

Sporophyte and Gametophyte :

- Sporophyte is the **diploid** (2n) phase in the life cycle of a plant produced from **diploid zygote** and which produces **haploid spores**.
- Gametophyte is **haploid** (n) phase in the life cycle of a plant produced from **haploid spore** and which produces **haploid gametes**.

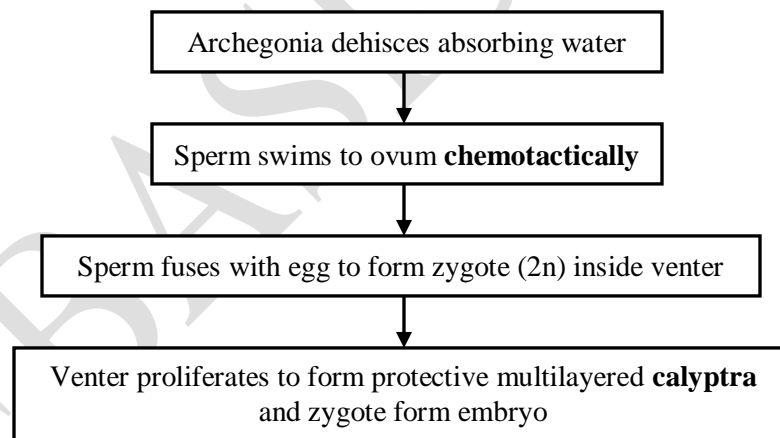
Characteristics of Bryophytes :

(i) Gametophytic Plant body :

- Dominant** main plant body
- Independent, autotrophic and chlorophyllous.
- With unicellular (smooth or pegged walled) or multicellular **rhizoids** for absorption and anchorage.
- Plant body is (1) either **thalloid** (thallus like)
(2) or **foliose** (leaf like)
(3) or **cauloid** (stem like).
- Sex organs multicellular with sterile jacket.
- Antheridium**. Male sex organ, shortly stalked club-shaped, consists of a jacket of sterile cells and a mass of **sperm mother cells** (n).



- Archegonium**. Female sex organ, flask-shaped, consists of a tubular **neck** and a basal swollen **venter**.
(1) Neck - with a row of **neck canal cells** (n),
(2) Venter - with 1 **venter canal cell** (n) + 1 **egg or oosphere** (n).
- Fertilization**. Oogamous



(ii) Sporophytic Plant body :

- Dependent** on gametophyte.
- Generally differentiated into three parts - **foot**, **seta** and spore bearing **capsule**.

