

# Designing accessible seaweed life cycle illustrations

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## Project Rationale

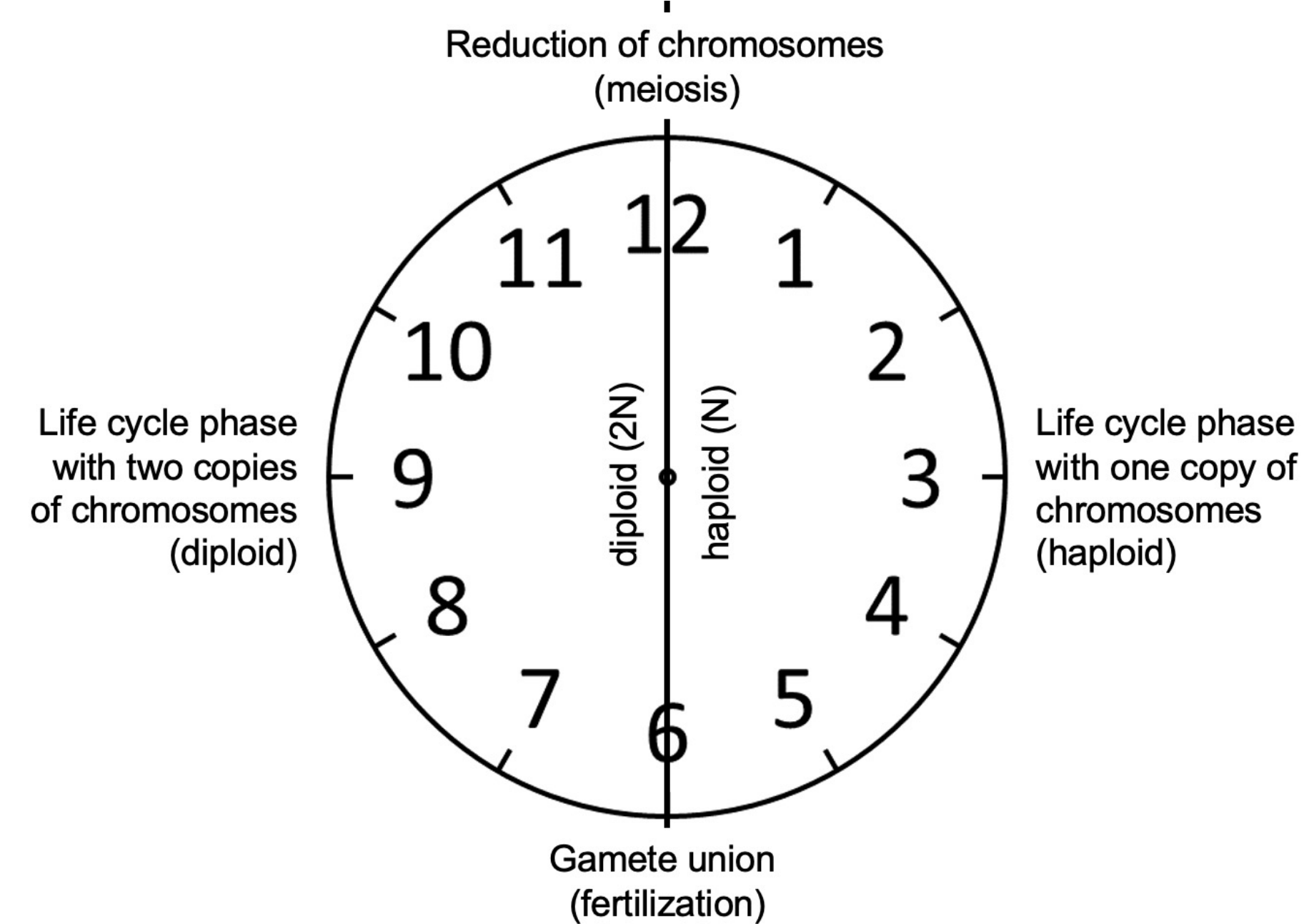
Seaweeds are the ocean's equivalent of land plants and just as important. And yet seaweeds and their life cycles are rarely taught outside of specialty courses. Why is that?

- Most seaweed life cycles are unavailable outside of speciality textbooks or literature.<sup>1</sup>
- Most life cycles use expert-level terminology that is not explained for a general audience.<sup>2</sup>
- Most seaweeds life cycles are quite different from the human life cycle and can be challenging to relate to.<sup>3</sup>

## Project Goals

- Illustrate life cycles for important B.C. seaweeds, including: Giant Kelp, Green Rope, Rockweed, and more.
- Publish the life cycles under a Creative Commons BY-NC-SA license on the Beaty Biodiversity Museum's Explore Algae site: <https://explore.beatymuseum.ubc.ca/algae/>

