

KINGDOM PROTISTA

PLANT-LIKE
PROTISTS

PHYTOPLANTON

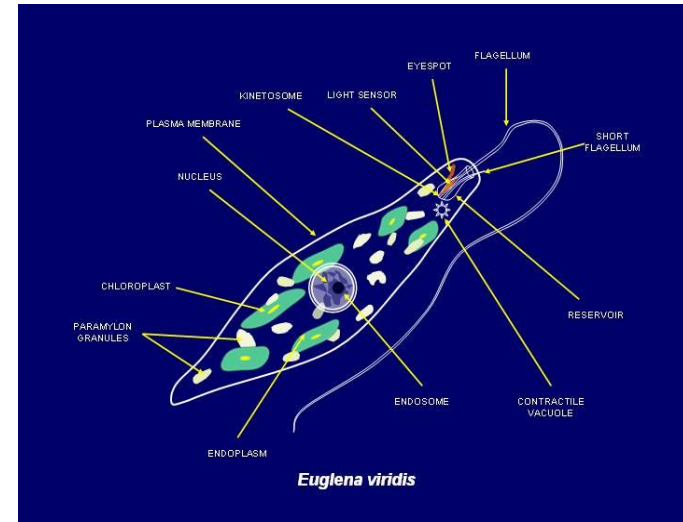
3 PHYLA:

1. Euglenophyta (*Euglena*)
2. Chrysophyta (Diatoms)
3. Pyrrophyta (Dinoflagellates)

Euglenophyta (*Euglena*)

Phylum Euglenophyta:

- **Reproduction**: asexual
- **Locomotion**: flagella
- **Nutrition**: autotrophs = photosynthesis & heterotrophs = saprophytes
- **Other information**: Have an eye spot
- **Examples**: *Euglena*



Chrysophyta (Diatoms)

Phylum Chrysophyta



✿ Reproduction: asexual & sexual

✿ Locomotion: mainly non motile - rely on ocean currents and tides for movement

✿ Nutrition: autotrophs

✿ Other information: Cell wall in 2 unequal halves. Cell wall made of glass (silicon)

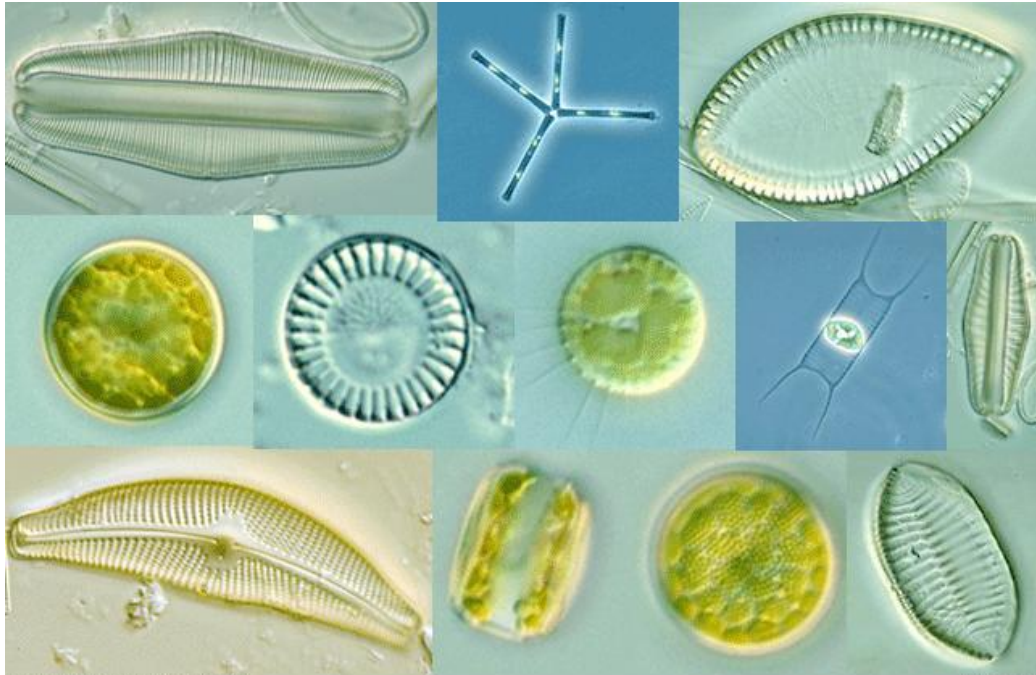
✿ Example: Diatoms



Phylum Chrysophyta: DIATOMS

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- *Have 2 cell walls made of silica, making them appear glasslike.*



