Diversity

Eukaryotes

"Protists" —> a) unicellular
b) multicellular
c) heterotrophic

Unicellular:-

- **Euglenophyta**
- **Cryptophyta**
- **Dinophyta (dinoflagellates)**
- **Haptophyta**
- **Bacillario phyta (diatoms) [Heterokont]**
- **Chrysophyta [Heterokont]**

Classification:

By pigment [chlorophyll type [a, b, c, d etc]; carotenoid; bilin]
By food storage [e.g paramylon, starch, chrysolaminarin]
By cell wall

- "Things do change faster than we die" due to phylogeny
- Within the protists, the complexity is much higher. Unicellular- closely related to each other. Appeared approx 2000 million years ago.
- Protist Diversity- Think of it in terms of classification, which groups are which, use a couple of techniques. Simplest one is on the basis of colour. Basically on pigment- have chlorophyll which have different types. Mostly concerned with a, b and c in regards to protists. Allows us to separate clades of protists based on difference in pigments. Example Chl a , Chl b- Structures- Cyclic tetra pyrolle. Only one chemical difference between the two. Chl a has a methyl and Chl b has an aldehyde. Methyl is more reduced than an aldehyde. No selective advantage for having a methyl or an aldehyde. Defines protists groups based on pigment.
- Another thing that differentiates protist groups are the Carotenoids. Differentiates based on a colour difference. Beta Carotene- purple; fucoxanthin- brownish colour; siphenaxanthin; peridinin. All have a significant difference based on colour but function is the same. Aspect of classification that allows you to define organisms based on one type or