

Volvox (*Volvox carteri*)

Volvox (*Volvox carteri*), is a colonial freshwater green algae that can be found in still bodies of freshwater, from ponds to large lakes. The name *volvox* is derived from the Latin *volvere*, which means to roll, from the distinctive way *Volvox* swims by rolling. *Volvox* arranges itself into spherical colonies, containing approximately 2,000 small sterile biflagellate somatic cells surrounding 12-16 large aflagellate reproductive cells. *Volvox*, being autotrophic organisms, are critical to aquatic ecosystems. Using photosynthesis, they can convert energy from the sun into other forms, such as carbohydrates for other organisms to consume. *Volvox* is unique in that it can reproduce sexually or asexually. During asexual reproduction, *Volvox* creates daughter colonies inside the parent colony, which will eventually be released. This happens during the summer, creating algal blooms. Sexual reproduction, on the other hand, occurs when a female reproductive cell is fertilized, forming a homozygote, which is able to survive in the winter and dry seasons.

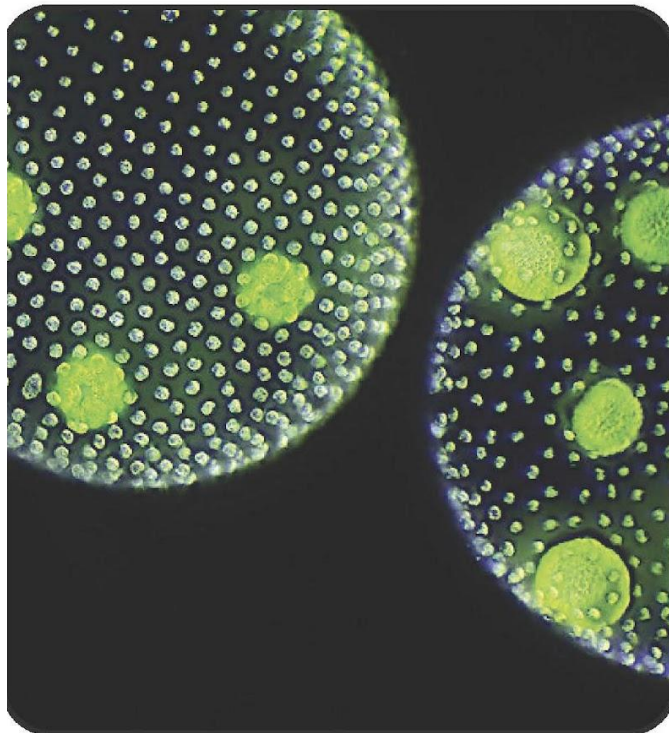
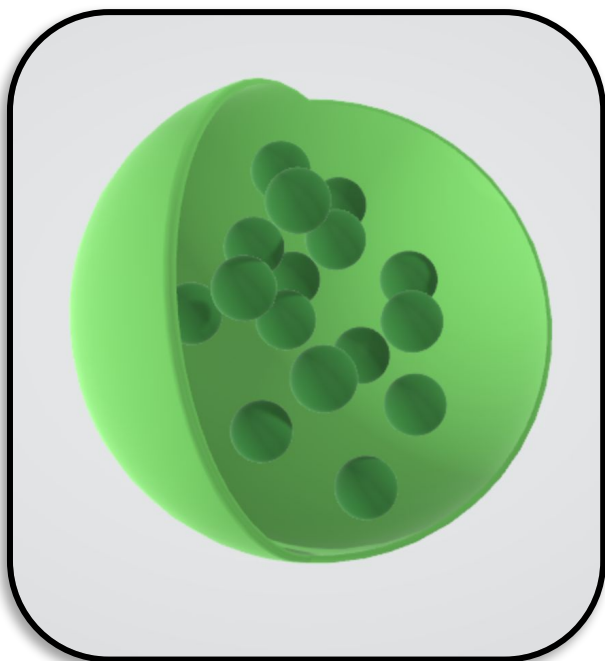


Photo credit: Frank Fox.



Evolution has allowed single-celled organisms to evolve into multicellular organisms. At the Donald Danforth Plant Science Center, Principal Investigator Dr. James Umen is studying how this process occurred. The multicellular algae *Volvox carteri* is very well suited for this research because it is made of only two types of cells. The somatic cells look very similar to the unicellular algae cousin, *Chlamydomonas reinhardtii*. Comparing these two species of close relative green algae allow scientists to better understand the evolution of multicellularity.

This 3D model was made using Fusion 360. A reference image of *Volvox* was used to accurately design the model. Spheres were modeled and reduced into deodesic spheres to create the reproductive daughter colonies. These were then copied, and another textured sphere was modeled to be the outer wall.



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