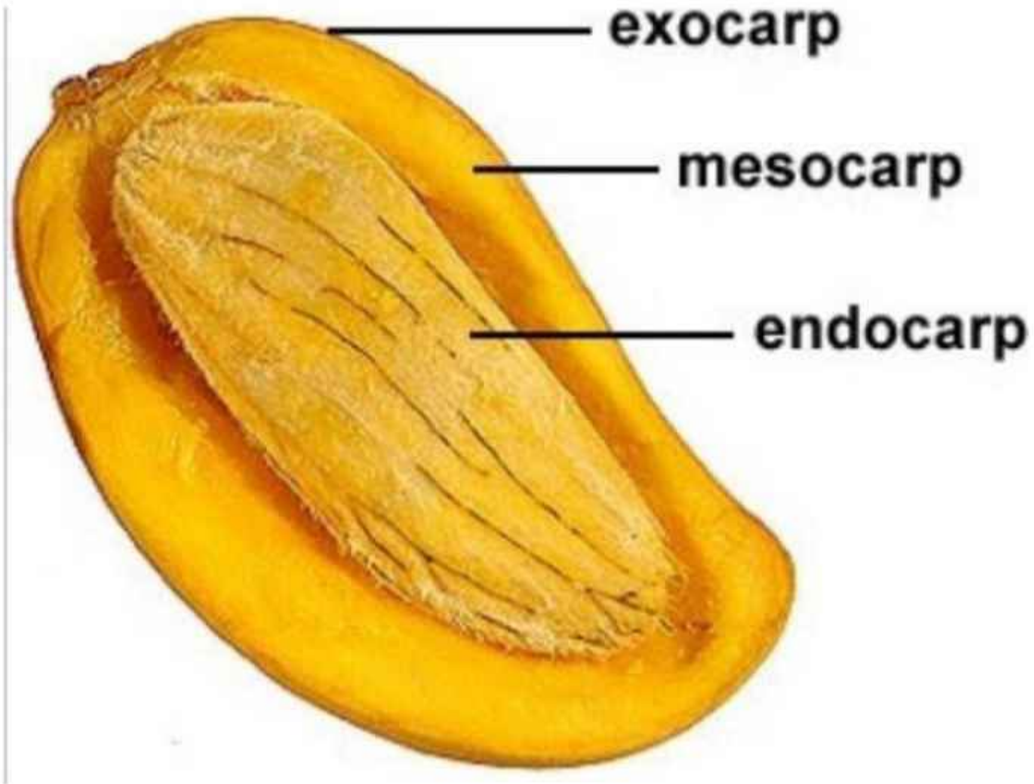

नर
परागण
मादा
नर
परपरागण
Cross Pollination
Male plant
Female plant
Dioecious
मादा
ऊपर
नर
नर
मादा
नीचे
स्वपरागण
Self Pollination
खुला व
रोड
युग्मक
उभयलिंगी
Bisexual/
hermaphrodite
Monoecious

