Notes - Spore Bearing – Bryophytes and Tracheophytes

Part 1 – **Bryophytes**

- _____ and _____ are believed to be the first plants to move onto land. This is a monumental undertaking. To understand this let's look at the requirements to survive on land:

1.)
2.)
3.) Rigid support for leaves to be exposed to sunlight for photosynthesis.
4.) Transport minerals and nutrients up and products of photosynthesis down.
5.)

- Bryophytes – _____, _____, _____ – first plant to **try** for the fab five.

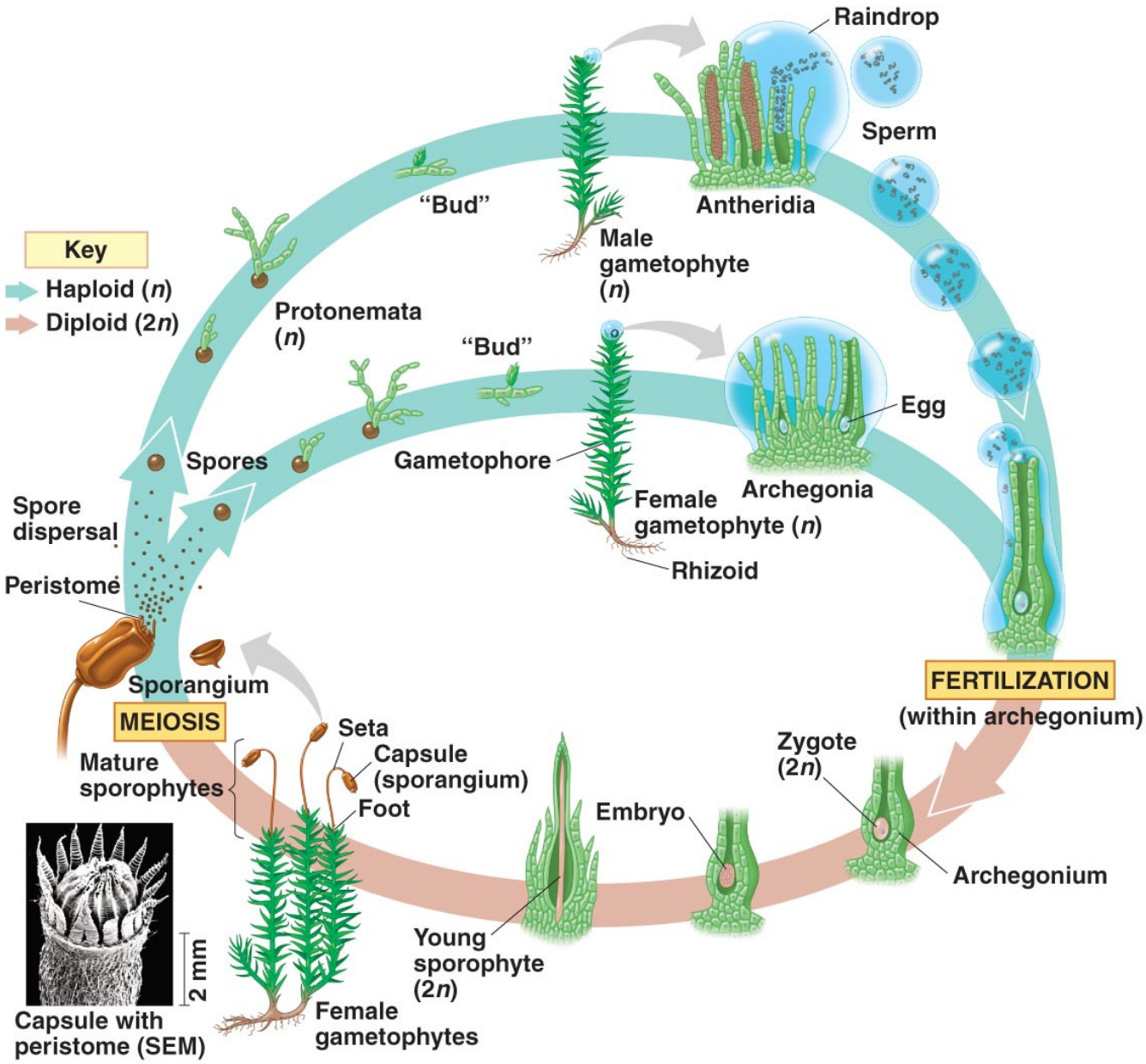
1.) Provide water to all cells ~~and minimise evaporative losses~~. (grow low in height) (weak spot)
2.) Exchange water and carbon dioxide with environment. (osmosis and diffusion) (weak spot)
3.) ~~Rigid support for leaves to be exposed to sunlight for photosynthesis.~~
4.) ~~Transport minerals and nutrients up and products of photosynthesis down.~~
5.) Reproduction. (spores) (weak spot as needs water)

Two and half out of five is mediocre. Obtained 1, 2, 5. They need _____ for reproduction to occur. Usually only a few centimetres tall as there are no _____ _____. This means water moves between cells by osmosis. Bryophytes contain _____ for anchoring the plant. Rhizoids do not absorb nutrients or transport like roots do. _____ are only one cell thick so evaporation occurs quickly.

