

Botany Language Basics for Identification of Flowering Plants

To understand the form, function, habitat and essential needs of plants use all your senses (vision, hearing, smell, taste, and touch) to observe plants. A collective understanding of fundamental botanical terms helps us share and discuss our discoveries with each other.

Duration of vegetative parts

Annual: completes life cycle in one year

Biennial: completes life cycle in two years

Perennial: life cycle extends three or more years

Deciduous: plants that shed their leaves at the end of the season and become dormant

Evergreen: plants that are never without leaves attached (**broadleaf evergreens** include all evergreens except conifers which have needle or scale-like leaves)

Plant appearance or habit

Herbs (Herbaceous plant): plants with non-woody stems

Shrub: woody perennial with more than one main stem

Tree: woody perennial with a single main stem

Vine: herbaceous plants with elongate, flexible, non-self-supporting stems

Liana: a woody vine

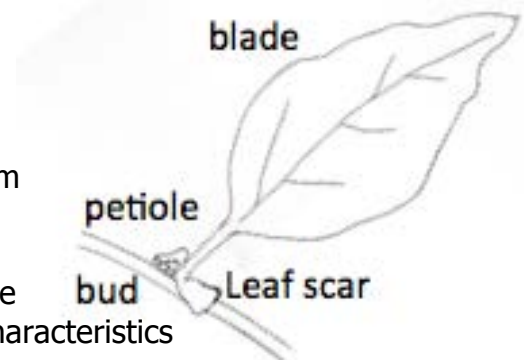
Leaf features

Blade: Flattened part of the leaf

Petiole: stalk supporting the blade

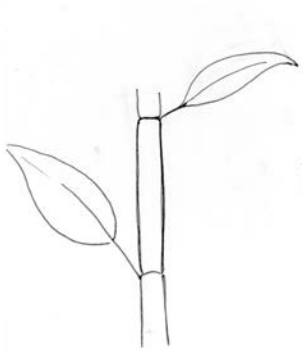
Leaf scar: a heart-shaped scar remains on the stem where the petiole was attached

Bud: forms above leaf scar and contain the beginnings of future growth; size, color, shape and marking of the scales on buds offer ID characteristics



Leaf arrangements on plant stem

Node: area on stem from which one or more leaves develop



Alternate leaves
1 per node



Opposite leaves
2 per node



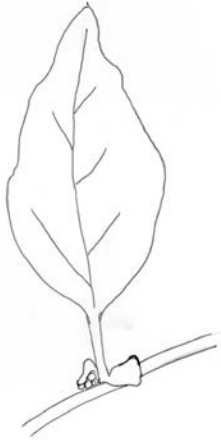
Whorled leaves
More than 2 per node



Rosette leaves
Radiating cluster at base

Arrangement on leaf petiole

Simple



Simple leaf is undivided though can be deeply lobed

Compound



Pinnate compound leaf is feather-like with leaflets attached both sides of central axis



Palmate compound leaf is hand-like with three or more leaflets radiating from one point

Look for a leaf scar and bud in area where the petiole was attached. No leaf scar or bud?

Leaflet: resembles a leaf but is attaches to the axis of a compound leaf not the stem