पर परागण
Cross pollination

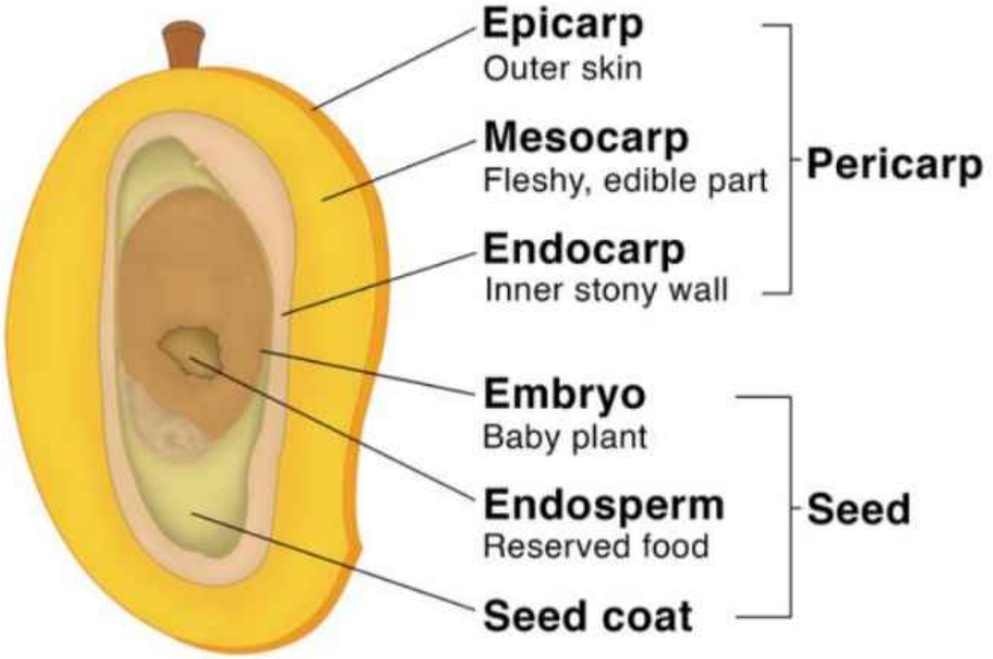


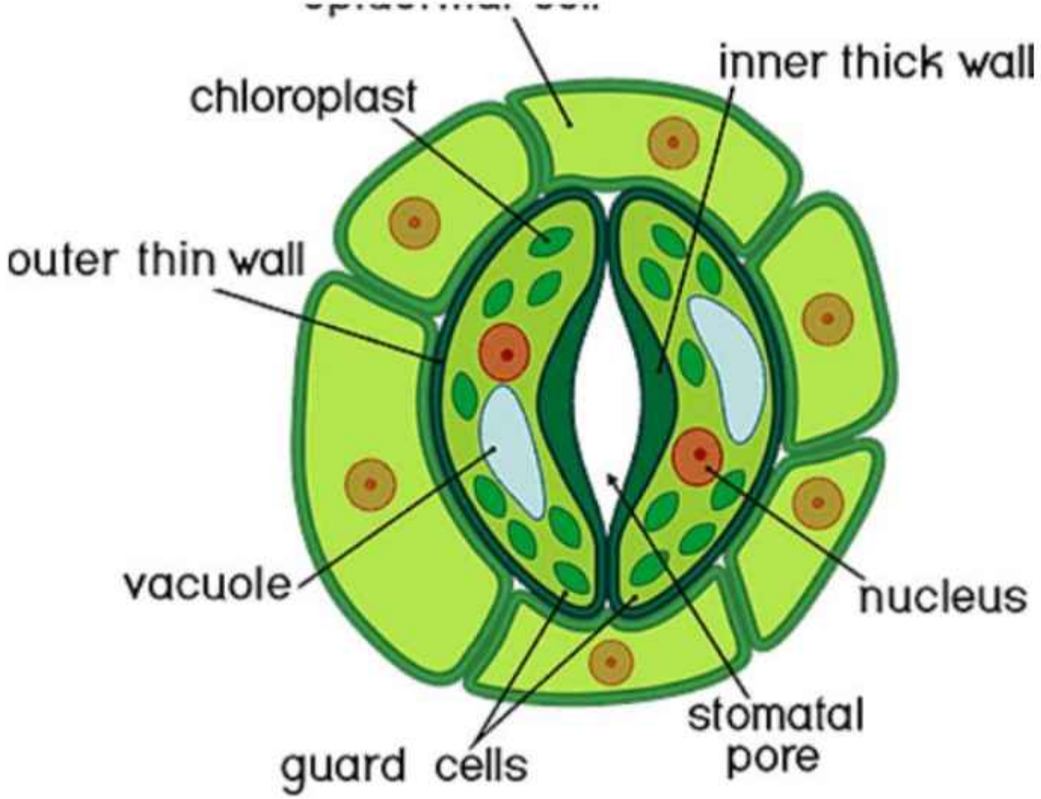


monoecious
plant


exocarp
mesocarp
endocarp

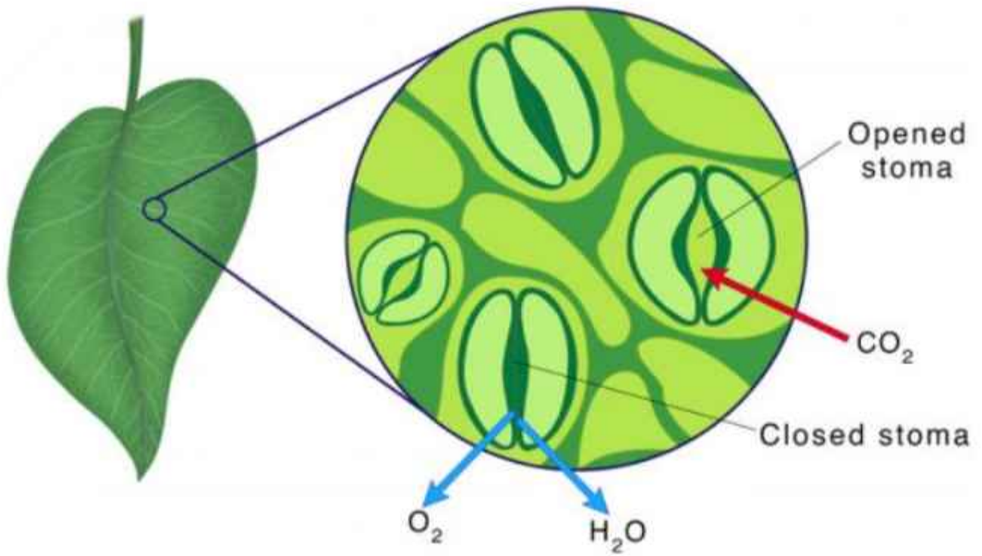
Parts of a Fruit




inner thick wall
chloroplast
