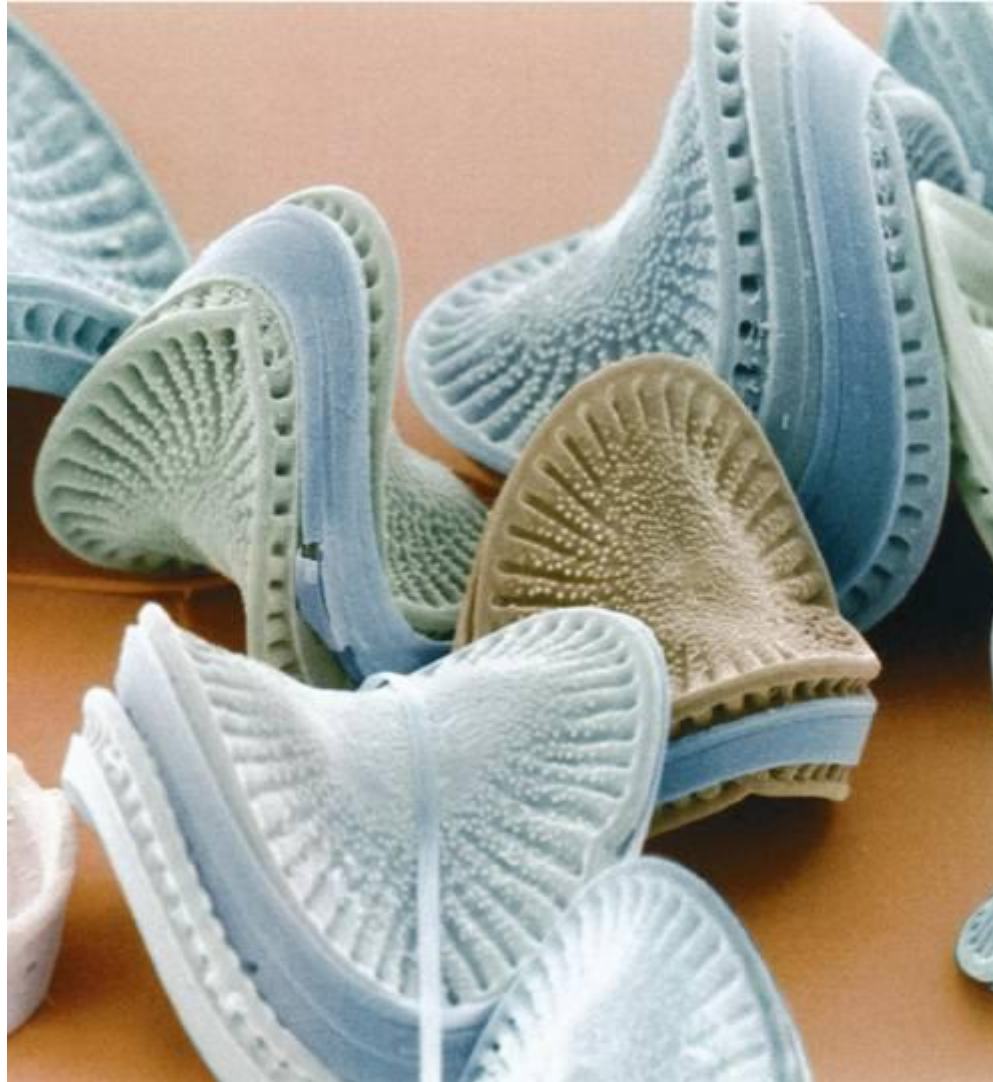


20-3 Plantlike Protists: Unicellular Algae



20-3 Plantlike Protists: Unicellular Algae

- contain chlorophyll and carry out photosynthesis.
- commonly called “algae.”
- sometimes classified with the plants.

20-3 Plantlike Protists: Unicellular Algae

The four phyla of unicellular algae are:

- euglenophytes
 - chrysophytes
 - diatoms
 - Dinoflagellates
- One trait used to classify algae is the type of photosynthetic pigments they contain.



Chlorophyll and accessory pigments allow algae to harvest and use the energy from sunlight.

