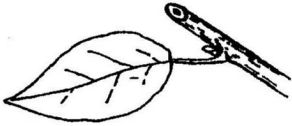


## Leaf Characteristics

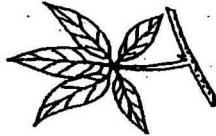
### Characteristics of broad leaves (deciduous)

- Simple leaf – leaf having only a single blade

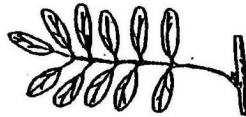


- Compound leaf – leaf having more than a single leaf blade

-Palmately compound leaf – A compound leaf with leaflets radiating from a common point at the end of the stem or petiole, like the fingers of a hand

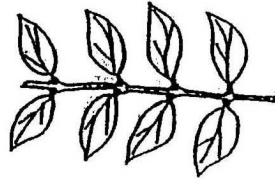


-Pinnately compound leaf – A compound leaf with leaflets that are arranged on either side of a central main stem or petiole.

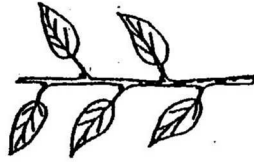


## Leaf Arrangement

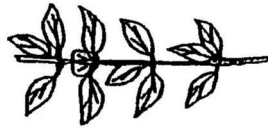
-Opposite leaves – two leaves grow opposite each other at the same location or node



- Alternate leaves – a single leaf grows from its own location or node and the leaves alternate sides along the stem

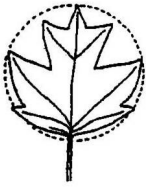


- Whorled leaves – three or more leaves growing from a single location or node.

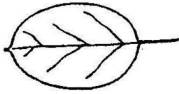


## Leaf Shapes

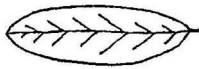
1. Circular or round



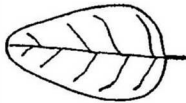
2. Oval



3. Elliptical



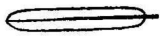
4. Egg or ovate



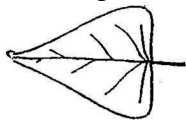
5. Lance



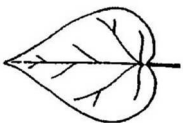
6. Linear



7. Triangular

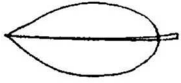


8. Heart

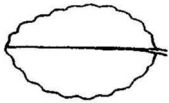


## Leaf Margin

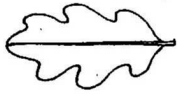
1. Entire or smooth – The edge of the leaf is smooth.



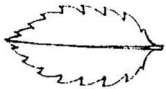
2. Wavy – The edge of the leaf is slightly curved.



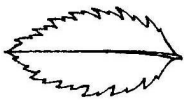
3. Lobed – The edge of the leaf is deeply or mildly indented, number of lobes vary.



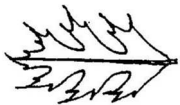
4. Serrate or Toothed – The edge of the leaf is toothed, this may include finely or coarsely toothed.



5. Double Serrate – The edge of the leaf is toothed with small teeth on larger teeth.



6. Bristle tipped and lobed – The leaf edge is lobed in varying degrees and also has hair-like tips.



## Leaf Veins

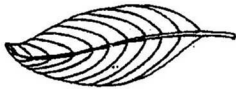
- Parallel veins – Major veins begin at the base, remain more or less parallel, and come together at the tip of the leaf.



- Palmate veins – Main veins begin from the base of the leaf like fingers of a hand.

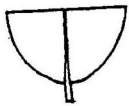


- Pinnate veins – Main veins extend from one large main vein.