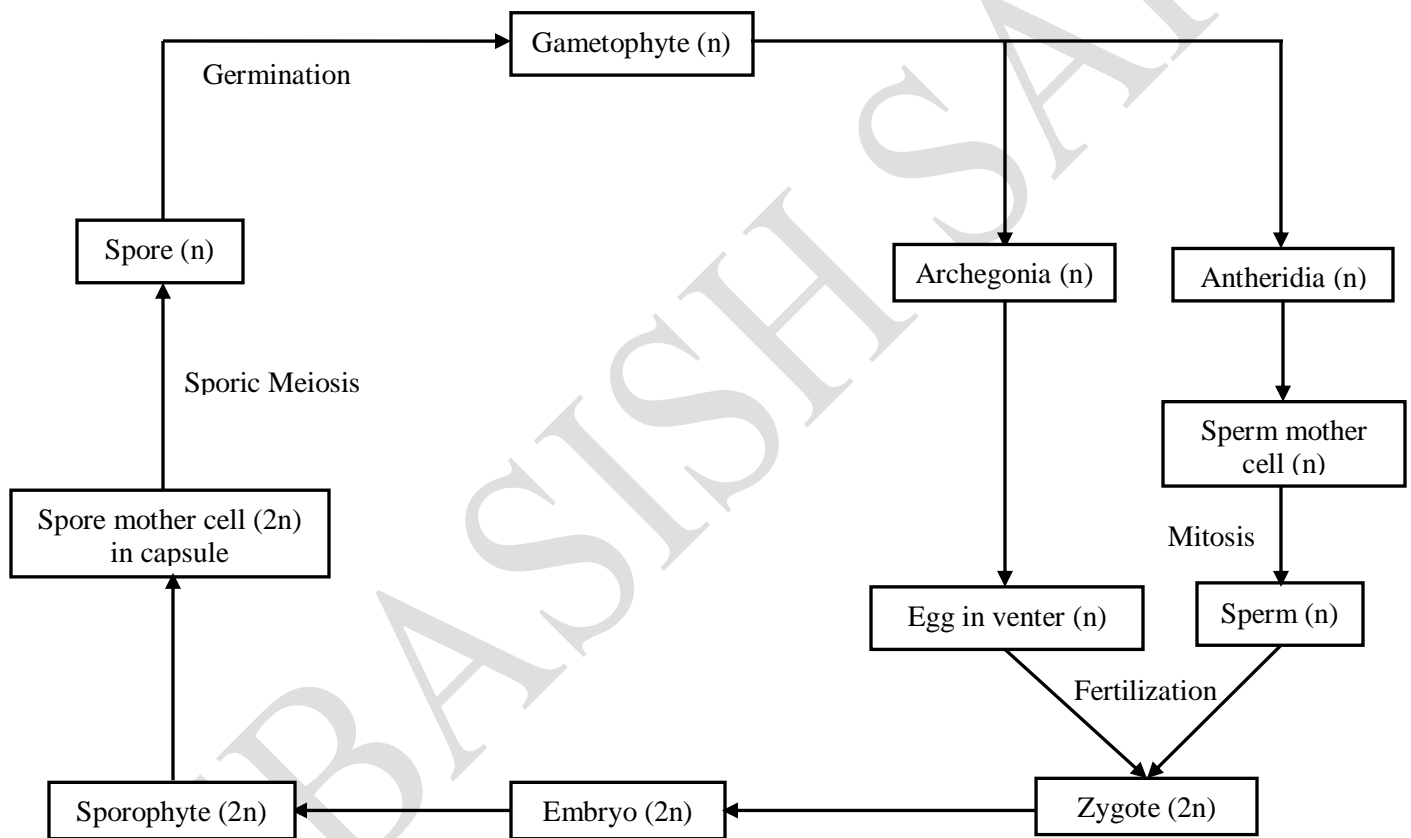
(c) **Homosporous.**

Amphibians of Plant Kingdom:

Bryophytes are terrestrial plants but they require at least a thin film of water on the surface of their substratum **during sexual reproduction** for fertilization. So, they are also known as amphibians of plant kingdom. External film of water is required for the-

- (i) Supply of water to all parts through capillarity as rhizoidal absorption is insufficient.
- (ii) Absence of cuticle.
- (iii) Dehiscence of antheridia requires and archegonia.
- (iv) Swimming of sperms to reach the egg.

Life cycle of Bryophyte :



Differences between Thallophyta and Bryophyta :

- | | |
|---------------------------------------|--|
| Thallophyta | Bryophyta |
| 1. Unicellular sex organs | Multicellular sex organs |
| 2. Sex organs are non-jacketed | Sex organs are covered by sterile jackets |
| 3. Embryo absent. | Embryo present |

Classes of Bryophytes :

Group	Gametophyte	Position of Sex organ	Sporophyte	Asexual/Vegitative Reproduction	Example

Hepaticopsida (liverworts)	Dorsiventral (20% thallose, 80% foliose) unicellular rhizoids , Amphigastrial scales present	Embedded in thallus (<i>Riccia</i>), on receptacle <i>Marchantia</i> Axil of leave (<i>Porella</i>)	Parasitic, capsule with elaters	Fragmentation and gemmae	<i>Riccia</i> , <i>Marchantia</i>
Bryopsida (Moss)	differentiated into young filamentous protonema stage and mature leafy foliose stage with radial symmetry, with branched multicellular rhizoids	tips of leafy branches, different branches (autoicous) or same branch different group. (paroicous) or intermingled (synoicous)	Autotrophic, capsule with peristome and operculum	Fragmentation and budding	<i>Funaria</i> , <i>Polytrichum</i> , <i>Sphagnum</i> (FPS)

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