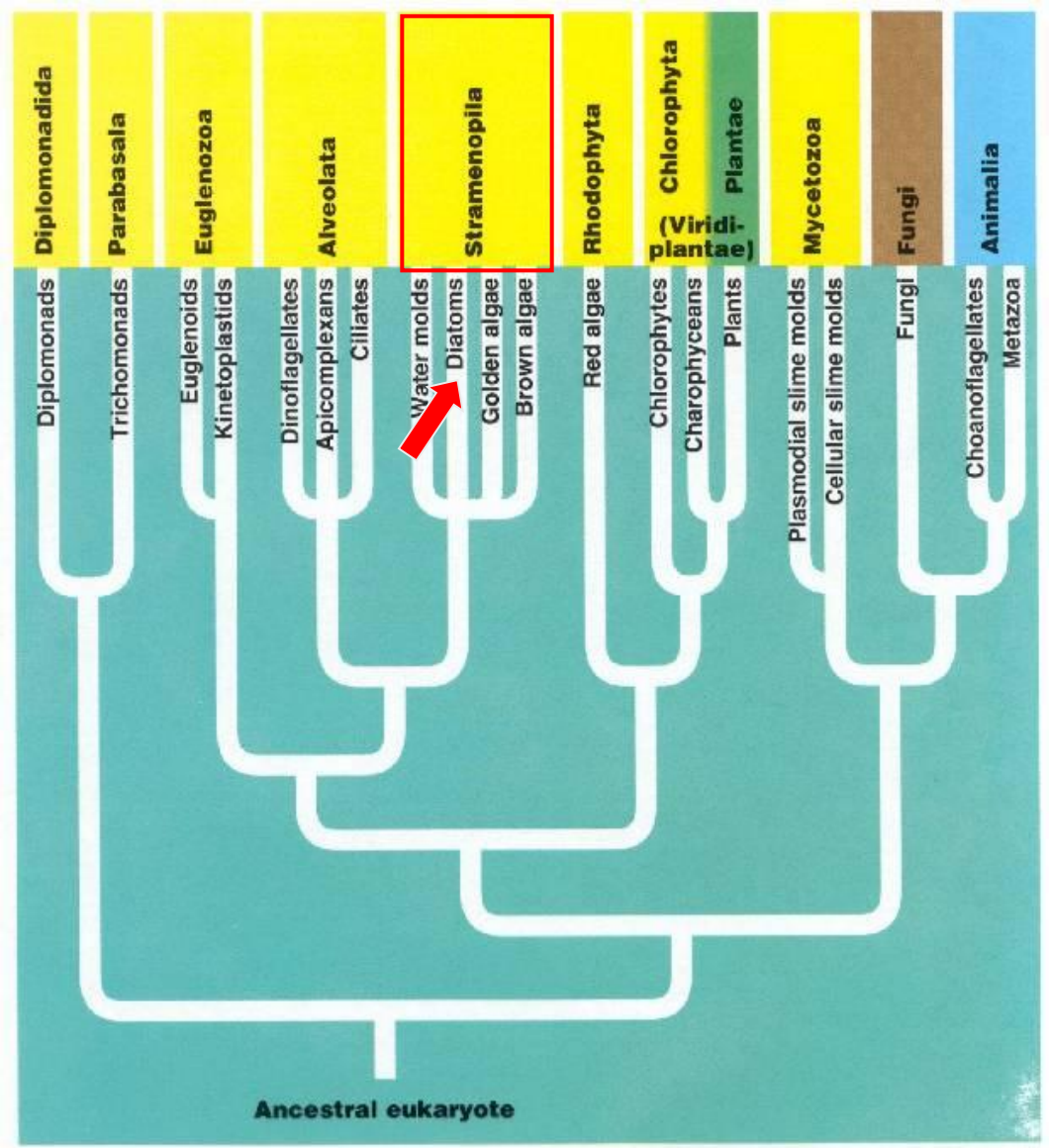
Sistemática de Criptógamas

Protista com fucoxantina e clorofila *c* (Phaeophyta, Chrysophyta e Bacillariophyta)

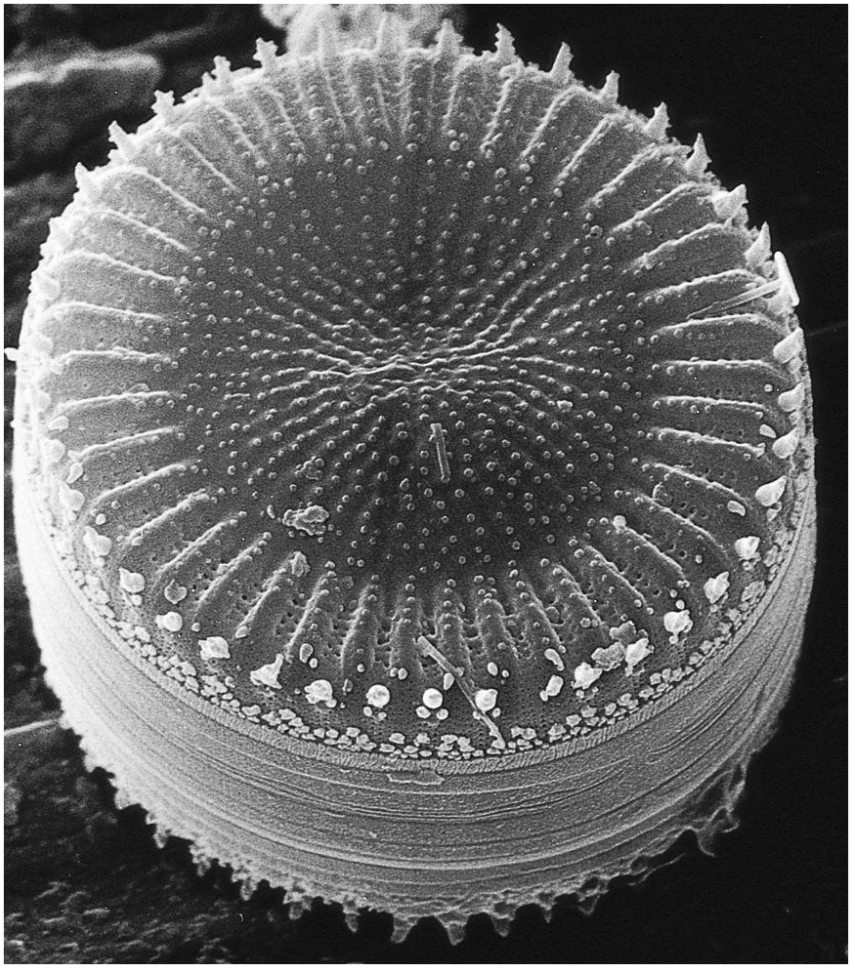
Filogenia dos Protistas



Copyright © Pearson Education, Inc., publishing as Benjamin Cummings.

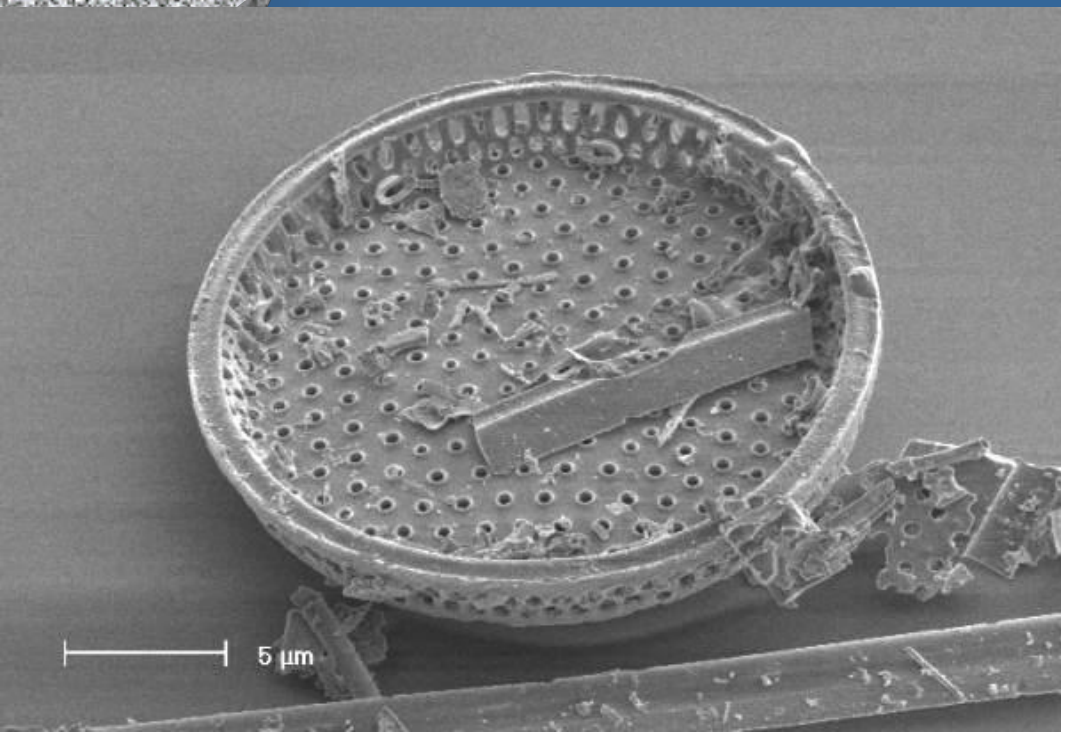
Bacillariophyta (Diatomáceas)

