IV. How Animal-like Protists Fit into the World

A. Harmful relationships with humans

Protist	Vector	Name of Disease	Symptoms
Plasmodium	Anopheles mosquito	Malaria	Chills and fever
Trypansoma	Tsetse fly	African sleeping sickness	Fever, chills and skin rash
T. cruzi	Insect	Chaga's disease	Weaken heart muscle
Entamoeba	Feces of infected individual	Amebic Dysentery	Diarrhea & intestinal bleeding

B. Helpful relationships:
    1. Termites eat wood, which contains the carbohydrate cellulose, but don't have the enzymes to break it down
    2. Trichonympha living in termite gut manufacture the enzyme cellulase
C. Ecological role:
    1. In food chains: are food for tiny multicellular animals, that in turn are food for larger animals

18-3: Plant-Like Protists

A. Characteristics:
   1. Plant-like because they contain: the pigment chorophyll and carry out: photosynthesis

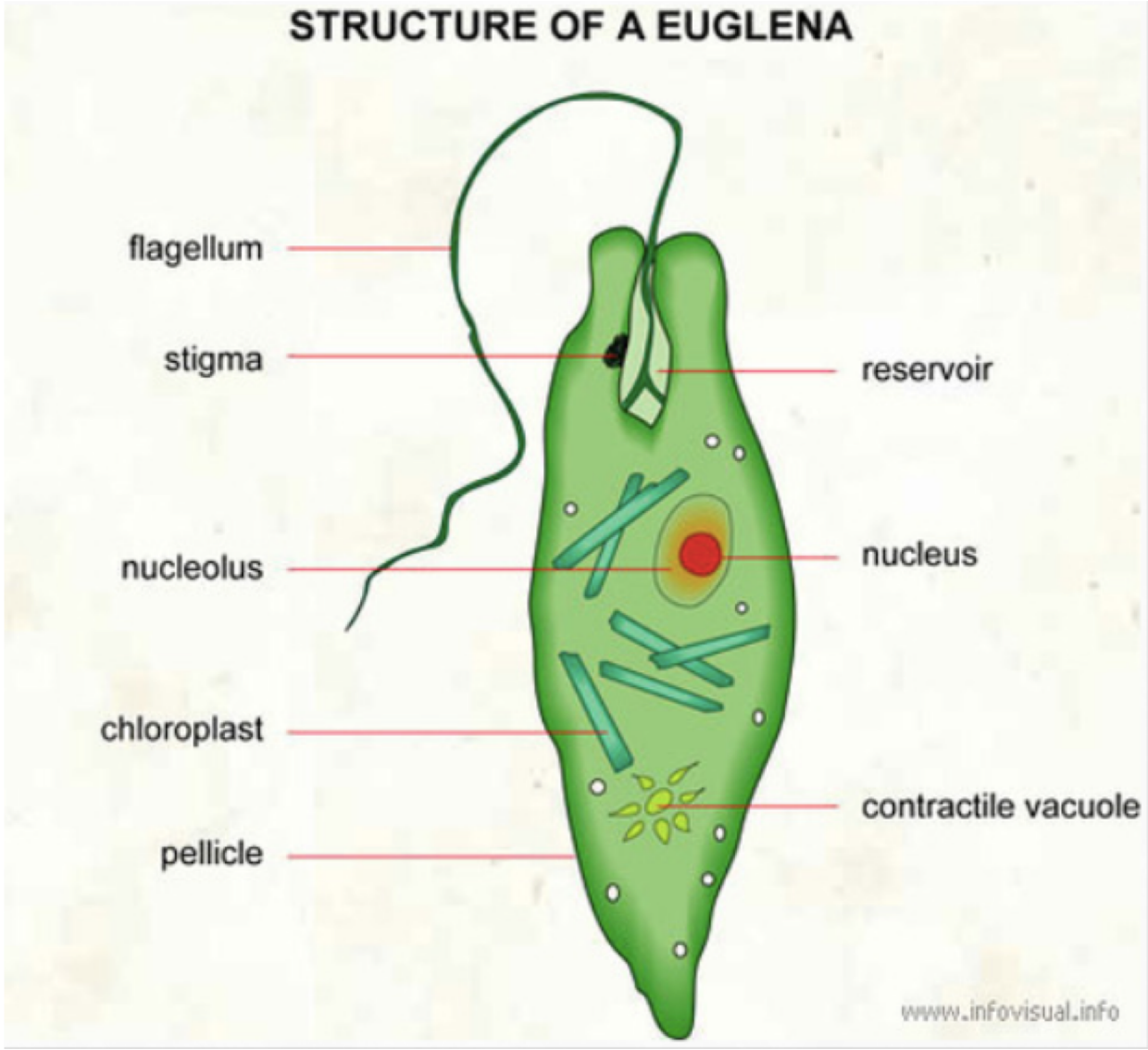
B. Classification:
   1. 3 of 5 phyla are sometimes called algae:
      a. Euglenophyta
      b. Pyrrhophyta
      c. Chrysophyta
   2. Slime mold phyla are sometimes called:
      a. Arasiomycota
      b. Myxomycota

