Flagellate

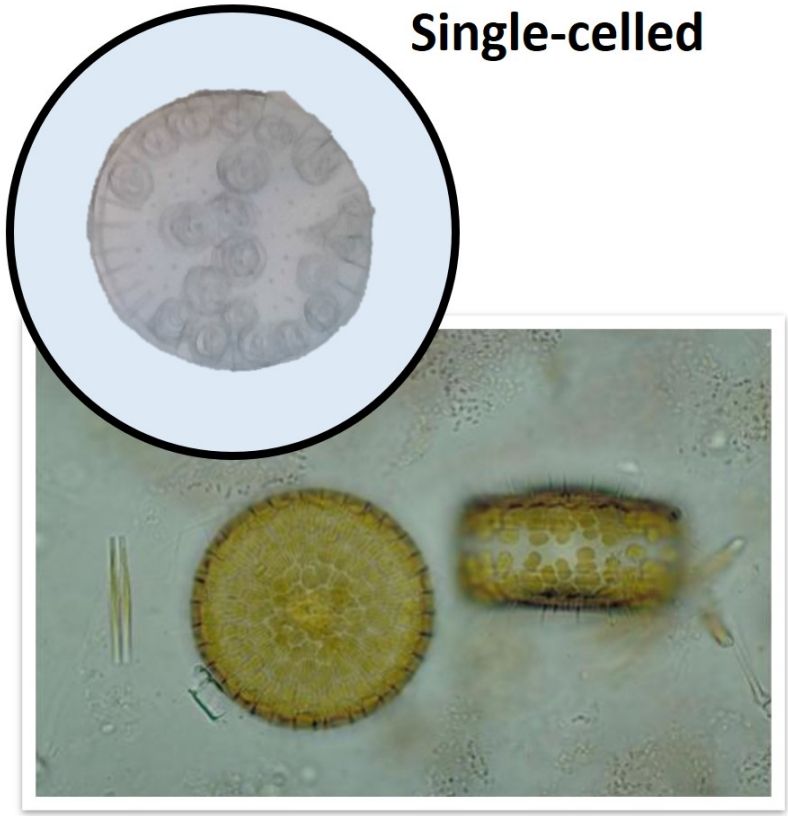
Single-celled

Size	Small (15–30 µm)
Reproduction Rate	Fast (< 1 day)
Photosynthetic Pigments	Chlorophyll, phycobilins, xanthophylls
Nutrient Competition	Some can eat bacteria, can store food as starch and lipids
Protection	Poor, are food for zooplankton
Movement	Yes, 2 or more flagella
Problems	No known problems
Examples	Chroomonas, Cryptomonas

Image credit:
CSIRO. (2000, January 1). Microalgal cultures. CSIRO ScienceImage.
https://www.scienceimage.csiro.au/image/7234

Diatom

Single-celled



Size	Small (5–30 µm)
Reproduction Rate	Fast (0.5–1 day)
Photosynthetic Pigments	Chlorophyll, beta carotene
Nutrient Competition	Superior, can store food as starch and lipids
Protection	Silica case
Movement	No, some can control sinking
Problems	Blooms, a few are toxic
Examples	Stephanodiscus, Cyclotella

Image credit:
Canter-Lund, H. (2016). Stephanodiscus. Freshwater Biological Association.
http://www.environmentdata.org/archive/fbaia:3040

