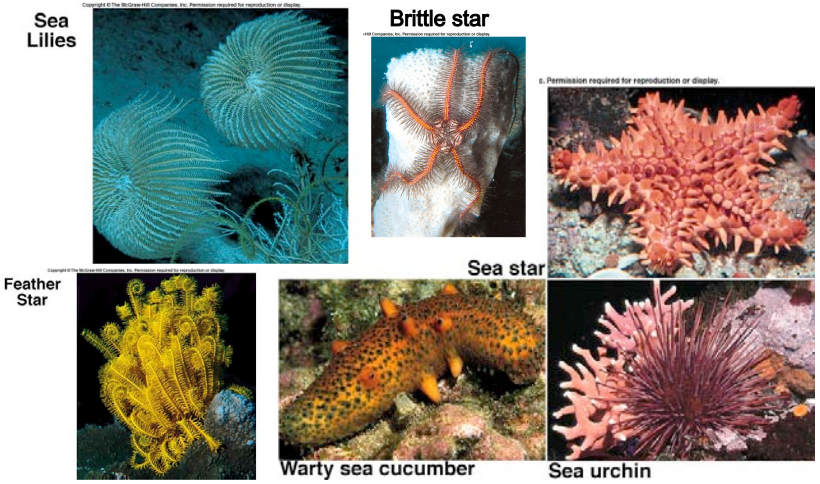
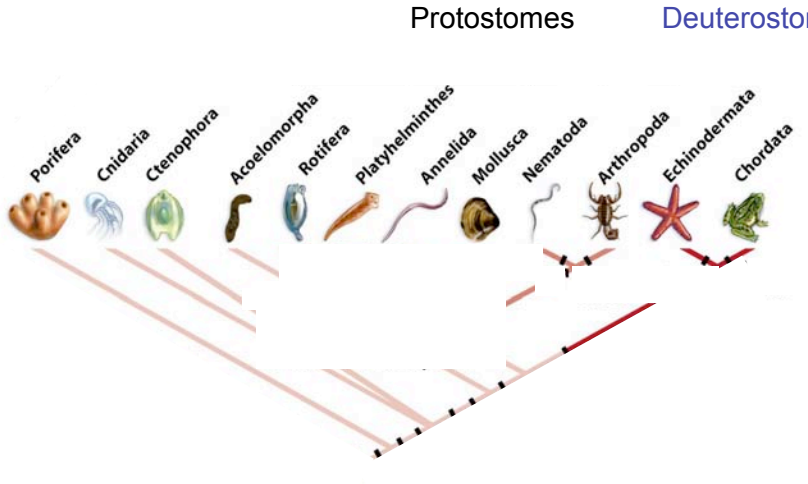
Lab 6
Echinodermata Chapter 14

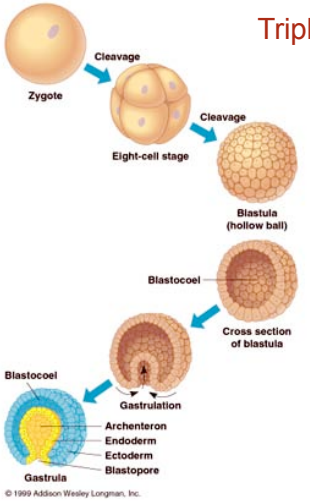


Animal Phylogeny



Animal Development

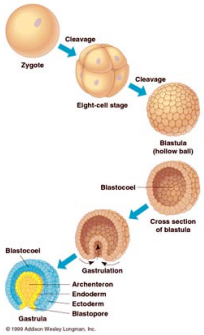
Triploblastic animals all develop in same steps



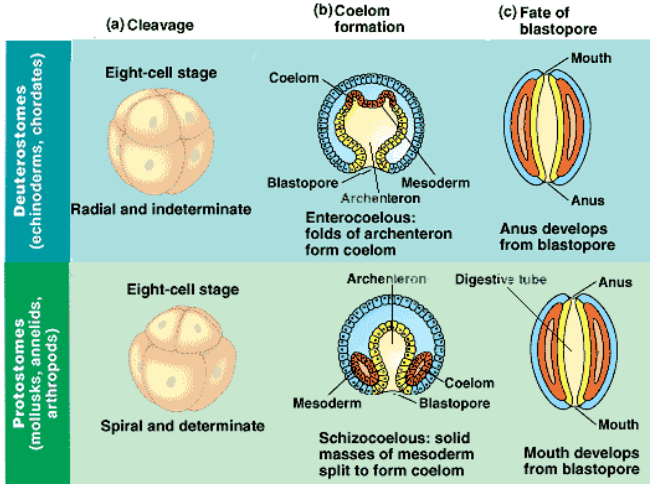
Zygote splits into multiple cells (cleavage)