I. Euglenophyta: Flagellates with Chloroplasts

Movement

A. Characteristics:
    1. Closely resemble: Zoomastiginans – difference is euglenophytes possess chloroplasts
B. Focus on Euglena:
    1. Description: long cell, with a pouch containing 2 flagella, the longer extending out of the pouch.
    2. Movement:
        a. Swims in water by using flagella
        b. Crawls along surfaces by euglenoid movement

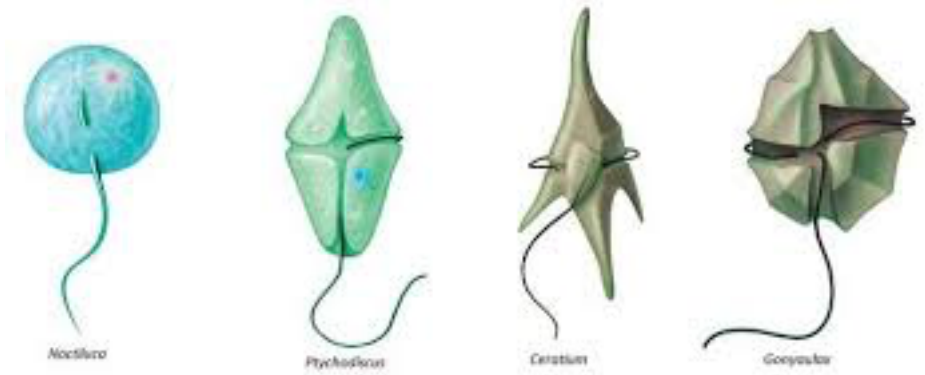
3. Finding sunlight:
    a. Eyespot at front end helps find brightest areas in its environment
4. Making/Getting Food:
    a. As an autotroph: uses its chloroplasts (in light) to photosynthesize
    b. As a heterotroph: absorbs dissolved nutrients (in darkness)
5. Reproduction: by <u>binary fission</u>



