Master Gardener Taxonomy Workshop: Ericaceae and Brassicaceae 2026

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Land Acknowledgement

We gather on the unceded, ancestral, and traditional territories of the Musqueam, Squamish, and Tsleil-Waututh Nations, and we are deeply grateful for their generations of loving stewardship and care over this land and the native plants rooted within it. We offer our sincere respect.

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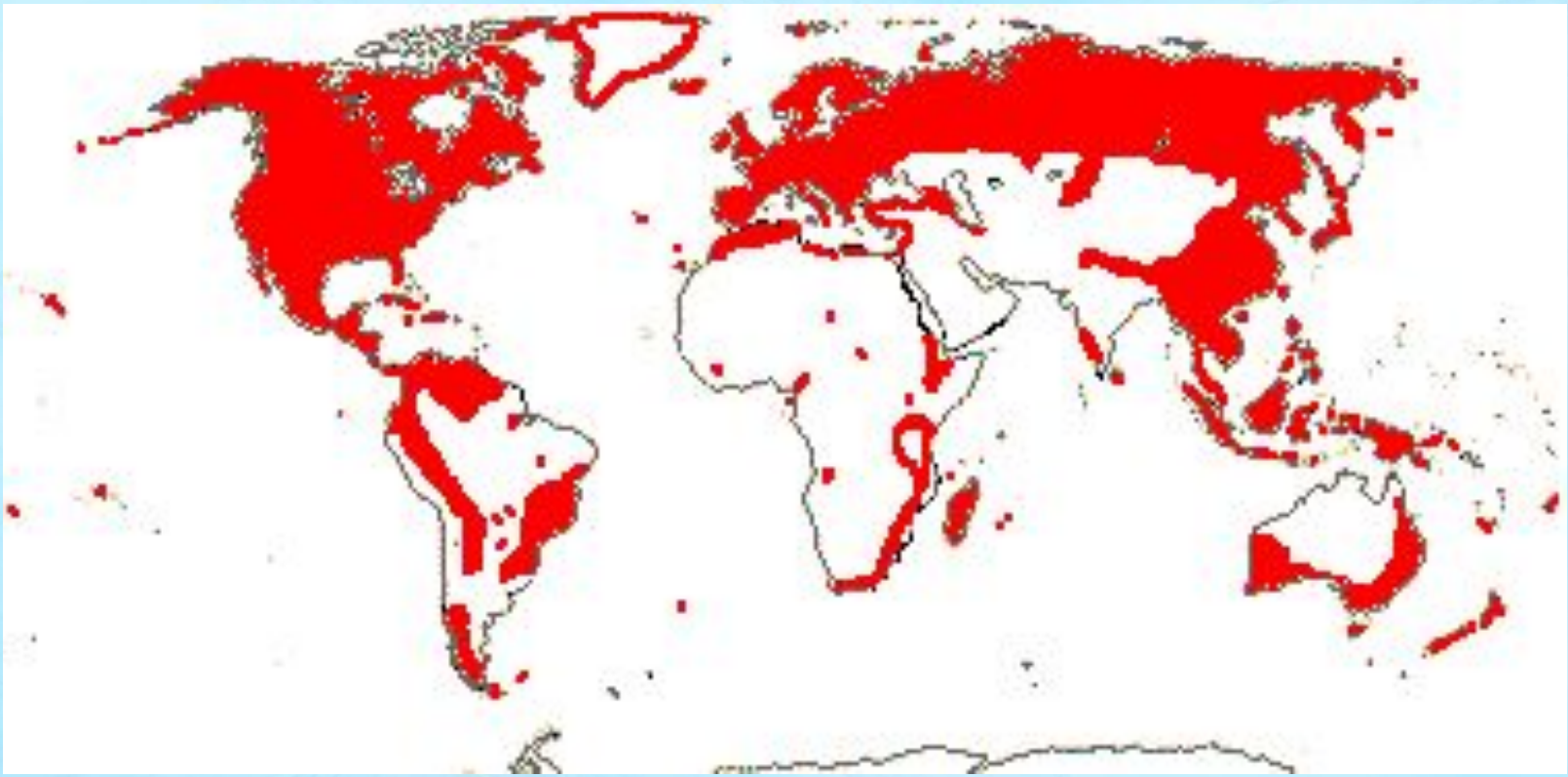
Objectives

- Describe diagnostic characters and variable features
- Identify plants that belongs to the family/group
- Apply the techniques to identify a plant in other plant families.

