

" Kingdom Protista "

2. The plant – like. Protista ((Algae))

- 1- Euglenoids.**
- 2- Diatoms.**
- 3- Dinoflagellates.**
- 4- Green algae.**
- 5- Red algae.**
- 6- Brown algae.**

1- The plant – like protists ((Algae)):

What are algae?

Algae are plant like protists, photosynthesizing;

1. All algae contain up to four kinds of chlorophyll as well as other photosynthetic pigments, purple, rusty – red, olive – brown, yellow and golden – brown.
2. Algae include both unicellular and multicellular organisms.
3. They are unicellular, photosynthesizing, phytoplankton.
4. They are producers of nutrients and oxygen in aquatic ecosystems.
5. They are large and sometimes green, look like plants but they have no roots, stems, or leaves.

Diversity of algae:

Algae are classified into six phyla; three of these phyla are unicellular species;

1- Euglenoids 2- Diatoms 3- Dinoflagellates.

Other three phyla; most species are multicellular which include the;

1- green 2- Red; and 3- Brown algae

1. Euglenoids:

Euglenoids are autotrophs and heterotrophs, Hundreds of species of euglenoids make up the phylum Euglenophyta. Euglenoids are:

1. Unicellular.
2. Aquatic protists.
3. They have both plant and animal characteristics.

4. unlike plant cells, they lack a cell wall made of cellulose.
5. They have a flexible pellicle made of protein that surrounds the cell membrane.
6. They are plantlike in that most have chlorophyll and photosynthesize.
7. Euglenoids are also animal – like because, when light is not available, They can ingest food in ways that might remind of some protozoans.
8. They use their flagella to move toward light or food, They have one or more flagella to move.

2. Diatoms:

They are golden algae, their characters are:

- 1- Unicellular, photosynthetic organisms, Bacillariophyta phylum. With shells composed of silica.
- 2- They live in both marine and fresh water ecosystems.
- 3- Diatoms contain chlorophyll as well as other Pigments called carotenoids, That give them a golden – yellow color.
- 4- They reproduce asexually by which the two halves of the box separate, each half then produces a new half to fit itself inside.
- 5- Diatoms reproduce sexually by Producing gametes that fuse to form zygotes. The zygote develops into a full – sized diatoms, which will divided asexually for short period.
- 6- Diatoms are used as abrasives in tooth and metal polisher or added to give the tooth sparkle which is more visible at night.

3. Dinoflagellates:

They are spinning algae;

- 1- Phylum dinoflagellates have cell walls, composed from thick cellulose plates.
- 2- Dinoflagellates have two flagella located in grooves at right angles to each other.
- 3- They live in marine, like diatoms are component of phytoplankton, but a few species live in freshwater.
- 4- Many species live symbiotically with jellyfishes, Mollusks, and corals, other species produce toxin [Ex: *Gonyaulax catenella*], in summer, these organisms may become so numerous that the ocean takes on a reddish color. This population explosion is called a red tide. The toxins produced during a red tide may make human ill.

4. Green algae:

They make up the phylum chlorophyta;

- 1- Green algae are the most diverse algae.
- 2- They are unicellular, Ex. *Chlamydomonas*, Multicellular *spirogyra*; and colonial *volvox*.
- 3- They live in freshwater in oceans in moist soil, and on tree trunks.
- 4- The major pigment in green algae is chlorophyll and yellow pigments.
- 5- *Chlamydomonas* has flagella, *spirogyra* multicellular that forms slender filament; and *volvox* is a green algae that can form a colony, a group of cells that lives together, composed of

hundreds, or thousands, of flagellated cells, forming a ball – shaped structure.

- 6- Green algae reproduce in both asexually and sexually. Spirogyra can reproduce asexually by fragmentation of filament, Each piece grows into a new individual. Some other types of green algae, have a complex life cycle, consists of individuals that alternate between producing spores and producing gametes [Figure 19:14 page 516].

5. Red algae

They consist members of the phylum Rhodophyto.

