

The logo of Galgotias University is a stylized circular emblem. It features three curved, overlapping bands in shades of yellow, blue, and red, set against a light pinkish-red circular background. The bands are arranged in a way that suggests a globe or a dynamic, swirling motion.

# **Algae- Life Cycle**

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# Life cycle

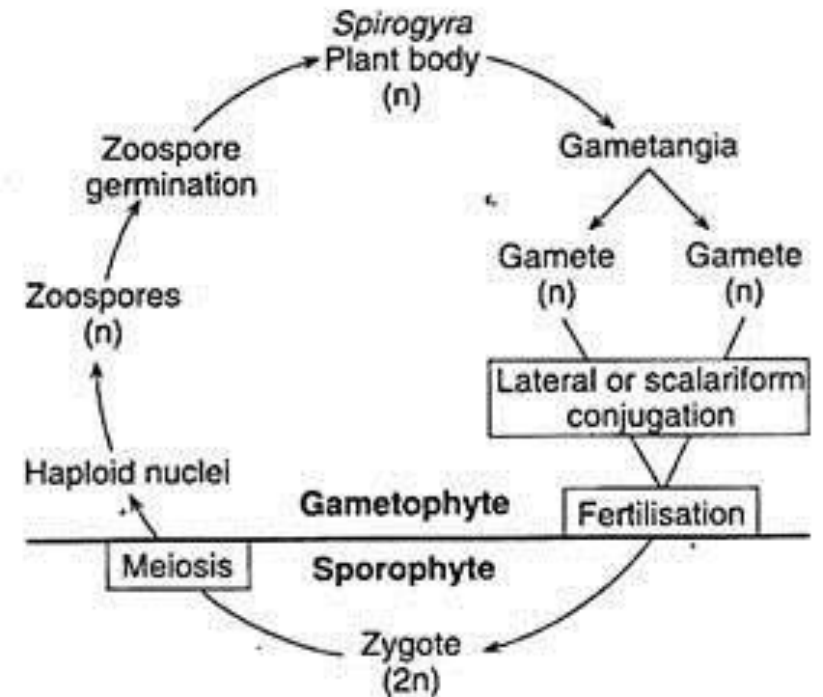
It includes a sexual reproduction comprising fusion of gametes followed by meiosis or reduction division. Hence, there is an alteration of haploid and diploid generation.

**5 types of life cycles are identified:**

- 1. Haplotonic**
- 2. Diplotonic**
- 3. Diplohaplotonic**
- 4. Haplobiotonic**
- 5. Haplo-diplobiontic**

# Haplontic Life Cycle

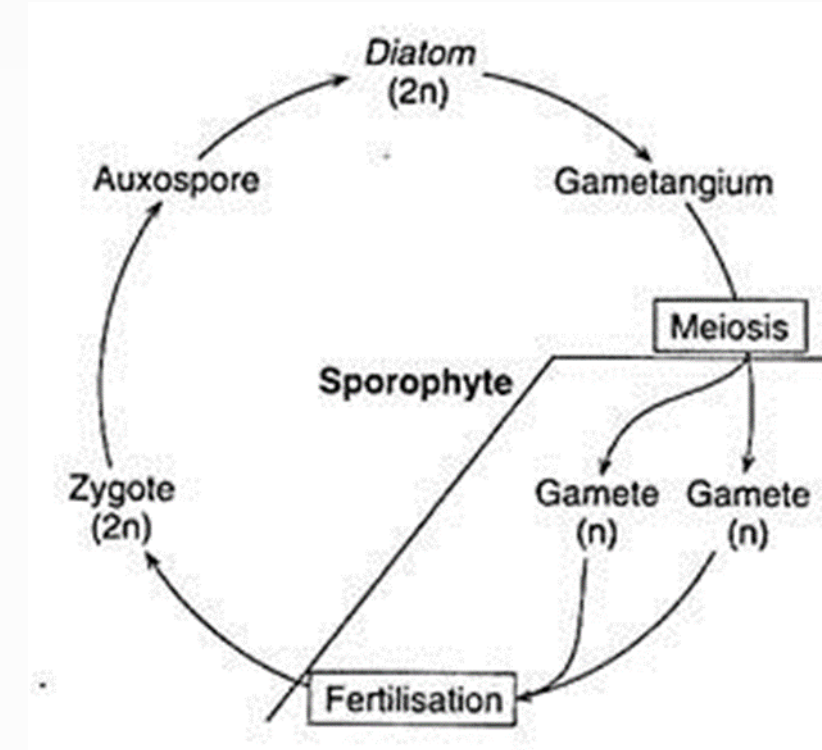
- The plant is haploid or gametophytic. The plant produces gametes (n) which fuse in pairs to form zygote (2n).
- The zygote represents the diploid or sporophytic phase.
- Zygote undergoes reduction division to form haploid zoospores, which get germinate to new plant.
- Thus the diploid phase is transitory only.
- Haploid phase is predominate.
- Eg: *Ulothrix*