## Life Cycle Template

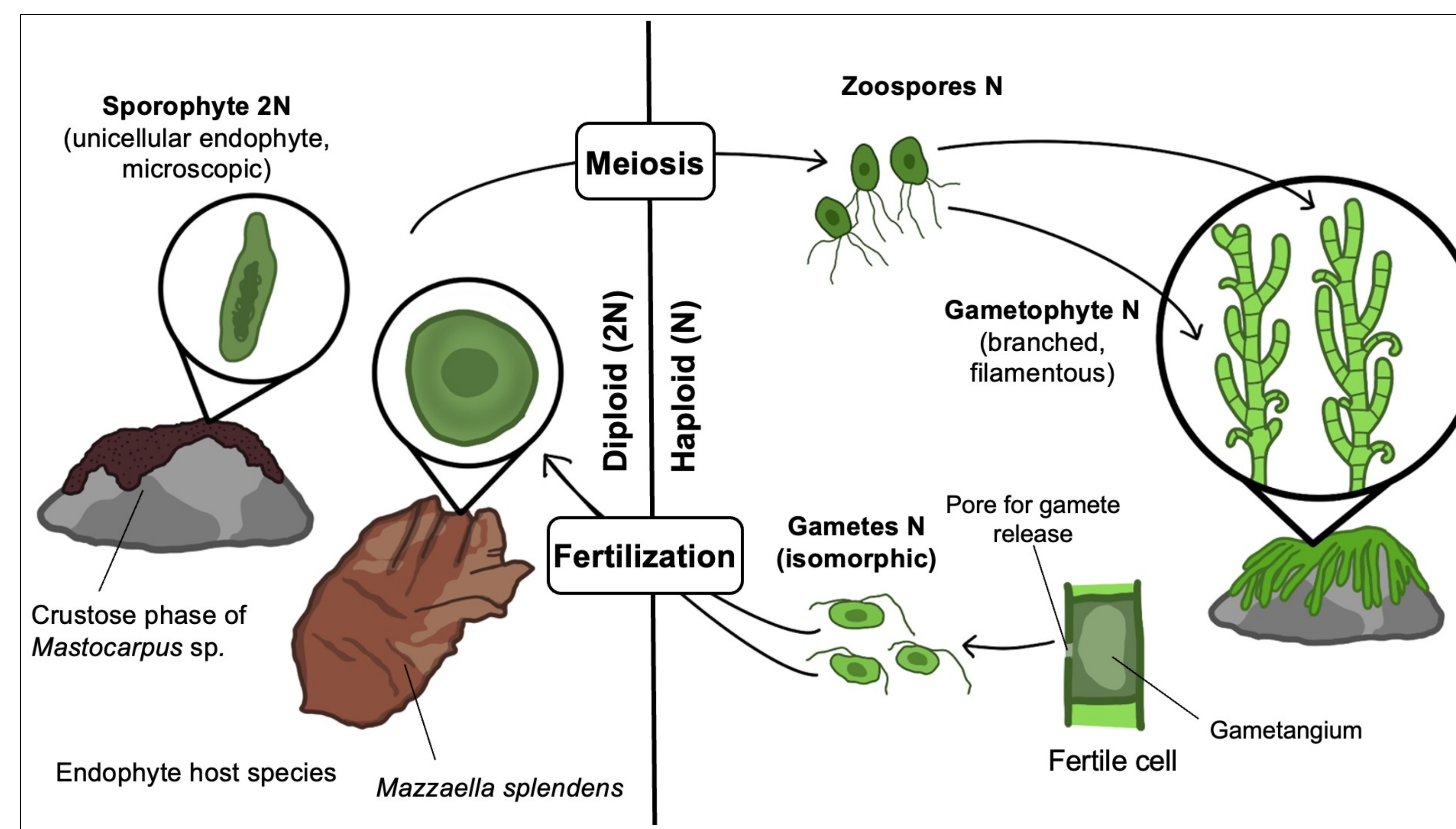
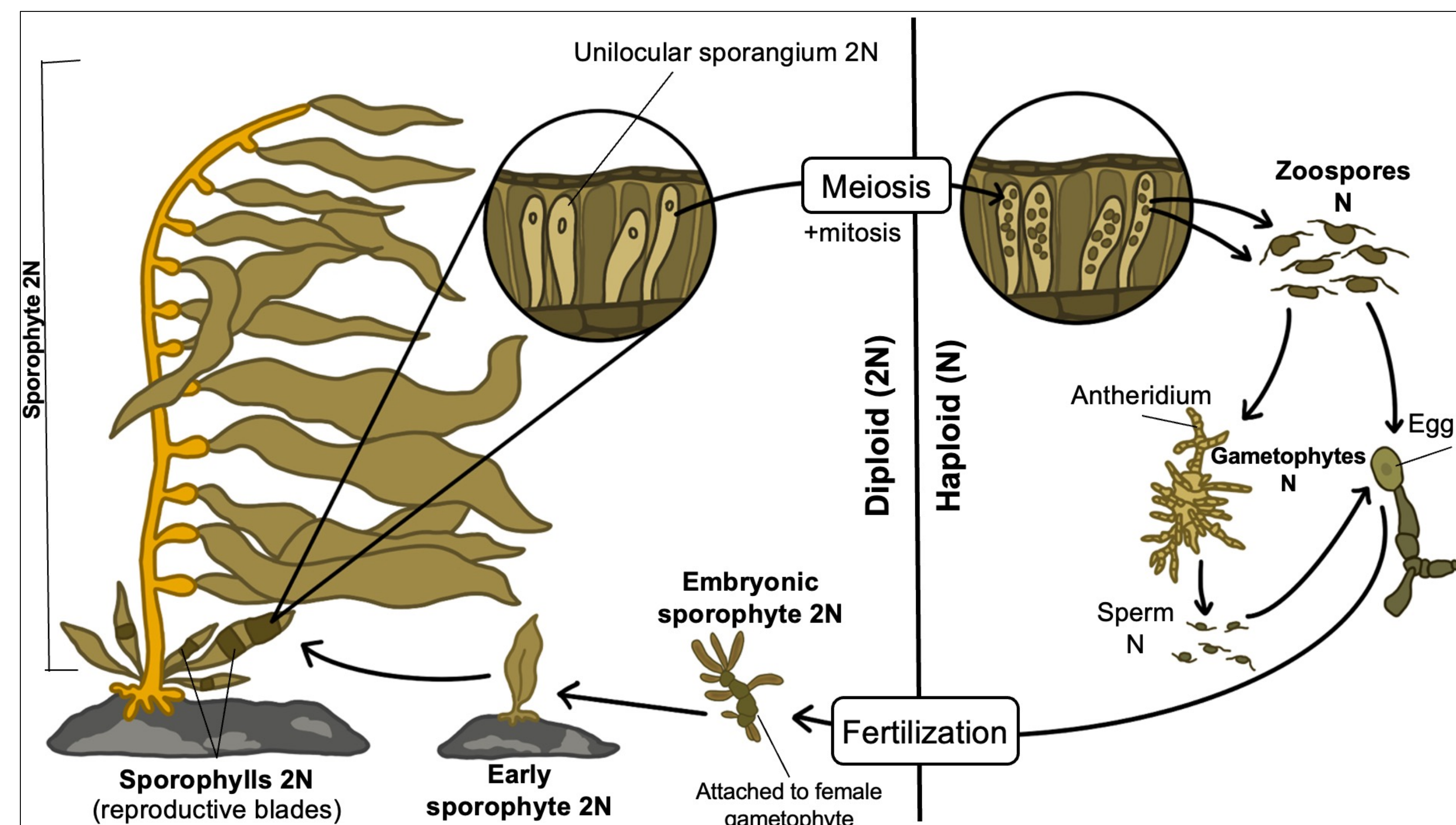