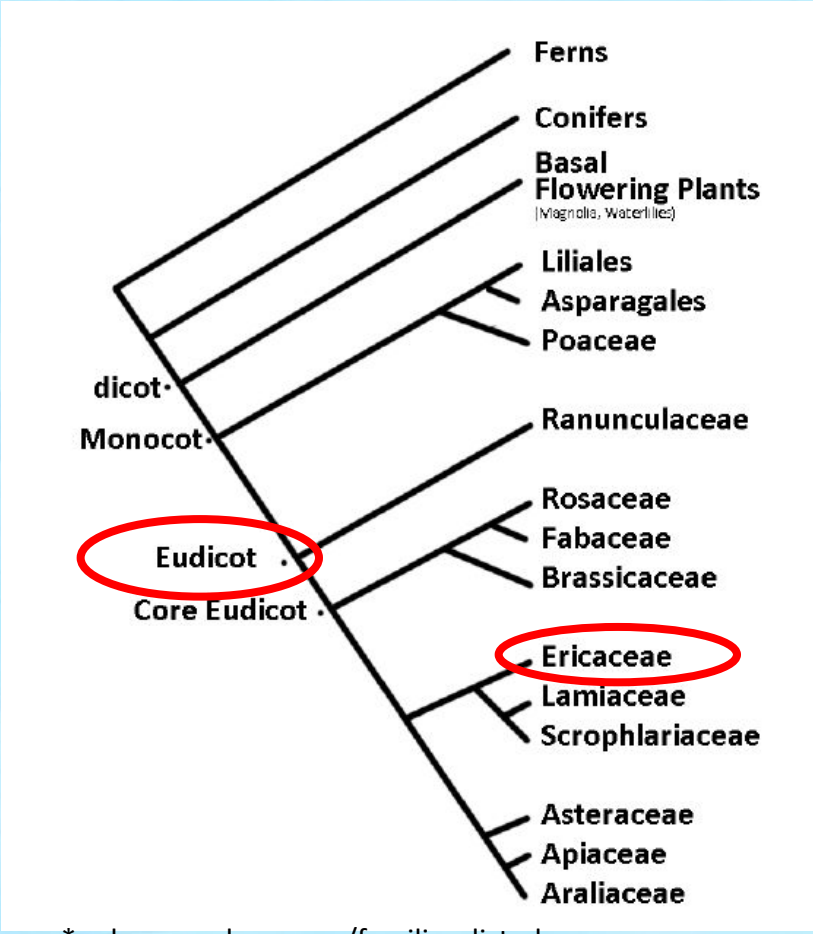
Ericaceae



- **Distribution:** worldwide, primarily in cold temperate regions; often in acid soils or bogs
- **Genera:** ~ 120
- **Species:** > 4000

Ericaceae

- Clade: **Eudicots**: plants with two seed leaves (cotyledons) at germination



*only example groups/families listed

Economic use

- Fruits
- Horticulture

Vaccinium corymbosum
(highbush blueberry)

Vaccinium macrocarpon
(cranberry)

Rhododendron

- Shrubs
- Trees
- Epiphytes (mostly tropical)

Tree: *Arbutus menziesii*

Shrub: *Erica cinerea*

Epiphyte: *Macleania insignis*

Agapetes pyrolifolia
(climbing shrub)

Rhododendron sp.
(shrub to small tree)

An **Mycoheterotroph** is one that feeds on fungi.

