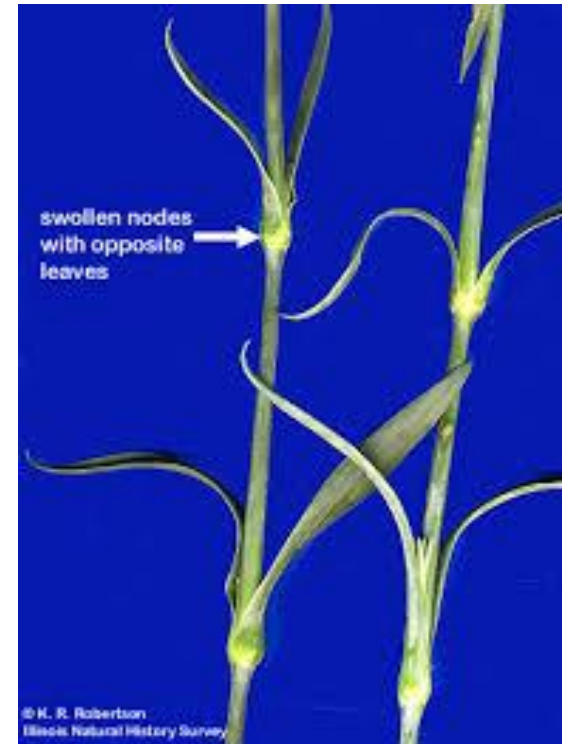
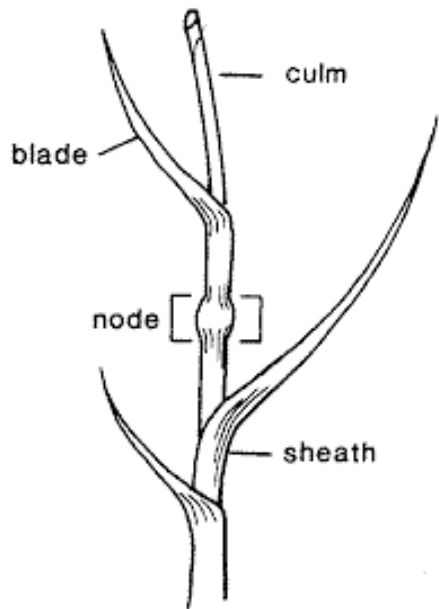


