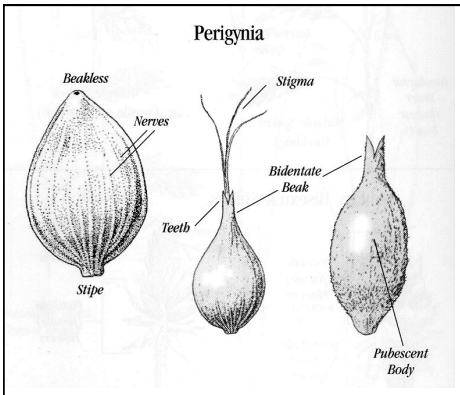
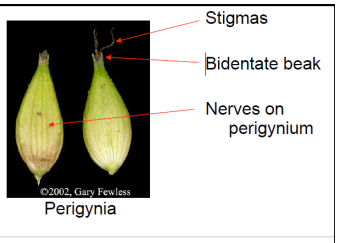
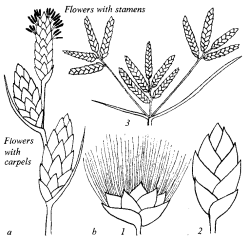
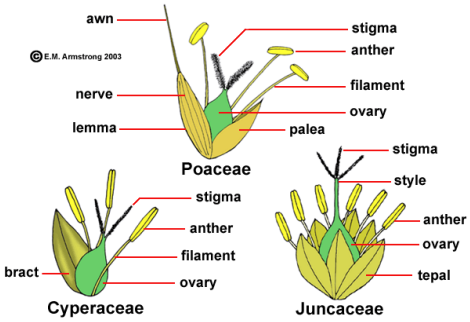




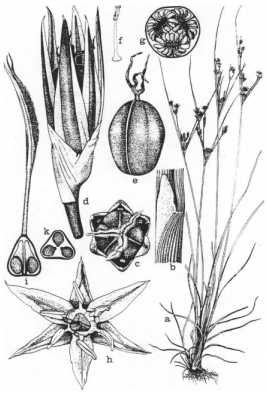
both from WalkerDA2013_biol488Lab5Graminoids.pdf

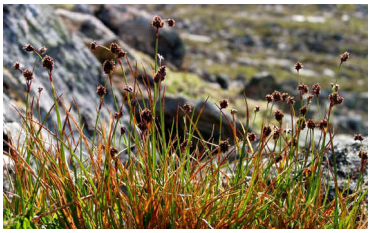


http://www.arthursclipart.org/plants/plant%20families/page_01.htm



http://waynesword.palomar.edu/termfl3.htmc





Cyperaceae Family Characteristics

Worldwide distribution, but found especially in cooler, wetter habitats. In our area, they are often the dominant species in wet, marshy sites.
'Grassy' perennials with fibrous roots and/or creeping rhizomes. The stems are oftentriangu1ar in X-section (sedges have edges) , but otherwise stem and leaves may be verysimilar to grasses with the exception that sedges do not have ligules and the leaf_sheathsare closed. Flowers are simple, inconspicous, and subtended by a single bract or scale.
Flowers, in turn, are arranged in spikelets which display a variety of panicle types. In Carex, the primarly genus in our area, the bracts (scales) and the perigynium. the vase-like structure that surrounds the ovary, are important for determination to species.
In your area: Carex (Sedges), Eriophorum (Cottongrass), Eleocharis (Spike Rush), and Trichophorum.
New words: perigynium, beak of perignium, perianth bristles, bracts, brachlets. spike,
culm, scale.

- Family of monocotyledonous **graminoids**.
- Large family with ~ 5000 species in about 100 genera.
- perennial herbs (in Arctic).
- May be found growing in almost all environments, many are associated with **wetlands**, or with poor soils.
- Growth forms: have a **superficial resemblance to grasses**, however, they are **not closely related** and differ in many characteristics, particularly in the structure of the inflorescence.
- **Leaves**: veins parallel, spirally arranged in three ranks (grasses have alternate leaves forming two ranks).
- **Stems**: Unjointed and triangular cross-section (trigonous; with occasional exceptions), with solid pith throughout.
- **Roots** fibrous, principally adventitious.
- **Flowers**: small; unisexual, or bisexual; plants monoecious, or dioecious, or bisexual.
- **Fruit** sessile; dry; an **achene**; ovoid, or obovate, or oblong. Achenes lenticular, or trigonous, or subterete. Seeds 1.
- **Identification** often **difficult** for all but the most distinctive species; usually requires mature fruit.
- In **Alaska** and **Yukon**, genera include Carex, Eriophorum, Scirpus, Kobresia, and Eleocharis.