**Haplontic Life Cycle (*Spirogyra*)**

# Diplontic Life Cycle

- The plant is diploid. It produces the gametes which are haploid.
- During the formation of gametes, the reduction phase occurs.
- Gametes on liberation fuse in pairs to form zygote ( $2n$ ).
- Diploid phase is dominant and haploid phase is short-lived.
- Eg: *Saragassum*

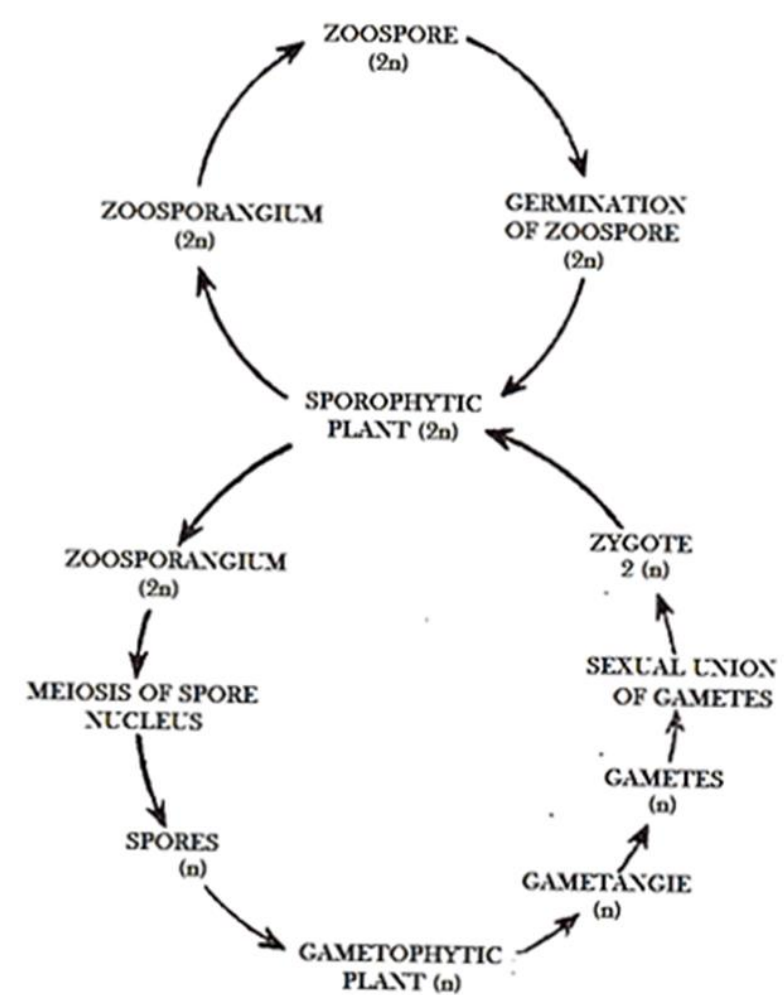


**Diplontic Life Cycle (Diatoms)**

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# Diplohaplontic Life Cycle

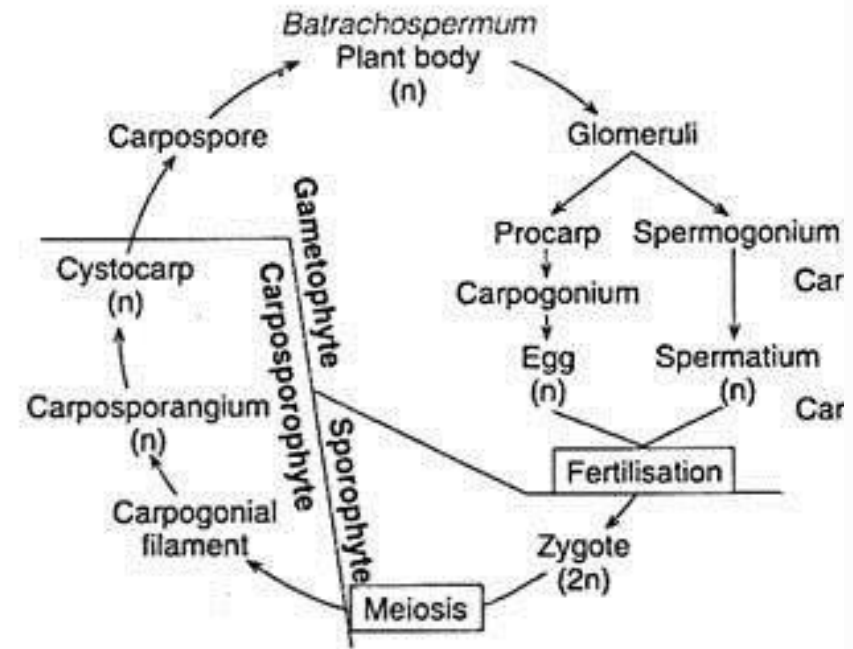
- In this type of life cycle there is an alteration of sporophytic ( $2n$ ) and gametophytic ( $n$ ) generations.