outer thin wall
vacuole
nucleus
stomatal pore
guard cells

stoma open

Stomata



Plant Morphology
पादप आकारिकी

→ flower पुष्प

पादपों के प्रजनन अंग कहते हैं
Reproductive organs of plants

Parts of a flower
पुष्प भाग →
1. Sepal बाह्यदल → Protection → फूल को सुरक्षा प्रदान करना।
2. Petals पंखुड़ी ⟹ आकर्षित करने वाला भाग Attractive part
3. Steman पुंकेसर
4. Pistil स्त्रीकेसर

पुष्प के भाग Part of plant

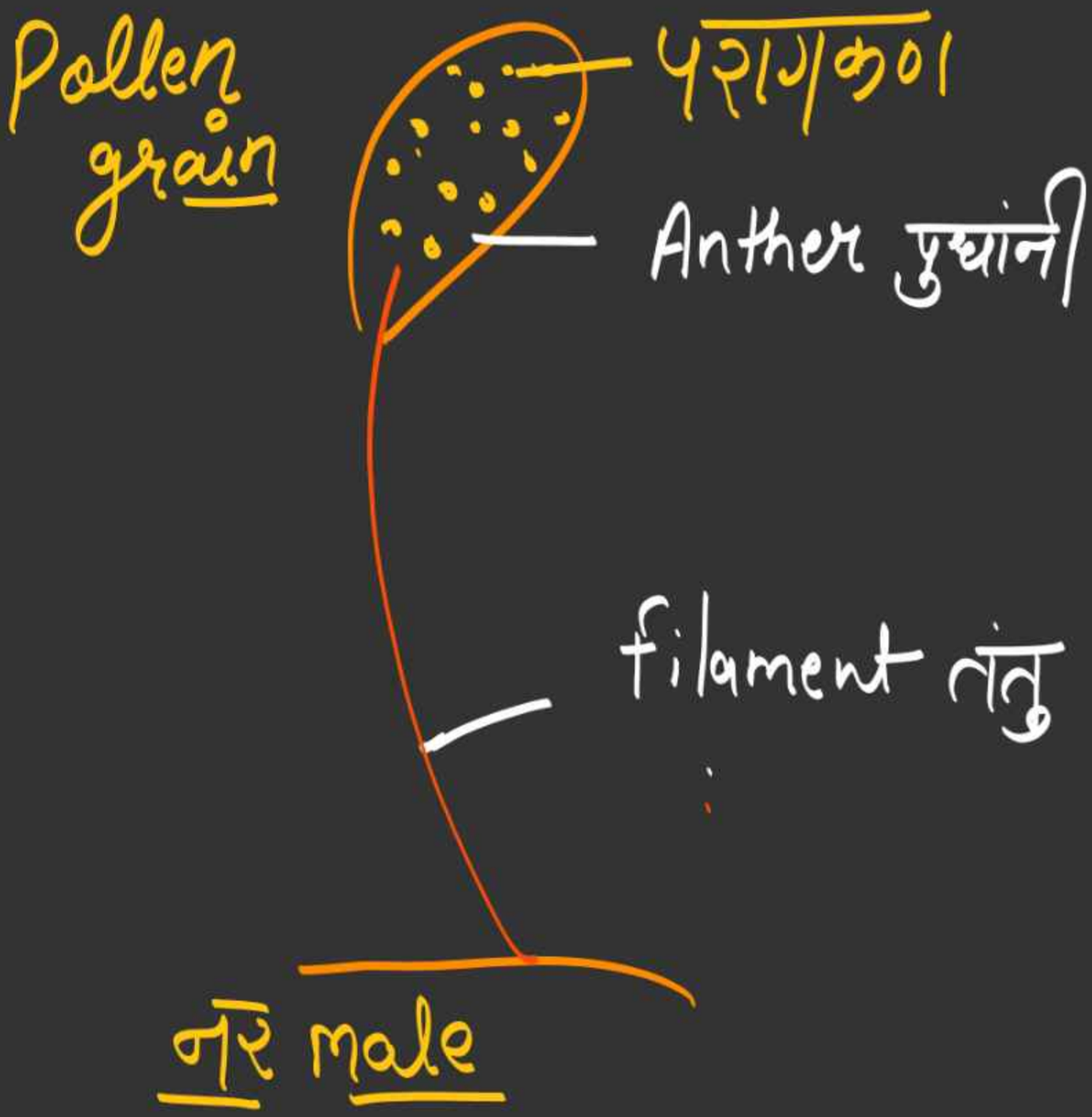
① Sepal बाह्यदलपुंज ⇒ पुष्प की सुरक्षा प्रदान करना
Provide protection

