Multicellular protist groups:

Chlorophyte

phycoplast **Chlamydomonas**
Chlorella

Chlorophyceae

Ulvophyceae **Siphonous algae (Acetabularia)**

Charophyceae **phragmoplast**

Heterotrophs [Slime molds and Oomycete]

- Presence of a phycoplast differentiates the Chlorophycea
- Ulvophycea is mostly marine. Includes the sea lettuce and the Acetabularia. Role of nucleus and maternal imprinting and stored messenger RNA that can play an important role in the initial development of the organism and can have a significant impact
- Charophyceae - has a phragmoplast - plates that enable it to live on land. Some examples include the filamentous forms. Bacteria would aggregate at the spectrum that has the most oxygen evolution (experiment). Another group is the Volvox - example where we get to see the multicellular structure appearing. Starts with simple forms of the organism. Star with single cells like the chlamydomonas and the multi cellular forms such as the volvox. This multicellularity becomes most clear when you look at the chara groups. closest relation to land plants. when you see this growing in a real environment like ponds, don't see the filamentous portion in the water but you see the tops on the surface of the pond trying to break out of the water.
- Within the protist groups have this issue where you have to think of the photosynthetic autotrophs and heterotrophs. Euglena is an excellent example of a heterotroph.
- A phylogenetic clade that shows the similarity between them. Need protein synthesis in order to survive.

Heterotrophs

- Major groups are **Slime molds and Oomycete.**
- Within the heterotrophic divisions you have three groups that are still held