Juncaceae family characteristics

- Relatively world wide
- Growth forms: grassy
- Leaves: sometime basal or reduced to sheaths, no ligule, or may have auricles
- Flowers: small 3-merous. not in true spikes, but ve clustered in some species.
- Fruits: dry capsule
- Round solid stems
- Flowers concentrated in terminal inflorescence
- Flowers lily-like: 3 sepals, 3 petals, 2-6 stamens, pistil with 3 styles
  - *Juncus* (Rush)
    - Continuation of "stem" above the inflorescence is a bract
    - Flowers very lilly-like
    - Smooth stem
    - Narrow,linear leaves
    - Flowers with many seeds
  - *Luzula* (Woodrush)
    - Leaves broader, flat, with widely spaced hairs
    - Flowers have 3 seeds

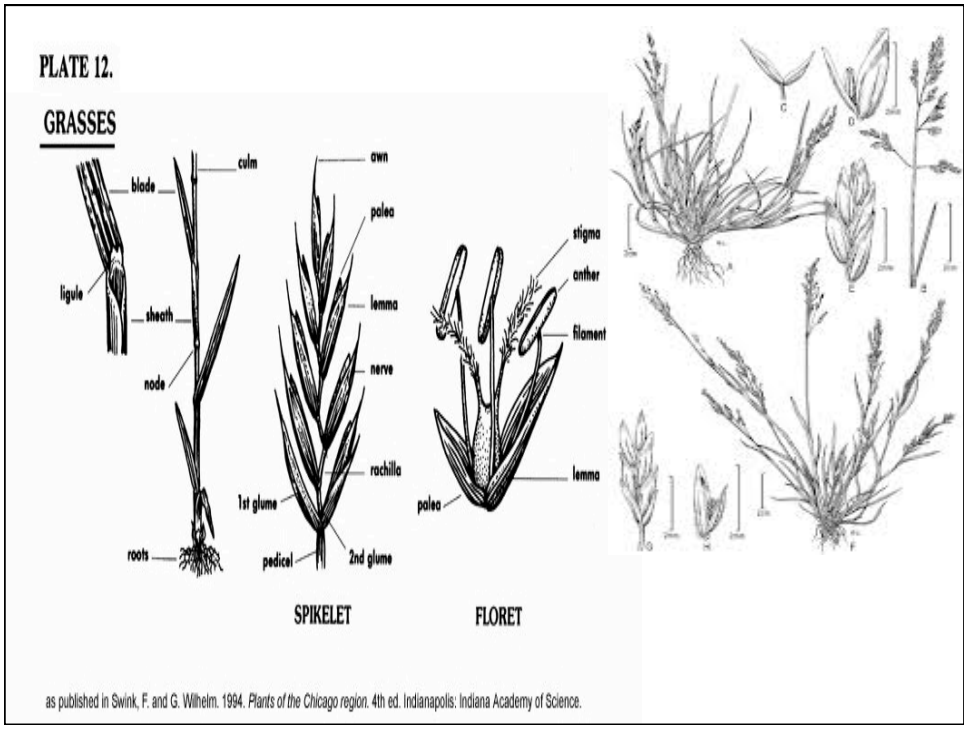
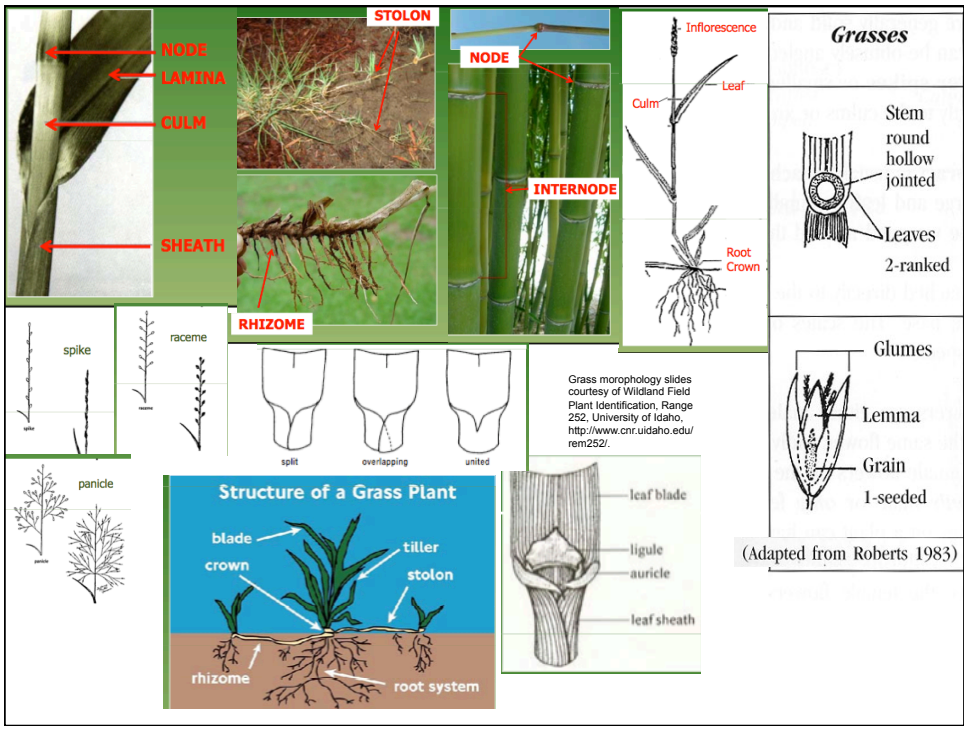