All after Entwisle et al. (1997)

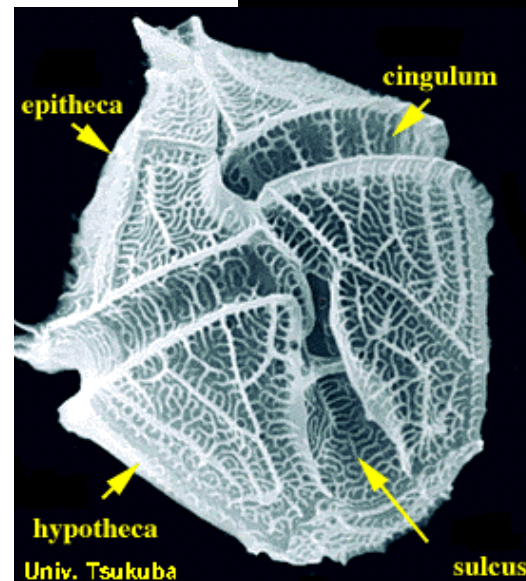
Plate 1/2

Cell walls of dead diatoms layer ocean floor. When mined, it is called diatomaceous earth - used in toothpaste, polishing agents, insecticides

Pyrrophyta (Dinoflagellates)

Phylum Pyrrophyta

- Reproduction: asexual
- Locomotion: Flagella
- Nutrition: Autotrophs
- Other Information:
Luminescent (gives off light) & Causes RED TIDE
- Example: Dinoflagellates



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BIOLUMINESCENCE

- Bioluminescence = "Living Light"
- Organisms (dinoflagellates, some bacteria, marine animals) generate light through biochemical reactions
- Dinoflagellates are the most common cause of luminescence in the surface water of the oceans