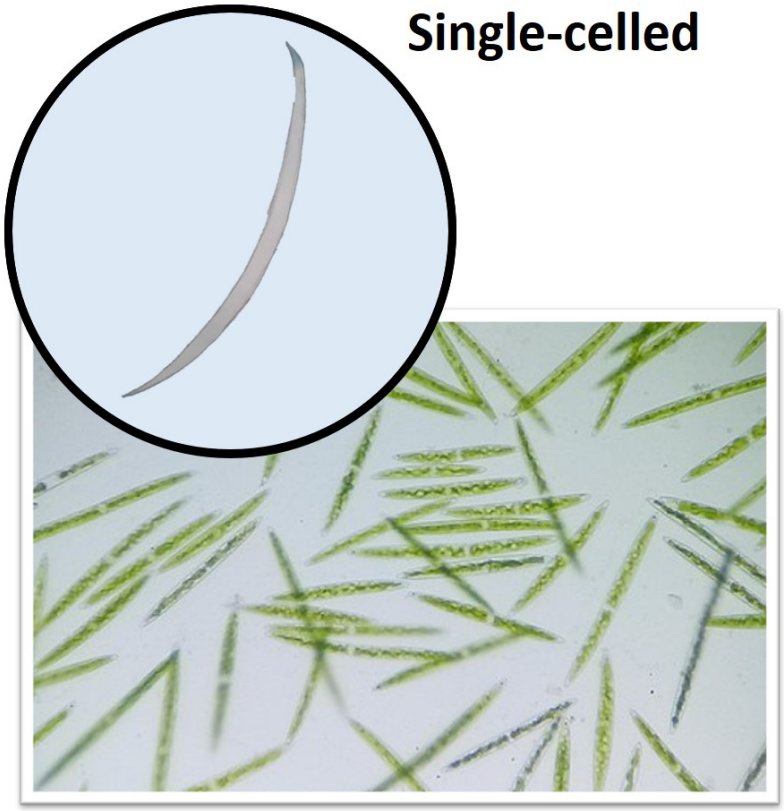
Diatom

Size	Large (cell: 11–70 µm, colony: 20,000–30,000 µm)
Reproduction Rate	Fast (< 1 day)
Photosynthetic Pigments	Chlorophyll, beta carotene
Nutrient Competition	Superior, can store food as starch and lipids
Protection	Silica case, large colony
Movement	No, some can control sinking
Problems	Blooms, a few are toxic
Examples	Melosira, Skeletonema

Image credit:
Peters, K. (2009). Melosira varians. Wikimedia Commons.
https://commons.wikimedia.org/wiki/File:Melosira_varians.jpeg

Green Algae

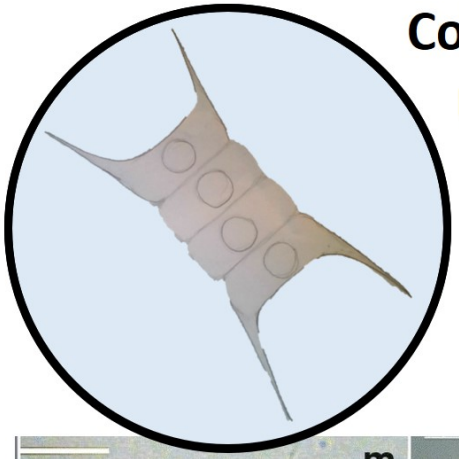
Single-celled

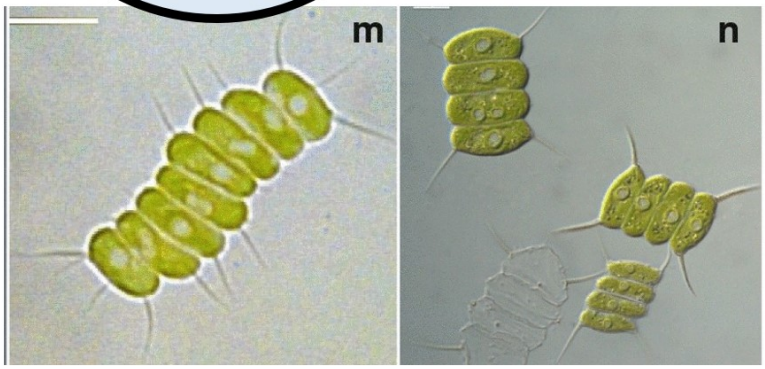


Size	Large (15–150 µm)
Reproduction Rate	Fast (< 1 day)
Photosynthetic Pigments	Chlorophyll, beta carotene, xanthophylls
Nutrient Competition	Can store food as starch, can release chemicals that slow the growth of other algae
Protection	Large size
Movement	No
Problems	Blooms
Examples	Ankistrodesmus, Closterium

Image credit:
Fritzmann2002. (2017). Closterium under a light microscope. Wikimedia Commons.
https://en.wikipedia.org/wiki/File:Closterium_under_a_light_microscope.jpg