# THE STEM



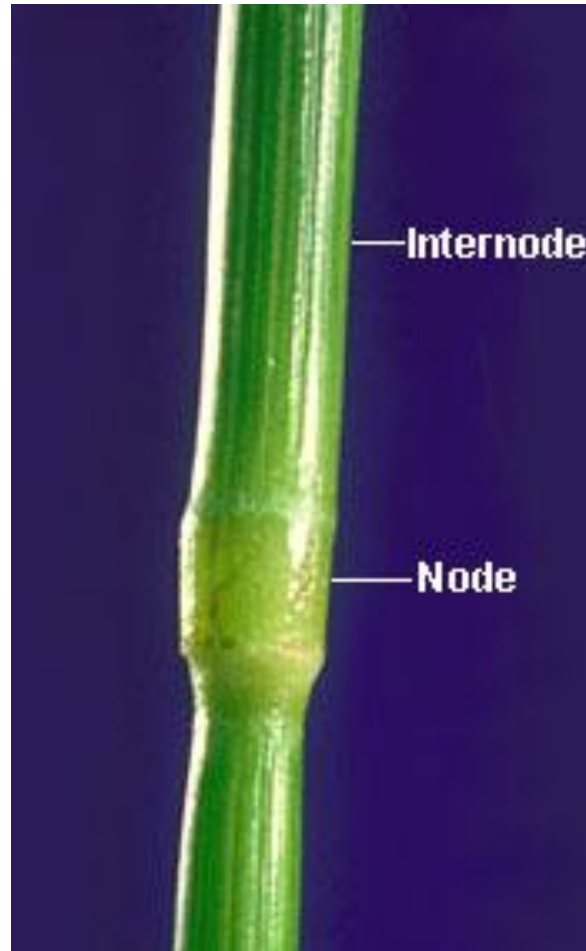
# SWOLLEN NODE



## الندب تدل على مكان العقد



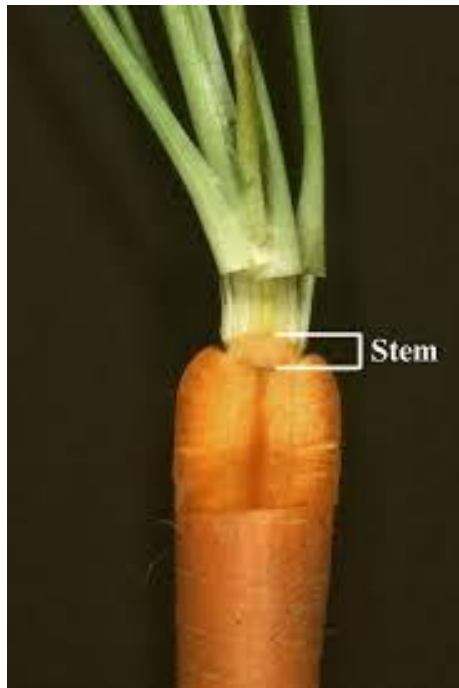
# Jointed node



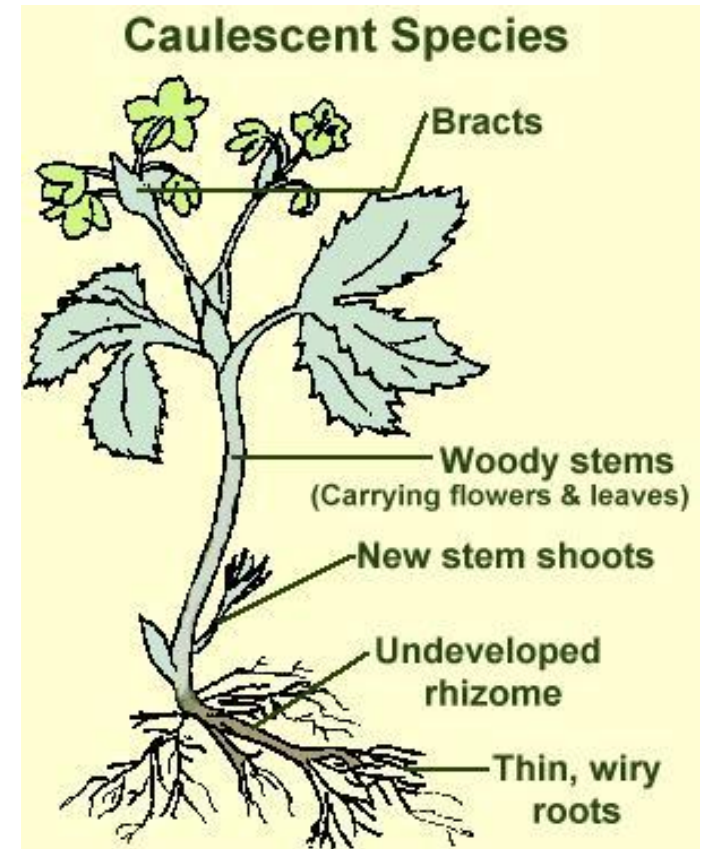
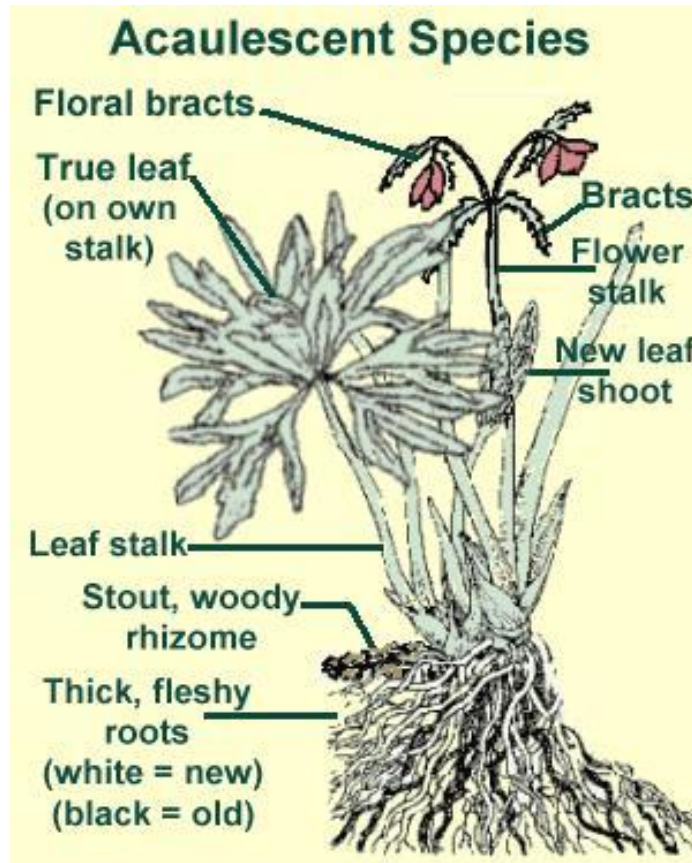
# Long internode



# Short internodes