20-3 Plantlike Protists: Unicellular Algae → Chlorophyll and Accessory Pigments

Some algae have evolved different forms of chlorophyll—*a*, *b*, and *c*—that absorb different wavelengths of light.

Accessory pigments absorb light at different wavelengths than chlorophyll, giving algae a variety of colors.

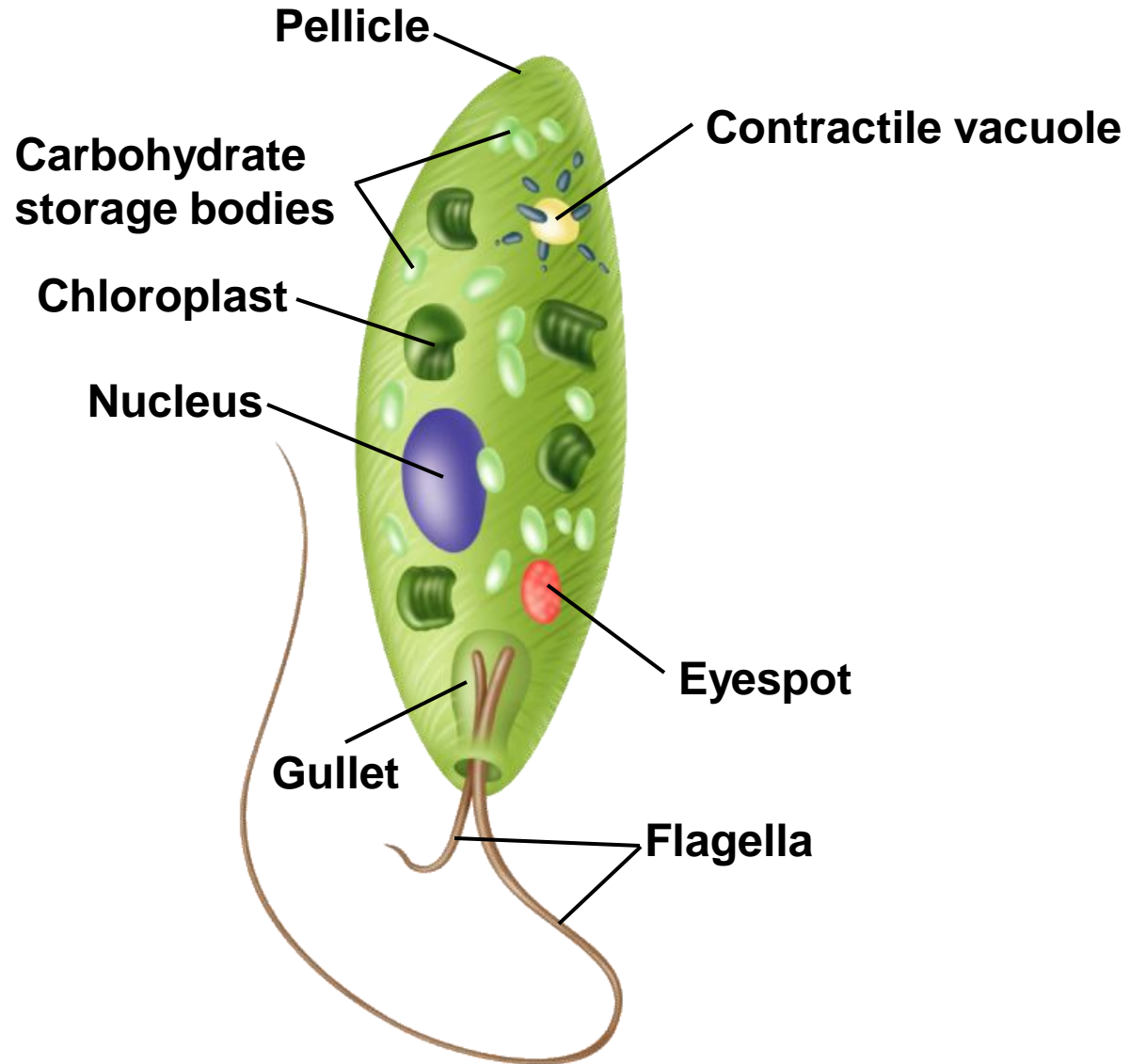
20-3 Plantlike Protists: → Euglenophytes
Unicellular Algae



Euglenophytes are plantlike protists that have two flagella but no cell wall.