Monotropa: obtain food through parasitism upon fungi rather than photosynthesis

Monotropa uniflora

Rhododendron catawbiense

Enkianthus chinensis

Leaf Characters

- Mostly alternate
- Simple, without stipules
- Leaf margin entire or serrate
- Ericoid needles (strongly revolute)

Ericoid leaves

- Common in *Erica* and *Calluna*
- Margins strongly revolute (rolled under)
- Needle like

Corema conradii

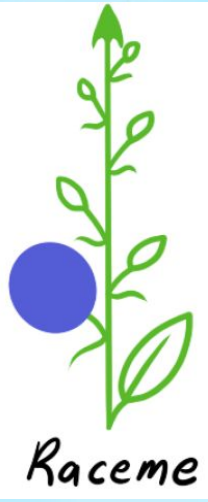
Erica vagans

Inflorescence

- mostly raceme (some are very compact)

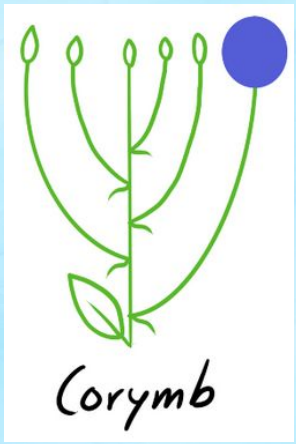
Gaultheria shallon

e.g. *Vaccinium*

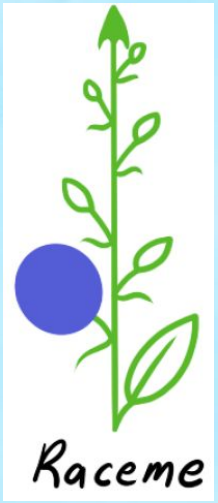


Inflorescence

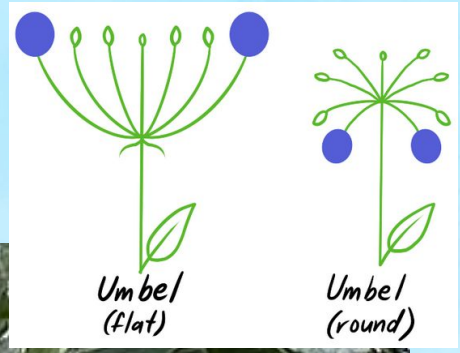
- compact raceme
- corymb



e.g. *Rhododendron*



Inflorescence



e.g. *Agapetes*

e.g. *Monotropa*

Flowers

Rhododendron augustinii

- Actinomorphic
- Sepals: 4-5.
- Petals: 4-5
  - Some urn-shaped
- Stamens usually 4, 5 or 10+

