

NAKED SEEDS

PROTECTED SEEDS

gymno -  
Spermo -  
large  
phyla  
 {  
 coniferophyta }  
 ginkgophyta } contemporaries  
 cycadophyta } dinosaurs

FLOWERING PLANTS  
 Angio-  
Spermo { Phylum angiosperma  
 CLASSES:  
 MONOCOT, DICOT  
more evolved

STEMS : 1°: xylem + phloem; vascular cambium - -  
 Herbaceous / all plants. 2°: wood trees. *tree*

LEAVES: Blade, petiole, cuticle MESOPHYLL: P SYNTH *stom*  
 chloroplast  
ROOTS: tiny root hairs - vascular tissue *at root*

TRANSPIRATION PULL & STOMATA : *all*

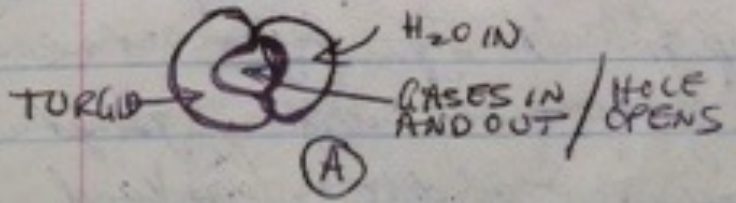
(COHESION - TENSION INVOLVED HERE!)

PRESSURE FLOW : SOURCE → SINK INVOLVED HERE!

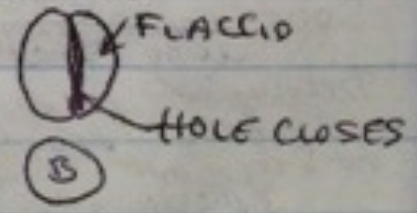
Transpiration pull

→ Stomata (under C3 leaf) : drive fluid flow

GUARD CELL PLUMPS UP -  
 THE HOLE OR STOMA (NOT  
 THE CELL) OPENS



GUARD CELL DEFLATES -  
 THE HOLE OR STOMA  
 CLOSES.



STOMATA AND GAS EXCHANGE

Many factors affect the opening and its regulation:  
 - amount of H<sub>2</sub>O available to plant  
 - temperature  
 - amount of light  
 - plant type (cactus, aquatic, "normal" (3))