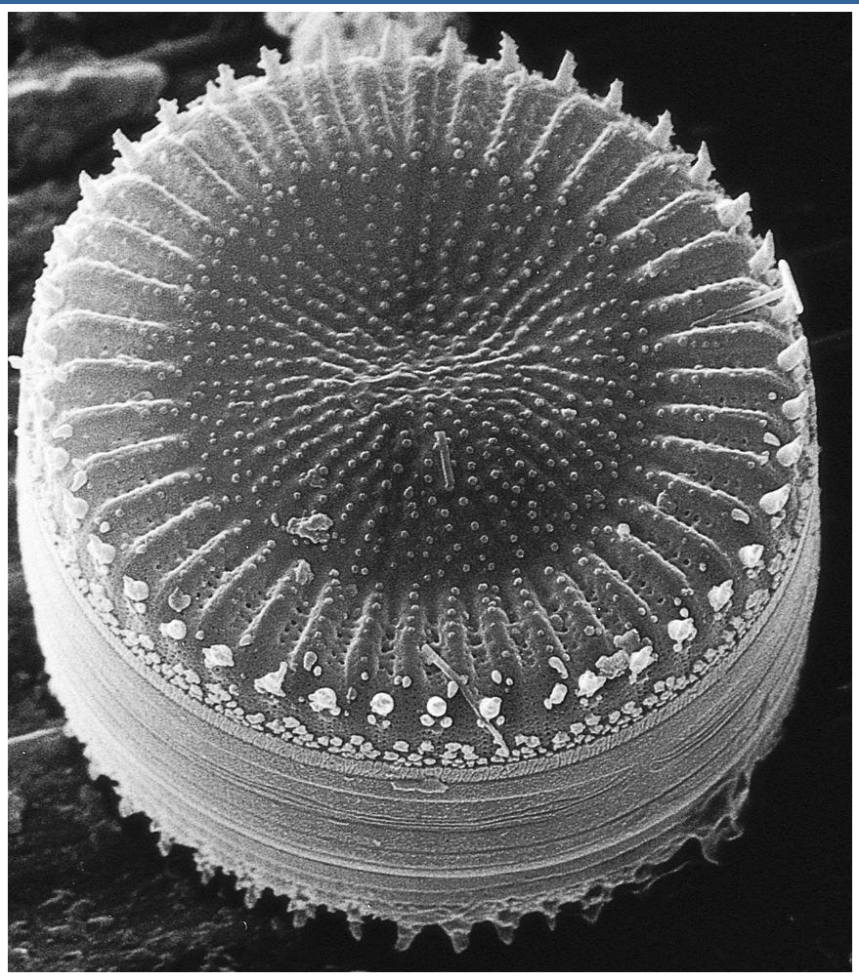
- 100.000 espécies (250 gêneros)
- Unicelulares (na maioria)
- Carapaça de dióxido de sílica
- Clorofila *a* e *c*
  - fucoxantina
- Reserva
  - Crisolaminarina
  - Lipídeos
- Diatomáceas heterotróficas
- 25% - Fitoplâncton
- Reprodução assexuada
- Sexuada - gamética



Bacillariophyta (Diatomáceas)

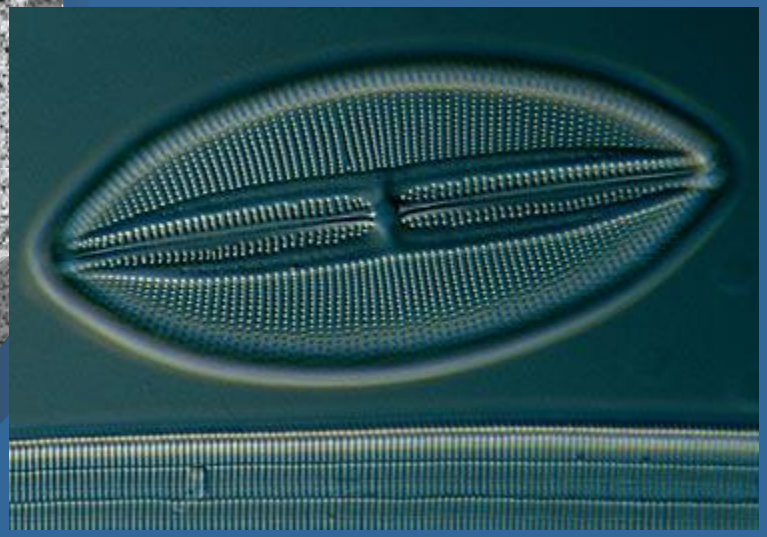
- Diatomáceas centricas
- 2 frústulas

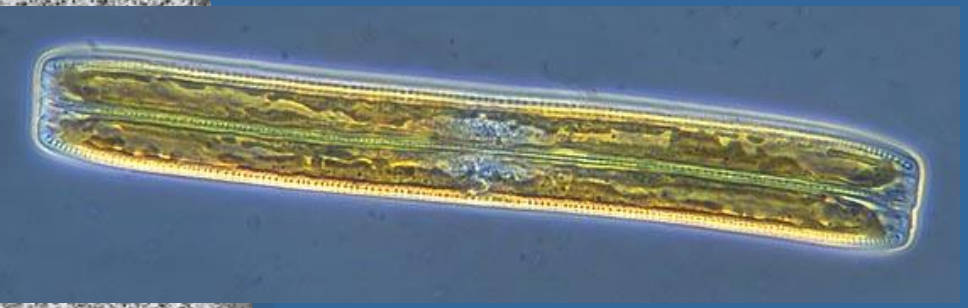


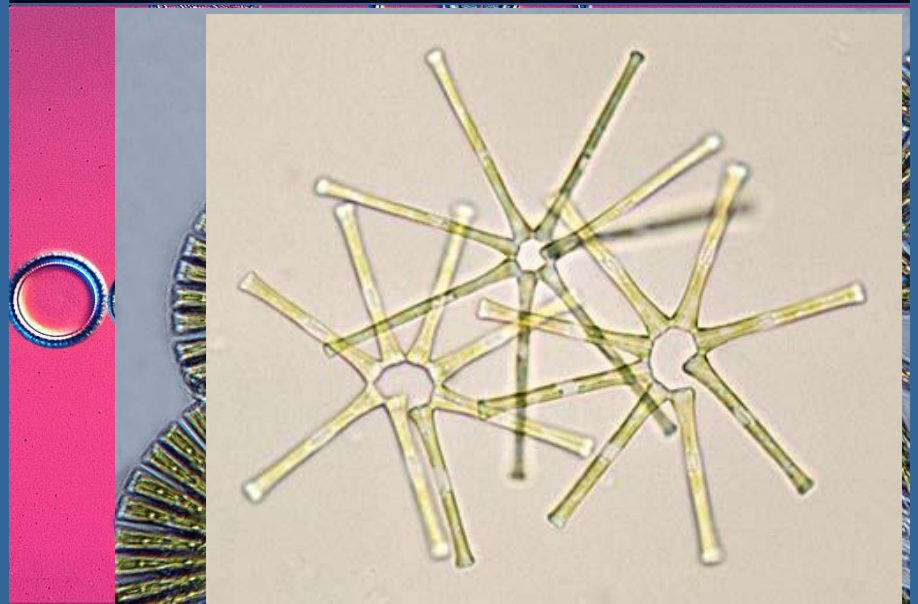


Bacillariophyta (Diatomaceas)

