Importance of Seeds

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How important are seeds in our daily lives?

Name and occation
Slide 2

Importance of seeds

- Seeds for survival and subsistence.
- Seeds is worlds diet. (Cereals: Wheat, Rice, Oat, Barley)
- Seeds as feed grain. (Grains: Sorghum, millet, rye)
- Seeds as source of protein. (Fabaceae: Peanut, Soybean, Lentil, Bean, Pea and Chickpea)

Importance of seeds

- Seeds are used as whole or ground as spices. (Black paper etc.)
- Popular beverages coffee, cola and cocoa are derived from seeds
- Beers and ales are brewed from barley, and whiskey is distilled from fermented cereal grains.

Importance of Seeds

- Edible Oils are obtained from seeds. (Seeds of Corn, Soybean, Canola / Oilseedrape, Cotton, Peanut, Coconut, Palm, Sunflower, and Safflower)
- Seeds ae used in drugs and medicines manufacturing.
- Cotton, a major fibre for clothing
- Seeds are used in the manufacture of soaps, paints, varnishes, jewellery, buttons and many other products.

Importance of Seeds

- Edible roasted seeds. (Popcorns, Soybean, Peanut, Gram, almonds, pistachio)
- Vegetable Seeds.
- Flower seeds
- Fruits seeds.

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An introduction to the

Morphology of

Seeds

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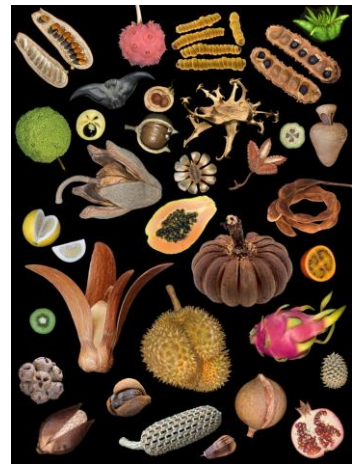


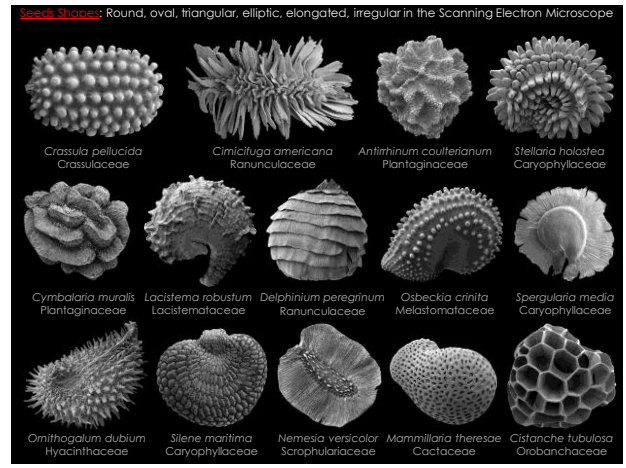
Objectives

1) understand and interpret the basic morphology of fruits and seeds

2) use scientifically correct terminology

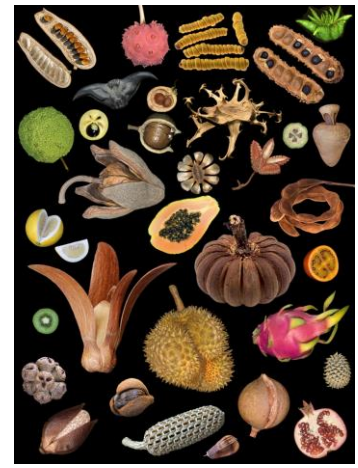
Seed Size: *Lodoicea maldivica* - the world's largest seed

The smallest seeds in the world are found in orchids



Seed Surfaces

- Smooth.
- Rough
- Textured
- Silky hairs
- Cottony messes
- Hooks
- Bristles
- Wings-like structures



Seed Dispersal

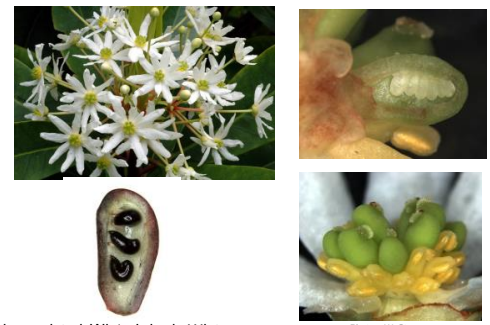
- Wind
- Water
- Animals
- Insects
- Birds
- Squirrels
- Ants
- Humans
- Machinery + Equipment

Where do seeds come from?