- Bryophytes have an alternating life cycle like algae. The _____ generation is the dominant stage. Sexual reproduction occurs through the production of specialised organs. The male antheridium produce sperm, and the female _____ produce the egg. After fertilisation the zygote will develop into a _____ to release microscopic _____ that develop in the sporophyte.

Moss

Liverwort



Part 2 – **Tracheophytes**

- Tracheophytes are considered the first "true" land plants. This is due to the fact they don't rely on _____ for any part of their life cycle.

  1.) Provide water to all cells and minimise evaporative losses. (_____)
  2.) Exchange water and carbon dioxide with environment. (vascular tissue)
  3.) Rigid support for leaves to be exposed to sunlight for photosynthesis. (_____)
  4.) Transport minerals and nutrients up and products of photosynthesis down. (vascular tissue)
  5.) Reproduction. (spores) (_____)

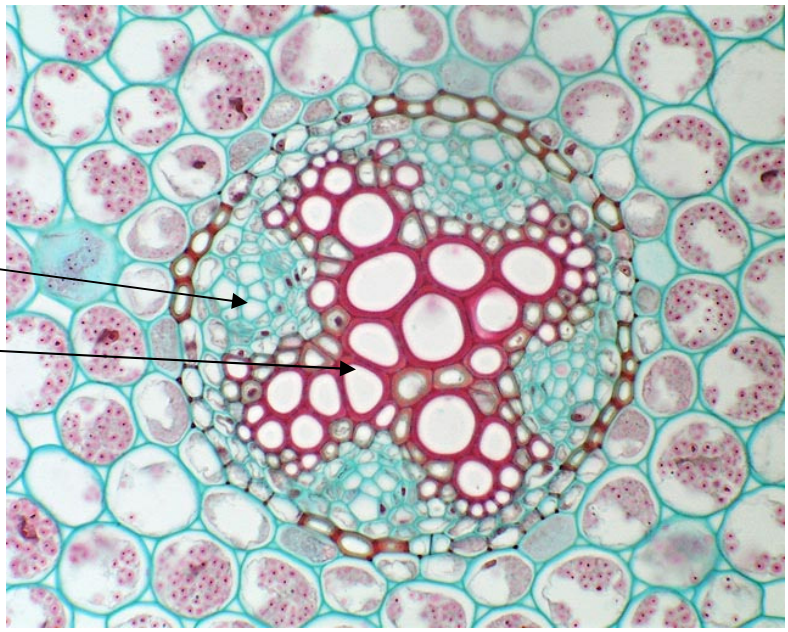
- Tracheophytes – _____ - first plant to **achieve** the fab five. Ferns have _____ _____. Vascular tissues are specialised cells that allow for the movement of water, nutrients, and _____. Vascular tissues are akin to our _____ _____. Ferns have true roots and leaves that need to be connected by the vascular system. Vascular tissues are gathered into a bundle called _____ _____. They are made up of _____ and phloem:

  1.) Xylem – composed of tracheid cells (_____) that build straw like tubes that carry water up from roots.

  2.) Phloem – straw like tubes that carry nutrients and photosynthesis products _____ from leaves.

_____ (blue)

Xylem (pink)



- Ferns have all three tissues needed for life on land; roots, stems and Fronds (leaves).

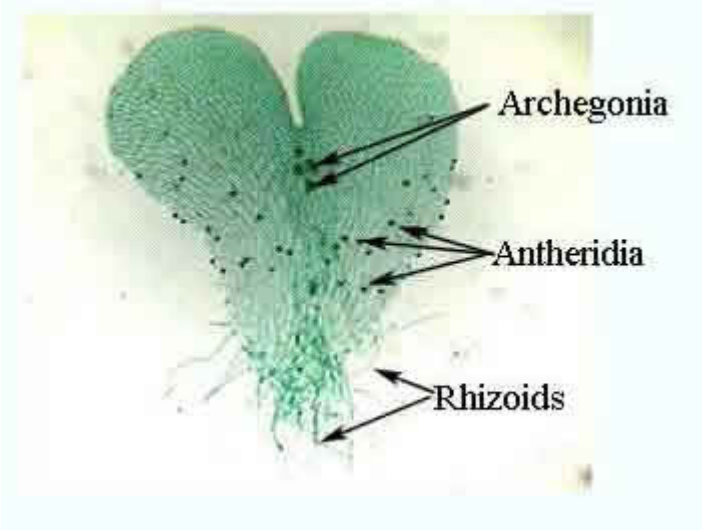
  1.) Roots – anchor and absorb water and minerals

