PHYLUM

CNIDARIA

- **TISSUE** level of body organization

- Middle layer = **MESOGLEA** = Acellular matrix (Just jelly!)

- Diagnostic cell type = **CNIDOCYTE**
  It contains the Nematocyst organelle
Cnidocyte vs. Nematocyst

A = ?

B = ?

C = ?
Cnidarians are DIPLOBLASTIC (2 tissue layers)

C = Epidermis (E) &
A = Gastrodermis (G)
with B = Mesoglea in between the two

Insert: A Cnidocyte (C) - cell containing a Nematocyst - organelle not yet triggered.
Specialized cells called cnidocytes contain nematocysts. These are used for anchorage, defense and capture of prey.
Cnidarian Life Cycles

- **Hydrozoa**
  - Polyp dominant
  - Medusa does exist
    - (Hydra is cute but odd!)
    - Remember the fire coral!

- **Scyphozoa**
  - Medusa dominant
  - Polyp does exist

- **Anthozoa**
  - Polyp only
Do you know the difference between a bud and a gonad?
PHYLUM Cnidaria
CLASS Hydrozoa

Cnidocyte-bearing tentacles, mouth, GVC & bud (branch = asexual reproduction) [fig 2.2]
Polyp with gonads for sexual reproduction & close-up view of the gonads [fig 2.2] (bumps)
Which structure is used for what?
Obelia colony slide with close-up of some of the polyps or zooids. Note polymorphism - gastrozooids (with feeding tentacles) & gonozooids for reproduction [fig 2.3-6]
Portuguese Man-O-War is an excellent example of polymorphism. It is a colony of many individuals – again = zooids – modified for different tasks (feeding, floating, reproduction, etc.)
Calcium-carbonate skeletons of a fire coral. This is a hydrozoan (not an anthozoan corals) because it has both a POLYP stage (dominant = above) & a MEDUSA stage in its life cycle.
Ventral view of a Hydrozoan Medusa  [fig 2.3-7]
Note Long knobby tentacles with batteries of nematocysts along them. (S) Statocysts are for balance
A Scyphozoan = A jelly!

Statocysts can be at the base of the tentacles or in between them.
3 examples of jellyfish. Note the large amount of mesoglea present in this class. MEDUSA is dominant in Scyphozoans, but polyp stage is also present at some point during their life cycle.
Life cycle (fig 2.6)
P A S St E A

P Planula
A Actinula (No slide)
S Scyphistoma
St Strobila
E Ephyra
A Adult
PHYLUM
Cnidaria

CLASS
Scyphozoa

Close-up of planula stage  [fig 2.6-B] Bilateral motile larval stage able to move away from parent to settle in a new area.
Close-up of scyphistoma stage  [fig 2.6-D]
Close-up of strobila stage.
Buds form from asexual reproduction [fig 2.6-E]
Close-up of ephyra larva [fig 2.6-F]
Calcium-carbonate skeletons of various corals, sea fans & sea whips. All = Anthozoa: ONLY the POLYP stage is present.
Some Anthozoa grow as individual polyps such as this Sea anemone. 

**PHYLUM Cnidaria**

**CLASS Anthozoa**

Note that ONLY the POLYP stage is present. In their life cycle

Remember you saw them fight in slow motion in the ‘Shapes of Life’ video????
Other Anthozoa grow as colonies of polyps. Examples of this include sea pansies (shown here,) sea fans, sea whips, sea pens and of course corals.

Remember, **ONLY** the **POLYP** stage is present in the Anthozoa class of cnidarians.