Drimys winteri, Winter's bark, Winteraceae

Photos: W. Stuppy

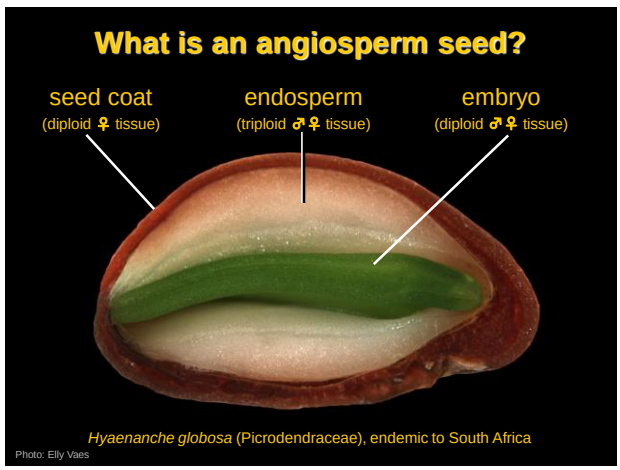
Flowering Process in Plants: Embryogenesis?



Drimys winteri, Winter's bark, Winteraceae

Photos: W. Stuppy

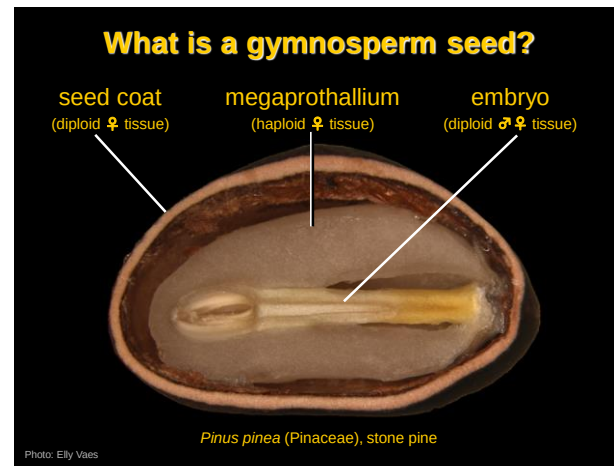
What is an angiosperm seed?