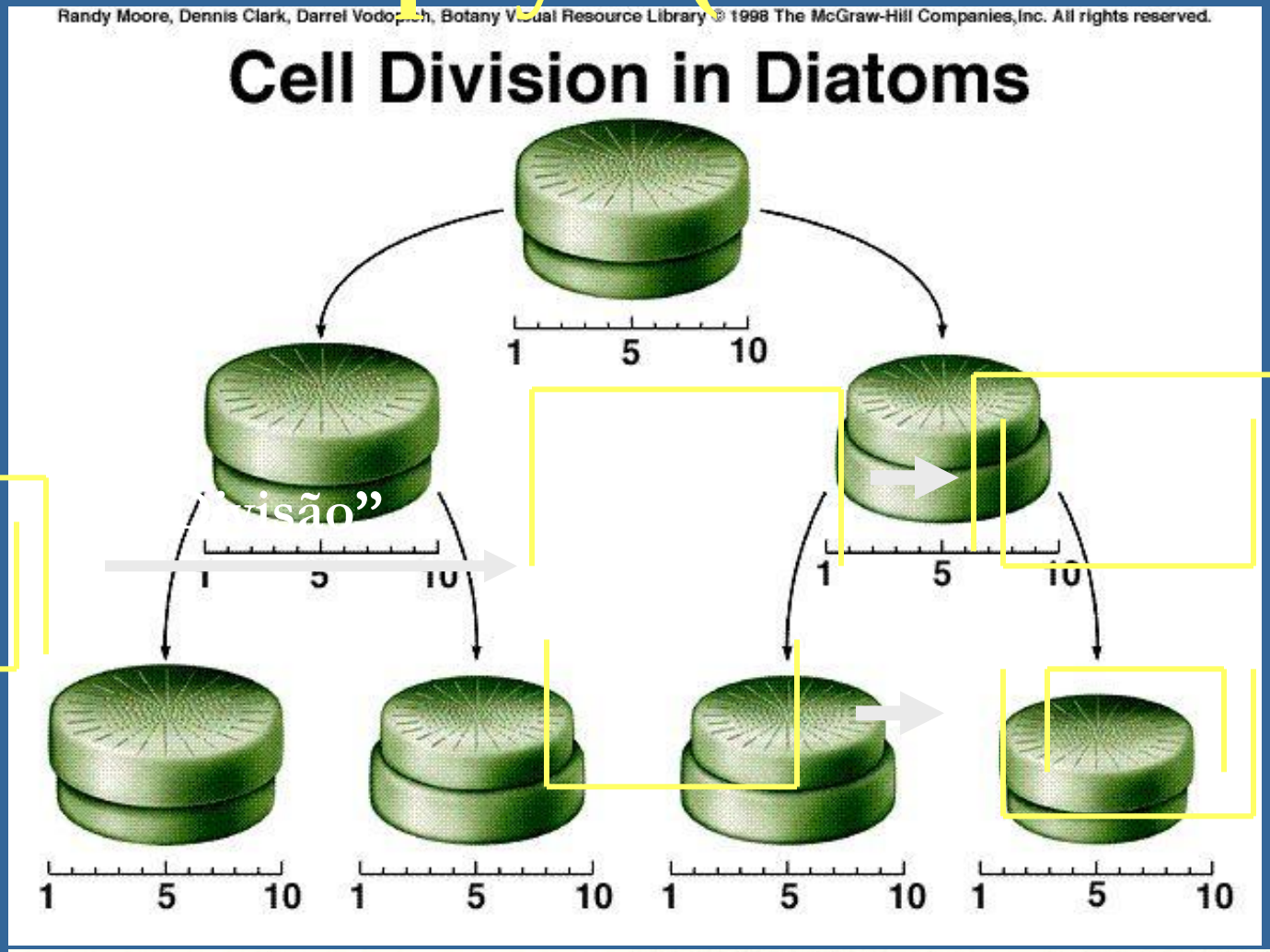
- Diatomáceas penadas
- 2 frústulas

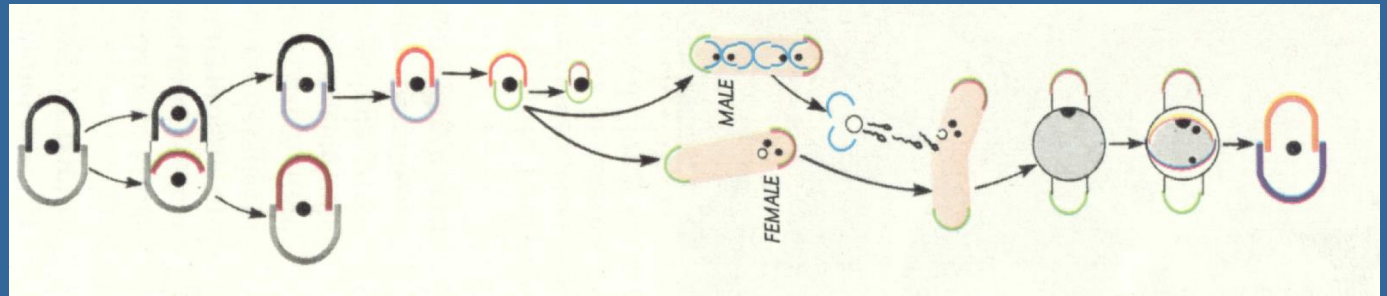




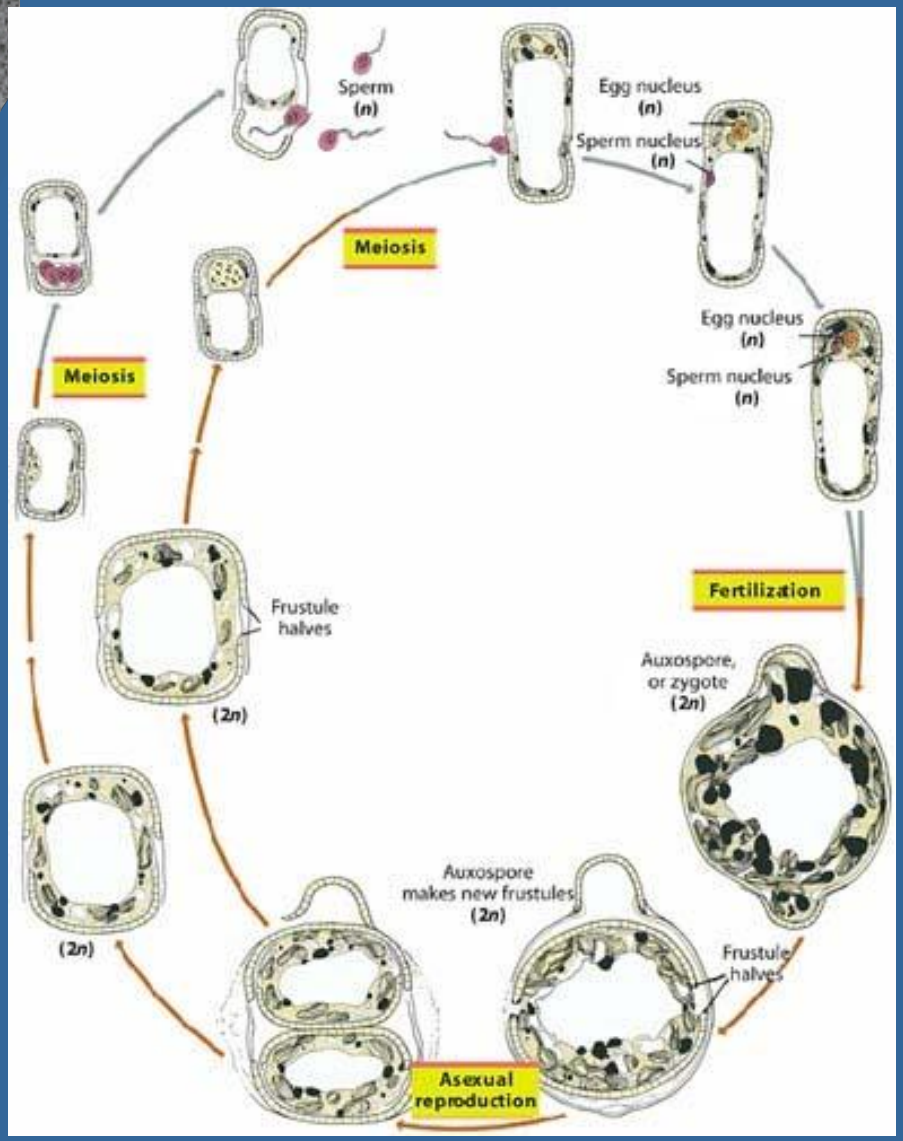


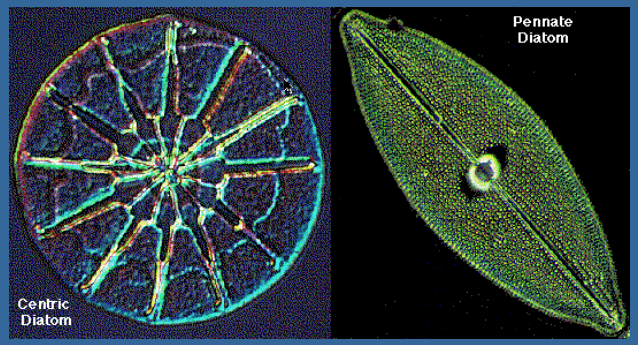
Bacillariophyta (Diatomáceas)





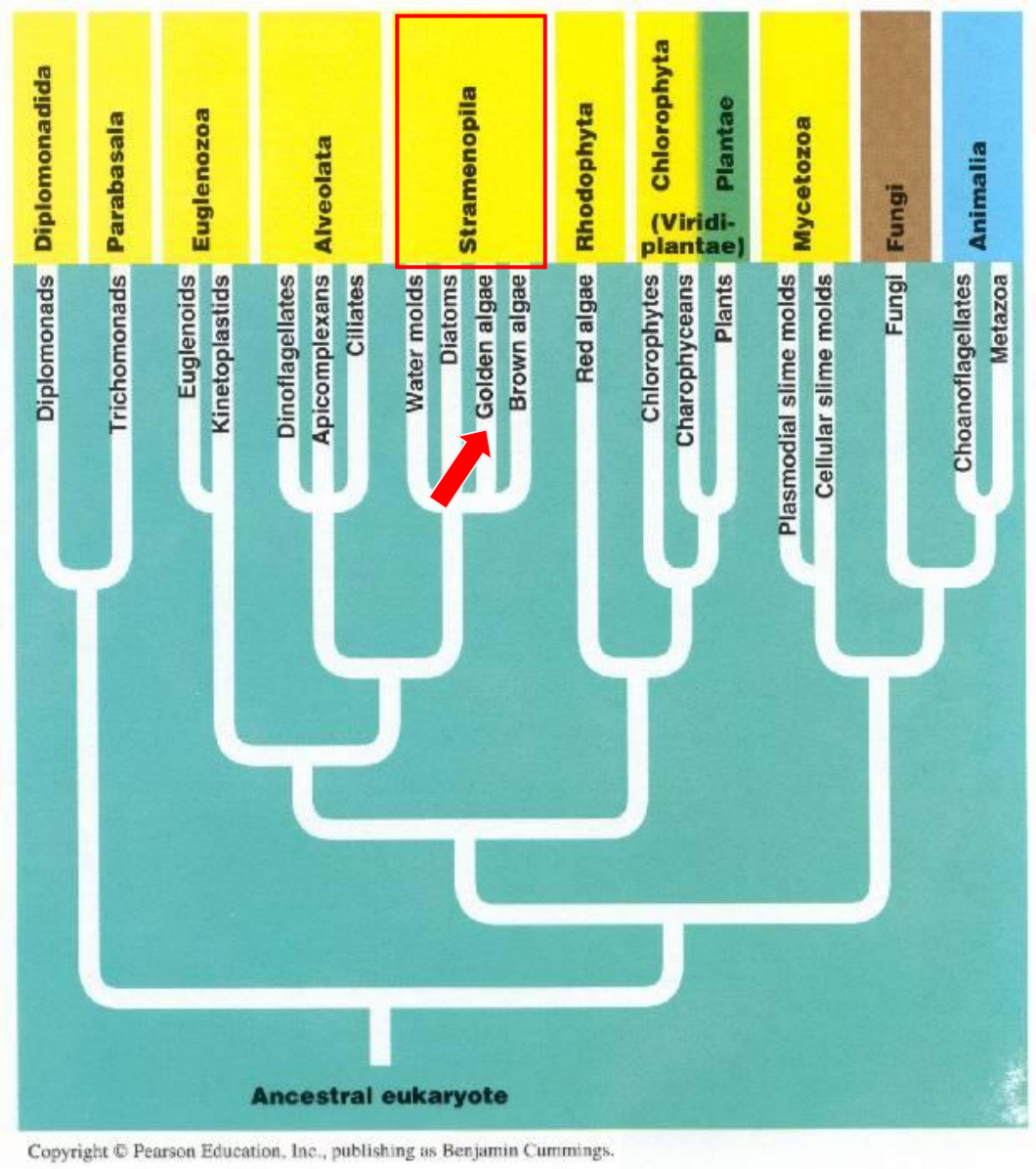
Bacillariophyta (Diatomaceas)





Bacillariophyta (Diatomáceas)

