

FRUIT PHYTOGRAPHY

Fruit – A mature ovary containing seed or seeds (mature ovules), together with any structures developing after fertilization and forming a unit with it.

Terms associated with fruits:

pericarp: mature ovary wall; differentiated or undifferentiated

exocarp: outer layer of differentiated pericarp

mesocarp: middle layer of differentiated pericarp

endocarp: inner layer of differentiated pericarp

dehiscent: tissues of the pericarp break open, freeing the seeds

indehiscent: tissues of the pericarp remain intact, seeds remain in the fruit after the fruit has been shed from the parent plant

There are 23-28 different types of fruits. Classification of fruits is based on:

dry/fleshy pericarp at maturity

dehiscent/indehiscent pericarp at maturity

nature of differentiated layers of pericarp

1-seeded or multiseeded

derived from simple or compound pistil

derived from one pistil or multiple pistils

Fruit Types

Capsule: dry, dehiscent, multiseeded; derived from compound pistil; ovary superior or inferior

Loculicidal

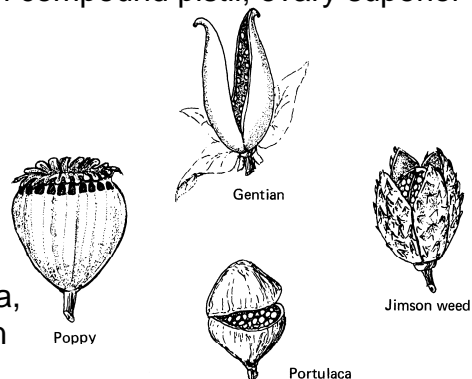
Septicidal

Poricidal

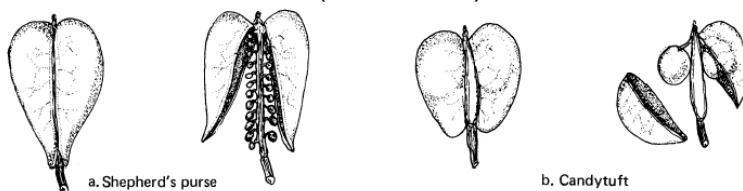
Valvate

Circumscissile

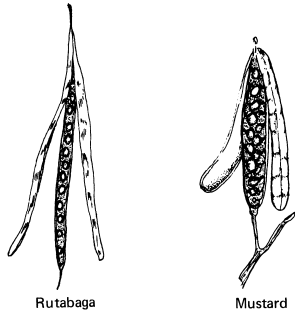
Examples: cotton, tulip, iris, portulaca, poppy, yucca, rose-of-sharon



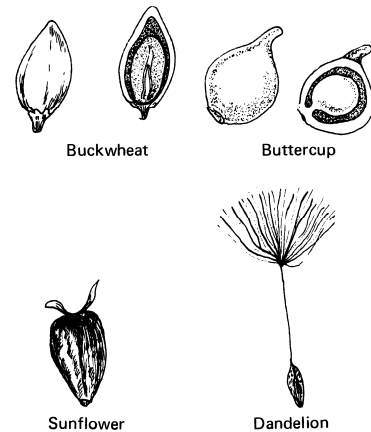
Silicle: dry, dehiscent, 2-carpellate; less than twice as long as wide; typical of the Brassicaceae (Cruciferae)