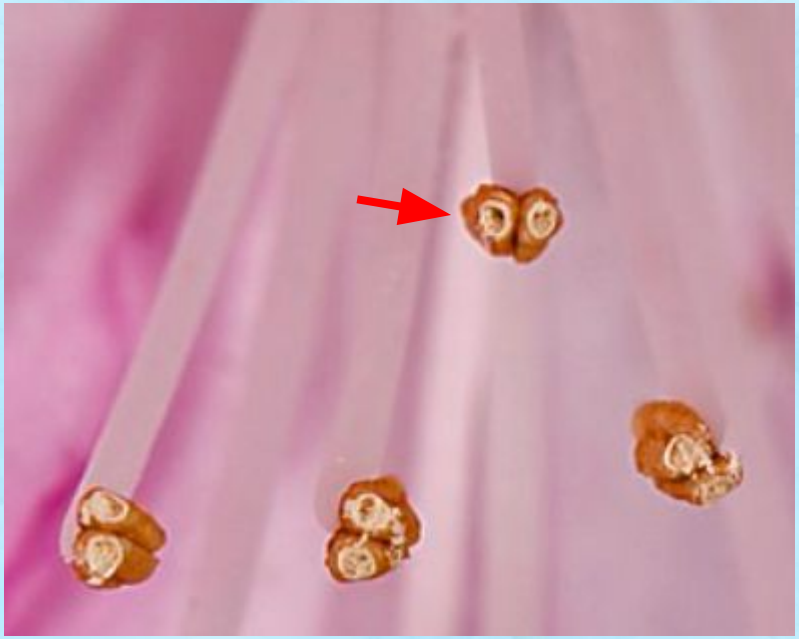
Petals fused into urn-shape

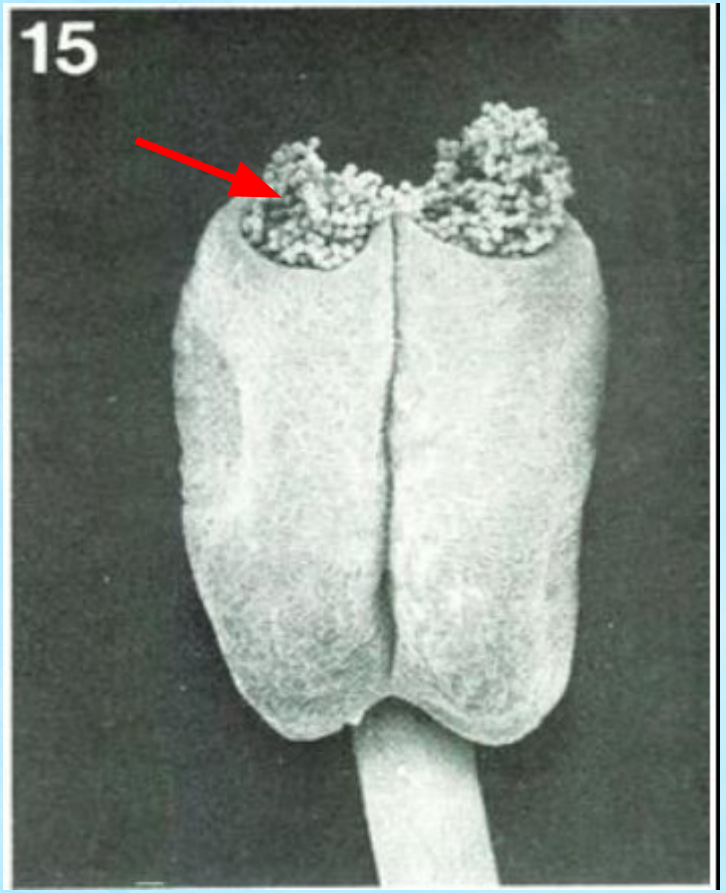

Gaultheria shallon


Erica carnea


Erica cinerea

Anthers open via apical pores





Rhododendron maximum

Fruits

Berry

- fleshy, indehiscent

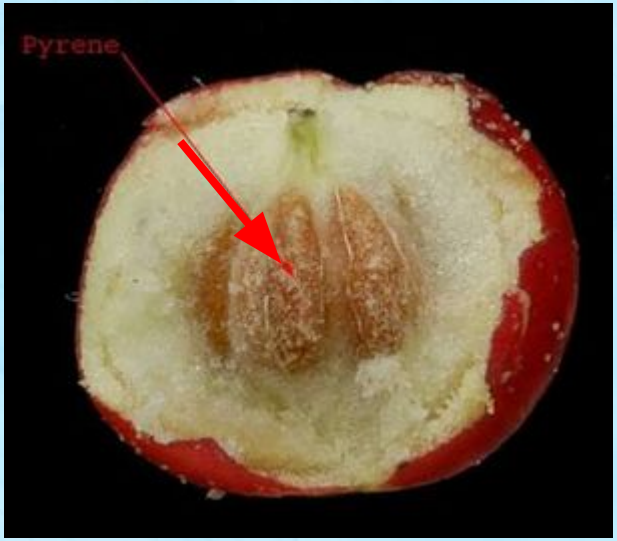
Arbutus menziesii

Vaccinium corymbosum (highbush blueberry)

Fruit types

Drupe

- stone fruit, inner layer hardened as endocarp



Arctostaphylos uva-ursi

Fruit types

Capsule

- dry, dehiscent at maturity

Rhododendron

Calluna

Fruit types

Pseudoberry: fleshy calyx + capsule

Gaultheria shallon

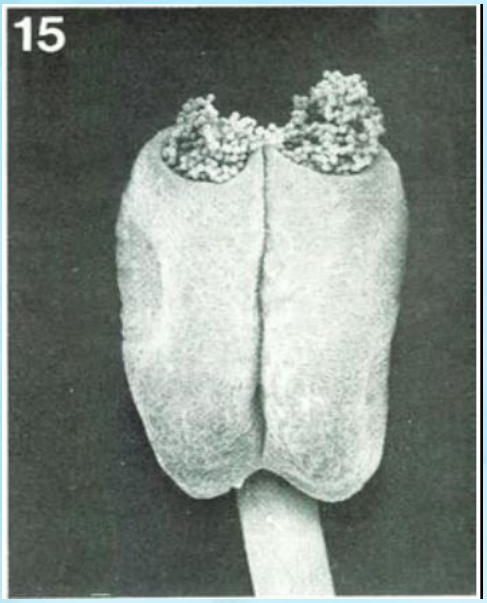
A capsule surrounded by fleshy calyx

Pollination

- Bee-pollinated
- Bird-pollinated
- Wind-pollinated
- Pollinator reward: nectar

Buzz pollination (sonication)

