Introduction to Botany. Lecture 27

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Outline

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1. Questions and answers

2. Plant diversity
   - Systematics
   - Kingdom Vegetabilia, land plants
   - Phylum Bryophyta: mosses

Previous final question: the answer

What are Casparian strips?

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What are Casparian strips?

- Layers in the endoderm cell walls which do not allow water to come out of the vascular cylinder.

Plant diversity

Systematics

Basics of systematics

Terms covered:

- Systematics = taxonomy
- Species, taxonomic hierarchy
- Taxon, rank = category, classification
- Kingdom, phylum, class, order, family, genus, species
- Subclass, subfamily and other intermediate ranks
- Subspecies and cultivars

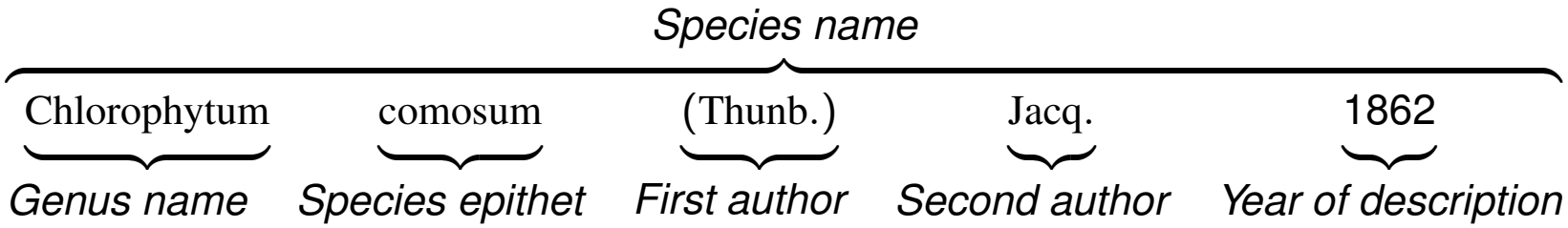
Biological nomenclature

Terms covered:

- Binomial name, species epithet, reference = citation
- Priority, starting dates, synonyms
- Nomenclature types
- Shortcuts: “sp.”, “spp.”, “s. l.” (wide sense), “s. str.” (strict sense), “i. s.” (position unknown)