Leaf modifications

Bract: modified leaf often associated with a flower or inflorescence

Sheath: basal portion of leaf that surrounds the stem

Spine: sharp pointed leaf or portion of a leaf

Tendrils: twining leaf or portion of a leaf

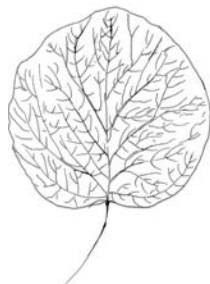
Leaf blade surface

Glabrous: without hairs

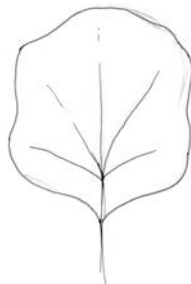
Glaucous: waxy coating

Pubescent: hairy surface--there are many kinds of hairiness

Leaf blade venation



Net (Reticulate) veins form a complex network



Palmate veins radiate from a central point at base



Parallel veins extend in same direction beside each other



Pinnate veins form a major mid-vein with branching side veins

Leaf blade margin



Ciliate
Fine hairs



Crenate
Rounded teeth



Entire
Smooth



Lobate
Indented/lobed



Undulate
Widely wavy



Dentate
Symmetrical
angular teeth



Denticulate
Fine teeth
angular teeth



Serrate
Coarse teeth
curved forward