- bumble bees vibrate their body at a specific frequency to release pollens from anthers' apical pores



Activity

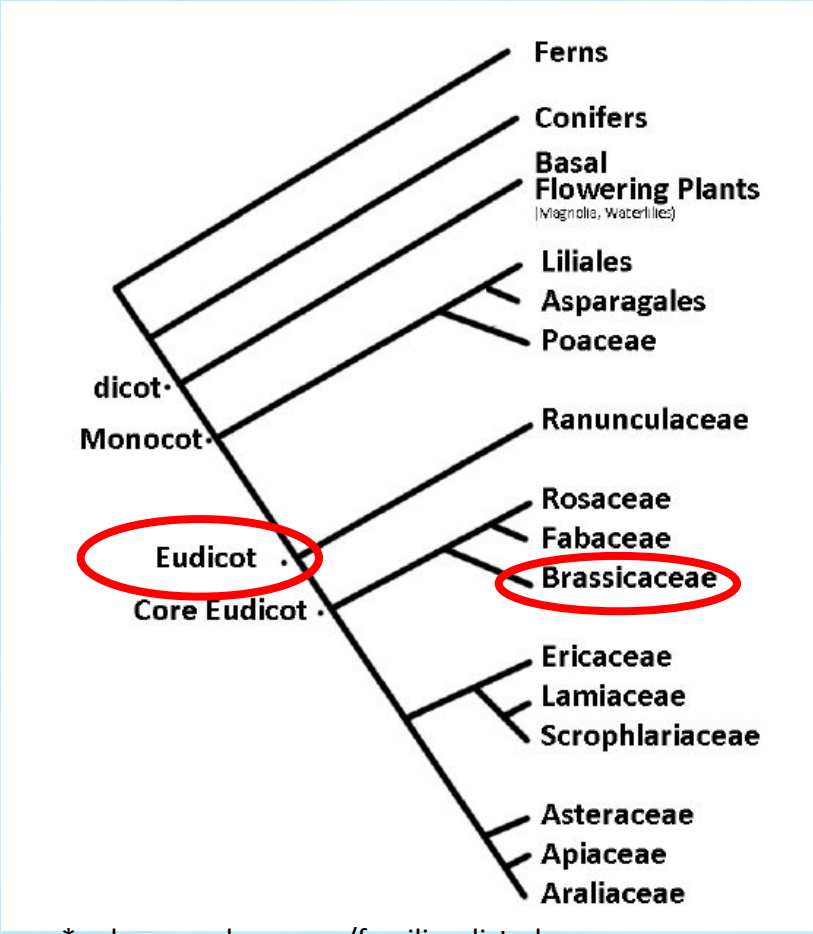
- Observe flowers and shape
- Ericoid leaves
- Stamens, anthers and apical pores
- What is the fruit type?

Brassicaceae (Mustard Family) -also called **Cruciferae**

- **Distribution:** worldwide, concentrated in the north temperate region
- **Genera:** ~370 +
- **Species:** over 4,000
- Habit: mainly herbaceous, rarely shrubs or small trees

Ericaceae

- Clade: **Eudicots**: plants with two seed leaves (cotyledons) at germination



*only example groups/families listed

Economic use

- Vegetables (most are from genus *Brassica*)
- Oil seeds: Canola oil (*Brassica napus* or *Brassica rapa*)

Common garden plants

- Wallflower (*Erysimum*)
- Sweet alyssum (*Lobularia maritima*)
- Candytuft (*Iberis umbellata*)
- All herbaceous

Leaf Characters

- Usually alternate, basal leaves form a rosette
- Simple or variously lobed
- Stipules absent

shepherd's-purse
(*Capsella bursa-pastoris*)

Leaf Characters

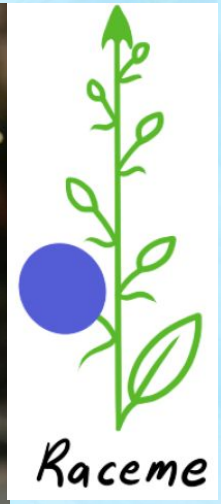
- Sometimes **heterophyllous** (leaves of different forms in one plant)

Lepidium perfoliatum

Inflorescence

- Commonly raceme or corymb
- Usually without bracts or bracteoles.