Examples

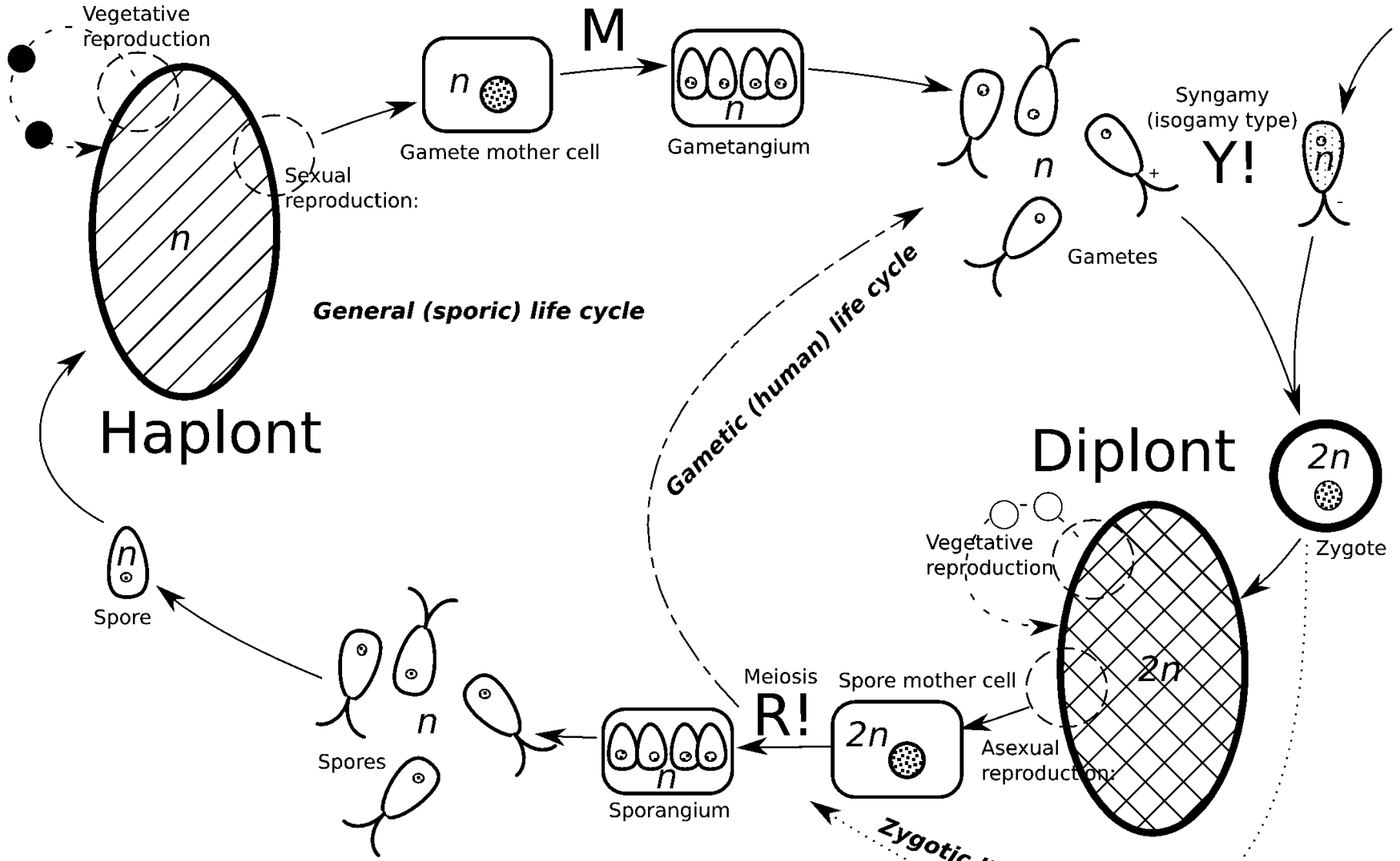
		Example 1	Example 2
Kingdom	Regnum	Vegetabilia	Animalia
Phylum	Phylum	Spermatophyta	Chordata
Class	Classis	Angiospermae (Magnoliopsida)	Mammalia
Order	Ordo	Liliales	Primates
Family	Familia	Asparagaceae	Hominidae
Genus	Genus	*Chlorophytum*	*Homo*
Species	Species	*Chlorophytum comosum* (Thunb.) Jacq. 1862	*Homo sapiens* L.