Hyaenanche globosa (Picrodendraceae), endemic to South Africa

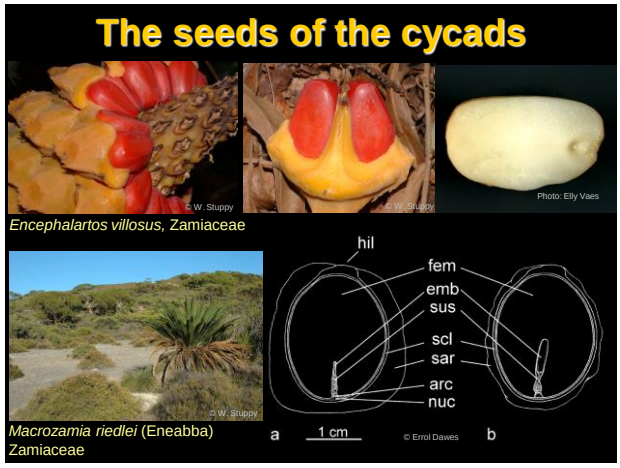
Photo: Elly Vaes

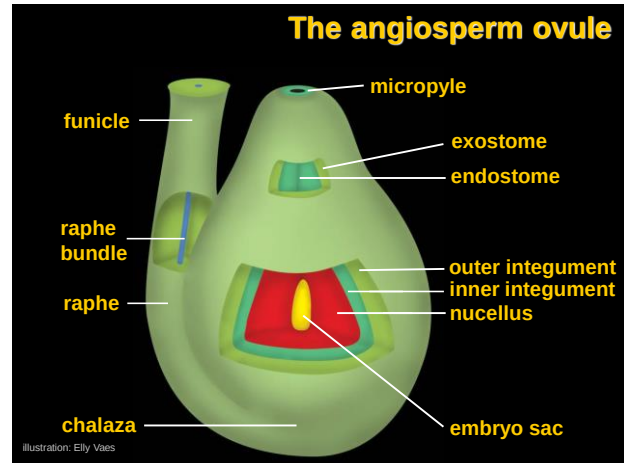
What is a gymnosperm seed?



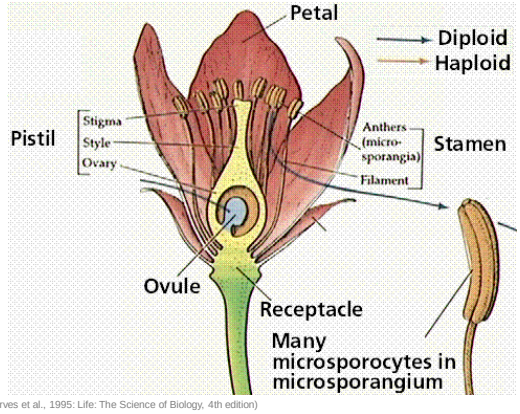
Pinus pinea (Pinaceae), stone pine

Photo: Elly Vaes



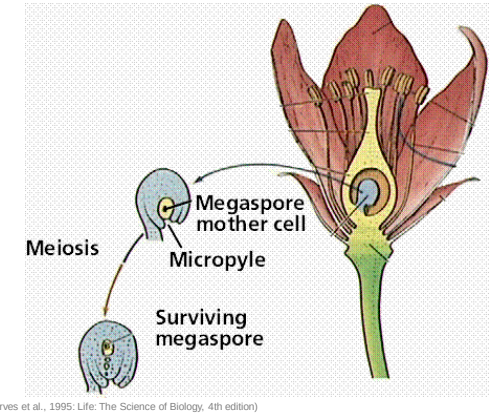


The angiosperm life cycle I



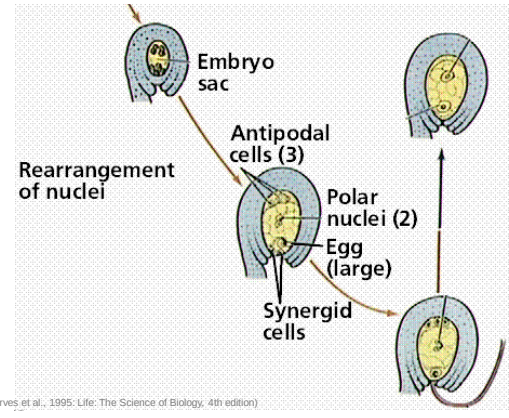
(from Purves et al., 1995: Life: The Science of Biology, 4th edition)

The angiosperm life cycle II



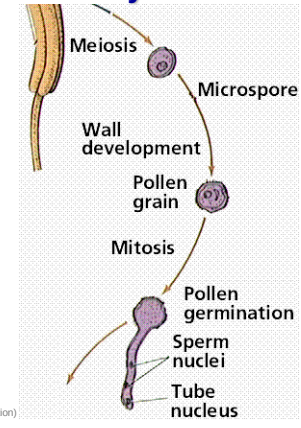
(from Purves et al., 1995: Life: The Science of Biology, 4th edition)

The angiosperm life cycle III



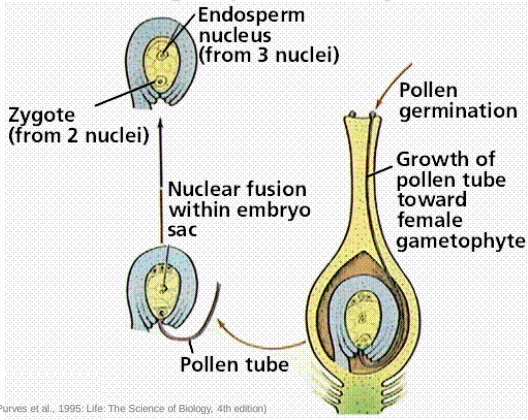
(from Purves et al., 1995: Life: The Science of Biology, 4th edition)

