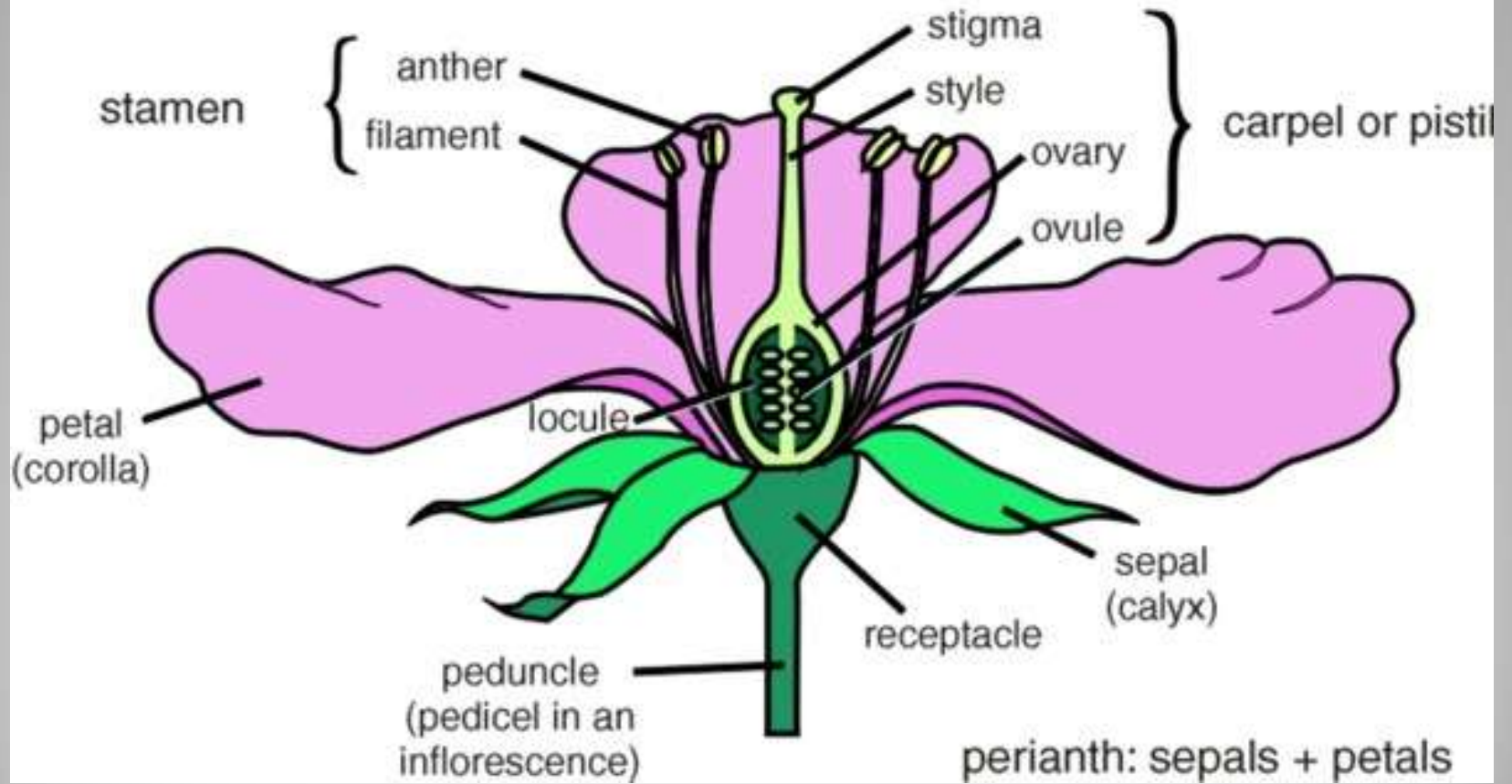


Why Conifers have no flowers

Or The Phylogeny of Vascular Plants

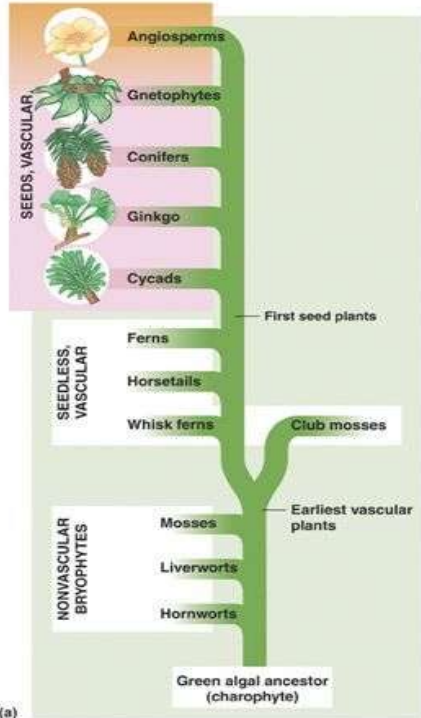
Debra Ayres

Basic Flower Structure



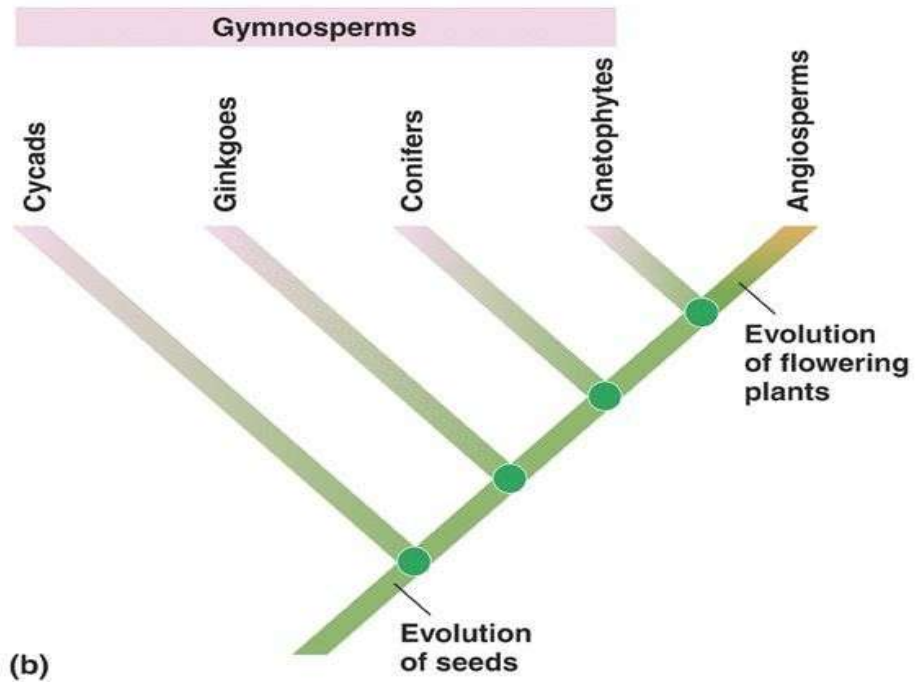
Flowering Plant Evolution

Solomon/Berg/Martin, Biology, 6/e
Figure 27.1a



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Solomon/Berg/Martin, Biology, 6/e
Figure 27.1b



(b)

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Phylogeny of Vascular Plants

Gymnosperm vs Angiosperm

- Produce Cones where reproduction occurs
- Pollen Cones (males)
- Seed Cones (females)
- **Ovules** = meiosis makes haploid female gametophytes
- Produce Flowers where reproduction occur
- **Sepals** = protect flower while developing
- **Petals** = colored; attract insects
- **Stamen**
 - Filament & Anther (male)
- **Carpel**
 - Ovary, Style, Stigma (female)



Male cone of Pinus tabulaeformis

Conifers...have cones



Male (pollen) cones



Female (seed) cones

Most conifers bear both
male and female cones

Examples of Cones



White Fir



Juniper



Incense Cedar



Yew



Cypress



Douglas Fir

El Dorado County Conifers

31 kinds – all are evergreen trees

- Pine Trees – 15
- Firs – 4
- Junipers – 4
- Cypress - 2
- Yew
- Douglas Fir
- Hemlock
- Incense Cedar
- California nutmeg
- Port Orford cedar

Gray Pine (*Pinus sabiniana*)

- Lower foothills
 - Oak Woodland
 - Chaparral
- Sunset Climate Zone 7
- **3 needles**
- Don't park under it!!



Ponderosa (*Pinus ponderosa*)

- 2000 – 5,000 ft
- Characteristic tree of Mixed-Coniferous Forest
- “Puzzle” bark
- 3 needles



Lodgepole (*Pinus contorta*)

- 5,000 – 7,000 ft
- Characteristic tree of Lodgepole Pine-Red Fir Forest
- “Cornflake” bark
- 2 needles
- Where fires are common, trees produce serotinous cones



Br. Alfred Brousseau,
Saint Mary's College