# acaulescent لاساقي --- caulescent ساقلي

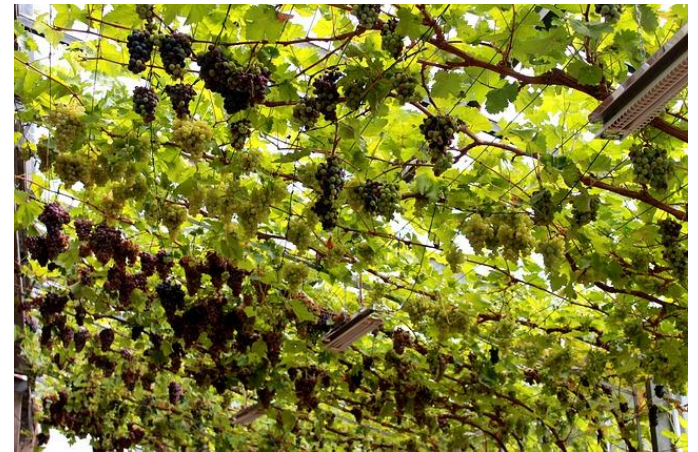
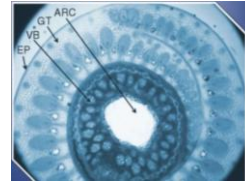




k0880546 www.felipeach.com







# Aerial stems السيقان الهوائية

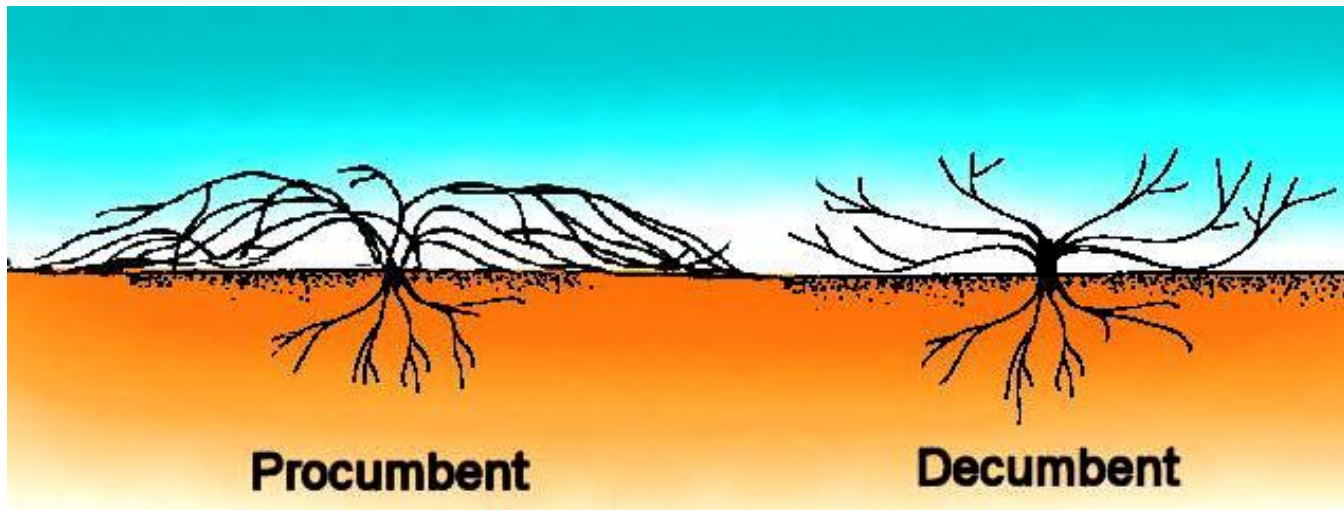
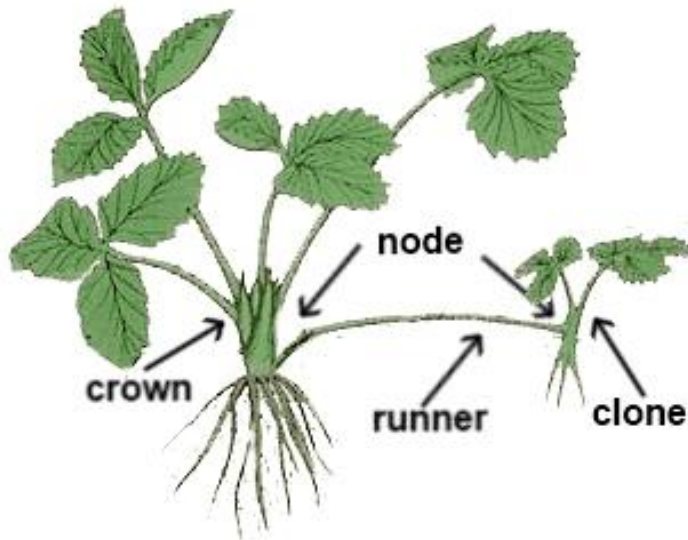
**ascending**