The angiosperm life cycle IV



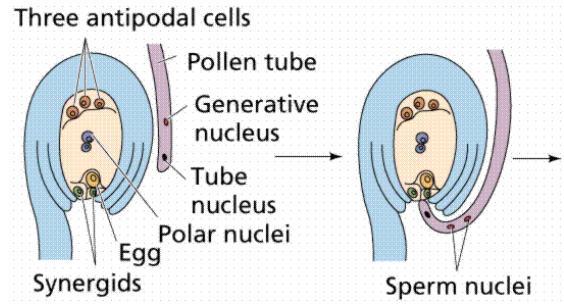
(from Purves et al., 1995: Life: The Science of Biology, 4th edition)

The angiosperm life cycle V



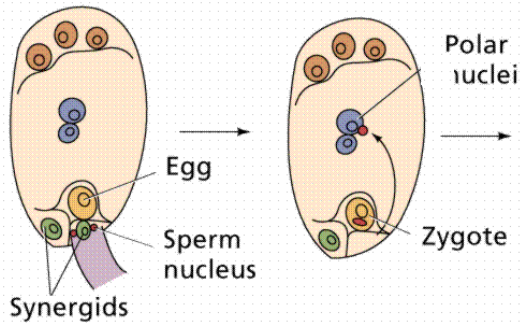
(from Purves et al., 1995: Life: The Science of Biology, 4th edition)

The angiosperm life cycle VI



(from Purves et al., 1995: Life: The Science of Biology, 4th edition)

The angiosperm life cycle VII



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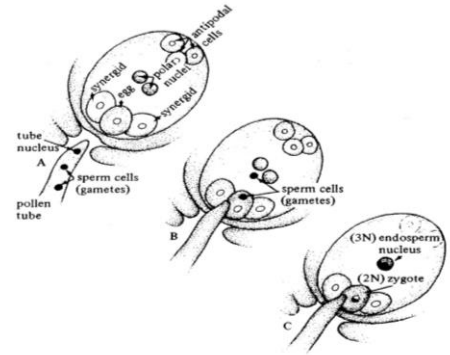

Figure 2.1. Double fertilization: (A) pollen tube with its two sperm cells and tube nucleus approaching the micropyle, (B) sperm cells approaching egg and polar nuclei, (C) double fertilization has occured.

Copeland & McDonald, 2005

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The angiosperm life cycle

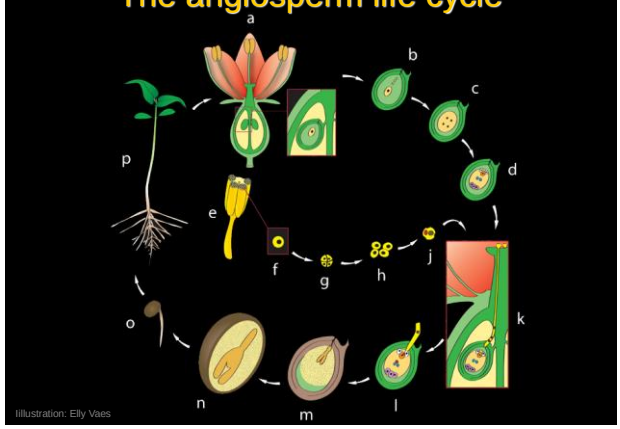
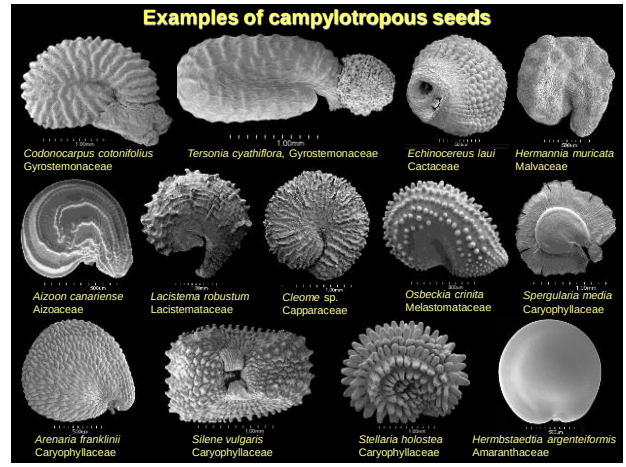
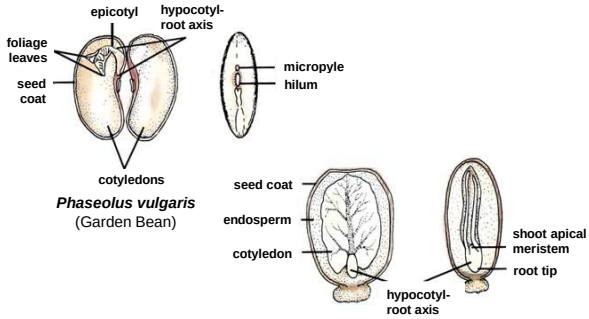