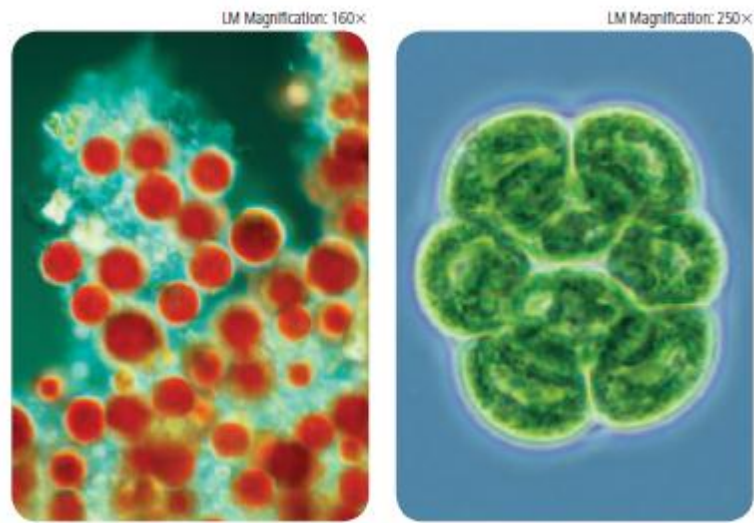
1. They are multicellular, marine seaweeds.
2. The body of seaweed as well as that of some plants and other organisms, is called " a thallus " and lacks roots, stems or leaves.
3. They use holdfasts to attach to rocks.
4. They grow in tropical waters and in cold water.
5. They have chlorophyll in addition photosynthetic pigments absorb green, violet, and blue light which that penetrates water below depths of 100meters.

6. Brown algae:

Brown algae make up the phylum phaeophyta.;

- 1- They are of multicellular, live in salt water a long rocky coast in cool areas of the world.
- 2- Brown algae contain chlorophyll as well as a yellowish – brown carotenoid called fucoxanthin which gives the their brown color.
- 3- Many species of brown algae have air bladders that keep their bodies floating near the surface where light is available.

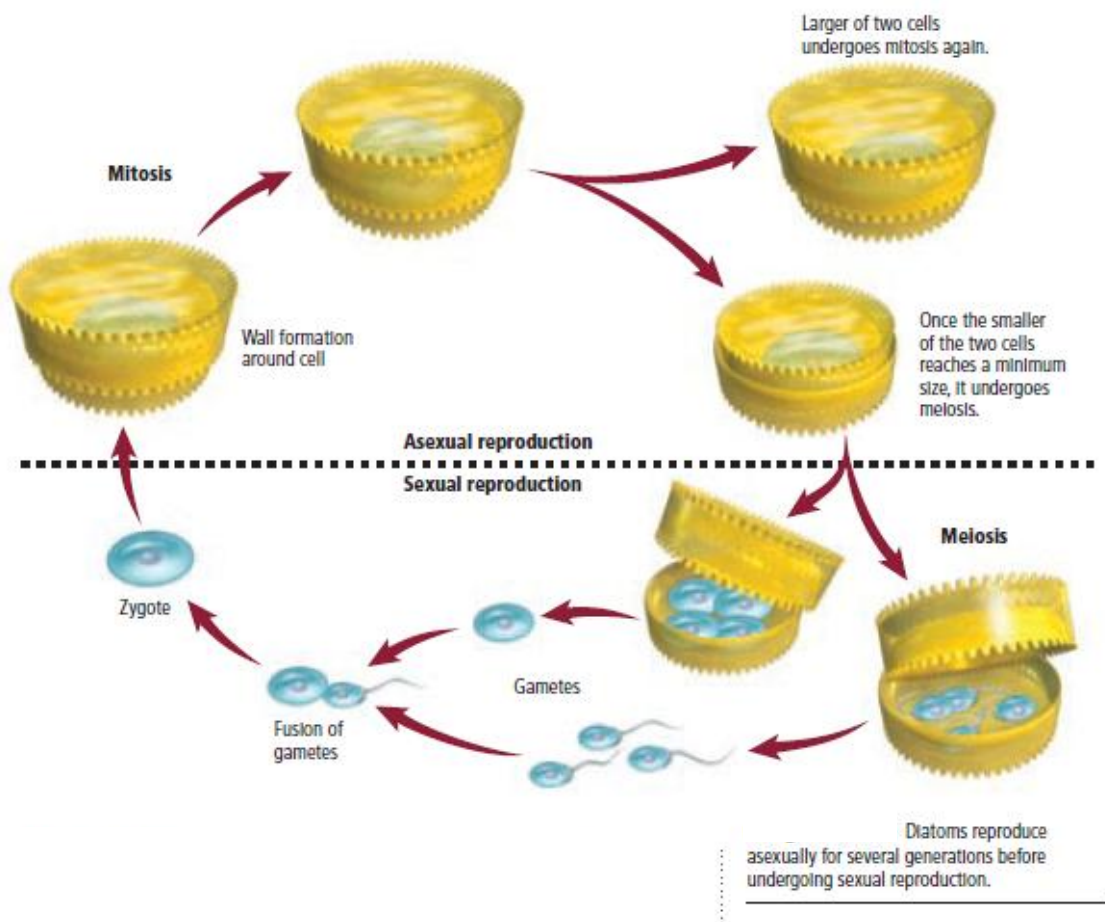
4- Brown algae thallus is divided into the holdfast.