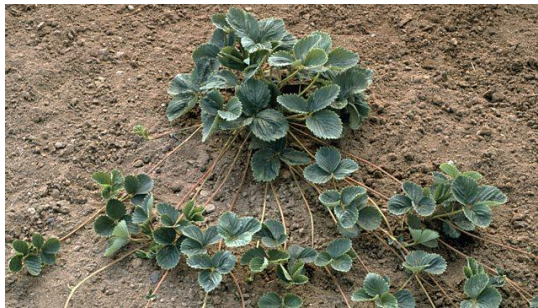


**erect**



# runner ----- prostrate

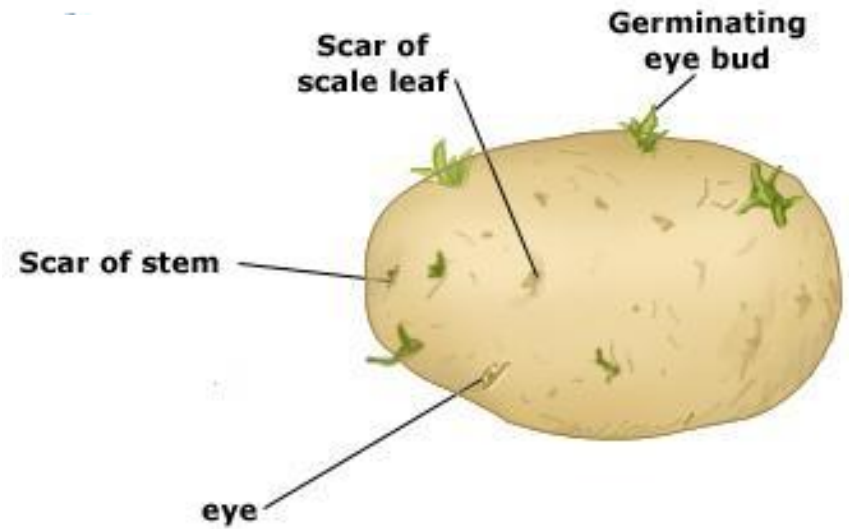




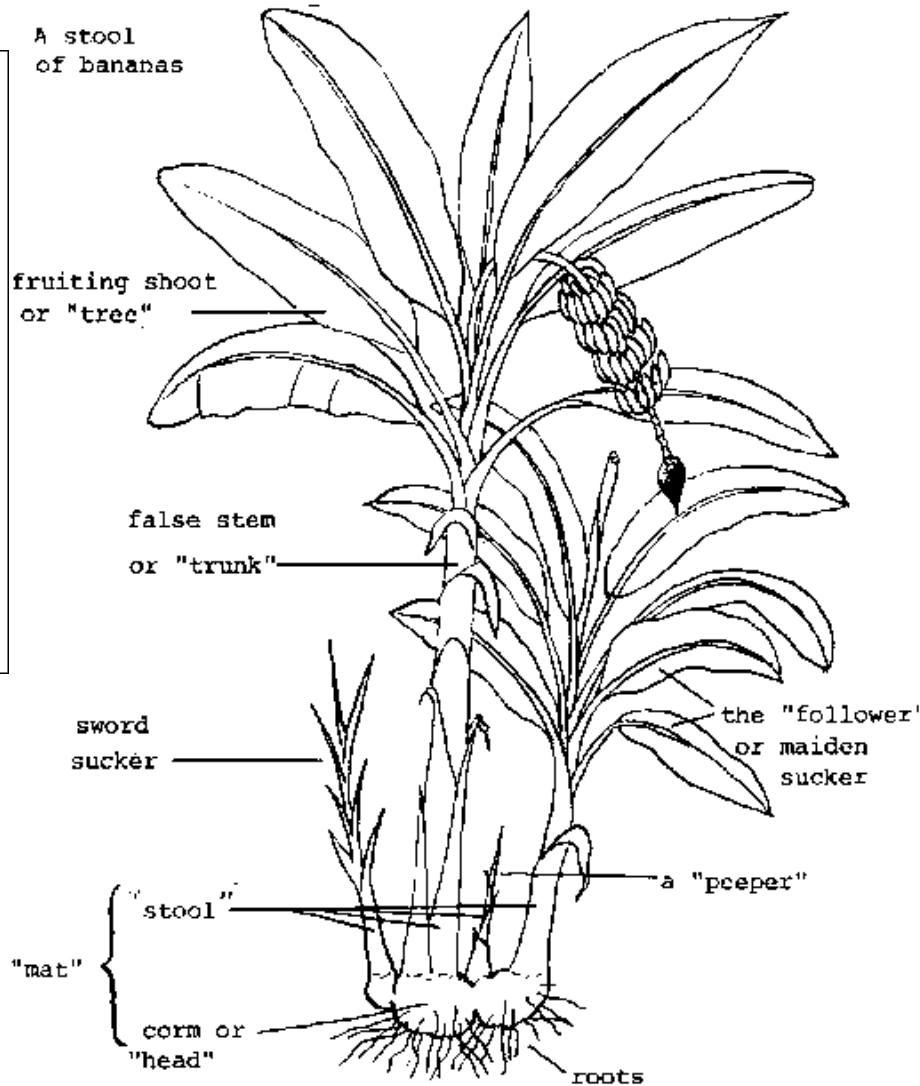
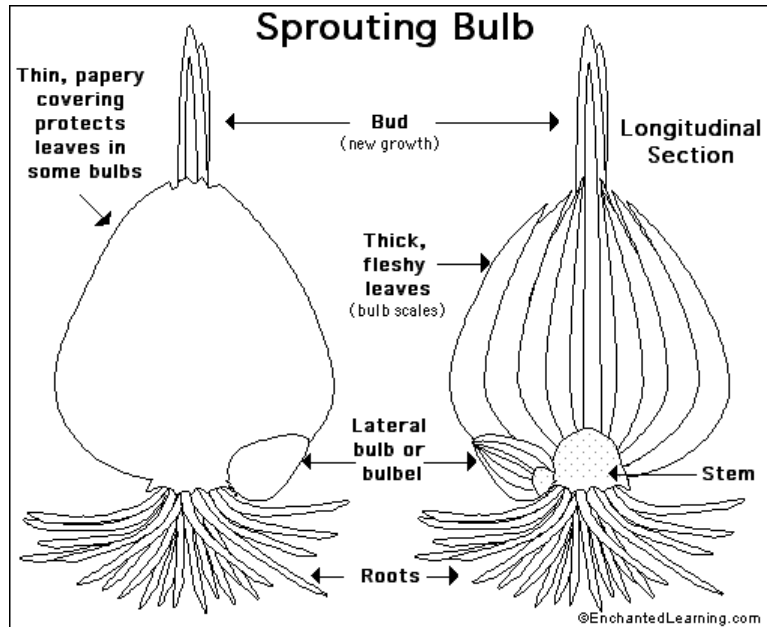
# Twiners ----- Climbers