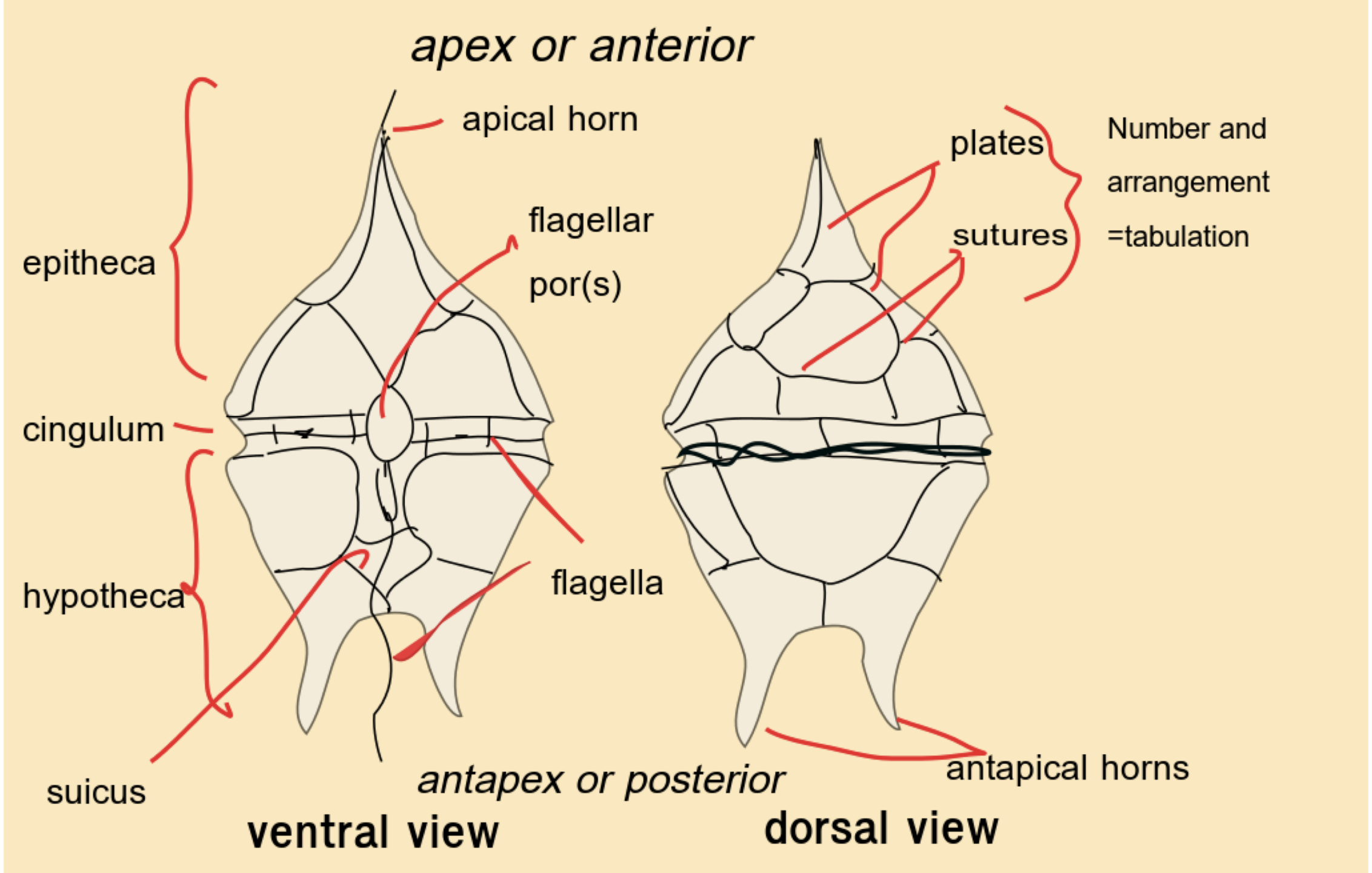
II. Pyrrophyta: Fire Protists

A. Also known as dinoflagellates

B. Characteristics:
   1. Most are photosynthetic
   2. Swim by means of 2 flagella:
      a. One wraps around like a belt
      b. Other trails behind like a tail
   3. Many have thick plates and look “armored”



C. Bioluminescence:
   1. When agitated by sudden movement they give off light
   2. Their name means ”fire plants”


apex or anterior
apical horn
flagellar
por(s)
epitheca
cingulum
hypotheca
flagella
suicus
antapex or posterior
ventral view
plates
sutures
Number and
arrangement
=tabulation
antapical horns
dorsal view

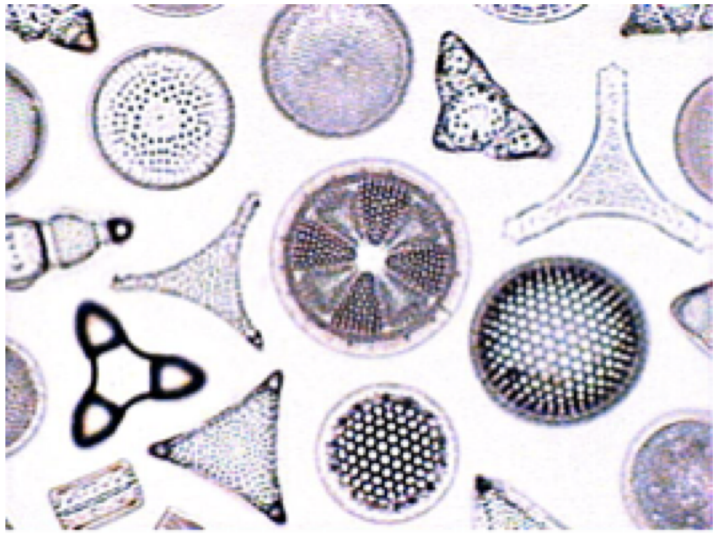
III. Chrysophyta: Golden Protists

A. Classification
    1. 3 kinds: yellow-green algae, golden-brown algae and diatoms
    2. Name means “golden plants” and refers to their chloroplasts

B. Characteristics:
    1. Cell wall contains pectin, not cellulose
    2. Energy stored as oil rather than starch

C. Focus on Diatoms

1. Cell walls
    a. Made of glass!
    b. Two halves fit together like a petri dish
2. One of the most abundant species in oceans!



IV. Slime Molds: Unusual Protists

A. Distribution:
    1. Found near rich sources of food such as:
        a. Rotting wood
        b. Compost
        c. Thick wet lawns
B. Classification:
    1. Difficult to classify because at one stage they are amoeba-like cells and at others they produce mold-like masses that make spores
    2. In the past, have been classified as amoebae and as fungi

C. Focus on Acrasiomycota
   1. Life cycle stages:
      a. Begin as individual cells (amoeba-like); mostly in this form
      b. When food runs out, groups of cells gather to produce: a large mass of cells
      c. This mass starts to function as a single organism
   2. Migration: up to several centimeters
   3. Reproduction:
      a. Form a structure called a fruiting body
      b. This makes spores by mitosis
      c. These become amoeboid cells that repeat the cycle

V. How the Plant-Like Protists Fit Into the World

A. Distribution:
    1. Found in: Fresh water, oceans and land
B. Harmful Relationships:
    1. Euglenophyte blooms (cycle)
        a. Excess waste dumped into water
        b. Grow into enormous masses called “blooms”
        c. Run out of nutrients & die, compounding the pollution clean-up problem

2. Dinoflagellate blooms (cycle)
    a. Some species contain toxins that can paralyze or kill
    b. People aren't affected by swimming
    c. Shellfish like clams and oysters trap them for food and concentrate the toxin
    d. Eating shellfish from "red tide" areas can cause serious illness

C. Helpful Relationships:
   1. Coral, sea anemones, and clams may have dinoflagellates as photosynthetic symbionts Symbiosis-Stated Clearly-For Activity

D. Ecology
   1. Phytoplankton (def'n): small photosynthetic organisms found floating at ocean's surface
   2. Importance:
      a. More than 70%... of photosynthesis on Earth is done here!
      b. Provide organisms on our planet with oxygen and food
      c. Example food chain:

      Phytoplankton → tiny animals → small fish →large fish → humans
                      (zooplankton) (tuna)