**Fig. 1: A consistent layout to facilitate comparisons**

All life cycles follow a "clock" template, with fundamental processes (meiosis and fertilization) and structures (haploid and diploid) mapped to 12, 3, 6 and 9 o'clock, respectively.

## Results: Life Cycle Drafts with 'Clock' Template Applied

Four life cycles have been drafted: Giant Kelp, Green Rope, Rockweed, and Turkish Washcloth, with four more underway. See the working drafts here: <https://shorturl.at/nzDO5>  
 Accessibility considerations used: simple drawings, thick lines, high-contrast colours, all specialist terminology explained in text that accompanies each illustration.



**Fig. 2: Two Example Life Cycle Illustrations (Giant Kelp, top; Green Rope, bottom)**

The two life cycles shown above follow the 'clock' life cycle template and provide a consistent layout for all major stages and processes. Each illustration is accompanied by text (not shown here) that explains each of the stages and all specialist terminology. Illustrations by Nola Morey

## Next Steps

- Awaiting final feedback about biological accuracy from seaweed experts.
- Solicit feedback from Biology 320: Survey of Algae students.
- Publish on the Beaty Biodiversity Museum's Explore Algae site (four other life cycles from an earlier version of this project are already published there).

## References

1. Evert, R, Eichhorn, S, Perry, J. 2013. Raven Biology of Plants, 8th Ed. W.H. Freeman/MacMillan Publishing. — An example of a textbook with several detailed seaweed life cycles, but which costs \$204 (e-book purchase).
2. Sussmann A, DeWreede R. Life history of *Acrosiphonia* (Codiolales, Chlorophyta) in southwestern British Columbia, Canada. American Journal of Botany. 2001 — An example of a detailed life cycle publication that assumes an expertise in botanical terminology related to life cycles.
3. Stagg BC, Dillon J. Plant awareness is linked to plant relevance: A review of educational and ethnobiological literature (1998–2020). Plants, People, Planet. 2022 — Not directly related to seaweed life cycles, but an example of how people's awareness of land plants, including their life cycles, is influenced by education.

## Acknowledgement

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We gratefully acknowledge the feedback, discussions and support from: Linda P.J. Lipsen (Jennings), Rachael Wade and The Martone Lab. Hannah Levit illustrated the first round of illustrations available on the Explore Algae site.

## Visit the Explore Algae site!



<https://explore.beatymuseum.ubc.ca/algae/>