Cells form hollow ball, which folds in to make endoderm

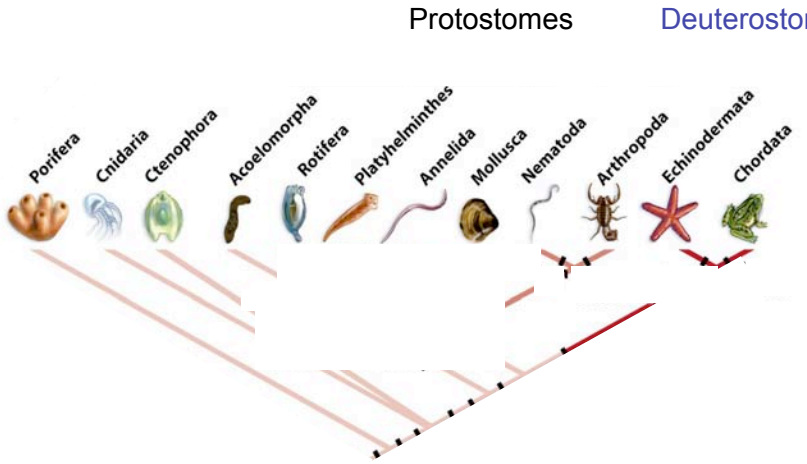
Coelom forms



Protostomes vs. Deuterostomes

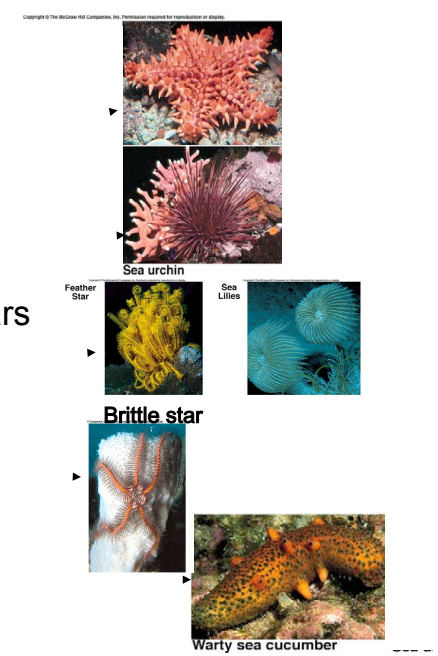


Animal Phylogeny



Echinodermata classification

- **Class Asteroidea**
  - Sea stars
- **Class Echinoidea**
  - Sea urchins and sand dollars
- **Class Crinoidea**
  - Feather stars, sea lillies
- **Class Ophiuroidea**
  - Brittle stars / serpent stars
- **Class Holothuroidea**
  - Sea cucumbers

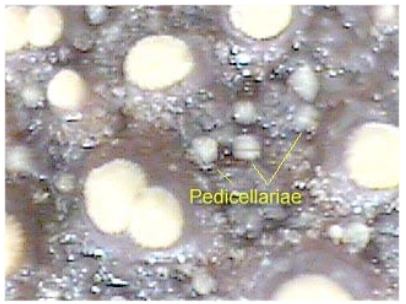


Class Asteroidea: Sea stars

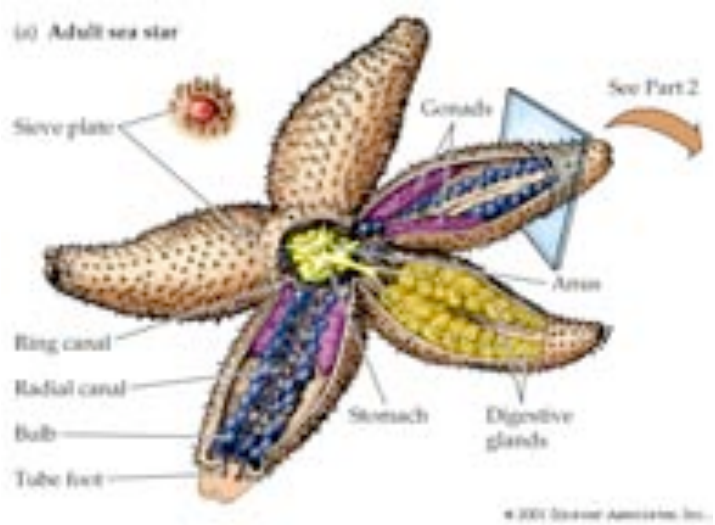
Madreporite

keep your sea star wet!