Serrulate
Fine teeth
curved forward



Sinuate
Wave-like
indentations

Leaf blade shape



Cuneate
Wedge
shaped



Elliptical
Oval-shaped
with small or
no tapering



Lanceolate
Pointed at
both ends;
base widest



Oblanceolate
Widest section
towards tip



Spatulate
Spoon
shaped



Rhomboid
Diamond
shaped



Linear
Thin; sides
parallel



Oblong
Wider;
parallel sides



Obovate
Egg shape;
widest at tip



Ovate
Egg shape;
widest at base

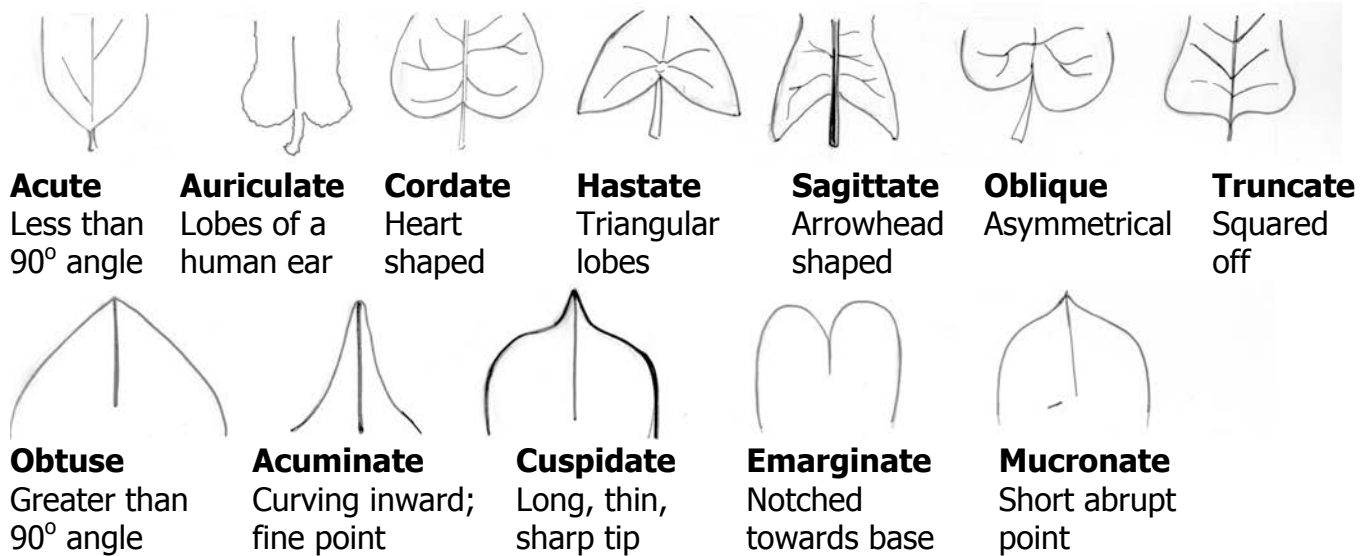


Obcordate
Heart
shaped

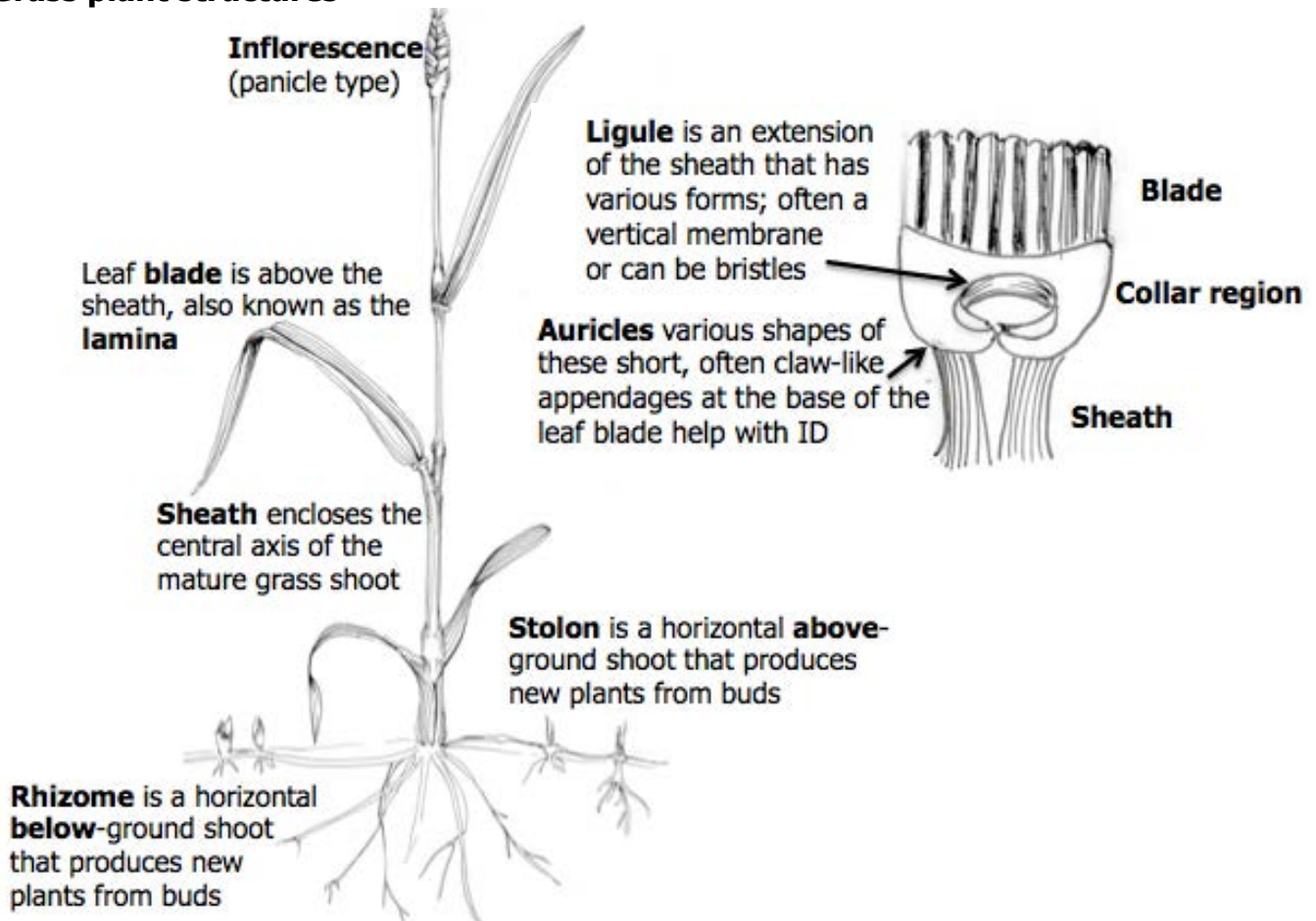


Reniform
Kidney
shaped

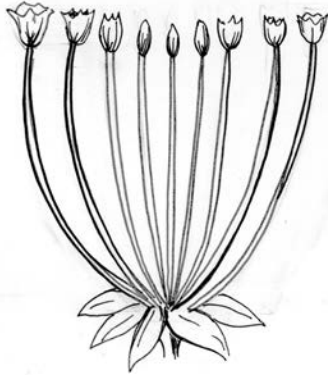
Leaf blade bases and tips (apex)



Grass plant structures



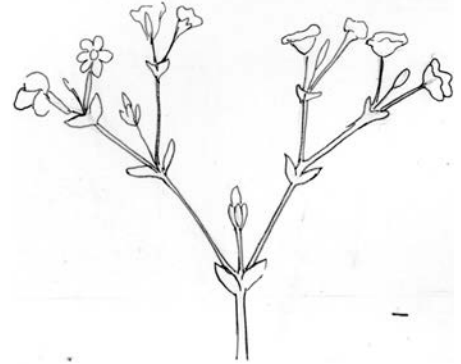
Inflorescence type



Umbel flowers originating from a common point with floral stalks of equal length



Corymb flowers along a central axis with floral stalks of unequal length, all ending at the same height