Illustration: Elly Vaes

Examples of campylotropous seeds

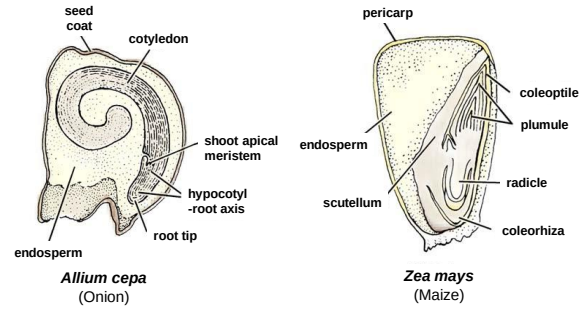


The dicotyledonous seed



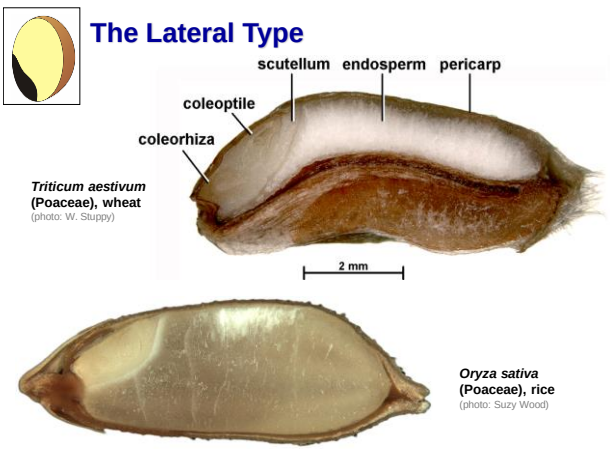
(from Raven et al. 1999)

The monocotyledonous seed

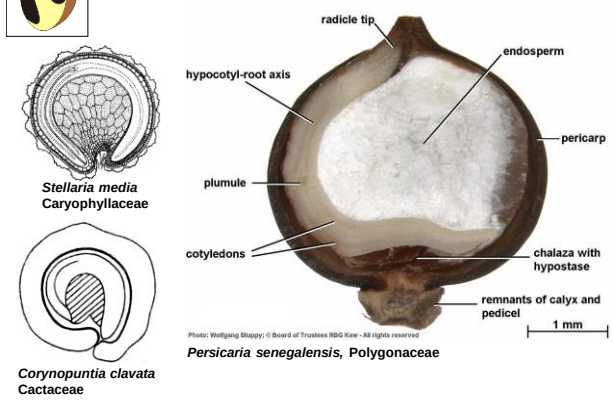


(from Raven et al. 1999)

The Lateral Type



The Peripheral Type



Further reading

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For advanced students:

Corner, E.J.H. 1976: *The Seeds of Dicotyledons*. 2 vols. Cambridge, Cambridge University Press

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