Plant diversity

Kingdom Vegetabilia, land plants

General life cycle



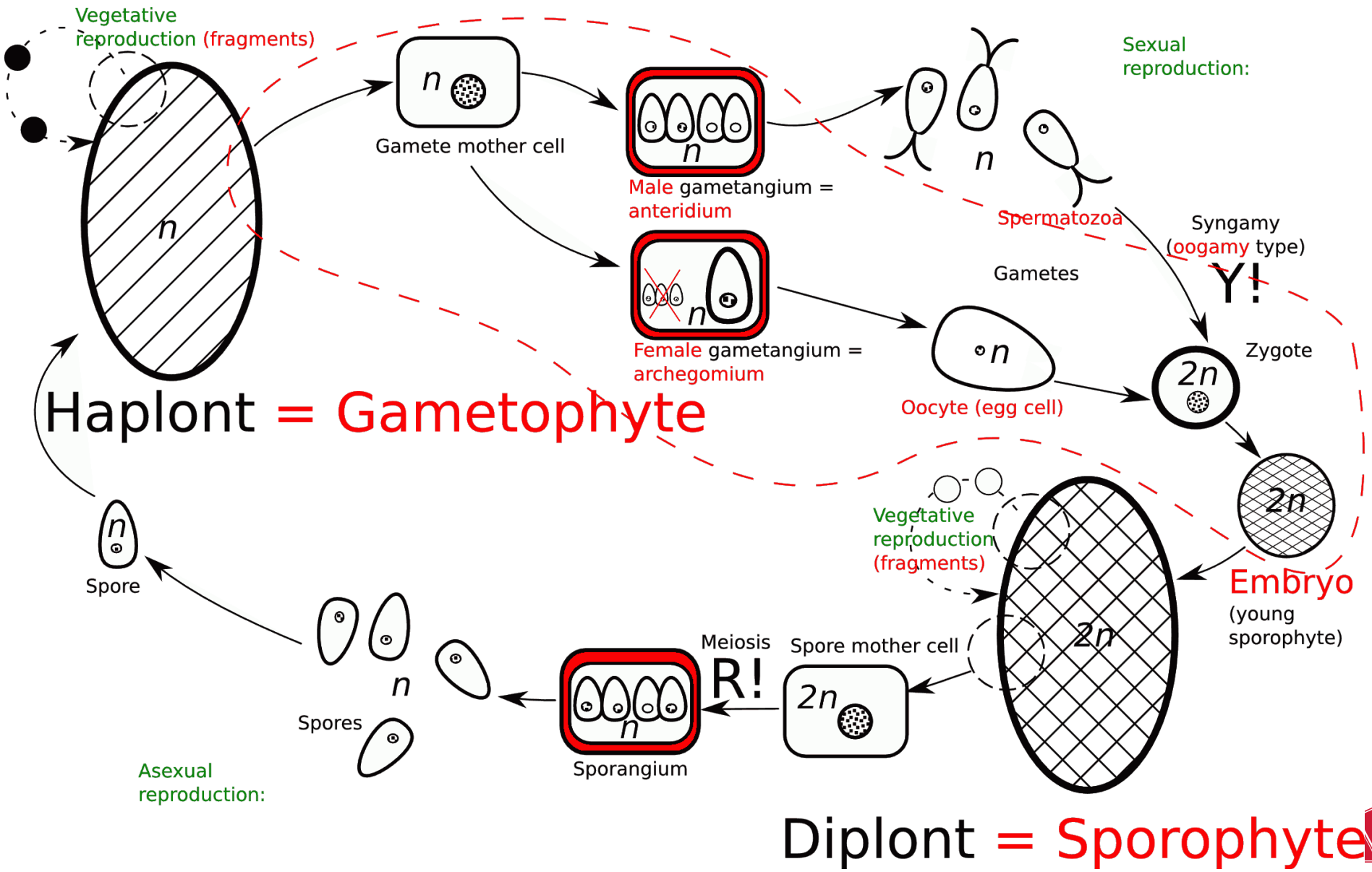
Eukaryote life cycles

Life cycle of land plants

Terms covered:

- Sporophyte and gametophyte
- Gametangia: archegonium and antheridium
- Spermatozoa and oocyte (egg cell)
- Embryo and parasitic sporophyte
- Predominance of sporophyte or gametophyte

Life cycle of land plants: differences



Three main phyla

- **Bryophyta**: gametophyte predominance
- **Pteridophyta**: sporophyte predominance, no seed
- **Spermatophyta**: sporophyte predominance, seed

Plant diversity

Phylum Bryophyta: mosses

Bryophyta

- $\approx 20,000$ species
- Sporic life cycle with gametophyte predominance*
- Sporophyte reduced to sporogon (sporangium with seta), usually achlorophyllous, parasitic
- No roots, only rhizoid cells (long hairy dead cells capable for apoplastic transport)
- Poikilohydric plants
- Gametophyte starts development from protonema

For Further Reading

A. Shipunov.
Introduction to Botany [Electronic resource].
2015.
Mode of access:
http://ashipunov.info/shipunov/school/biol_154