Filogenia dos Protistas

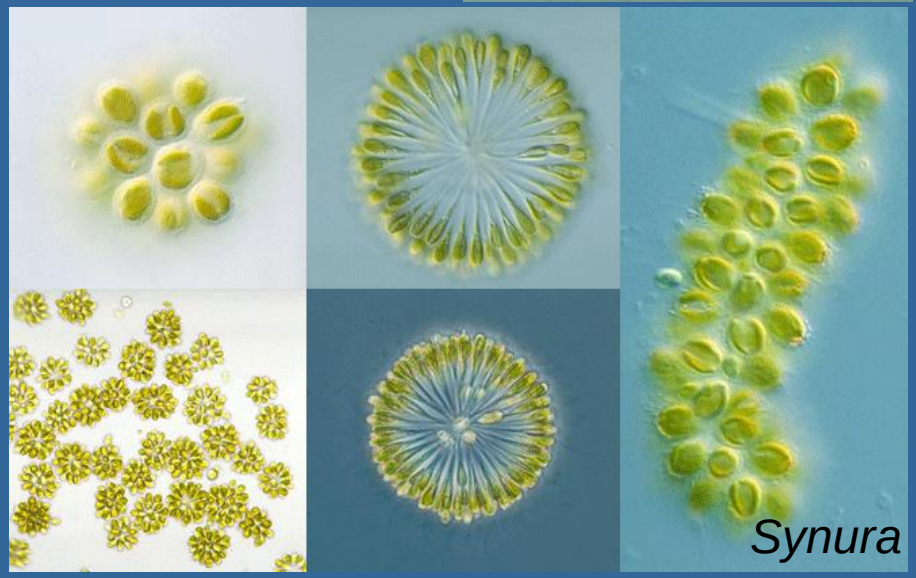


Copyright © Pearson Education, Inc., publishing as Benjamin Cummings.

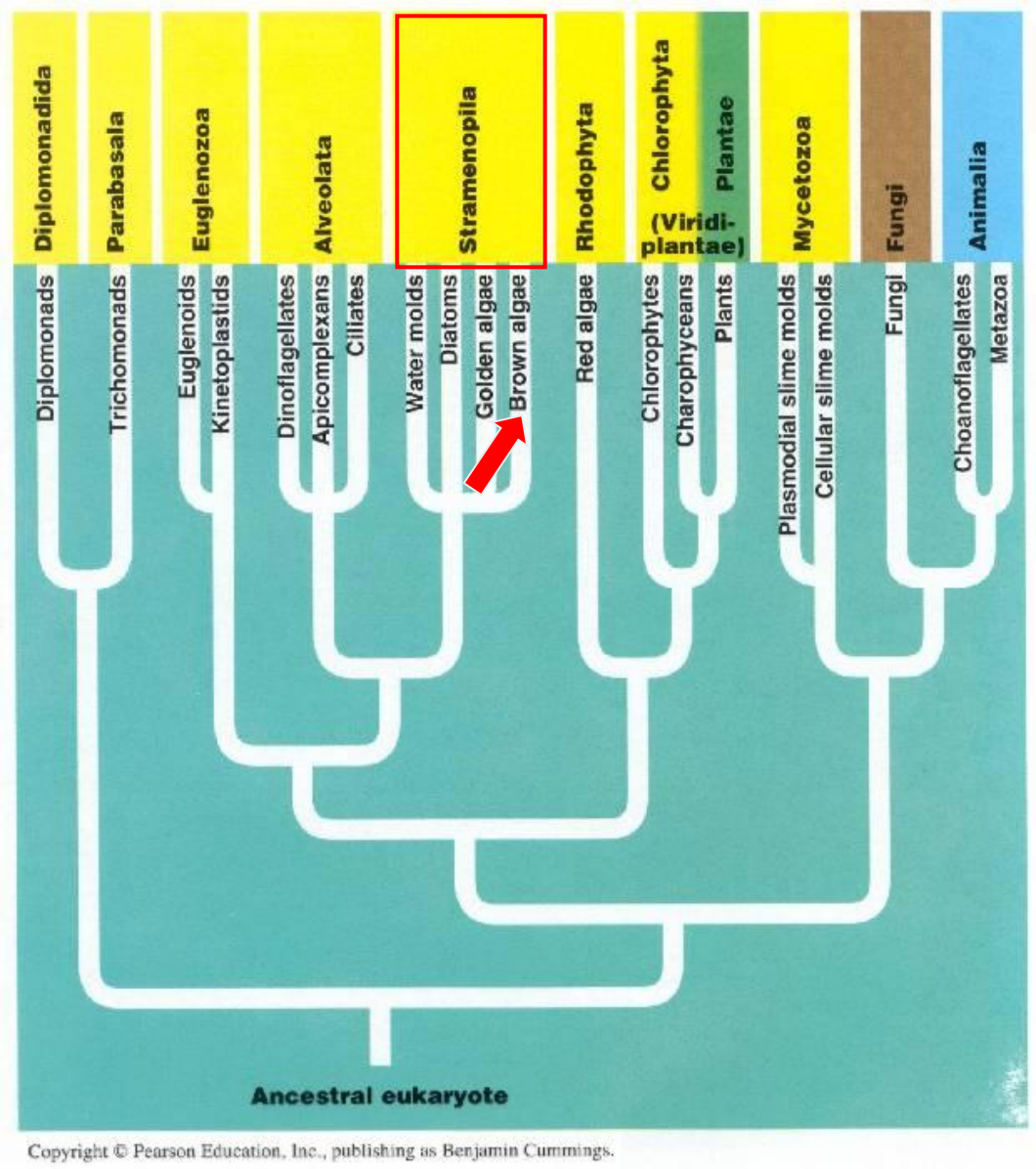
Crisofíceas – algas douradas

- Unicelulares ou coloniais
- 1.000 espécies
- Incolores
  - Clorofilas *a* e *c* – fucoxantina
- Célula – 1-2 cloroplastos
- Reserva – Crisolaminarina (Diatomáceas)
- Mares tóxicas
- *Dynobrion* – bactérias
- *Synura* – cobertos por escamas de sílica
  - Interior das células
  - Não se alimentam de partículas
- Reprodução assexuada
  - Zoósporos
- Reprodução sexuada
  - Cistos de resistência

Dinobryon


Synura

Filogenia dos Protistas



Copyright © Pearson Education, Inc., publishing as Benjamin Cummings.