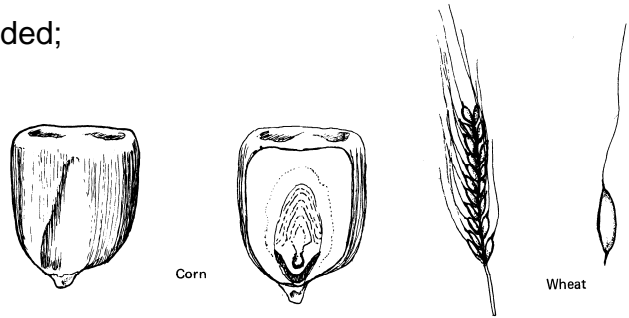
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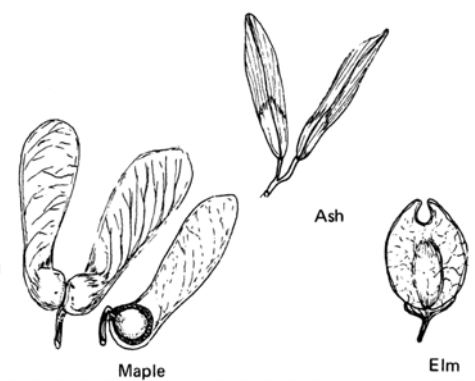
Achene: dry, indehiscent, 1 seeded;
 derived from simple or compound pistil;
 seed attached to pericarp at one point
 Examples: sunflower, dandelion, dock,
 buckwheat, buttercup



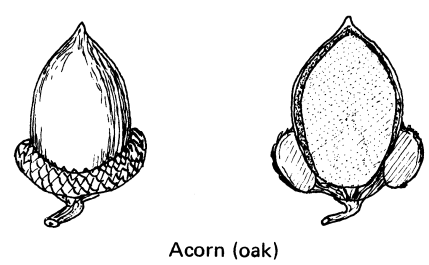
Caryopsis (Grain): dry, indehiscent, 1-seeded;
 derived from compound pistil;
 seed coat and pericarp fused;
 typical of Poaceae (Gramineae)
 Examples: wheat, corn, rice,
 rye, barley



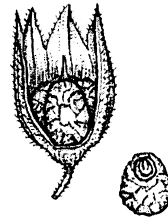
Samara: dry, indehiscent, 1 or 2-seeded;
 pericarp extended as flat wing(s);
 “winged achene”
 Examples: ash, elm, maple, tree-of-heaven



Nut: dry, indehiscent, 1 or 2-seeded;
 entire pericarp hard; usually
 associated with bracts
 Examples: oak, hickory, pecan, beech,
 hazelnut, chestnut, filbert, walnut



Nutlet: small, dry, indehiscent, 1-seeded;
 derived from 1/2 of a carpel; normally 4/flower
 Examples: mints (Lamiaceae/Labiatae),
 vervains (Verbinaceae),
 borages (Boraginaceae)



Legume: dry, dehiscent, 1 or multiseeded;
 dehiscent along two sutures;
 derived from a simple pistil;
 typical of Fabaceae, Caesalpiniaceae,
 Mimosaceae; (Leguminosae)



Pea

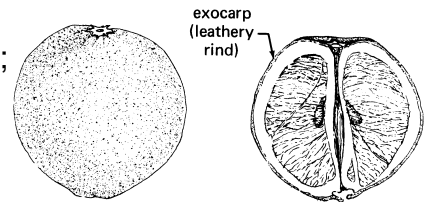
Examples: peas, beans, redbud, mesquite, mimosa, lespedeza

Berry: pericarp fleshy, undifferentiated, indehiscent;
 one or multiseeded;
 derived from a superior ovary
 Examples: tomato, grape, gooseberry,
 date, eggplant, pepper



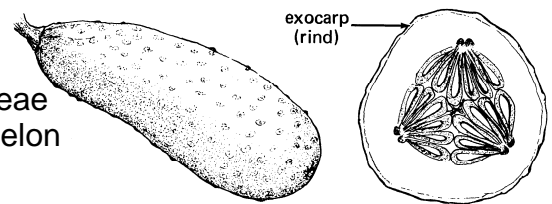
Berry (tomato)

Hesperidium: modified berry with leathery,
 separable rind and papery internal septa;
 typical of Rutaceae (Citrus Family)
 Examples: citrus fruits, orange,
 lemon, lime, grapefruit