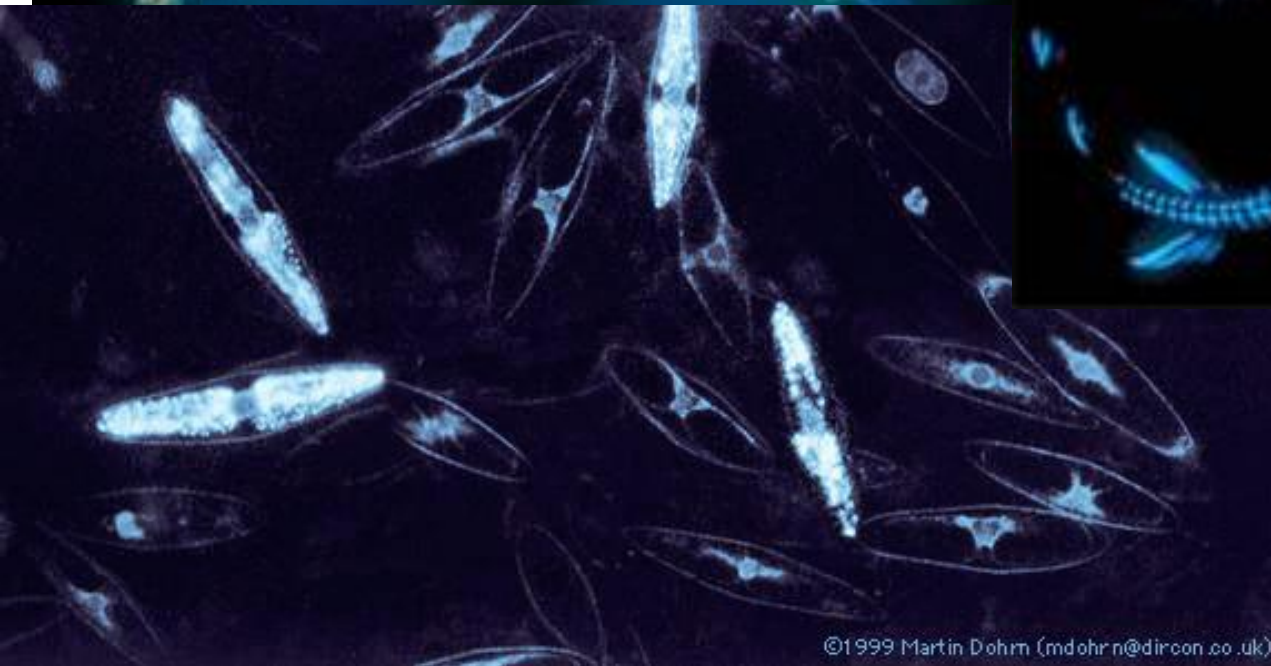
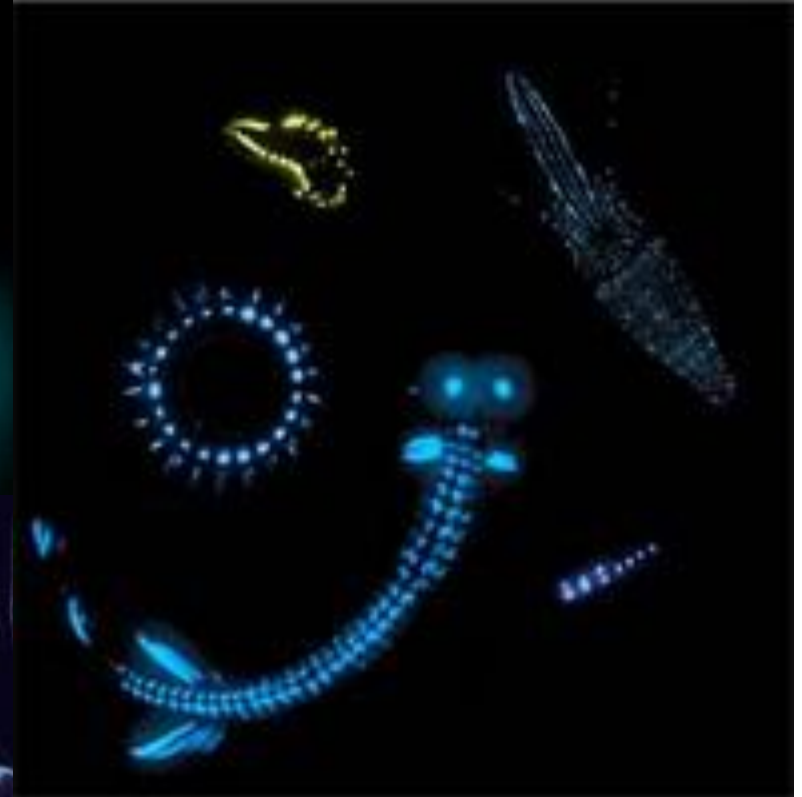
Why the Light?

Dinoflagellates use bioluminescence to scare off predators - by generating a bright flash

BIOLUMINESCENCE



BIOLUMINESCENCE



BIO LUMINESCENCE



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ALGAL BLOOMS "RED TIDE"

- When conditions (temp and nutrients) are just right, dinoflagellates can flourish → reproducing and accumulating very quickly in the water
- Result is dense, visible patches of dinoflagellates near the water's surface = **algal bloom**
- This makes the water appear discoloured = "**Red Tide**"
- Can be harmful because the organisms produce **toxins** → excess of toxins harms other marine organisms (fish, birds, mammals)
- Also harmful to humans → exposure to contaminated water or food, economic losses to coastal communities & commercial fisheries

ALGAL BLOOMS "RED TIDE"