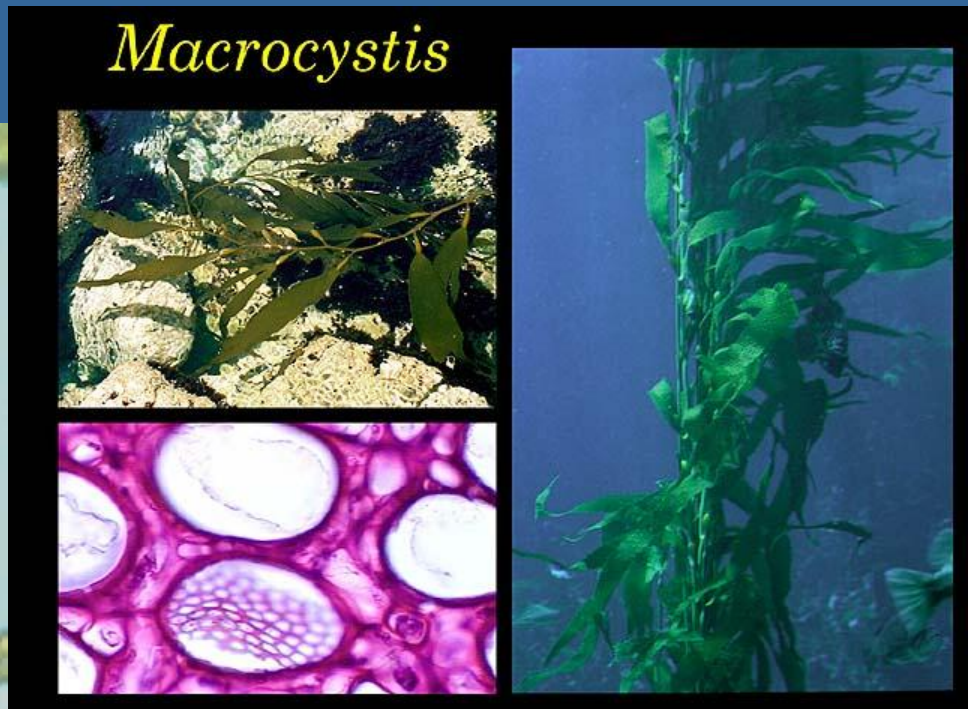
Phaeophyta – Algas pardas

Phaeophyta – Algas pardas

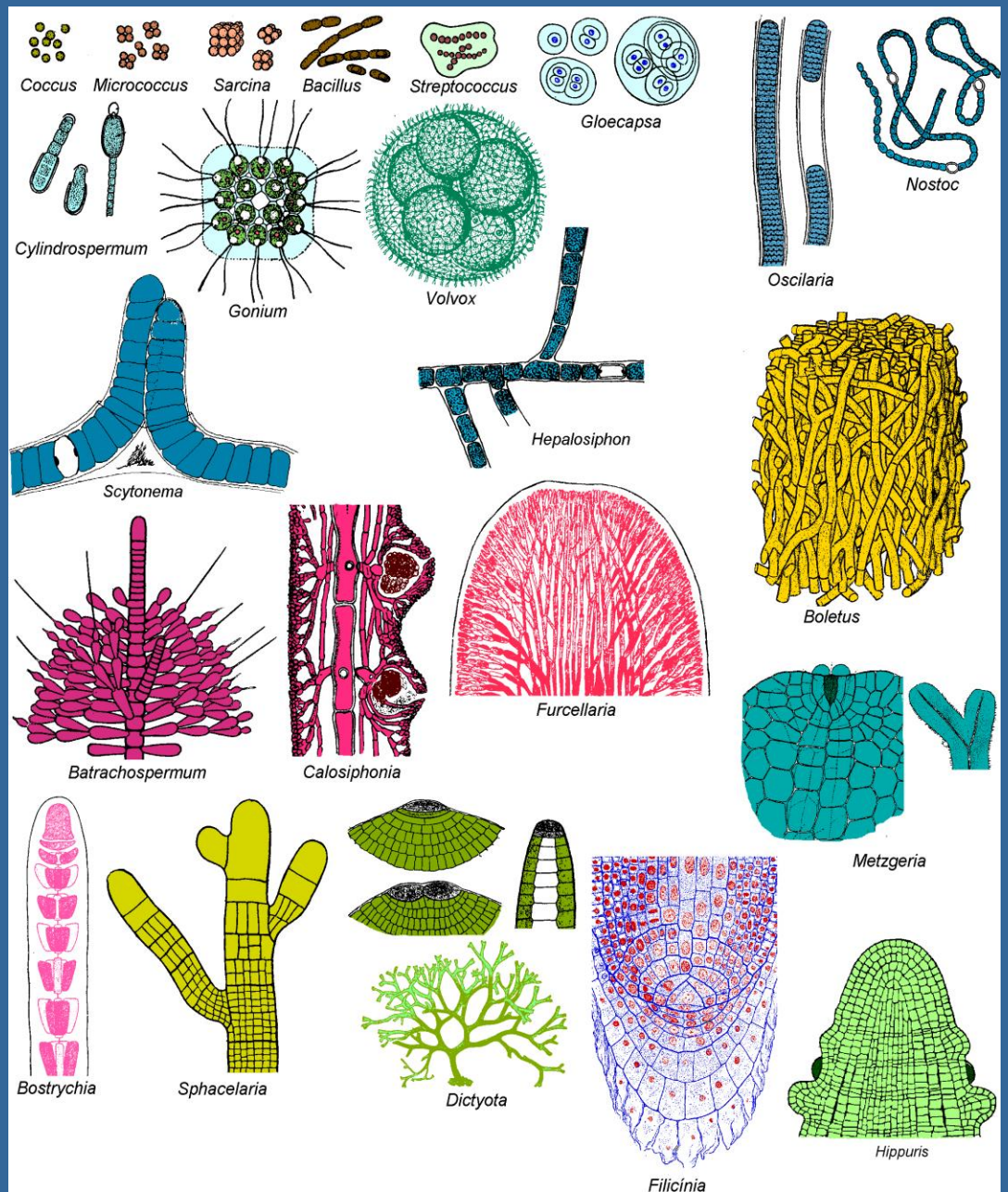
- Organismos marinhos
  - Regiões temperadas e polares
- 1500 espécies
  - Costões rochosos
- Laminarales – maiores algas pardas (Kelps)
- *Sargassum* – regiões tropicais

Phaeophyta

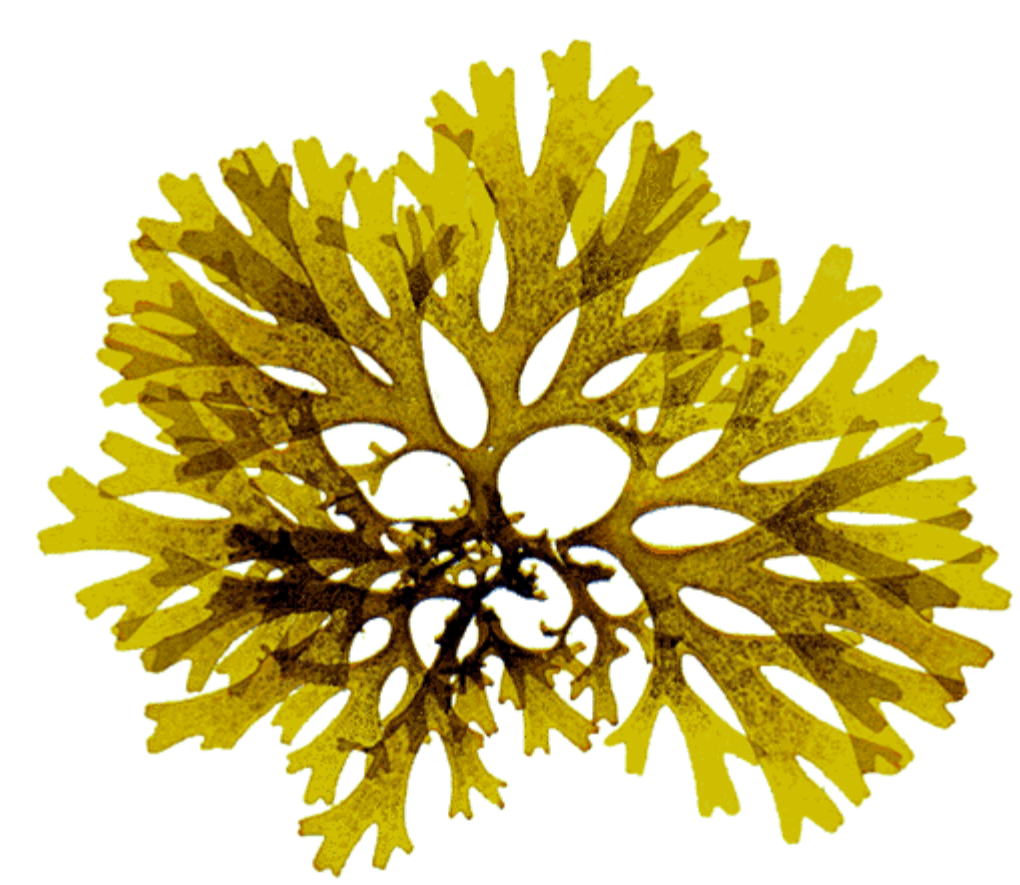
- Grupo monofiletico – grande variação de tamanho
  - Microscópicas – macroalgas (kelps)
- Forma básica – talo
  - Variação em complexidade
    - Filamentos ramificados
    - Pseudoparênquima - ligação por plasmodesmos
- Classificação em ordens – estrutura do talo
  - Convergência morfológica

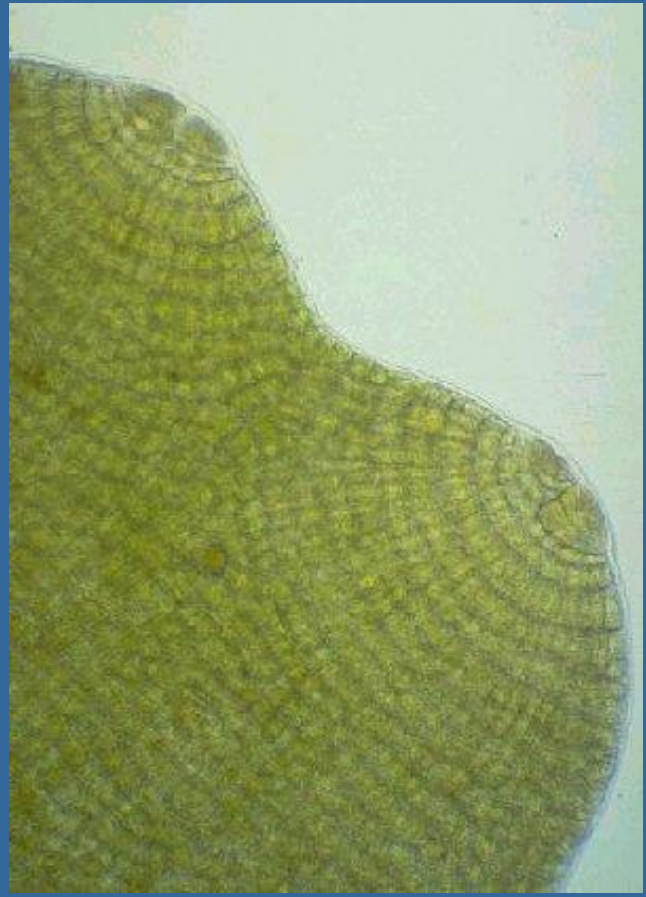


Níveis de organização



Dictyota sp.