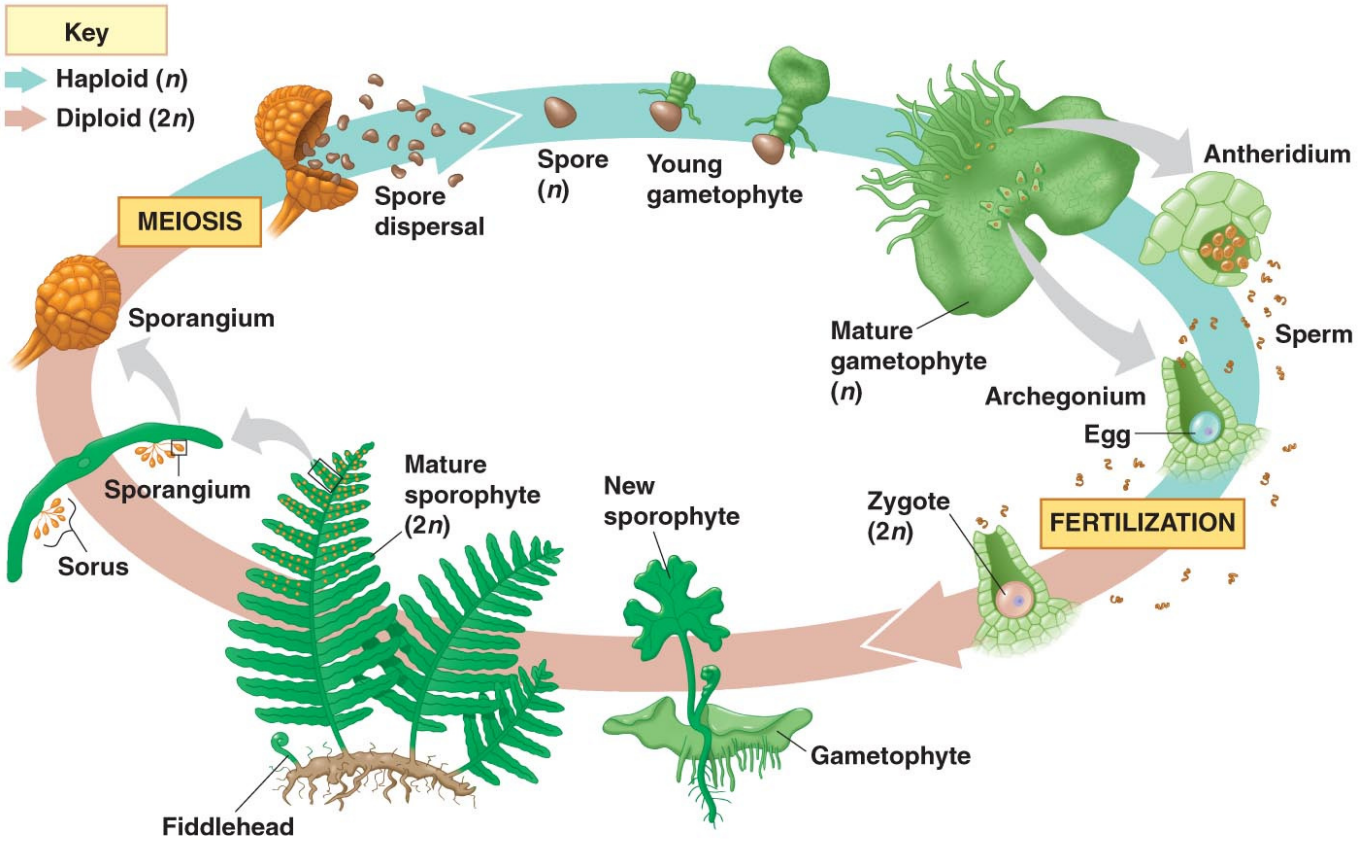
2.) Stems and rhizomes – stems support the plant to give it height and not be blocked from the sun. Rhizomes are _____ stems that all horizontal growth and not just vertical.

3.) _____(leaves) – contain photosynthetic organs (_____), waxy _____ to minimise water loss, veins containing vascular tissues for transport, and a large _____ _____ for sunlight capture.

- Ferns also have an alternation of generations. They are opposite mosses in that the (___) sporophyte generation is the dominant form. _____ are produced by a sporangia which are clumped together in the underside of the frond and called a _____.

The spores develop into a haploid heart shaped gametophyte (N) called a _____. Ferns also need water for sperm to swim to the egg.





Part 3 - Bryophyte Impact

- Mosses help stabilise and retain water in soil, lower pH and add nutrients why they decompose.
- Fern _____ are considered a delicacy for eating. Fiddleheads are the name given to new fern fronds as they are just beginning to grow.