PLATE 12.
GRASSES
blade
culm
ligule
sheath
node
roots
awn
palea
lemma
nerve
rachilla
1st glume
pedicel
2nd glume
stigma
anther
filament
lemma
palea
SPIKELET
FLORET
as published in Swink, F. and G. Wilhelm. 1994. Plants of the Chicago region. 4th ed. Indianapolis: Indiana Academy of Science.


NODE
LAMINA
CULM
SHEATH
STOLON
RHIZOME
NODE
INTERNODE
Inflorescence
Leaf
Culm
Root
Crown
Grasses
Stem
round
hollow
jointed
Leaves
2-ranked
Glumes
Lemma
Grain
1-seeded
(Adapted from Roberts 1983)
spike
raceme
panicle
split
overlapping
united
Grass morophology slides courtesy of Wildland Field Plant Identification, Range 252, University of Idaho, http://www.cnr.uidaho.edu/rem252/.
Structure of a Grass Plant
blade
crown
tiller
stolon
rhizome
root system
leaf blade
ligule
auricle
leaf sheath

Poaceae – Gramineae (Grass Family)

- Annual or (in Alaska, mostly) perennial herbs. Fibrous roots and/or rhizomes, round hollow stems with nodes, linear leaves subtended by sheaths which wrap around the stem below the leaf blade. A ligule is found at the leaf-sheath junction. The flowers are reduced to florets which are packaged into spikelets and arranged in a panicle or spike. There is a lot of diversity in floret and spikelet morphology and most of grass taxonomy is based on this, asking the student to learn a whole new vocabulary. Identification requires patience, a dissecting scope, and good keys!
- Common in our area: *Trisetum* (Oatgrass), *Poa* (Blue Grass), *Calamagrostis* (Bluejoint), *Festuca* (Fescue), *Deschampsia* (Hairgrass), *Agropyron, Arctagrostis,* and several more.

Basic morphology

- Inflorescence (seed head)
  - Group of flowers or seeds
  - Spike, raceme, or panicle arrangement
  - Spikelet = basic unit of inflorescence: 2 glumes, 1+ florets
- Leaf (lamina)
  - Leaf blade – bends away from stem, usually flat for photosynthesis
  - Sheath – tubular, lower part of leaf around stem (closed, open, split)
  - Ligule – membrane-like tissue
  - Auricle – small appendages at junction of blade and sheath
- Culm (stem)
  - Hollow or pithy jointed stem
  - Interrupted by nodes – joint where leaves are borne
  - Internode – space between nodes
  - Stolons – above ground horizontal stem
  - Rhizomes – belowground horizontal stem; plant and roots grow at node

Growth Habbits

- Caespitose – dense clump (bunchgrass)
- Rhizomatous – spreads by rhyzomes
- Stoloniferous – spread by stolons
- Crown – persistent base of perennials