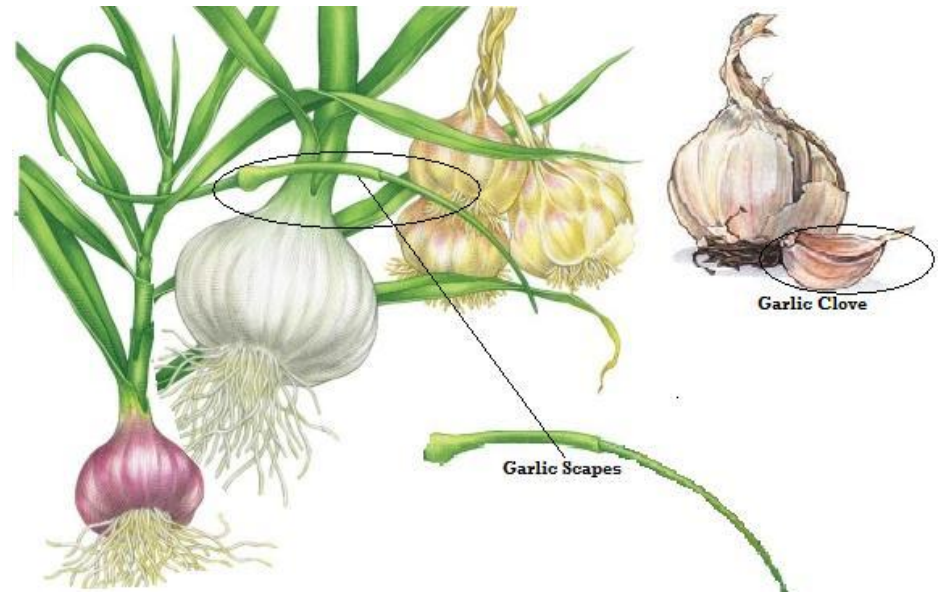
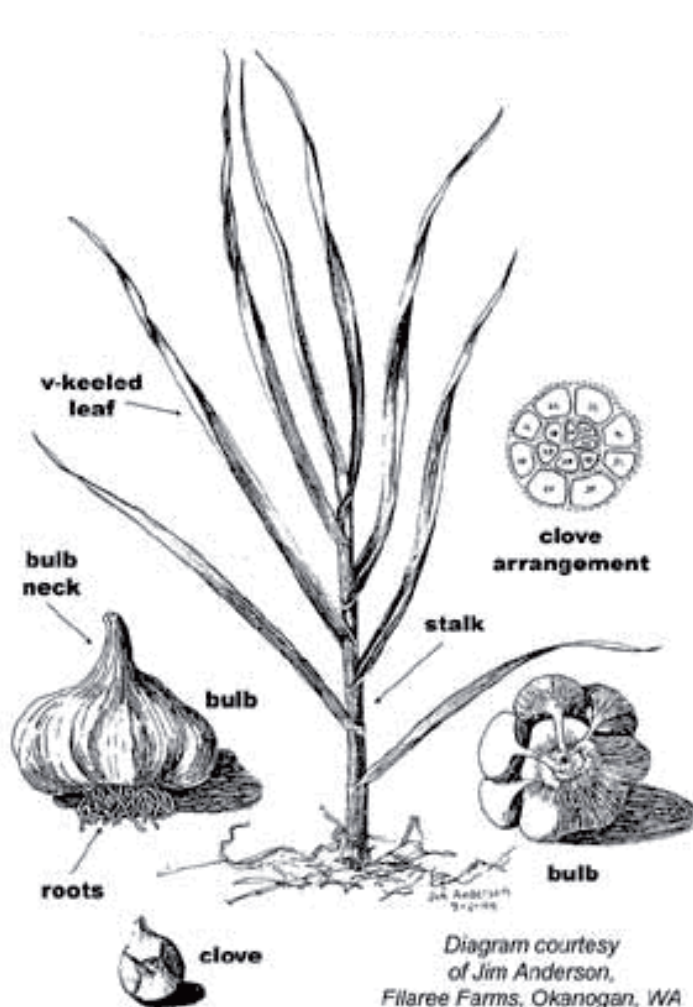
# Rhizome ----- Tuberos



# Bulb ----- Corm



# Bulbils





# تحورات السيقان الترابية:

cladophyll •



# Spiny (thorny)----- Tendriller



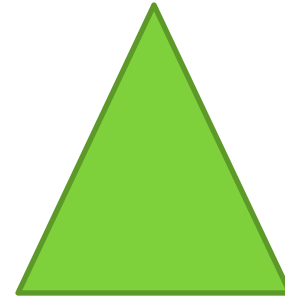
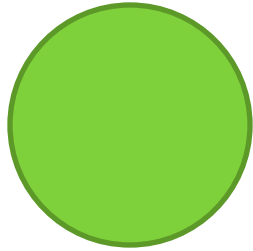
# Phylloclade