② Petals पंखुड़ी ⇒ सबसे आकर्षित करने वाला भाग
Most Attractive part of plant

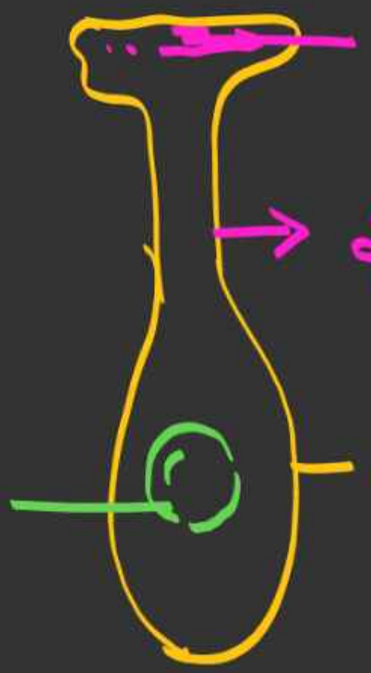
↳ समूह Group = Corolla कोरला

③ Steman पुंकेसर → पुष्प का नर भाग है Male part of flower

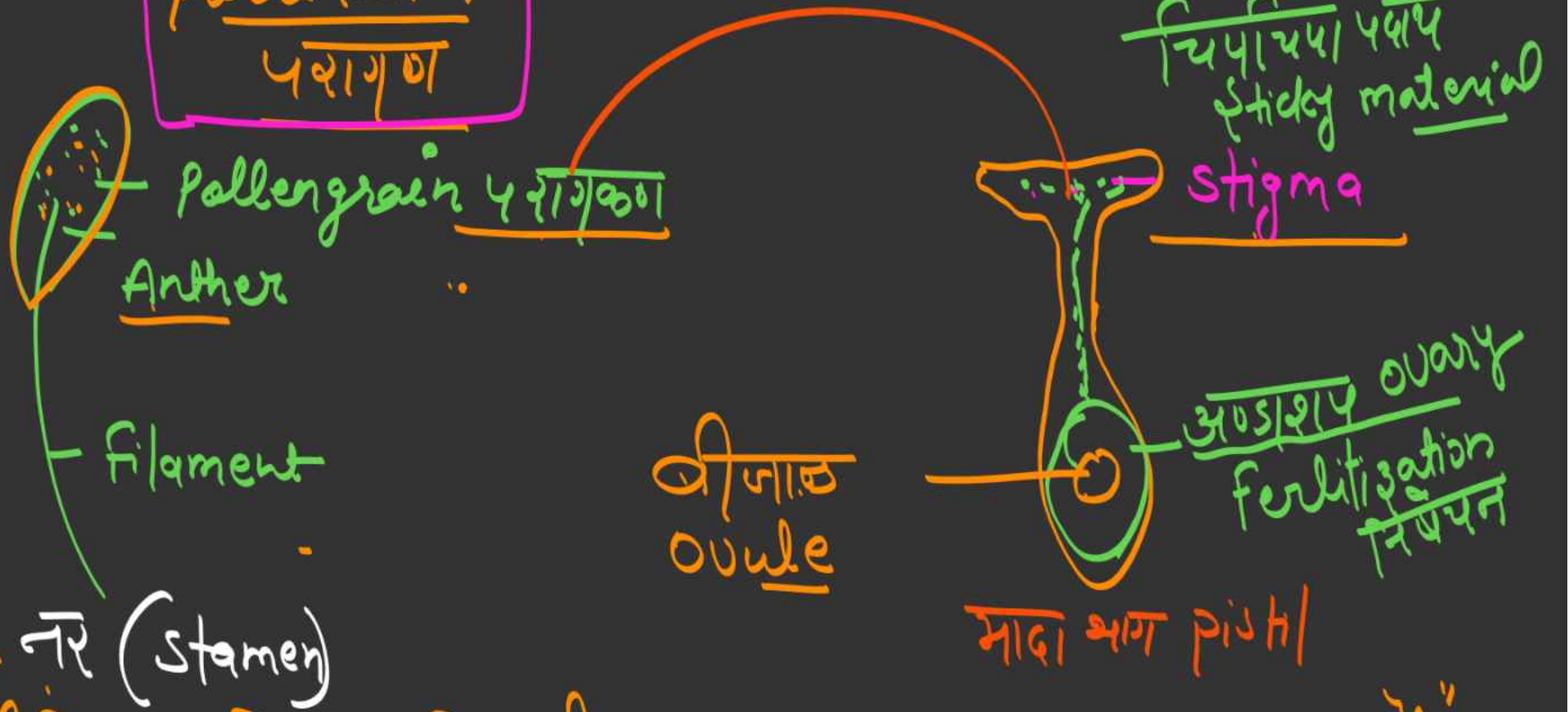
पुंकेसर ⇒
Stamen



(4) Pistil / स्त्रीकेसर ⇒ पुष्प का मादा भाग हो
female part



Pollination
परागण



"पुंधानी से परागकणों मादा के स्टीग्मा तक पहुचना परागण कहलाता है"