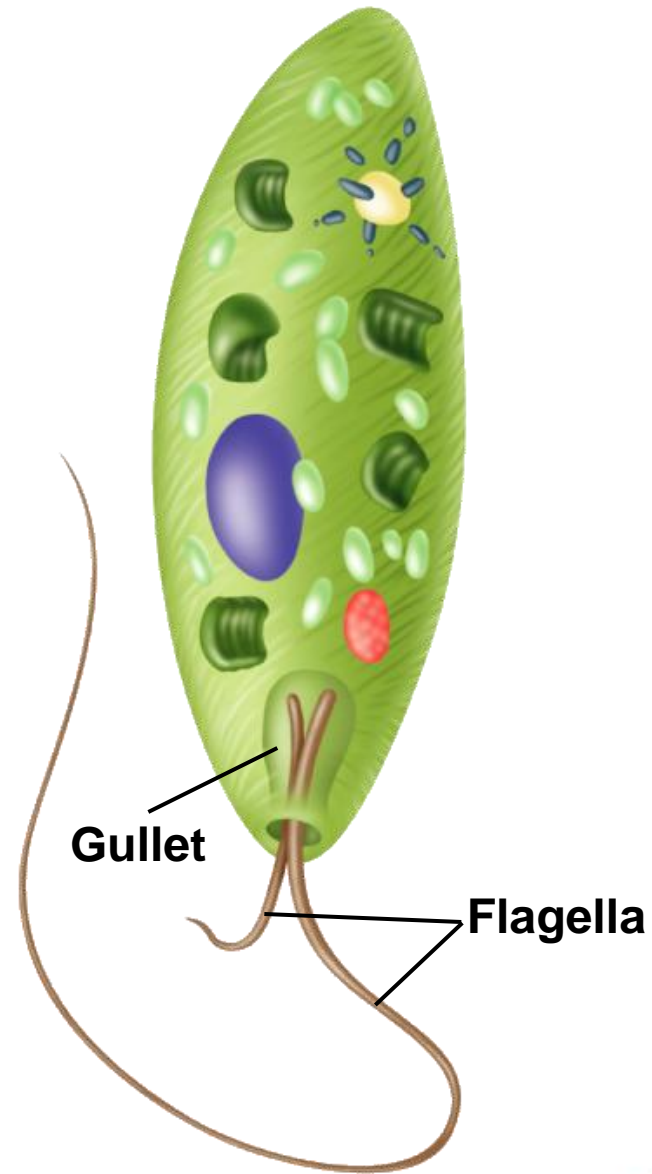
20-3 Plantlike Protists: → Euglenophytes
Unicellular Algae