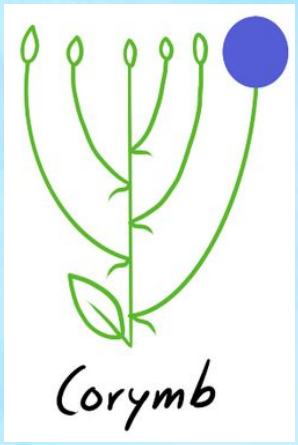
Wallflower (*Erysimum*)



Brassica rapa

Inflorescence

- Commonly raceme or corymb
- Usually without bracts or bracteoles.

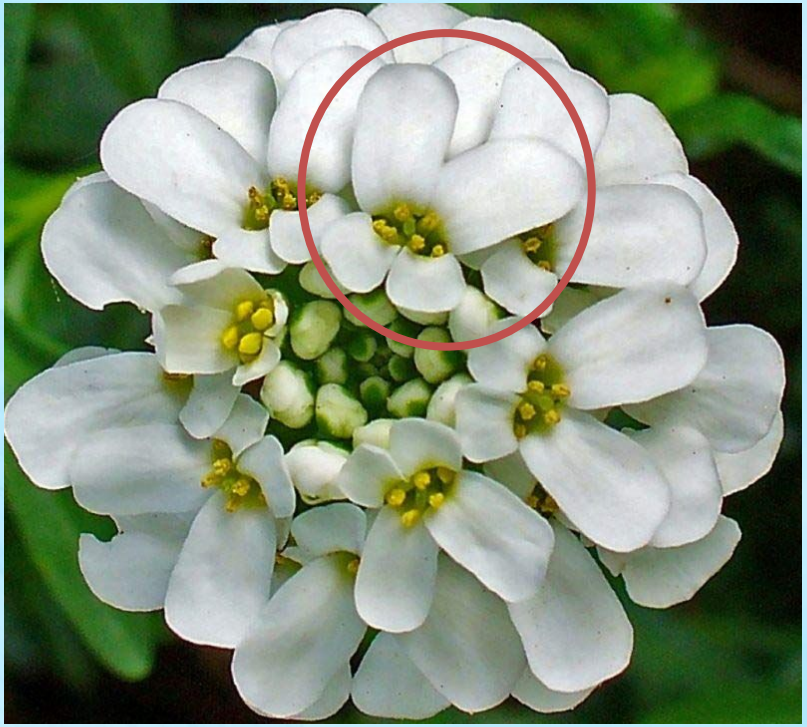


Candytuft (*Iberis*)- corymb

Flowers

- Actinomorphic (most common) or zygomorphic

Actinomorphic
Wild radish (*Raphanus sativus*)



Zypomorphic
Candytuft (Iberis sempervirens)

Flowers

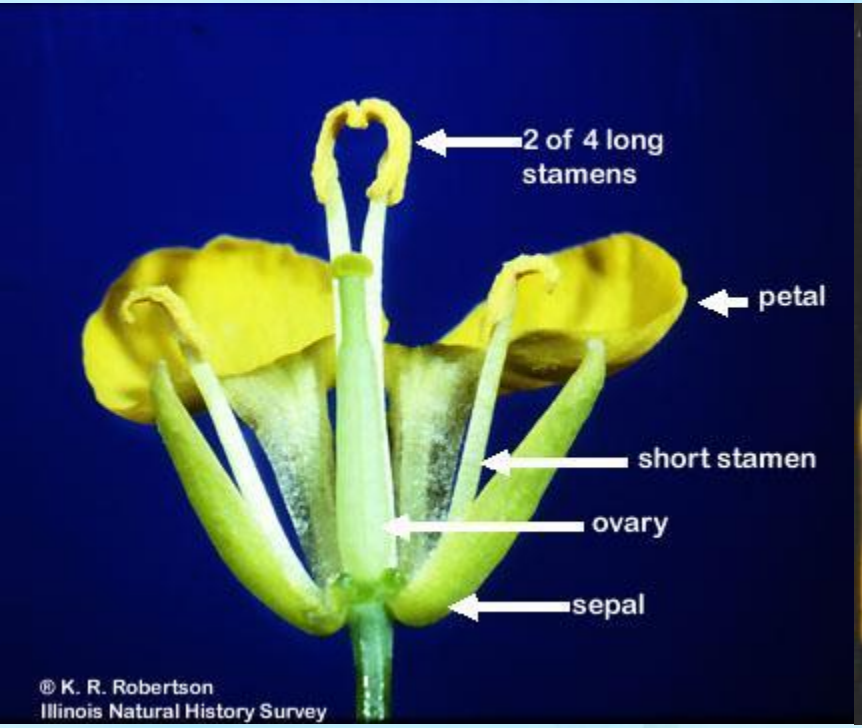
- The basic floral structure
  - 4 sepals
  - 4 petals: **cruciform**: 4 petals are arranged in the form of a cross