- Haploid and diploid plants are free living, and equally distributed in life cycle.
- Sporophytic ( $2n$ ) phase undergoes for meiosis to form zoospores which led to germinates into gametophytic ( $n$ ) plant.
- The gametes ( $n$ ) fuses in pairs to form zygote ( $2n$ ) and give rise to diploid plant.
- Eg: *Cladophora*



**Diplohaplontic Life Cycle**

# Haplobiontic Life Cycle

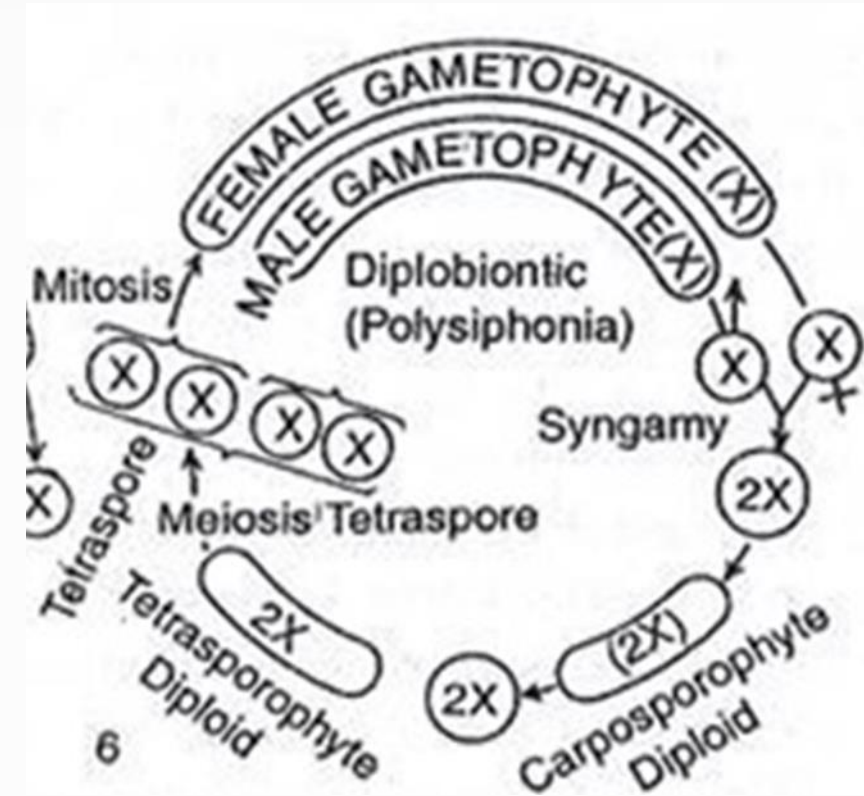
- In this life cycle there are two haploid phase and one diploid phase.
- Diploid phase represented by zygote.
- Eg: *Batrachospermum*