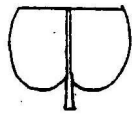


## Leaf Base

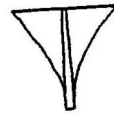
Rounded



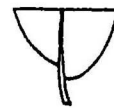
Heart-shaped



Tapering



Uneven



## Characteristics of coniferous leaves

### 1. Needle-like

-cluster or bundle



-single

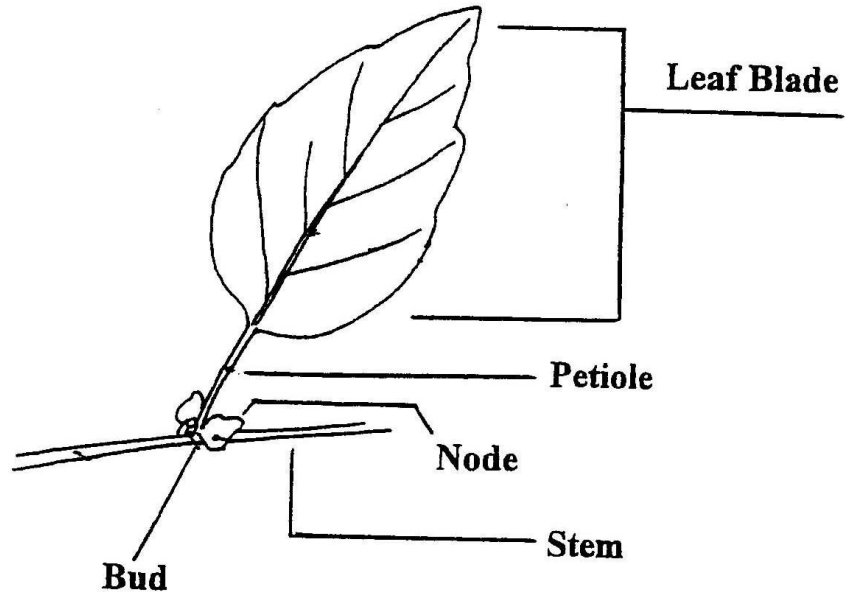


### 2. Scale like

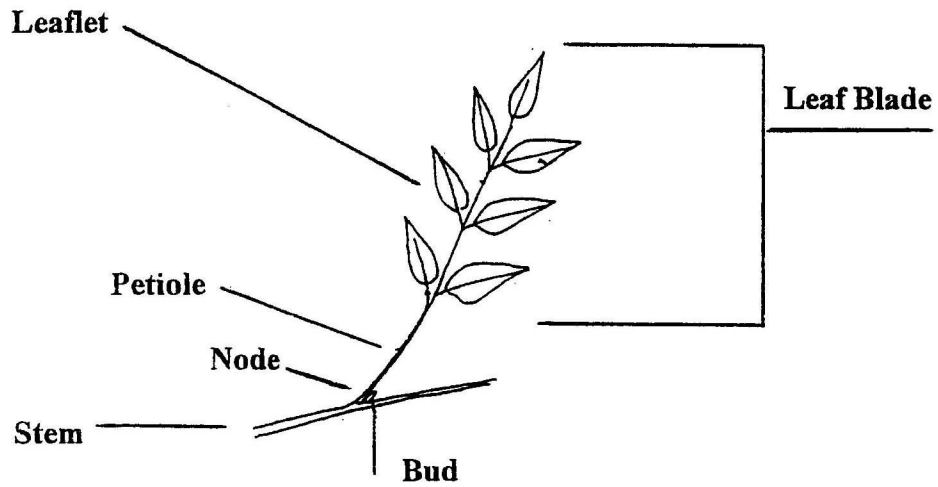


## Leaf Structures

### Leaf parts of a simple leaf



### Leaf parts of a compound leaf



## **Glossary**

|                         |   |
|-------------------------|---|
| <b>Bud</b>              | A structure that will become a leaf, a flower, or a new shoot.  |
| <b>Compound Leaf</b>    | A leaf that is made up of 2 or more leaflets on the same petiole.   |
| <b>Coniferous</b>       | Any cone bearing tree species. Usually trees with needles.  |
| <b>Deciduous</b>        | Refers to trees that drop their leaves (broad leaf or needles).   |
| <b>Evergreen</b>        | Refers to trees that retain green leaves throughout the year. Life span of an individual leaf may be 2-15 years depending on the species and environmental conditions.  |
| <b>Leaf Blade</b>       | The broad, flat part of a leaf.   |
| <b>Leaflet</b>          | A leaf like part or blade of a compound leaf. There is no bud at the base of its petiole.   |
| <b>Node</b>             | The point on a shoot where a leaf, flower, or bud is attached.  |
| <b>Petiole</b>          | Leaf stalk  |
| <b>Simple Leaf</b>      | A leaf that contains one blade.   |
| <b>Stem</b>             | The primary structure that holds the foliage and flowers.   |
| <b>Terminal Leaflet</b> | The leaflet located furthest from the bud, typically only determined on a pinnately compound leaf.  |
| <b>MAD HORSE</b>        | A tool to remind students which trees have opposite and whorled leaf arrangements. <b>M</b> aple, <b>A</b> sh, <b>D</b> ogwood, are opposite leaf arrangements and <b>HORSE</b> chestnut is whorled leaf arrangement. |