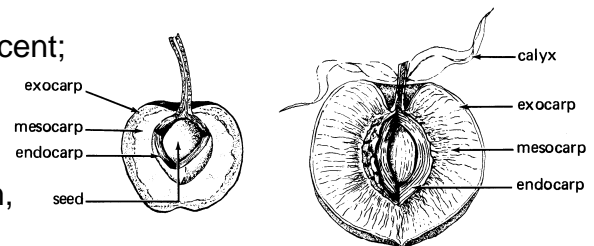
Hesperidium (orange)

Pepo: modified berry with hard, leathery,
 rind not separable; typical of Cucurbitaceae
 Examples: squash, cantaloupe, watermelon



Pepo (cucumber)

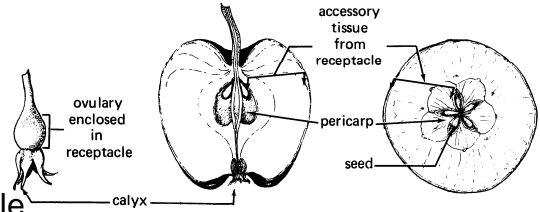
Drupe: pericarp fleshy, differentiated, indehiscent;
 1-seeded; thin exocarp; thick,
 flesh or fibrous mesocarp;
 hard endocarp (stone or pit)
 Examples: cherry, olive, peach, plum,
 almond, coconut



Drupe (cherry)

Drupe (peach)

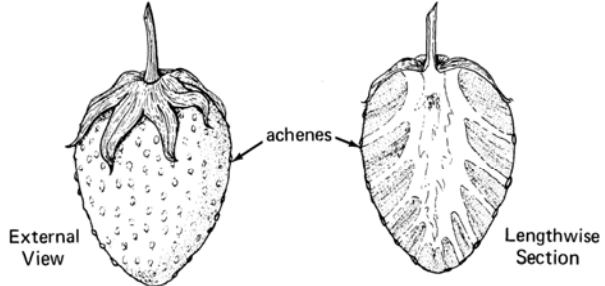
Pome: pericarp fleshy, undifferentiated, indehiscent; derived from inferior ovary; pericarp fused with receptacular tissue; typical of some members of Rosaceae
 Examples: apple, pear, quince, crab apple



Pome (apple—an accessory fruit)

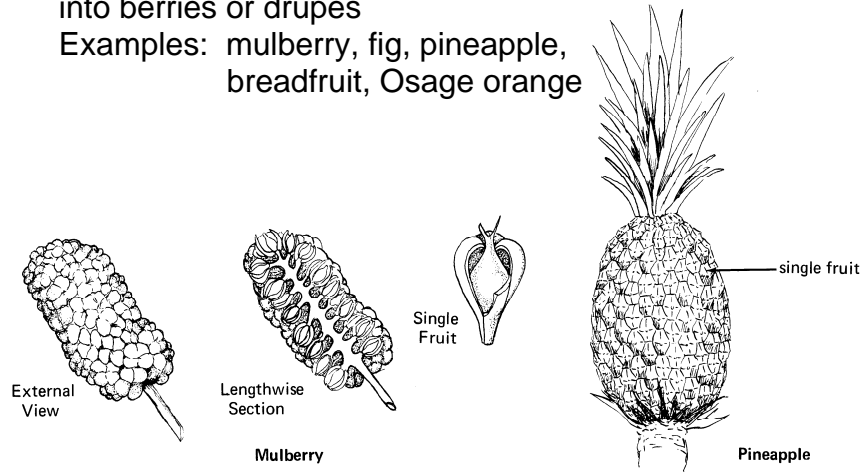
Highly modified fruits

Aggregate Fruit: derived from several pistils of one flower; individual ovaries may develop into achenes or drupes
 Examples: strawberry, raspberry, blackberry



Aggregate Fruit—Strawberry

Multiple Fruit: derived from pistils of several flowers; individual ovaries may develop into berries or drupes
 Examples: mulberry, fig, pineapple, breadfruit, Osage orange



Adaptive Significance of Fruit

- Seed Dispersal
 - Water
 - Wind
 - Animals
- Seed Protection