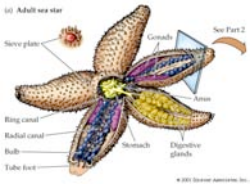
Look under dissecting scope



Sea star anatomy



To dissect the sea star



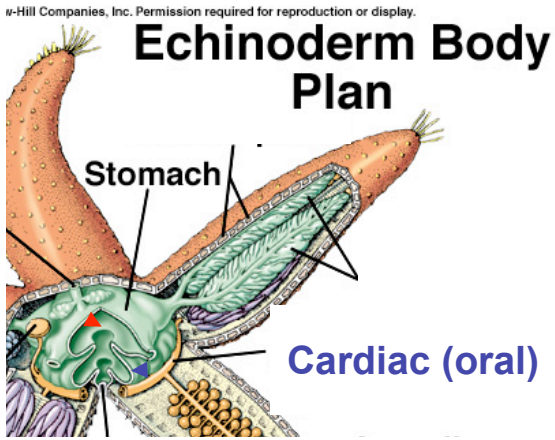
- **Cut off end of an arm**
  - Opposite of the madreporite
- **Cut down the side of the arm**
- **Cut around side of the central cavity but**
  - LEAVE madreporite
  - (so you can see the stone canal)
- **Carefully pull endoskeleton up to expose the arm's organs**

To dissect the sea star

A

B

- **Feeding**
  - They have two stomachs

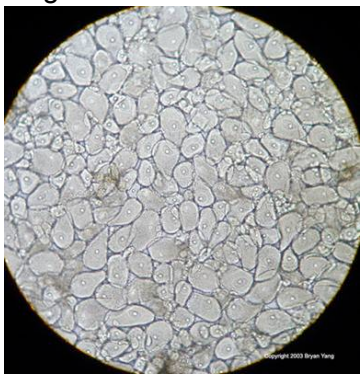


Gonads

–Sea stars are dioecious

– Make a slide mount of the gonad tissue to determine

Sperm

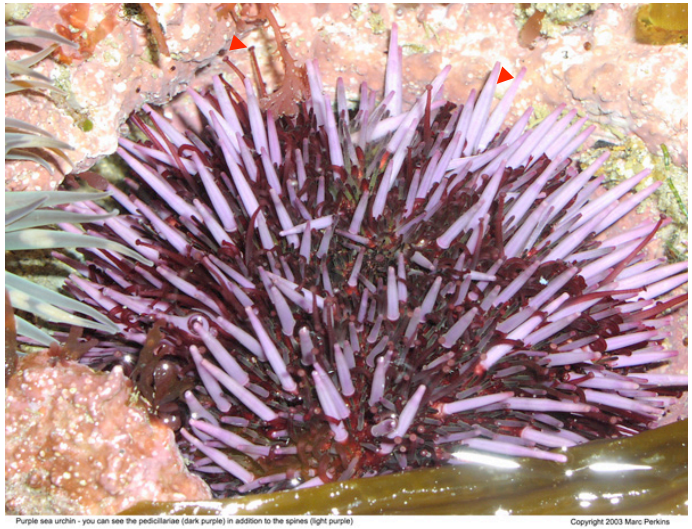


ova

Each with their own nucleus and nucleolus

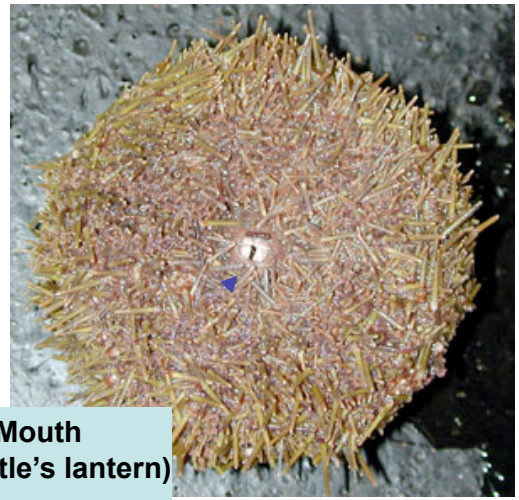
Class Echinoidea: Sea urchin

Tube foot **Spine**



Class Echinoidea: Sea urchin

Oral surface



Mouth (Aristotle's lantern)