# Prickles on rose stem



Cylindrical ----- Triangular



Flattened ----- Quadrangular •



# Submerged ----- Free floating



# Parasitic plants



# (The bud البرعم)

## Types of Buds

by Location



Terminal



Axillary



Adventitious

by Status



Accessory



Pseudoterminal



Dormant

by Morphology



Scaly



Covered



Hairy



Naked

by Function



Vegetative



Reproductive



Mixed bud

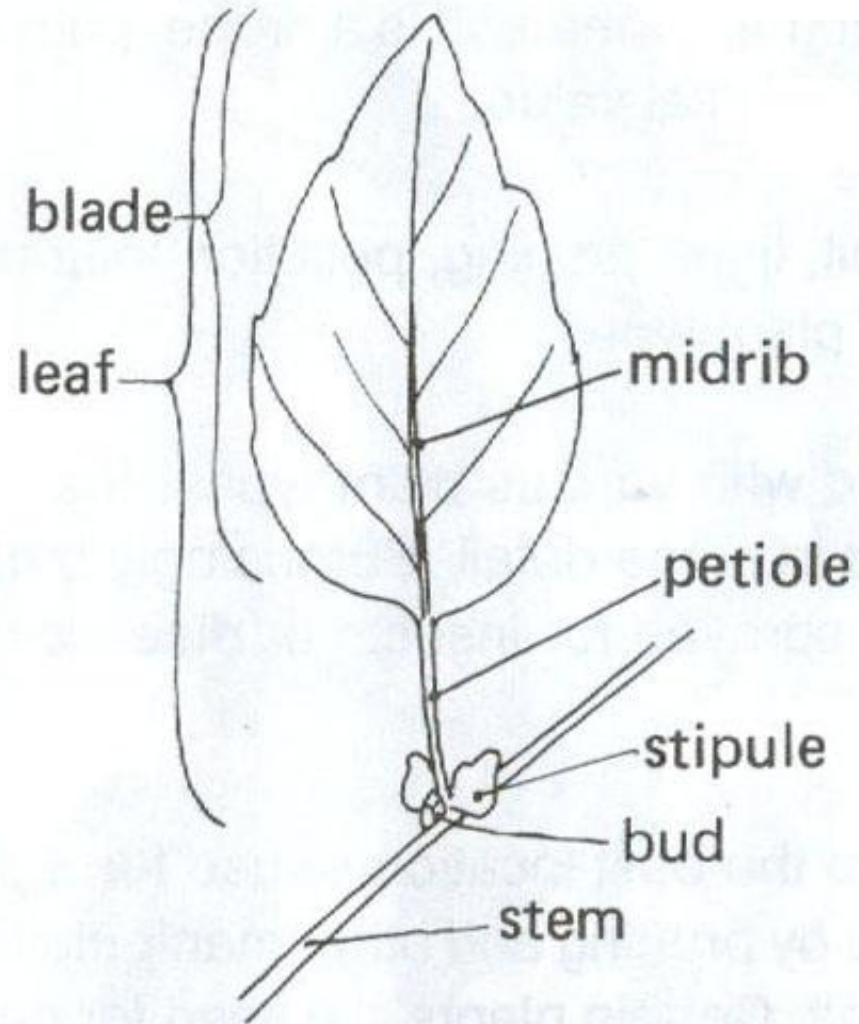


# (The leaf الورقة)

*Proserpinaca* (mermaid weed) •

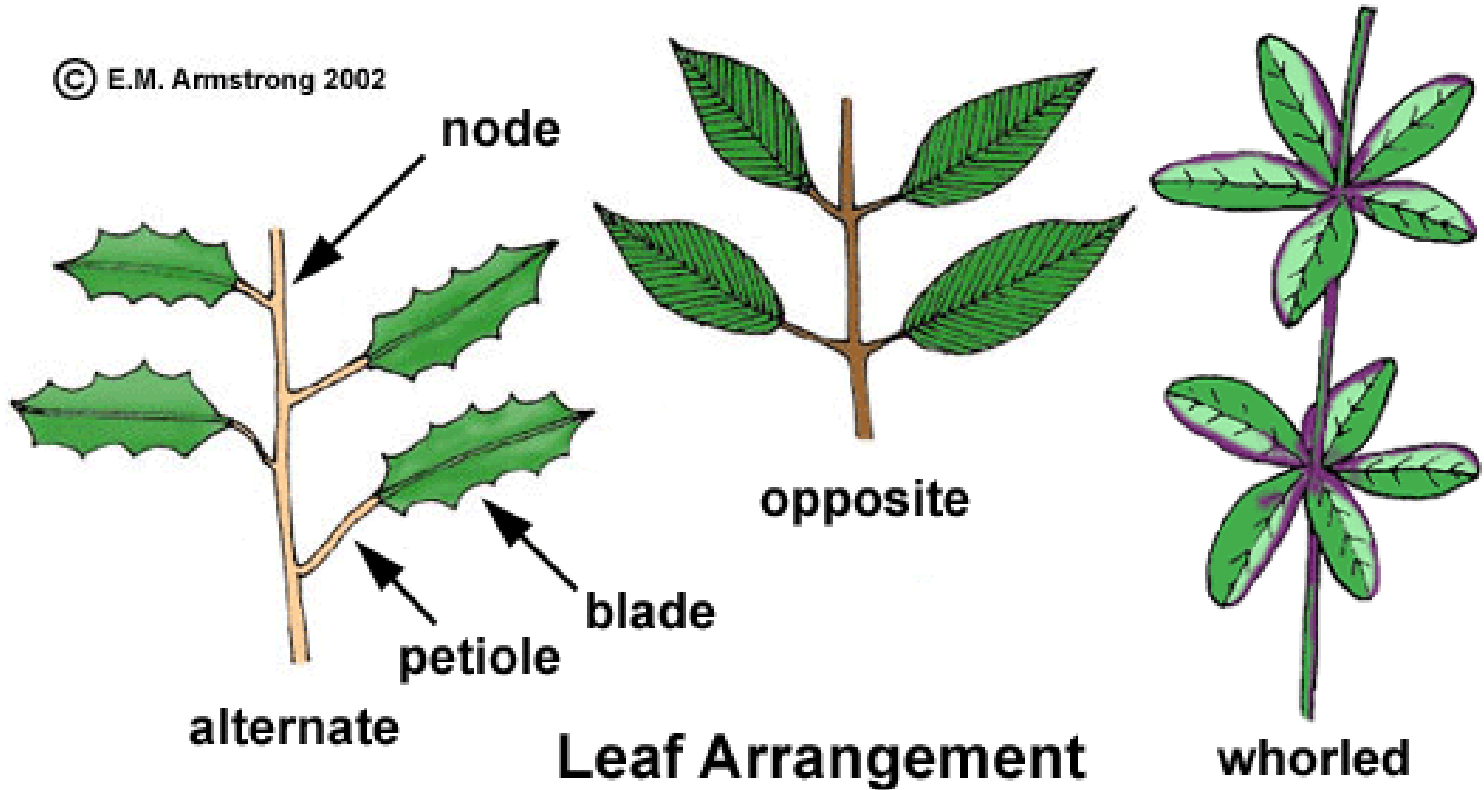


# Typical leaf



# تترتب الاوراق phyllotaxy

© E.M. Armstrong 2002





simple  
leaf

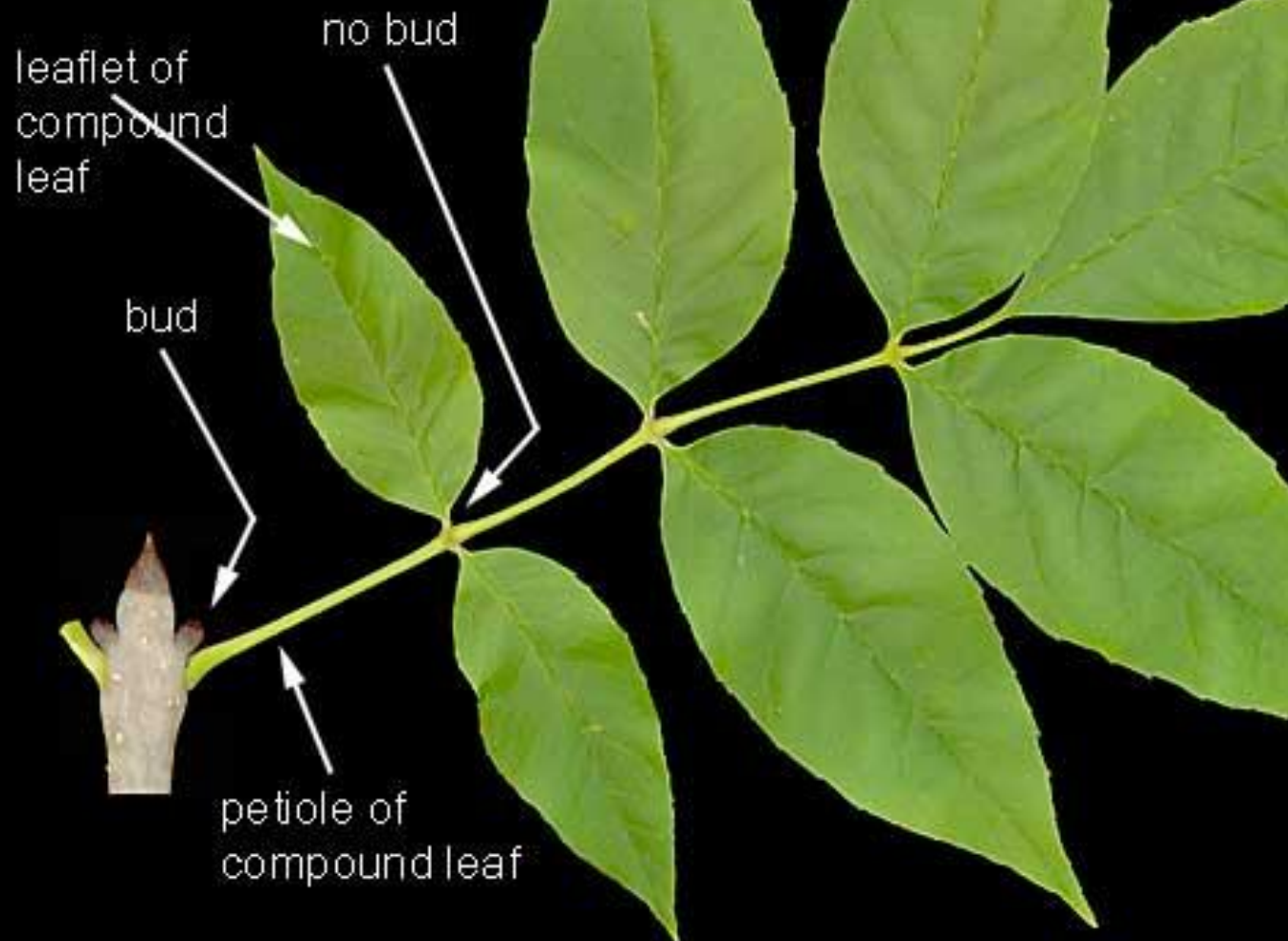


leaflet

compound  
leaf

# Compound leaf

note that there is a bud at the base of the petiole, but not at the base of the leaflets