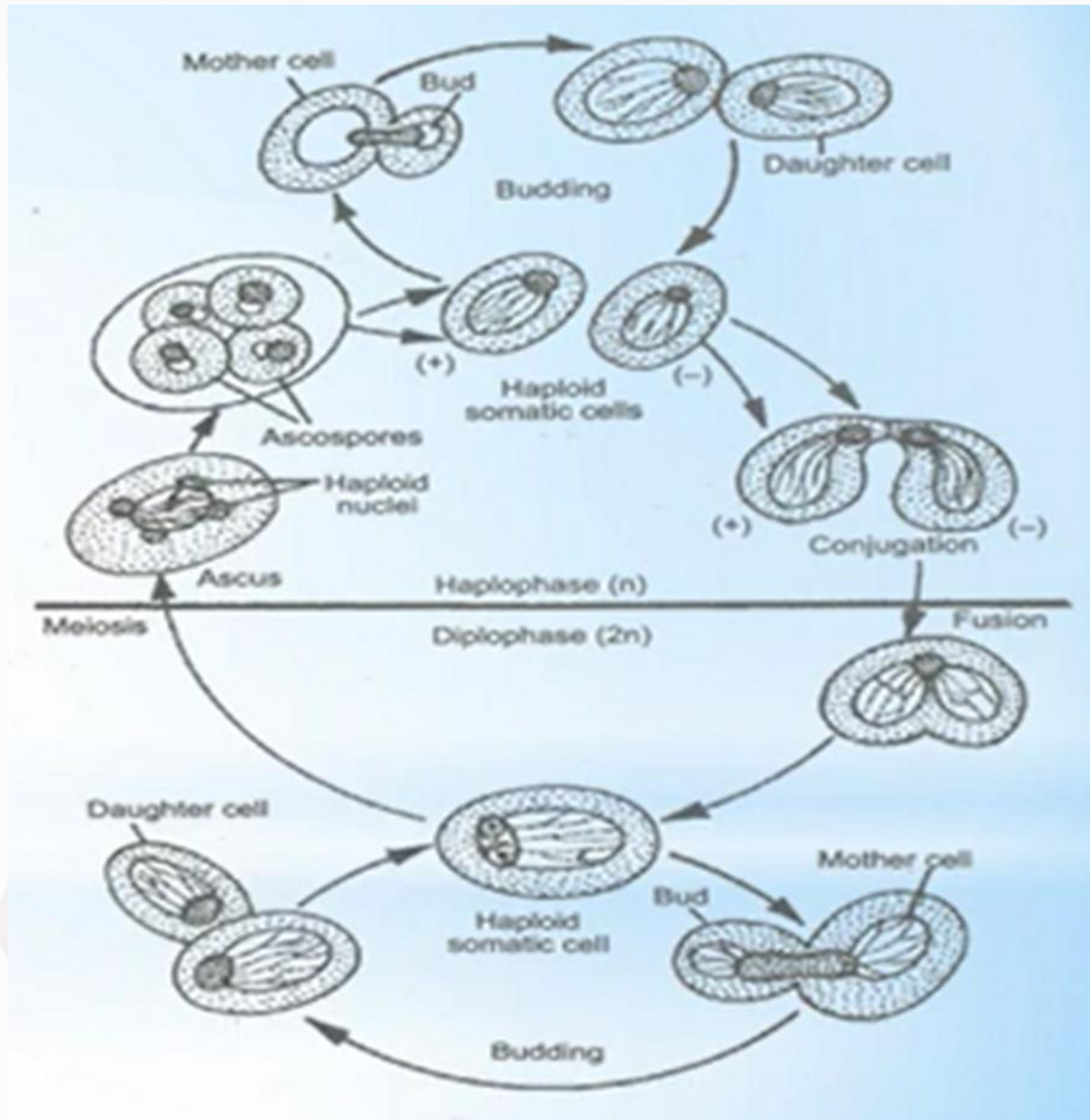


**Haplobiontic Life Cycle**

# Haplo-diplobiontic Life Cycle

- In this life cycle there is one haploid phase and two diploid phases.
- Haploid phase is represented by male and female gametophytic plants, which develop sex organs in which gametes are formed.
- Gametes fuse in pairs to form zygote ( $2n$ ).
- The first diploid phase is represented by zygote and the second diploid phase is represented by tetrasporophytic plant, which produce tetraspore.
- Tetraspores on germination develop into gametophytic plant.





**Haplo-diplobiontic Life Cycle**



# References:

- Phycology (4th Edition) R.L. Lee, Cambridge University Press, 2008.
- Algae- An introduction to Phycology- C Van den Hoek, DG Mann, HM Janes, Cambridge University Press, 1995.
- <https://www.biologydiscussion.com/algae/>

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