Class Echinoidea: Sand dollar

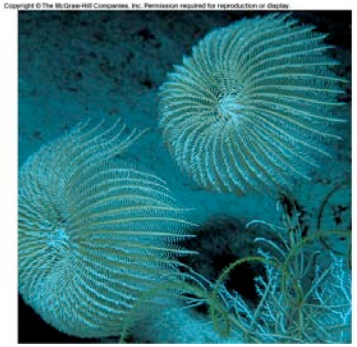
Aboral surface

Tube feet modified for respiration

Madreporite **Ambulacra**

Class Crinoidea: Feather stars & Sea lilies

Sea Lilies



Feather Star

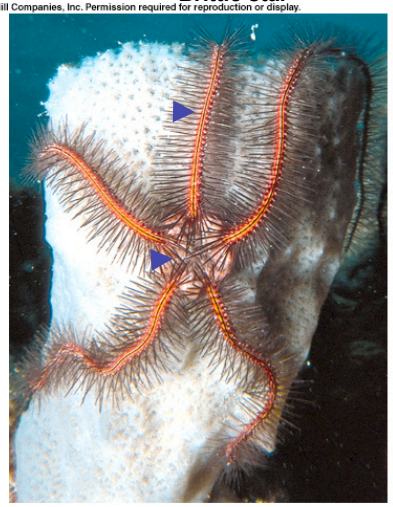
Considered the most primitive living echinoderms (I.D. only)

Class Ophiuroidea: Brittle stars

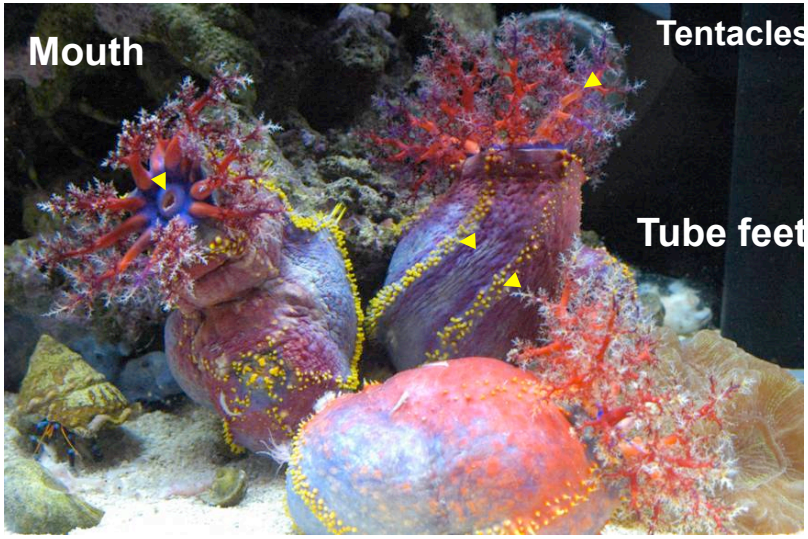
Arm

Disc

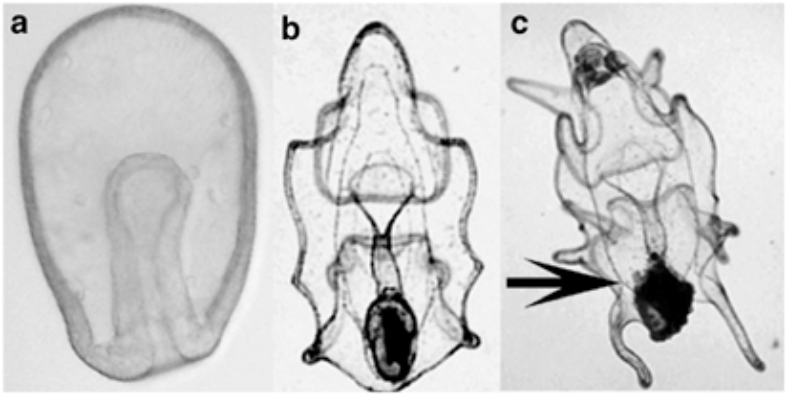
Brittle star



Class Holothuroidea: sea cucumbers



Life Cycle



Gastrulation Bipinnaria Brachiolaria

Don’t forget to look
at the side
benches.

There is more to see!