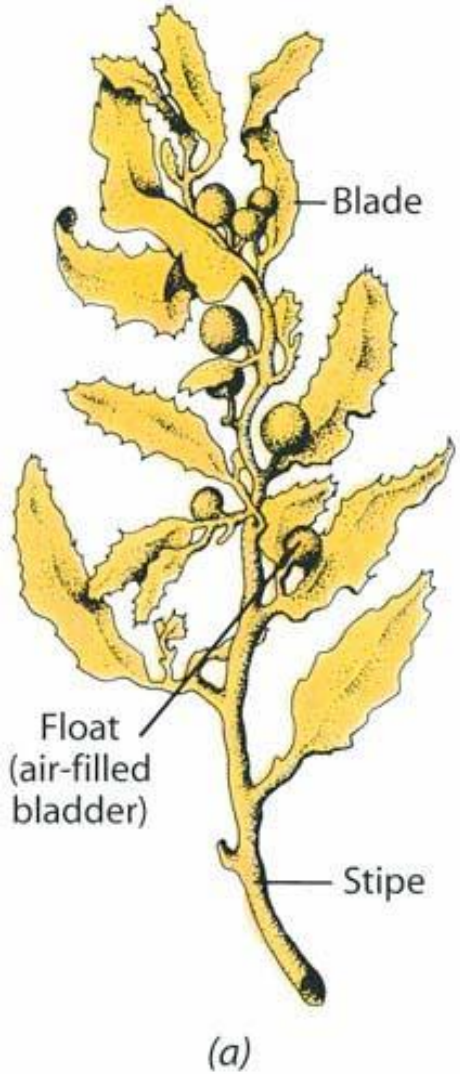


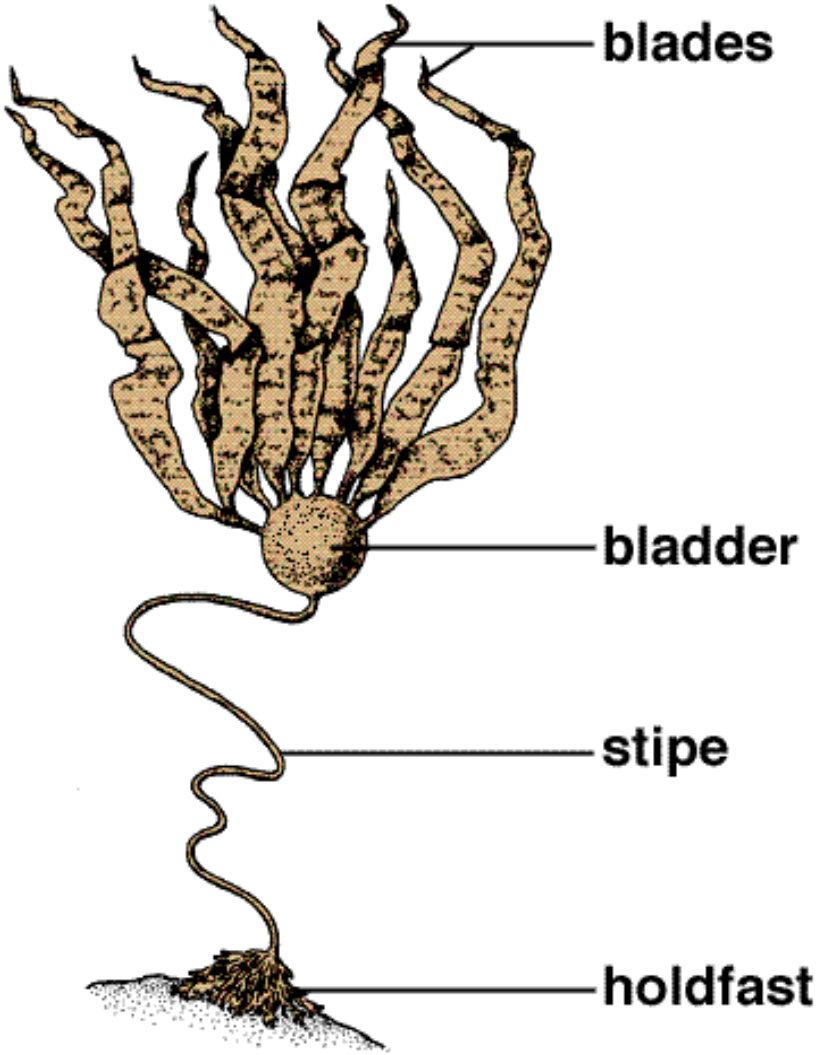


Phaeophyta

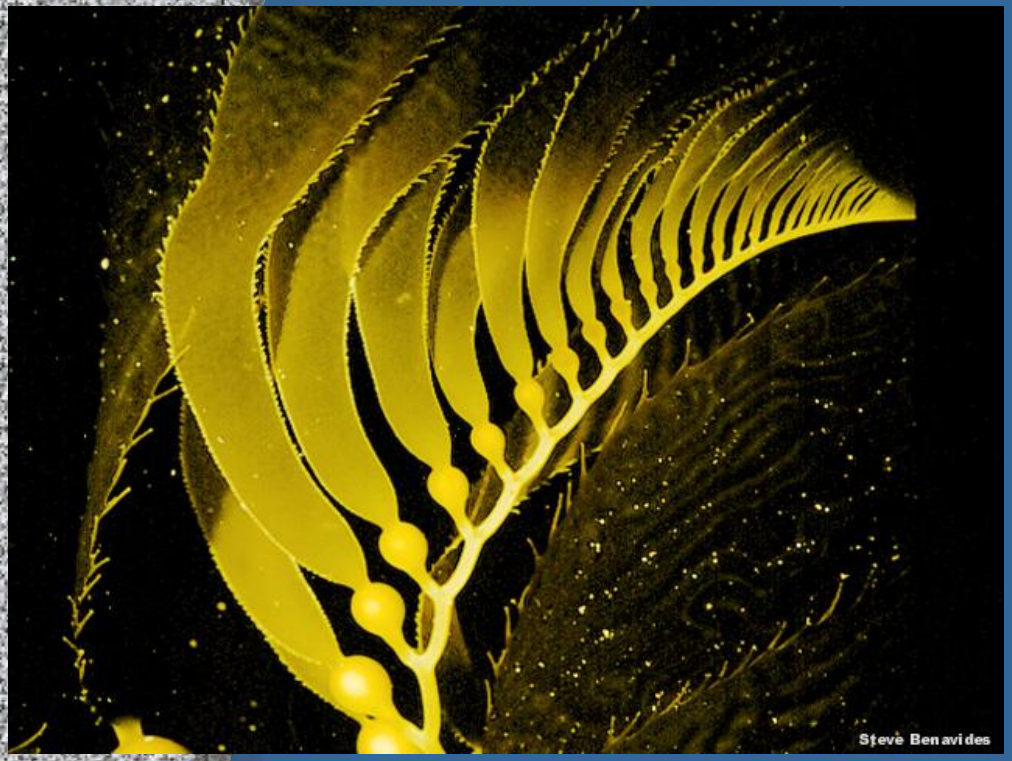
Kingsley R. Stern, Botany Visual Resource Library © 1997 The McGraw-Hill Companies, Inc. All rights reserved.

Parts of the Brown Alga *Nereocystis*, a Kelp



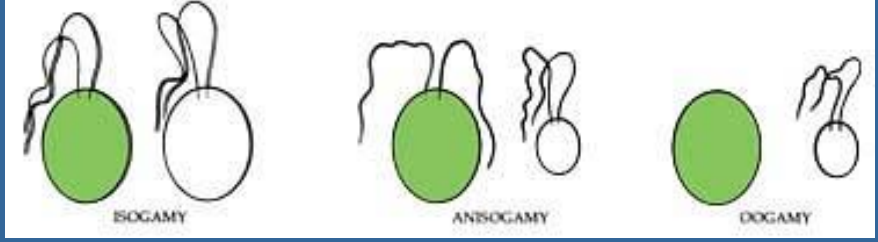


Phaeophyta



Phaeophyta - *Laminaria*

Phaeophyta

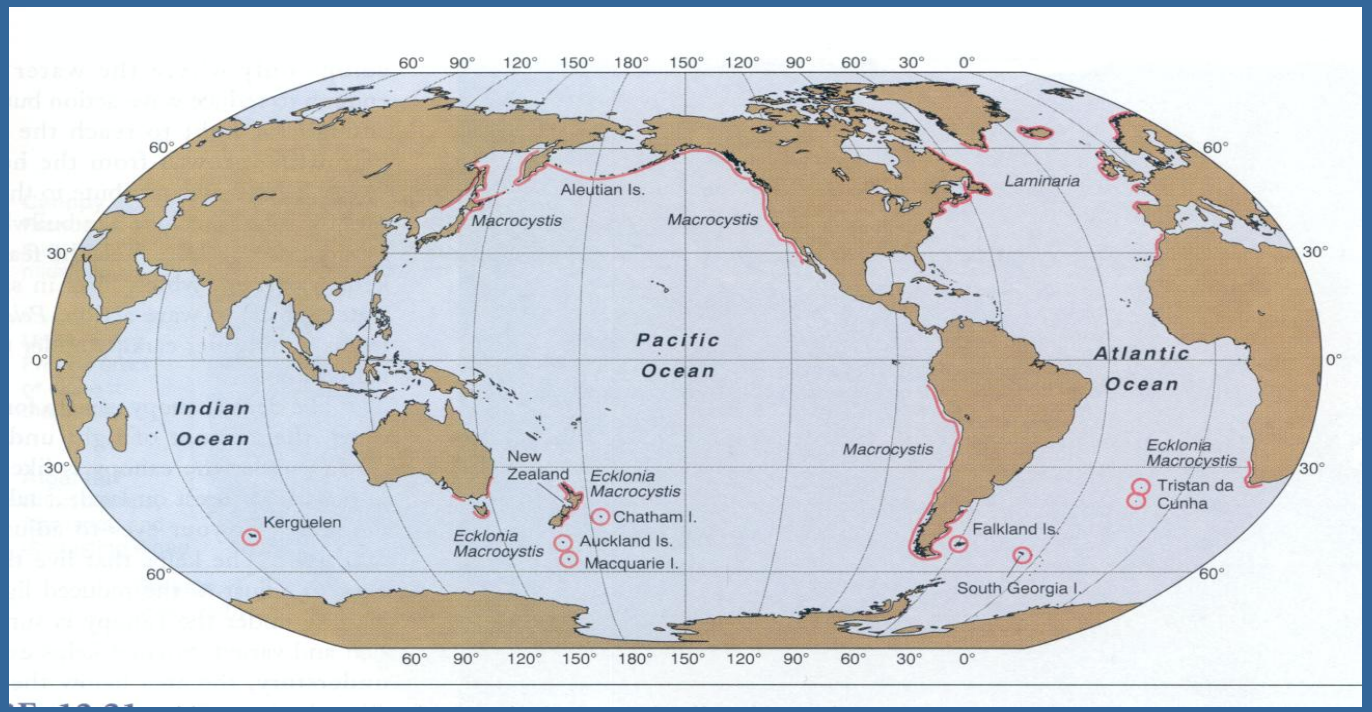


- Células – Plastídios discóides marrom-dourados
  - Crisofíceas e Diatomáceas
- Clorofilas *a* e *c* – carotenóides
  - Fucoxantina – Coloração característica
- Reserva – laminarina (carboidrato)
- Estudos moleculares – duas linhas evolutivas
  - Pirenóides – Amido
  - Sem pirenóides

Kelps - Laminariales

- Kelps – 60 metros
  - Crescimento rápido
- Alginato – estabilizante
  - Emulsificante

Distribuicao em Kelps



Laminariales

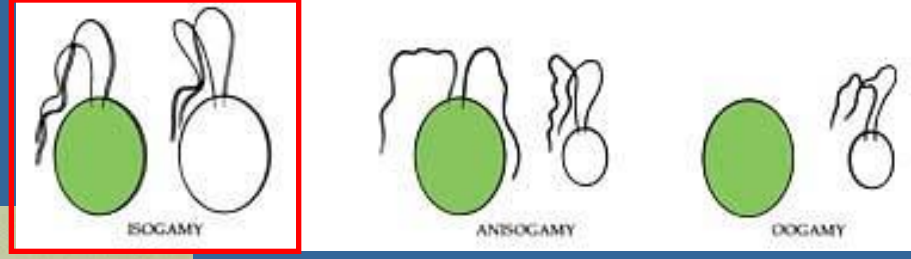
- Estrutura interna complexa
- Estipe – Células alongadas (Floema)
  - Manitol - carboidrato