transfer of pollengrain from Anther to Stigma
का

Types of pollination
परागण के प्रकार

① वायु द्वारा परागण ⇒ Anamophily एनेमोफिली
By Air

② जल द्वारा परागण ⇒ Hydrophilic हाइड्रोफिलिक
By water

③ चमगादड़ द्वारा परागण ⇒ Chiroptrophily
By Bats कैरोप्टेरोफिली

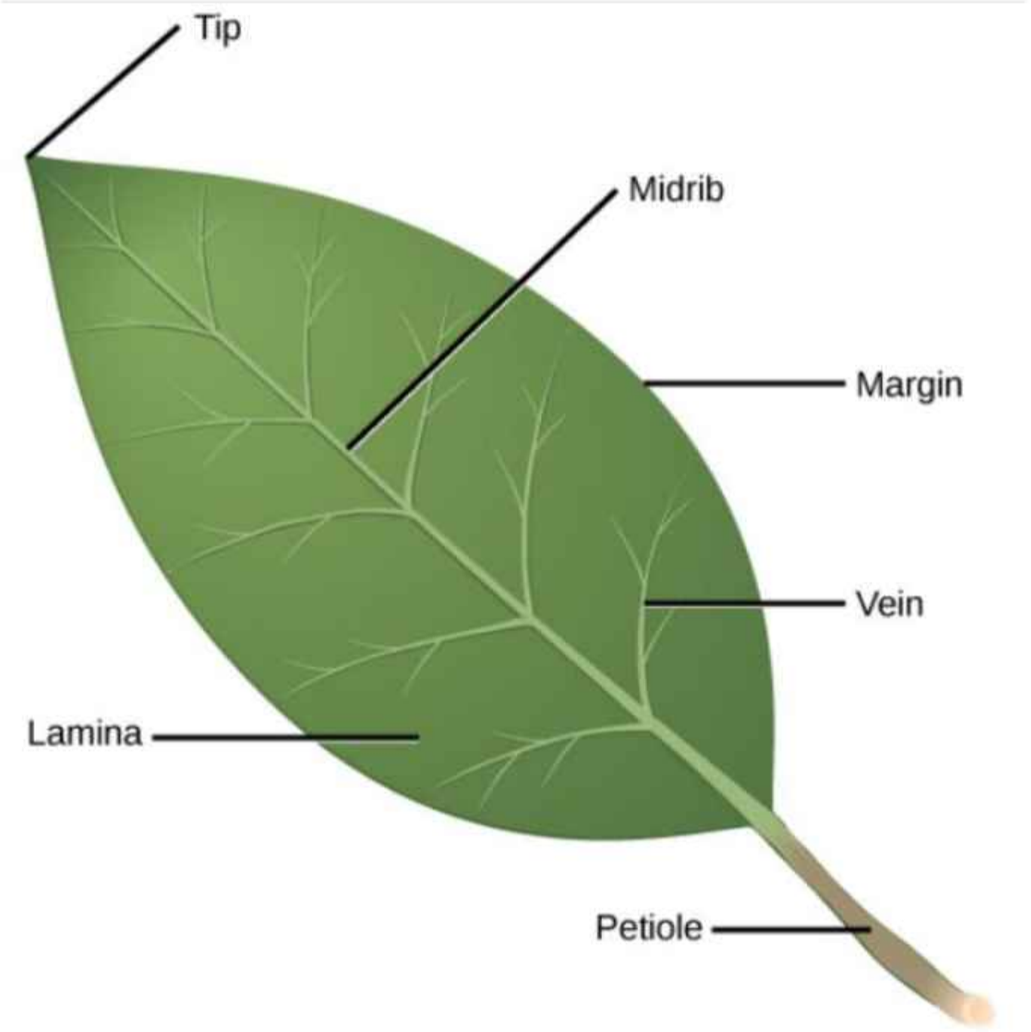
③ कीटों द्वारा परागण ⇒ Entomophily एन्टोमोफिली
By Insects

④ घोंघा / snail द्वारा परागण ⇒ Malacophily मैलैकोफिली

⑤ पक्षी द्वारा परागण ⇒ Ornithophily आर्निथोफिली
By Bird

⑥ जन्तु द्वारा परागण ⇒ Zoophily जुनोफिली
By Zoon

∴


Tip
Midrib
Margin
Vein
Lamina
Petiole

PLANT MODIFICATION

Modification of Root

To perform special functions the roots change their size and shape.



STORAGE OF FOOD
e.g. Beet root



MECHANICAL SUPPORT
e.g. Banyan tree



GASES EXCHANGE
e.g. Avicennia



SUCKING ROOT
e.g.Cuscuta

Modification of stem

Stem modified for storing the food materials and for vegetative propagation.



AERIAL MODIFIED
e.g. Cactus



SUB-AERIAL MODIFIED
e.g. Eichhornia



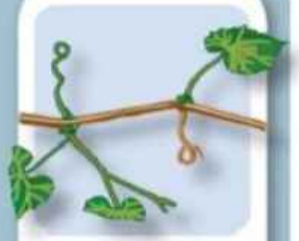
UNDERGROUND STEM
e.g. ColoCasia

Modification of Leaf

Leaves have changed themselves to adopt to their environment



SPINES
e.g.Opuntia



TENDRILS
e.g.Pisum



PHYLLODE



TRAPS
e.g. Nepenthus

Tendril: These types of stems are slender, spirally coiled, which help a plant to climb. Example: Passiflora, Grapevine etc.

Bulbil: These are modified axillary buds which become fleshy and swollen due to the storage of food. They help in vegetative propagation to form a new plant. Example: Dioscorea.

Thorn: These are hard, woody, and pointed structures that protect plants from grazing animals. It originates from the axillary or terminal bud. Example: roses, citrus, bougainvillea, duranta etc.

Cladodes: These are non-fleshy and cylindrical that contain only one internode. Example: Asparagus, butcher's broom.

Phylloclade: These are green, fleshy, and flattened or cylindrical branches containing chlorophyll and photosynthesis. This modification is found in xerophytic plants and stores water. Example: Opuntia, Casuarina,

Aerial stem



Passiflora (Tendril)



Dioscorea (Bulbil)



Bougainvillea (Thorn)



Asparagus (Cladodes)



Opuntia (Phylloclade)

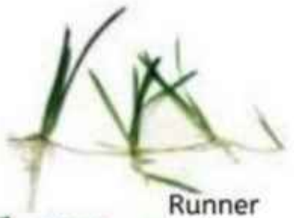
Runner: It is a creeper that runs horizontally along the surface of the soil. Runners have long internodes. The nodes have scale leaves, adventitious roots, and auxiliary buds. An underground runner is known as sobole. Example: Grass, Cynodon, Oxalis.