Green Algae

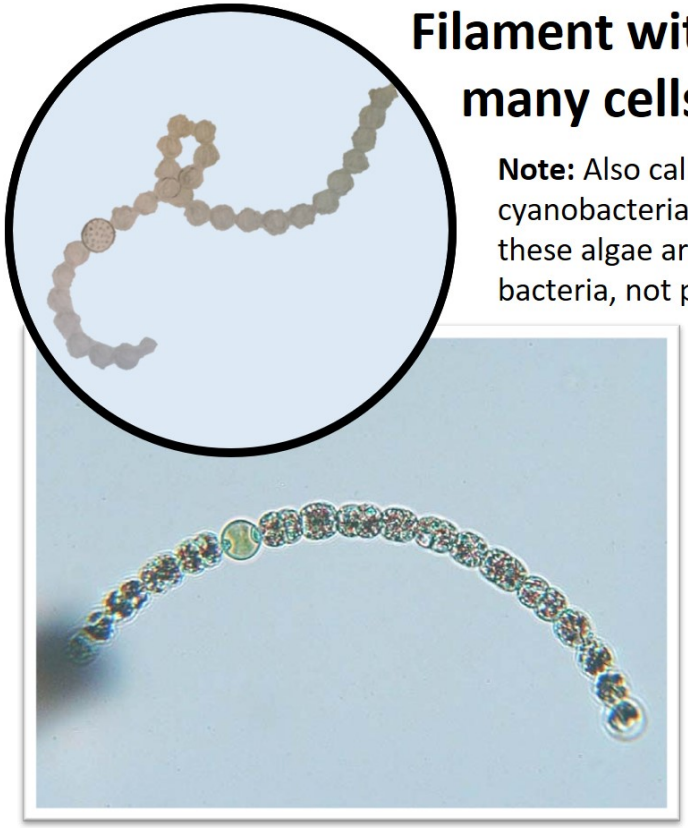




Size	Small (cell: 15–35 µm, colony: up to 200 µm)
Reproduction Rate	Fast (0.5–1 day)
Photosynthetic Pigments	Chlorophyll, beta carotene, xanthophylls
Nutrient Competition	Can store food as starch, can release chemicals that slow the growth of other algae
Protection	Large colony, shape, spines
Movement	No
Problems	Blooms
Examples	Scenedesmus, Pediastrum

Image credit:
Lortou, U., & Gkelis, S. (2019). Polyphasic taxonomy of green algae strains isolated from Mediterranean freshwaters. Journal of Biological Research-Thessaloniki 26,11.
https://doi.org/10.1186/s40709-019-0105-y

Blue-Green Algae



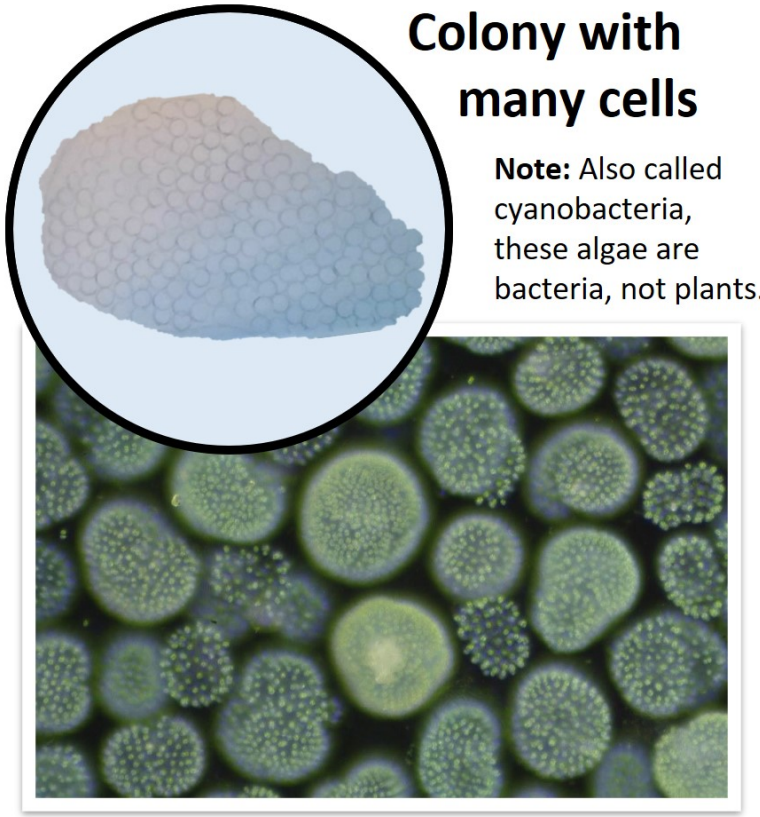
Filament with many cells

Note: Also called cyanobacteria, these algae are bacteria, not plants.

Size	Large (140–2,010 µm)
Reproduction Rate	Slow (1–1.5 days)
Photosynthetic Pigments	Chlorophyll, beta carotene, phycobilins
Nutrient Competition	Fixes nitrogen that other algae can't use
Protection	Large size, can produce toxins
Movement	No, can control sinking
Problems	Blooms, toxins, bad smell/taste, irritates skin
Examples	Anabaena, Oscillatoria

Image credit:
Bdcarl. (2012, April 13). Anabaena circinalis. Wikimedia Commons.
https://commons.wikimedia.org/wiki/File:Anabaena_circinalis.jpg

Blue-Green Algae



Note: Also called cyanobacteria, these algae are bacteria, not plants.

Size	Large (2–200 µm)
Reproduction Rate	Slow (1–2 days)
Photosynthetic Pigments	Chlorophyll, beta carotene, phycobilins
Nutrient Competition	Fixes nitrogen other algae can't use, makes chemicals that slow the growth of other algae
Protection	Large colony, can produce toxins
Movement	No, can control sinking
Problems	Blooms, toxins, bad smell/taste
Examples	Microcystis, Merismopedia

Image credit:
Specious Reasons. (2010, June 22). Serious bacterial bloom. Flickr.
https://www.flickr.com/photos/28594931@N03/4726267363/