Euglena



20-3 Plantlike Protists: → **Euglenophytes**
Unicellular Algae

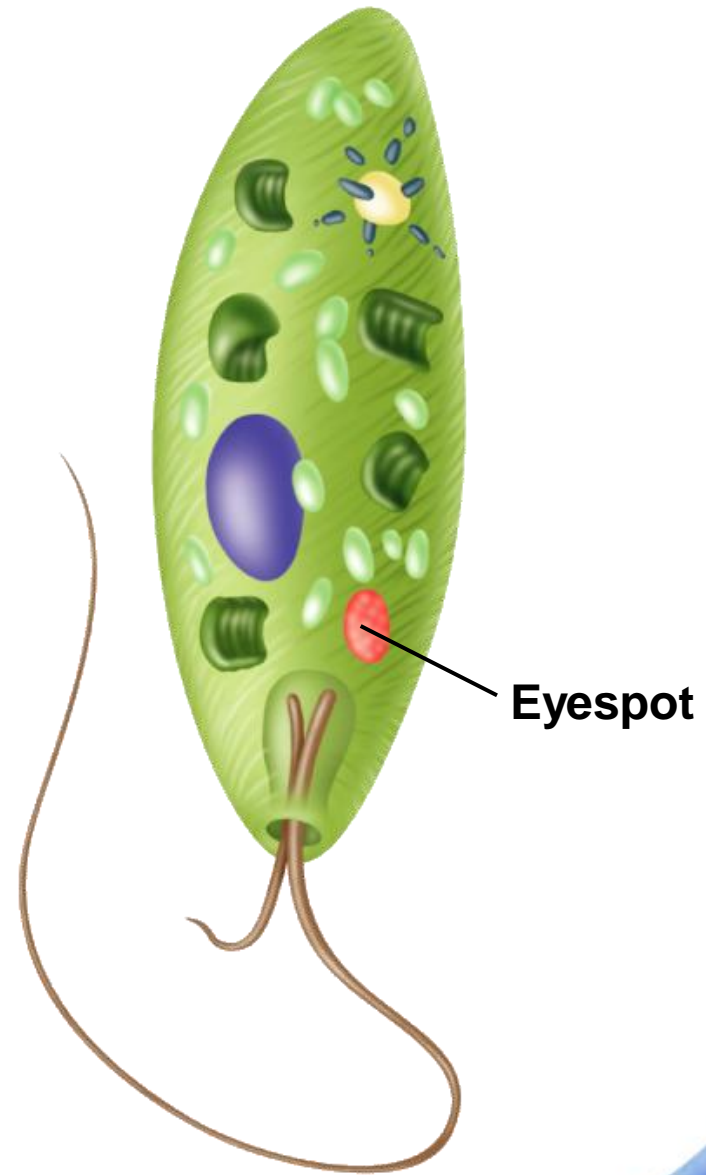
Two flagella emerge from a gullet in the cell. The longer of the flagella spins so it pulls the organism rapidly through the water.



20-3 Plantlike Protists: ➡ Euglenophytes
Unicellular Algae

Near the gullet is a reddish pigment known as the **eyespot**, which helps find sunlight to power photosynthesis.

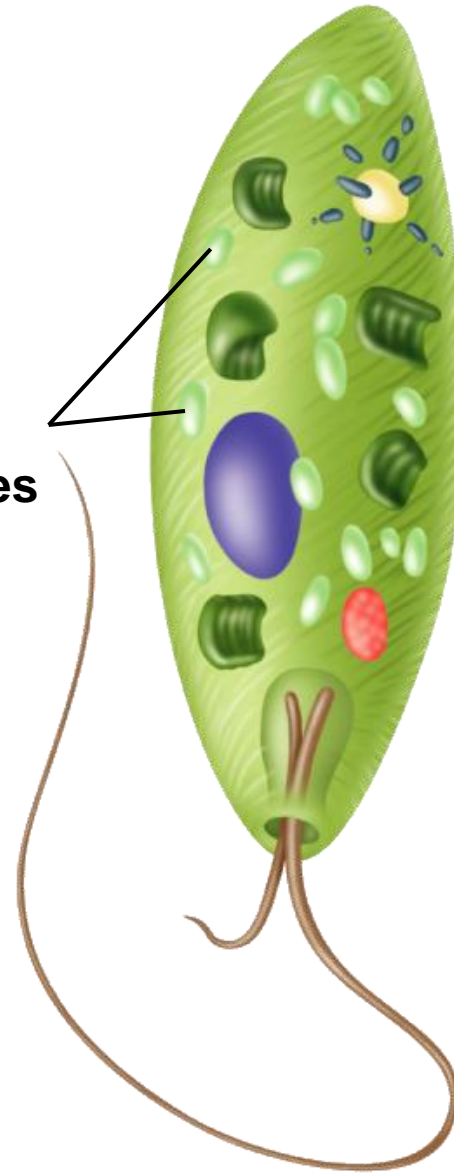
Euglenas can also live as heterotrophs.



20-3 Plantlike Protists: ➔ **Euglenophytes**
Unicellular Algae

Euglenas store carbohydrates in small storage bodies.