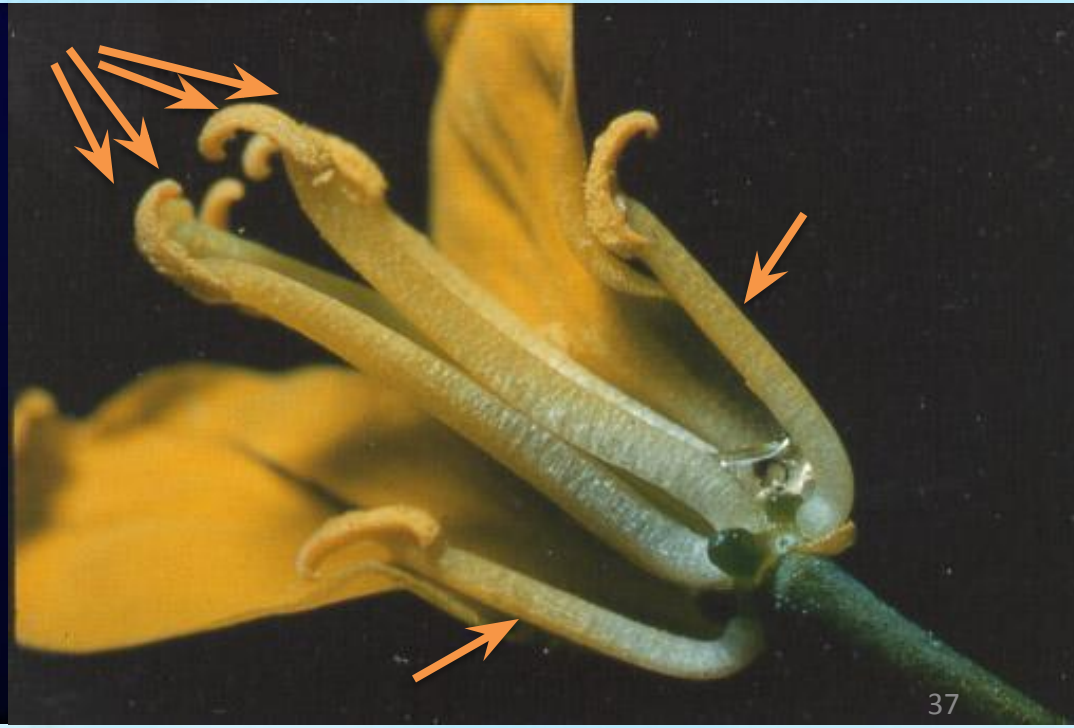
Wild radish (*Raphanus sativus*)

Sea rocket (*Cakile maritima*)

Tetradynamous stamens

- 6 stamens are in 3 pairs
- 2 stamens with short filaments, other 4 with long filaments





Fruit types

- Fruits with 2 fused carpels with a partition membrane (replum)
  - **Silique** : long and narrow

silique (dehiscent)
Cardamine impatiens

silique (indehiscent)
Wild radish (*Raphanus sativus*)