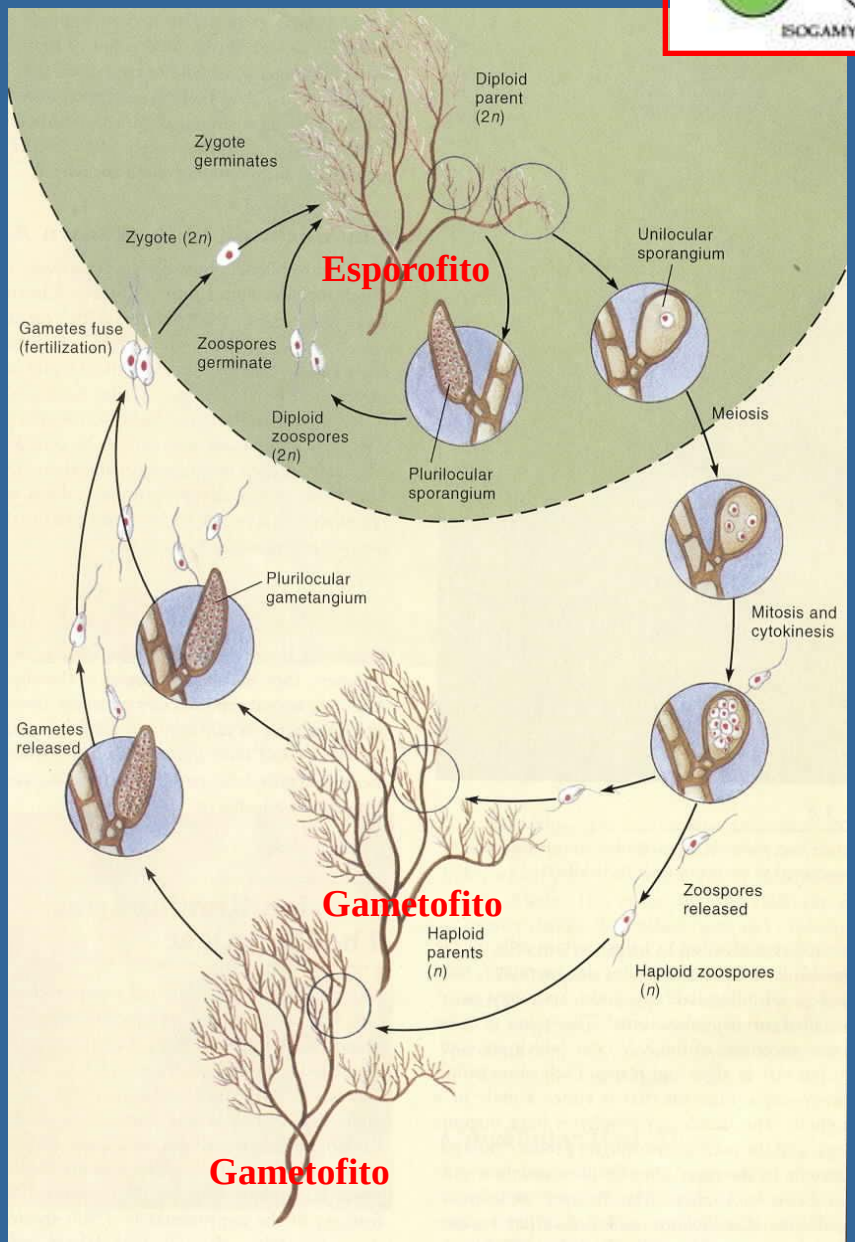
Phaeophyta

- Alginato – proteção contra dessecação

- Flexibilidade
- Correntes marítimas
- Evitar parasitas

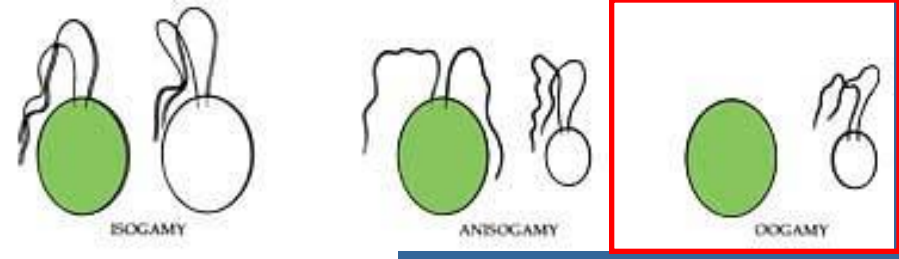
Ectocarpus

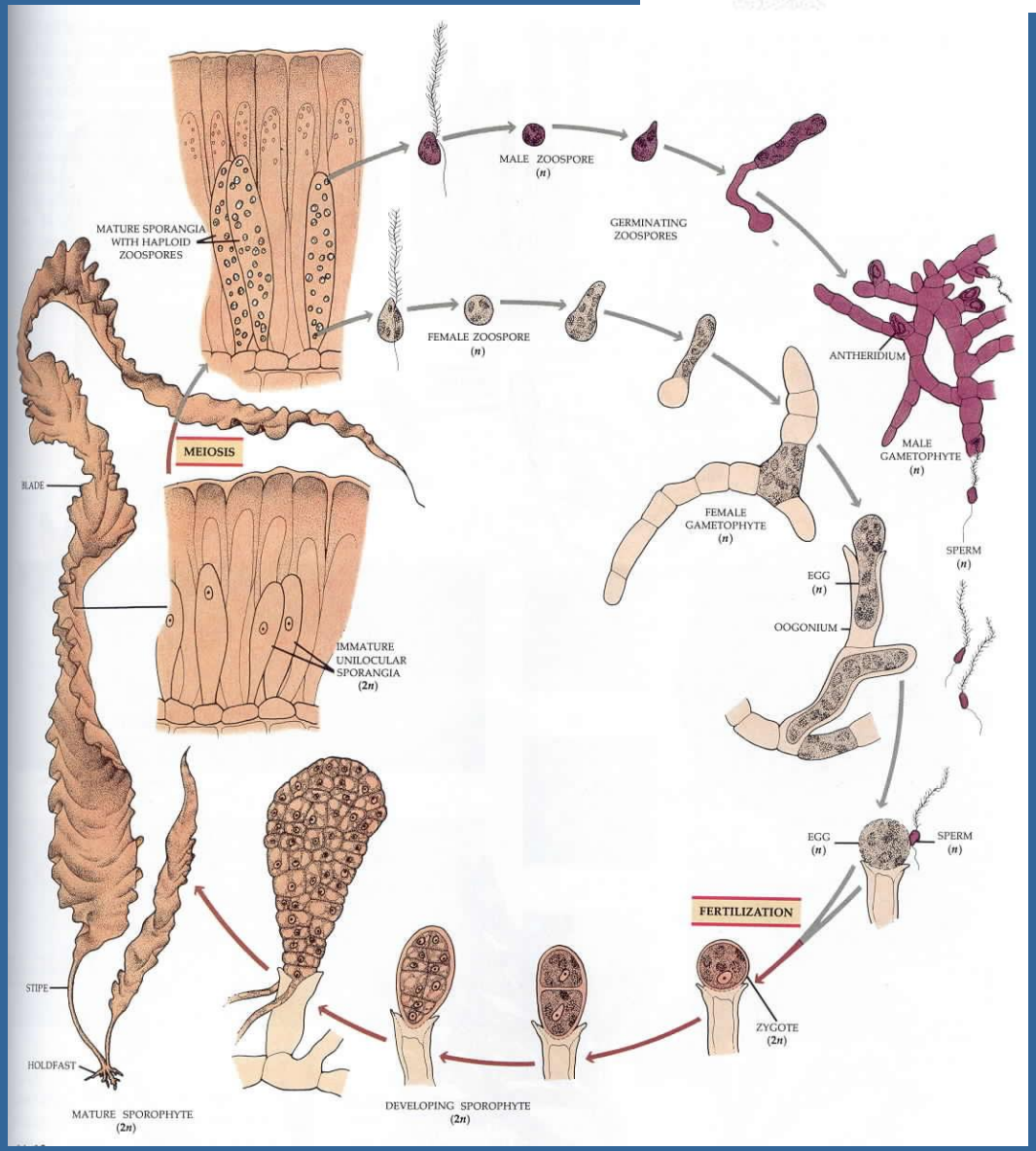

ISOGAMY
ANISOGAMY
OOGAMY


Diploid parent (2n)
Zygote germinates
Zygote (2n)
Esporofito
Unilocular sporangium
Gametes fuse (fertilization)
Zoospores germinate
Meiosis
Diploid zoospores (2n)
Plurilocular sporangium
Plurilocular gametangium
Mitosis and cytokinesis
Gametes released
Gametofito
Zoospores released
Haploid parents (n)
Haploid zoospores (n)
Gametofito