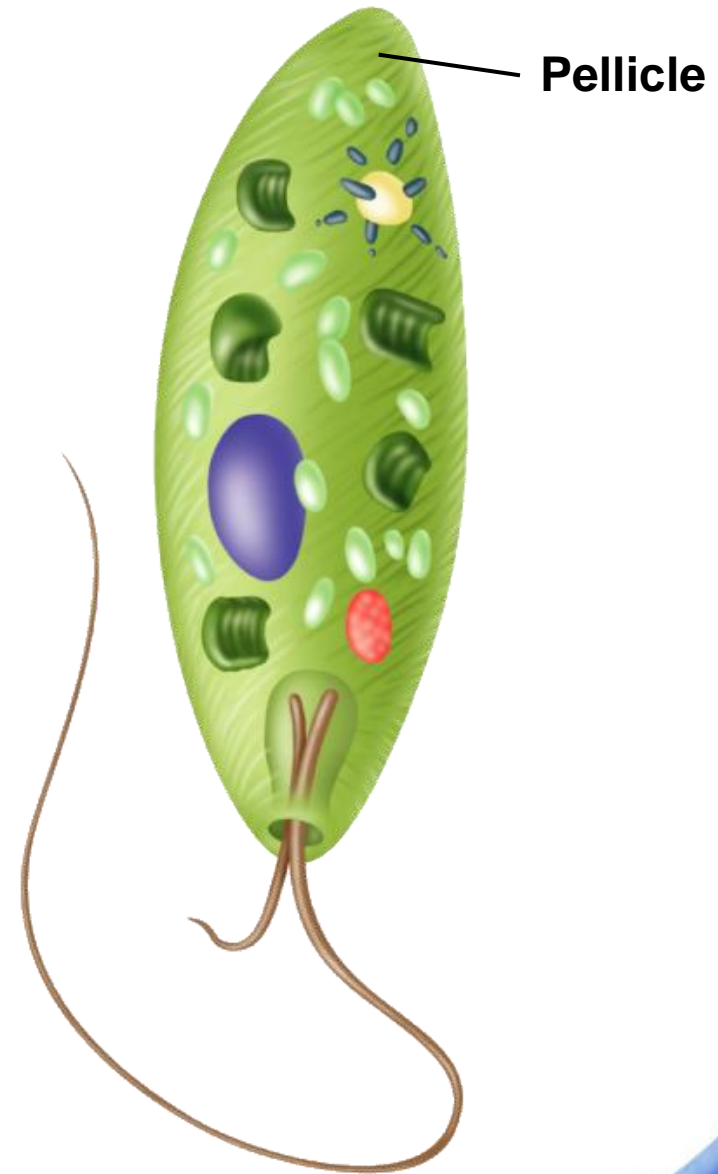
Carbohydrate storage bodies



20-3 Plantlike Protists: → Euglenophytes
Unicellular Algae

Euglenas do not have cell walls. Instead, they have an intricate cell membrane called a **pellicle**.

The pellicle folds into ridges, each supported by microtubules.



20-3 Plantlike Protists: → Chrysophytes
Unicellular Algae



Members of the phylum Chrysophyta are a diverse group of plantlike protists that have gold-colored chloroplasts.

20-3 Plantlike Protists: → Chrysophytes
Unicellular Algae

- some chrysophytes contain the carbohydrate pectin
- some store food in the form of oil rather than starch.
- They reproduce both asexually and sexually.
- Most are solitary, but some form threadlike colonies.



Diatoms produce thin, delicate cell walls rich in silicon (Si)—the main component of glass.

The walls are shaped like the two sides of a petri dish or flat pillbox

20-3 Plantlike Protists: → Dinoflagellates
Unicellular Algae



About half of the dinoflagellates are photosynthetic; the other half live as heterotrophs.

20-3 Plantlike Protists: → Dinoflagellates
Unicellular Algae

Dinoflagellates have two flagella that fit in grooves between two thick plates of cellulose that protect the cell.

Most dinoflagellates reproduce asexually by binary fission.

Many dinoflagellates are luminescent. When they are agitated, they give off light.

Ecology of Unicellular Algae

- important to freshwater and marine ecosystems
- make up the base of the food chain in many aquatic ecosystems.

Phytoplankton-small, photosynthetic organisms found near the surface of the ocean.

-half of Earth's photosynthesis.

-provide nourishment for many organisms.

Algal Blooms

- many vital in recycling sewage and other wastes.
- When waste is excessive, algae may grow into enormous masses known as blooms, which deplete water of nutrients.
- decomposition robs water of oxygen,

END OF SECTION