Offset: These are shorter and thicker than the runner with a single internode. It originates from the leaf axis and grows horizontally. Offsets are often found in aquatic plants like water lettuce, water hyacinth, etc.

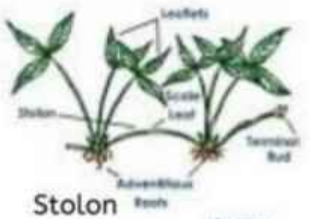
Stolon: It grows above ground for some time and then bends towards the ground until it touches the ground. Stolon arises from the lower part of the main axis. Example: Jasmine, colocasia, etc.

Sucker: The sucker stem is very similar to the stolon, but it grows obliquely upwards and gives rise to a new plant. Example: Garden chrysanthemum, strawberry, pineapple, mentha, etc.

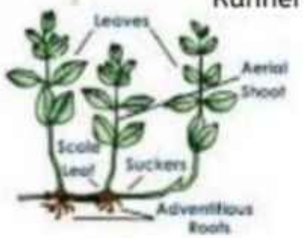
Sub-Aerial Stem



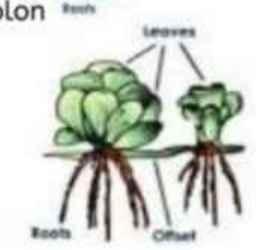
Runner



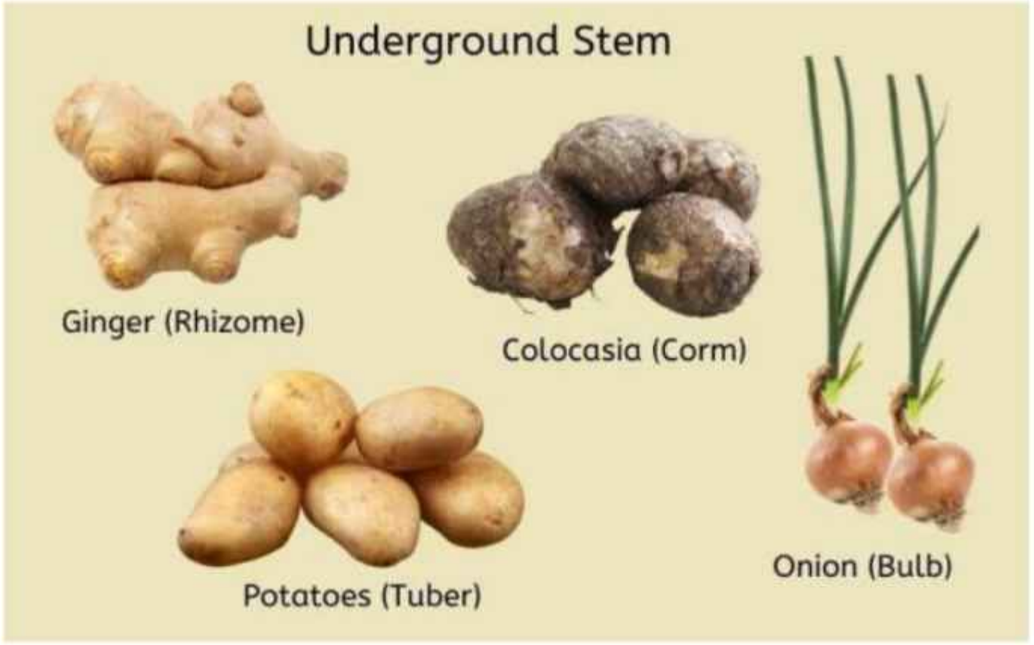
Stolon



Sucker



Offset


Underground Stem
Ginger (Rhizome)
Colocasia (Corm)
Potatoes (Tuber)
Onion (Bulb)


Underground Stem
Aerial Stem
Sub-Aerial Stem
Rhizome
Corm
Bulb
Tuber
Phylloclades
Cladodes
Thorns
Runner
Stolon
Sucker
Offset