Cyme produce a flat-topped with oldest flowers at the end of main axis



Spike has flowers without stalks along a central axis



Raceme has flowers with short floral stalks along a central axis



Panicle is a branched or compound raceme



Head produce a short dense arrangement ray and disk flowers



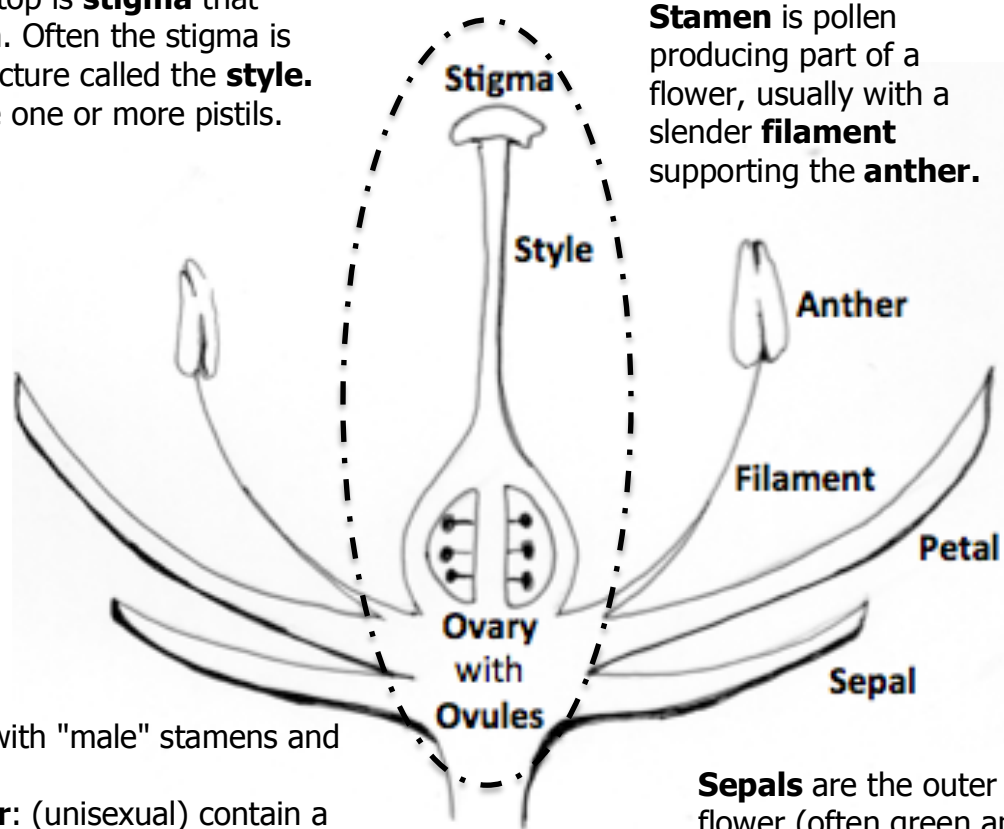
Solitary is a single flower on a flowering stalk attached to stem



Catkin is a spike-like; often pendent and falling as a unit

Flower part

Pistil consists of the **ovary** at the base that contains the embryo seeds or **ovules**. At the top is **stigma** that receives the pollen. Often the stigma is on a stalk-like structure called the **style**. A flower may have one or more pistils.



Stamen is pollen producing part of a flower, usually with a slender **filament** supporting the **anther**.

Perfect flower: with "male" stamens and "female" pistil

Imperfect flower: (unisexual) contain a pistil or stamens, but not both

Monoecious species: with male on female flowers on same plant

Dioecious species: with male and female flowers on separate male and female plants

Sepals are the outer parts of the flower (often green and leaf-like) that enclose a developing bud.

Petals are parts of a flower that are often conspicuously colored.

Regular flower (actinomorphic): radially symmetrical; star-shaped

Irregular flower (zygomorphic): one dividing plane into two mirror-image halves

Complete flower: with all 4 main parts (sepal, petal, stamen and pistil)

Incomplete flower: lacking one or more of 4 main parts (sepal, petal, stamen, pistil)

Learn more: gardening.cornell.edu/polycultures

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