Fruit types

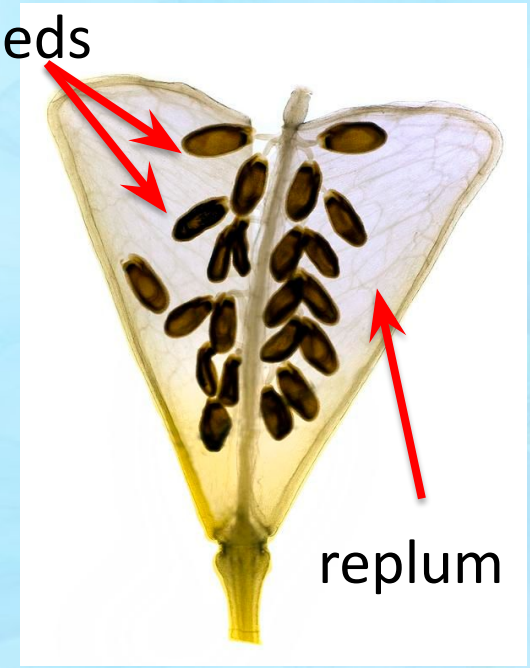
- Fruits with 2 fused carpels with a partition membrane (replum)
  - **Silicle (silicula)**: short and broad

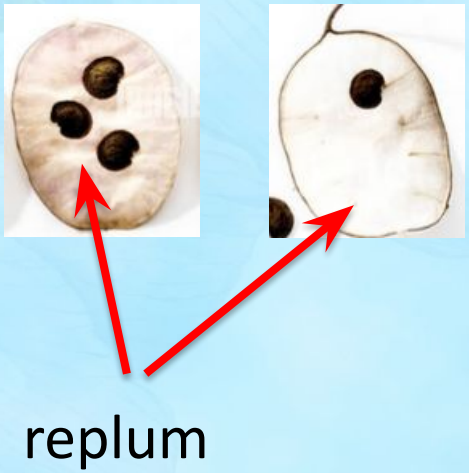
Silicle (dehiscent)
Shepherd's Purse (*Capsella bursa-pastoris*)

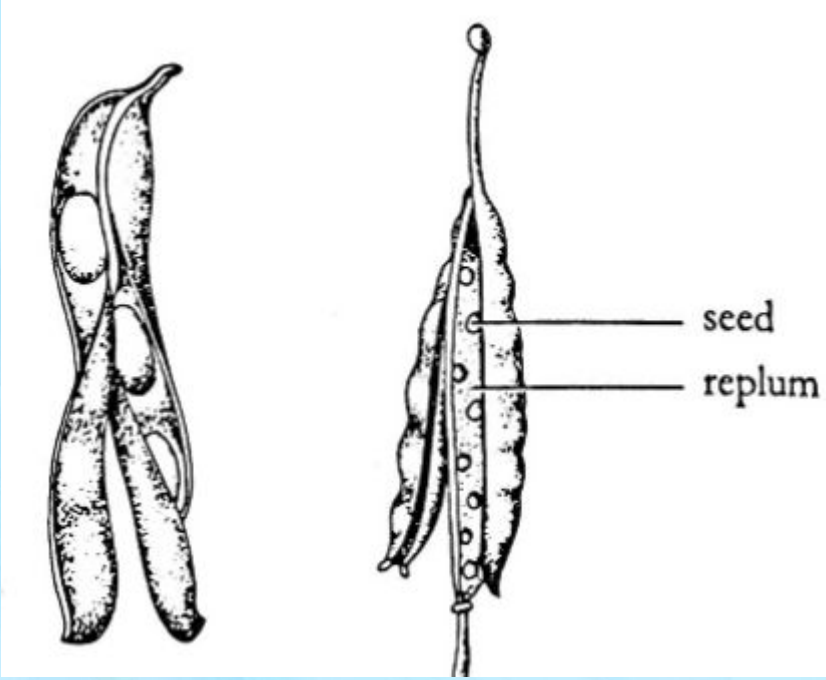
Silicle (dehiscent)
Honesty (*Lunaria annua*)

replum

- a partition membrane (replum)







Legume (Fabaceae)

Silique (Brassicaceae)

Pollinators

- Bee (primary)
- Hoverfly
- Butterflies and moths

Activity

- The cruciform of 4 petals
- Examine the **tetradynamous stamens**
- Find **replum** (dissect a fruit)
- Dissect fruits, compare them to a legume. What's the difference?
- Try to crush some leaves and smell them.