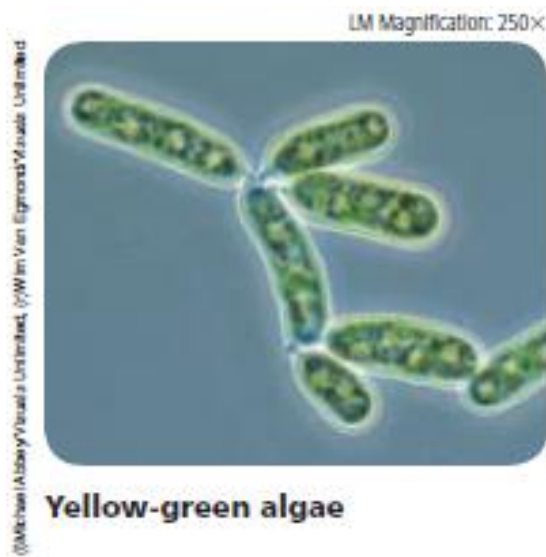


Red algae

Green algae

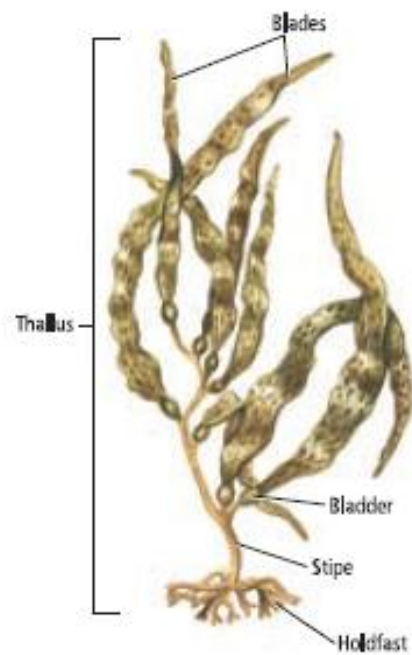
Algae vary in color because they contain different light-absorbing pigments.

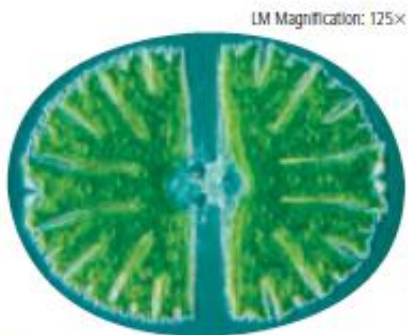




18 Underwater kelp forests provide a habitat for many marine organisms, as well as provide algin—an additive used in many products.

Explain What is the function of the bladder in kelp?

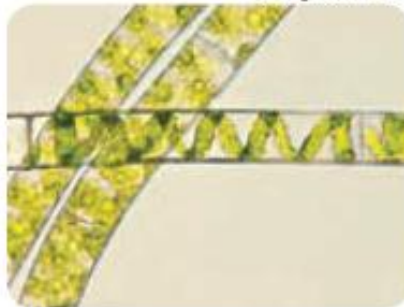




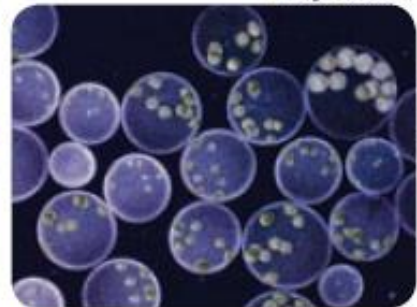
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Desmids

Desmids are unicellular green algae that have elaborate cell walls. The green alga *Spirogyra* is named for its spiraling chloroplasts. Many cells that make up the *Volvox* colony have daughter colonies within the larger colony.



LM Magnification: 300×

Spirogyra

LM Magnification: 15×

Volvox

M.S. Walker/Photo Researchers, (c)Brad Morgan/Vucale Unlimited, (r)N.J. Walker/Photo Researchers



Robert De Gouveney/Vucale Unlimited

Coralline

The End