CHARACTERS	ALGAE / FUNGI	BRYOPHYTA	PTERIDOPHYTA	GYNMOSPERMAE	ANGIOSPERMAE
HABITAT	Mainly aquatic/ terrestrial	First **land plants**	First successful land plants	Land All are woody perennial tree None is herb and aquatic.	Land + aq.
No of species	40000 / 72000	25000	12000	70 genera/900 sp., smallest group	300000
	cryptogams	Cryptogams	Cryptogams	Phanerogams without ovary	Phanerogams with ovary
	Non flowering plants	Non flowering plants	Non flowering plants	**Flowering plants produce cones**	**Flowering plants produce flowers**
	Avascular plants Atracheophytes	Avascular plants Atracheophytes	First Vascular plants Tracheophytes	Vascular plants Tracheophytes	Vascular plants Tracheophytes

	Conduction by diffusion etc (short distance)	Conduction by diffusion etc (short distance)	**Long distance** + short distance)	**Long distance** + short distance)	**Long distance** + short distance)
			Have **sieve cells** and **albuminous cells**	Have **sieve cells** and **albuminous cells,** Vessel present in ***Gnetum, Ephedra***	
Main plant body (One generation)	**Gametophyte –** green in algae/ non green in fungi	**Gametophyte** – green (**Most developed gametophyte**) No true stem , leaf , root	**Sporophyte-** green Have true stem , root, leaf Advetitious root	**Sporophyte-** green Have true stem , root, leaf Tap root All are woody	**Sporophyte-** green Have true stem , root, leaf Advetitious/ tap root

				xerophytic trees	
Other generation	Typical sporophyte is absent and it is represented by Zygote	Sporophyte is partially or completely dependent on gametophyte	Gametophyte is reduced , **green** and **independent**	Gametophyte is reduced and dependent on sporophyte	Gametophyte is highly reduced and dependent on sporophyte
Asexual rep.	zoospores , aplanospores, fragmentation, Budding, fission, conidia	No mitospore gemmae, etc protonema	No mitospore	No mitospore	No mitospore
				Produce **cones**	Produce **flowers**
				Seed producers Spermatophytes	Seed producers Spermatophytes
	No ovules	No ovules	No ovules	Naked seed /ovules	Covered ovules inside ovary

				No placenta	Placenta present
				No fruit formation	Fruit formation
Types of meiospores	Homosporous	Homosporous	Mostly Homosporous Some heterosporous Ex- ***Selaginella, Marsilea, Salvinia, Azolla,***	Heterosporous Cone producer	Hetersporous Flower producer
Meiosis	Zygotic	sporic	Sporic	Sporic	Sporic
Sex organs **(Gametangia)**	Unicellular and non jacketed Except – ***Chara, Nitella*** (green algae)	multicellular and jacketed	multicellular and jacketed	multicellular and jacketed	multicellular and jacketed

Male sex organ	Antheridia	Antheridia, Ciliated sperms	Antheridia, Ciliated sperms	Antheridia absent Ciliated sperms in ***Cycas,Ginkgo, Metasequoia*** *(living fossils)*	Antheridia absent nonciliated sperms
Female sex organ	Oogonia Ascogonia carpogonia	Archegonia, **Archegoniates**	Archegonia, **Archegoniates**	Archegonia, **Archegoniates** except ***Gnetum***	Archegonia absent
Syngamy	Isogamy, Anisogamy Oogamy	Only Oogamy	Only Oogamy	Only Oogamy	Only Oogamy
Fertilisation	External or Internal	Internal	Internal	Internal	Internal
Medium of	Water	Water	Water	Pollen tube	Pollen tube

Fertilisation (carrier of male gamete)	Zoiodogamy	Zoiodogamy	zoiodogamy	siphonogamy	Siphonogamy
Zygote	Thick walled called **zygospore**	Thin walled and have no resting phase	Thin walled no resting phase	Thin walled no resting phase	Thin walled no resting phase
Pollination	No	No	No	Only • **cross** • **air** • **direct**	Self or cross indirect
Division in zygote	Meiosis	Mitosis	Mitosis	Mitosis	Mitosis

Embryo	Absent	Present **First embryophytes**	Present Embryophytes	Present Embryophytes	Present embryophytes
		Embryo produses sporophyte	Embryo produses sporophyte	Embryo produses sporophyte	Embryo produses sporophyte
Life cycle	**Haplontic** **Haplo-diplontic** in *Laminaria, Polysiphonia,* Kelps **Diplontic in** *Fucus,*	Haplo-diplontic	Haplo-diplontic	Diplontic	Diplontic
Pigment	Chl- **a,b,c,d**	Chl- a,b	Chl- a,b	Chl- a,b	Chl- a,b

		Amphibians of plant kingdom	Amphibians of plant kingdom **Botanical snakes**	**ABSENT** Antheridia Ovary, Vessels, Companion cells, Sieve tubes, Lateral veins in leaf	
Examples		***Funaria*** ***Pogonatum*** ***Potytrichum*** ***Sphagnum***	***Adiantum*** ***Pteris*** ***Dryopteris***	***Sequoia*** ***Thuja*** ***Araucariaa*** ***Cedrus*** ***Gnetum***	