# Compound leaf



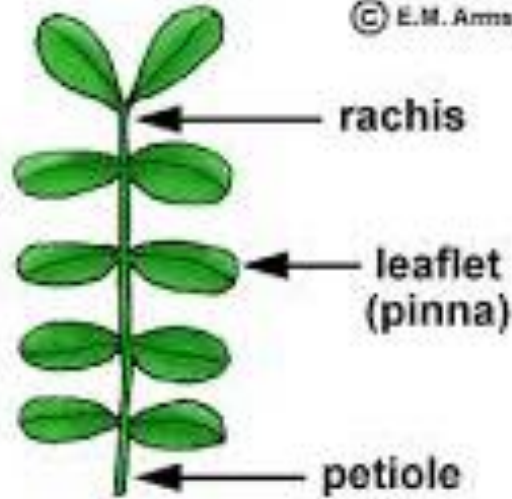
Pinnately •



Palmately •

# Paripinnate ---- Imparipinnate

© E.M. Armstrong 2002



even pinnate



odd pinnate



# Unifoliolate ----- Bifoliolate

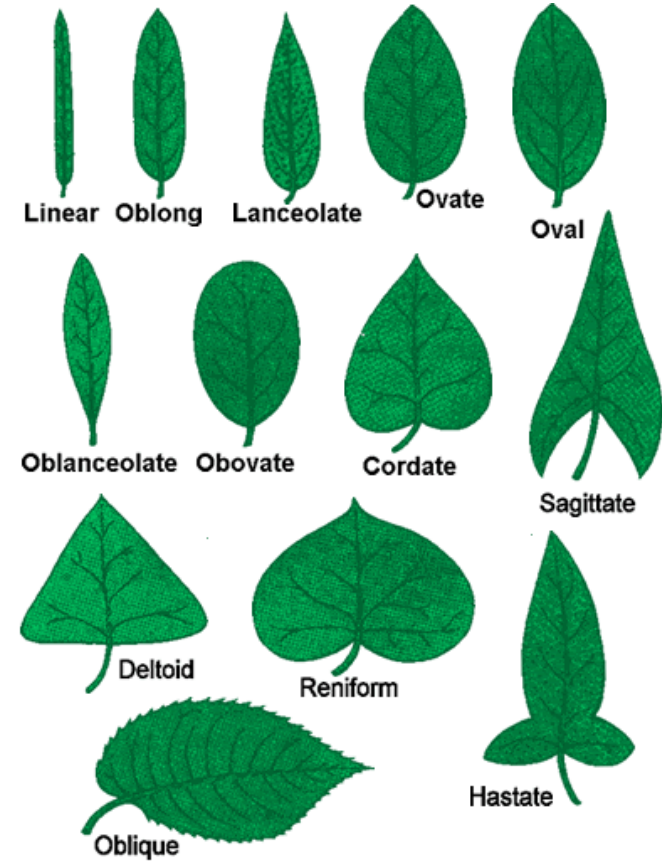
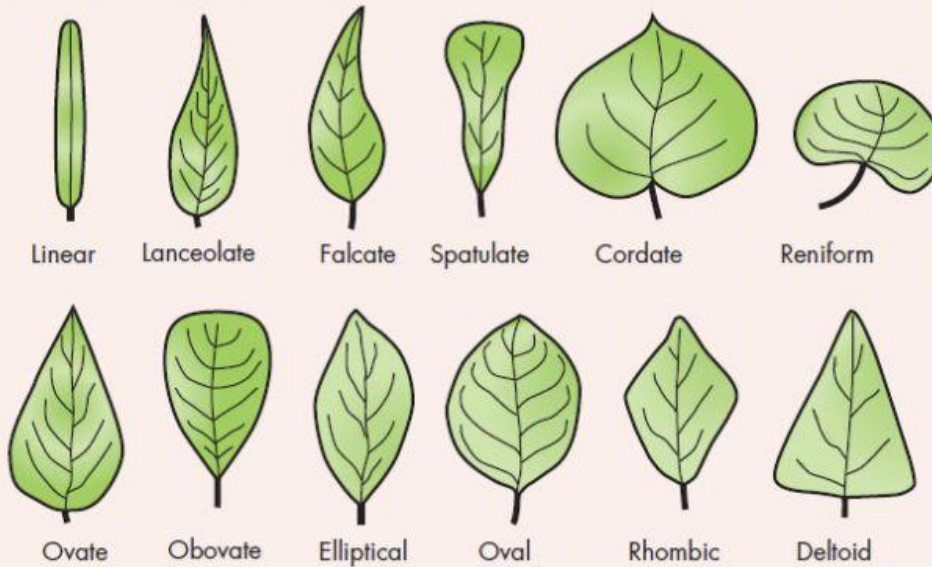


# Trifoliolate ----- Multifoliolate ●





# Blade shapes



Acicular ●



Linear ●



Tubular ●



Subulate ●



● Oblanceolate



Lanceolate ●



Oblong ●

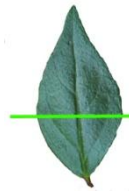


Elliptical ●

## Obovate ●



## Ovate ●



## Obcordate ●



## Cordate ●





Reniform ●



Deltoid ●

Orbicular ●



Peltate ●





Spatulate ●



Sagittate ●



Hastate ●



Pectinate ●

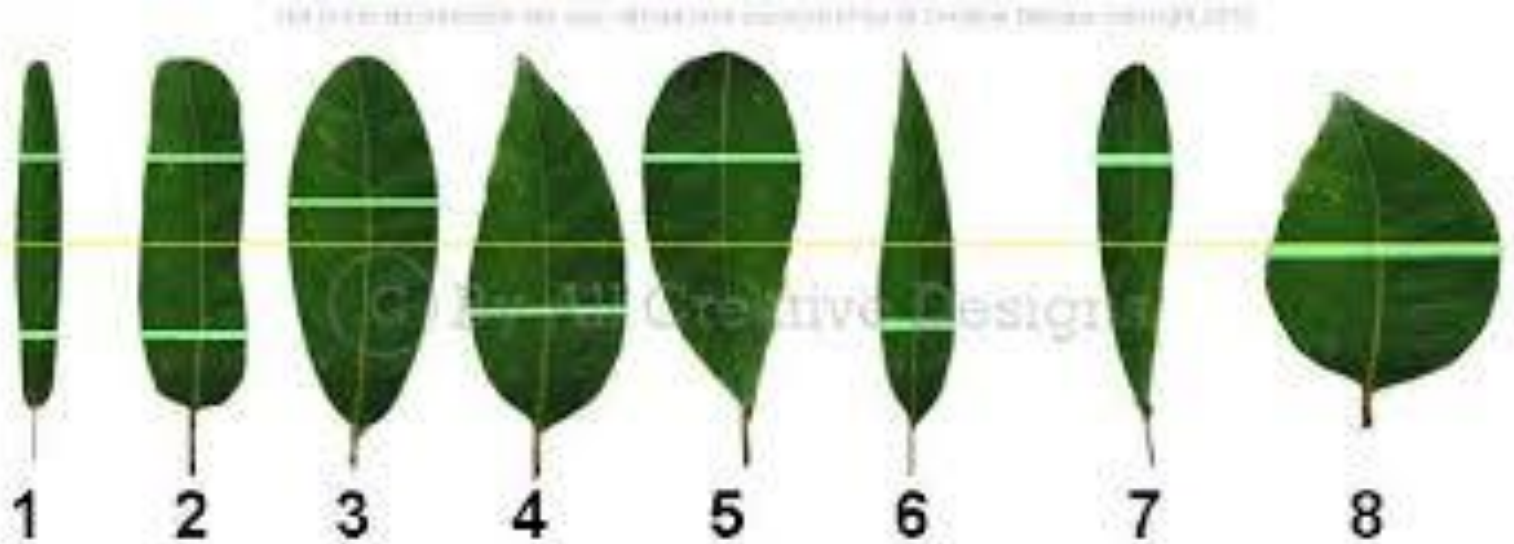


Fan-shaped ●



المعين Rombic ●

# Name the shape of these leaves:





# Blade apex types:



● حادة acute:



● مستدقة acuminate:

● مهمازية mucronate:





© AFP/GETTY IMAGES



aristate

● سفاتية :aristate



● مذنية :caudate



● دائرية obtuse:



● مقروضة (مثلومة) retuse:



● الغائرة emarginate:



● قلبية مقلوبة :obcordate



● شوكية :cuspidate

# Name these apices:

Common Leaf Tip (Apices) Shapes copyright



1



2



3

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4



5

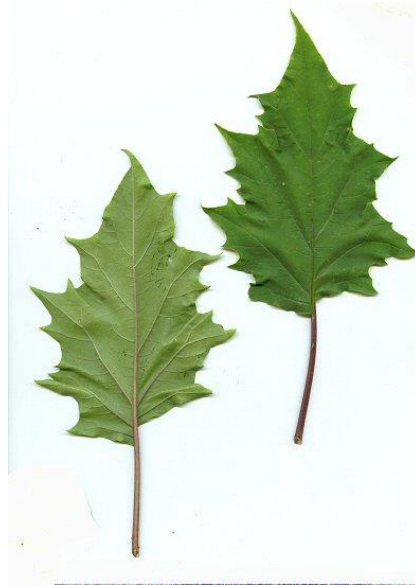


6

● مستقيمة truncate



● مائلة oblique



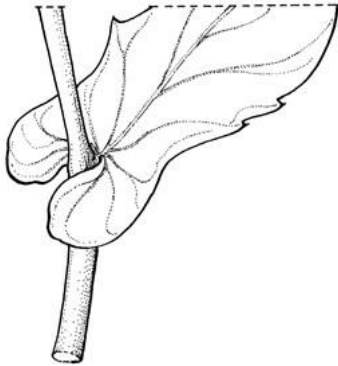
Datura innoxia leaf  
Photo by Erward, © 2007 Erward.org



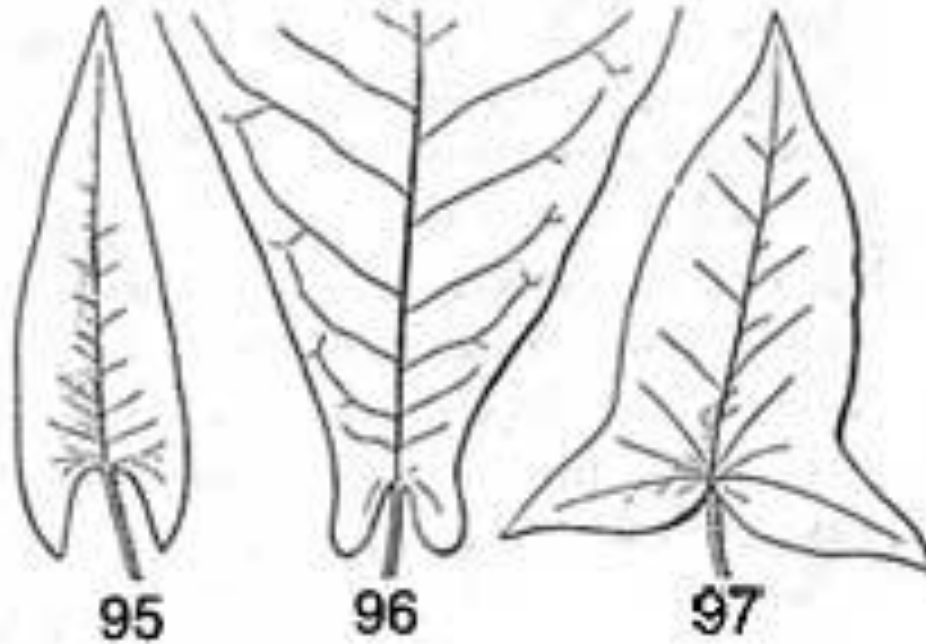
● مثقوبة perfoliate



● اذينية auriculate



# Name these bases:





# Blade margin

متموجة **undulate**



ملساء (مستوية) **entire**

20 cm



● محززة (مقروضة) crenate



● منشارية serrate



● منشارية دقيقة serrulate





● مسننة dentate



● شوكية spiny

● منشارية معكوسة retrose



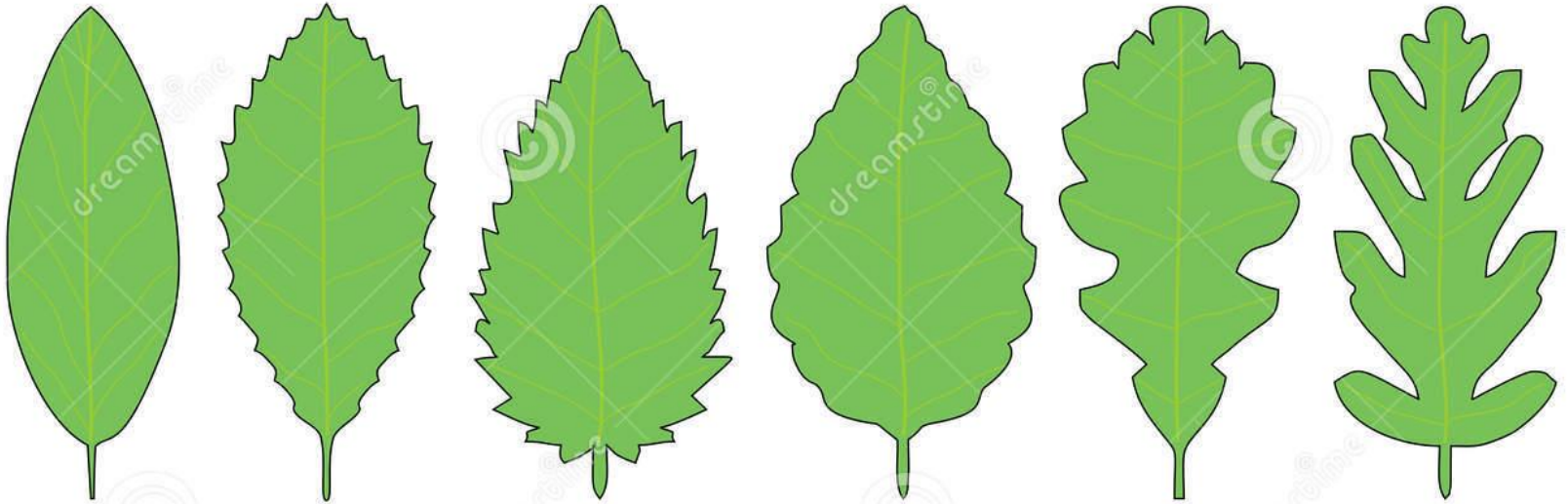
● مشققة incised



# مفصصة lobed



# Name these blade margins.....



1-----2-----3-----4-----5-----6