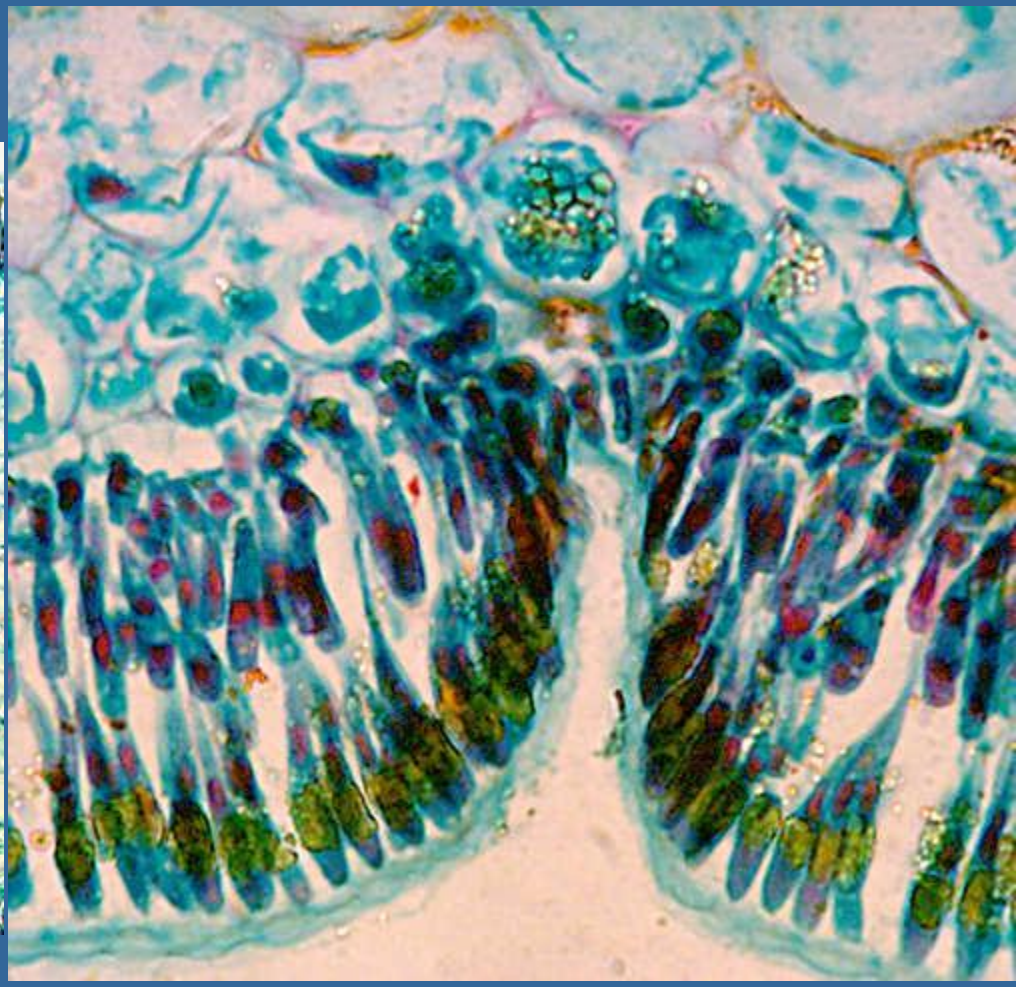
Ectocarpus

Laminaria

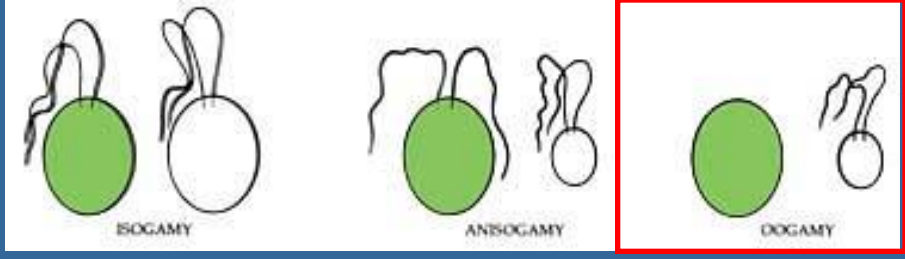

ISOGAMY
ANISOGAMY
OOGAMY

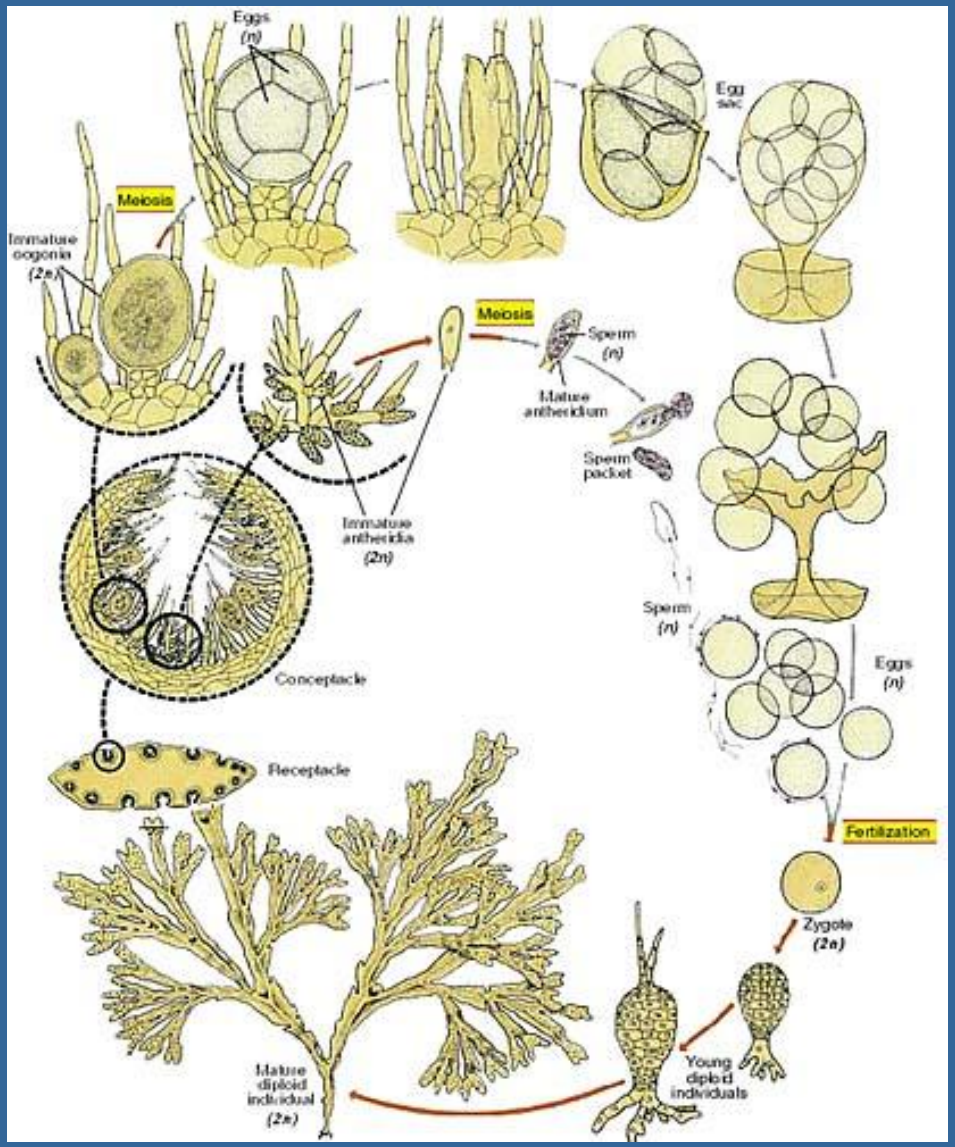

MATURE SPORANGIA WITH HAPLOID ZOOSPORES
MALE ZOOSPORE (n)
GERMINATING ZOOSPORES
FEMALE ZOOSPORE (n)
ANTHERIDIUM
MALE GAMETOPHYTE (n)
MEIOSIS
BLADE
FEMALE GAMETOPHYTE (n)
SPERM (n)
EGG (n)
OOGONIUM
IMMATURE UNILOCULAR SPORANGIA (2n)
EGG (n)
SPERM (n)
FERTILIZATION
STIPE
ZYGOTE (2n)
HOLDFAST
MATURE SPOROPHYTE (2n)
DEVELOPING SPOROPHYTE (2n)

Laminaria

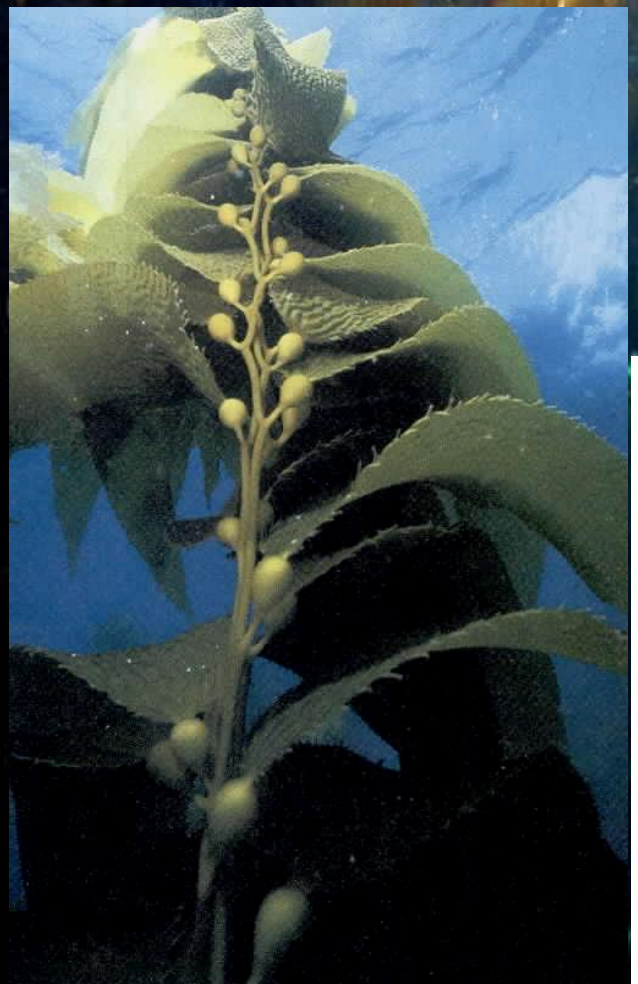


Fucus


ISOGAMY
ANISOGAMY
OOGAMY


Eggs
(n)
Egg
Meiosis
Immature
oogonia
(2n)
Meiosis
Sperm
(n)
Mature
antheridium
Sperm
packet
Immature
antheridia
(2n)
Sperm
(n)
Eggs
(n)
Conceptacle
Receptacle
Fertilization
Zygote
(2n)
Young
diploid
individuals
Mature
diploid
individual
(2n)

Fucus

Fucus

Macrocystis