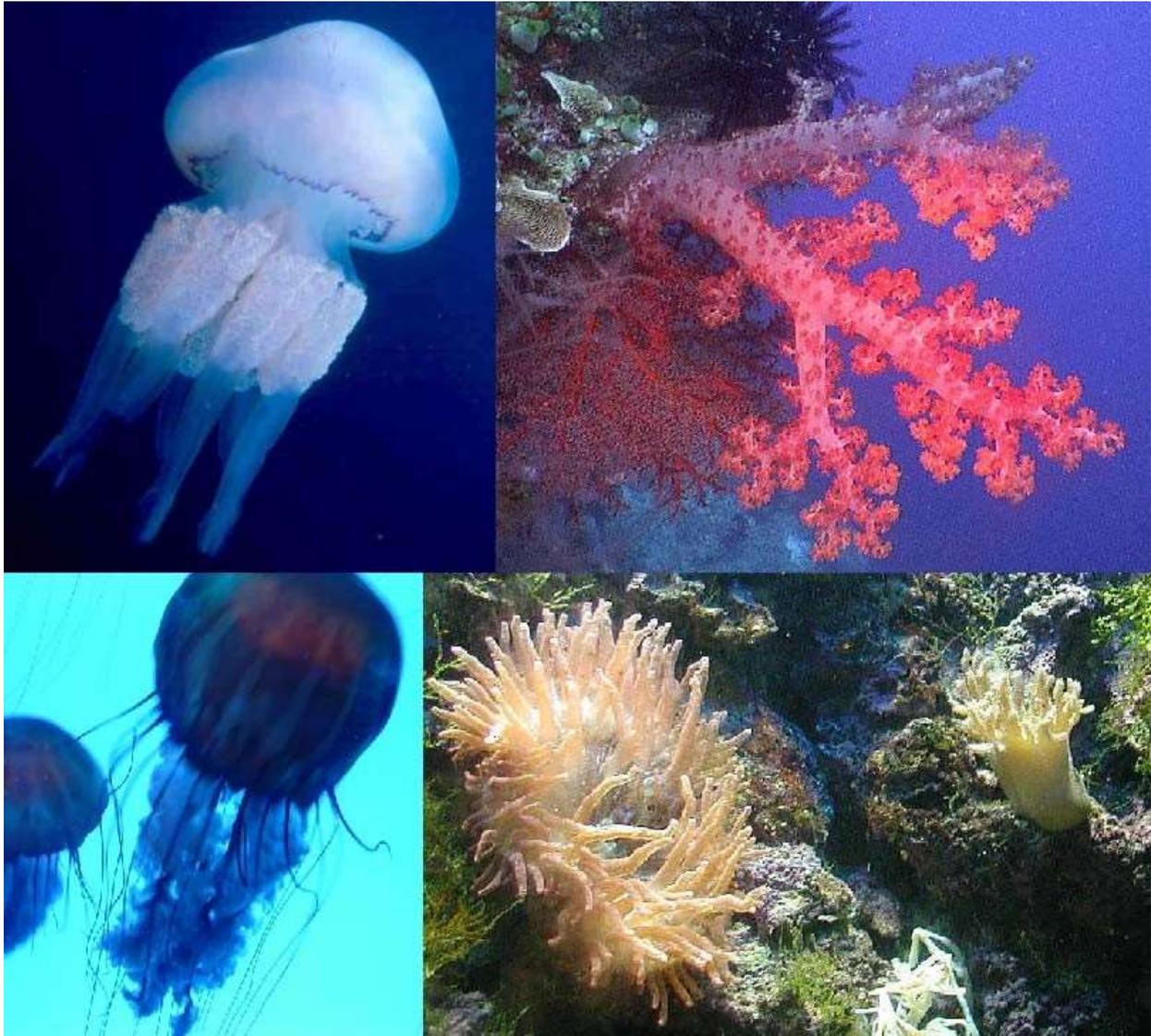




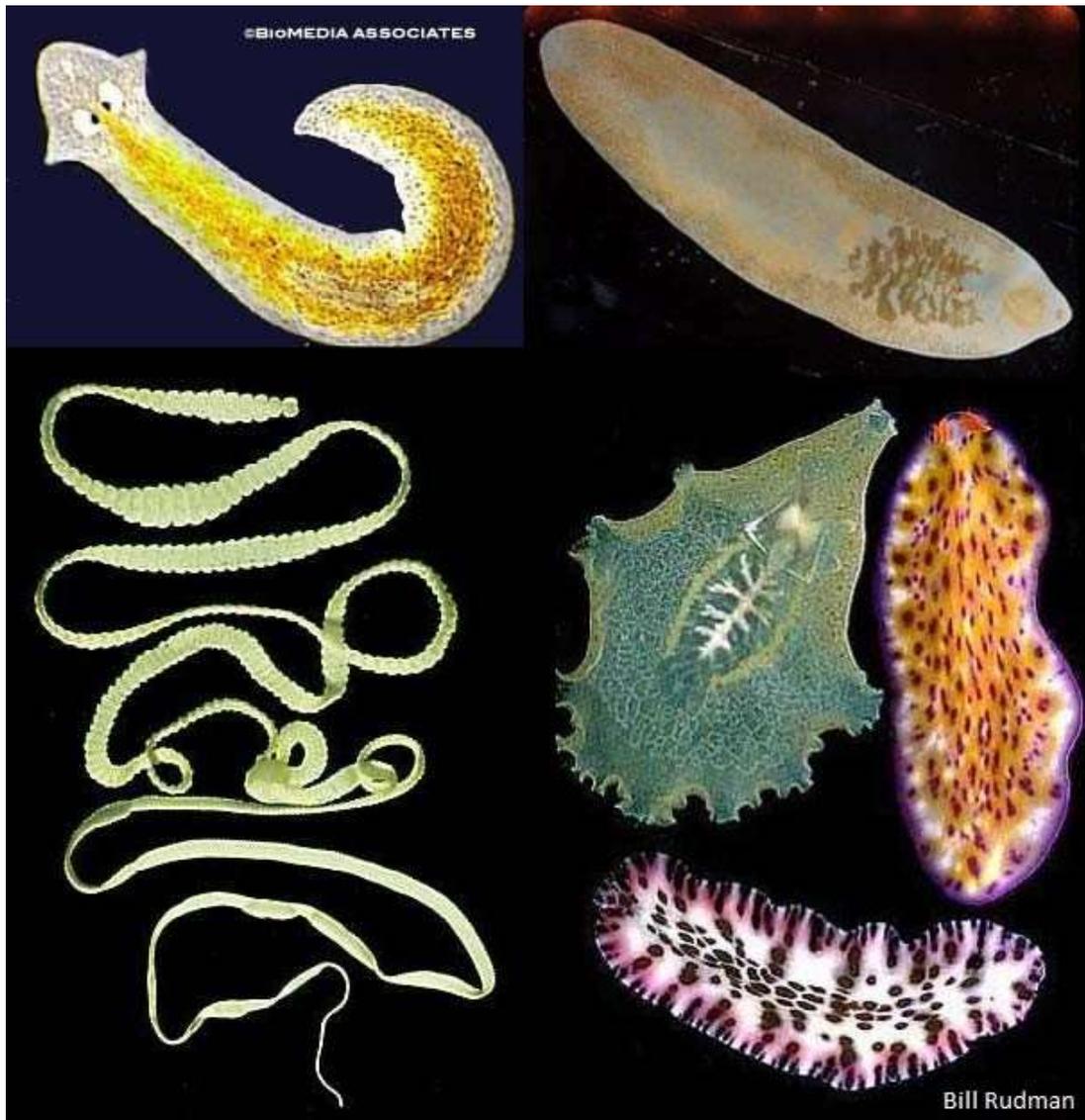
Phylum H

- Most primitive multicellular animals.
- Invertebrates – these do NOT have a backbone, spinal cord, or notochord
- Asymmetrical – no symmetry
- The basic body plan is a porous body (sponge-like) with a hollow central chamber
- Filter-feeders
- They lack true tissues.
- Examples: Sponges (many types)



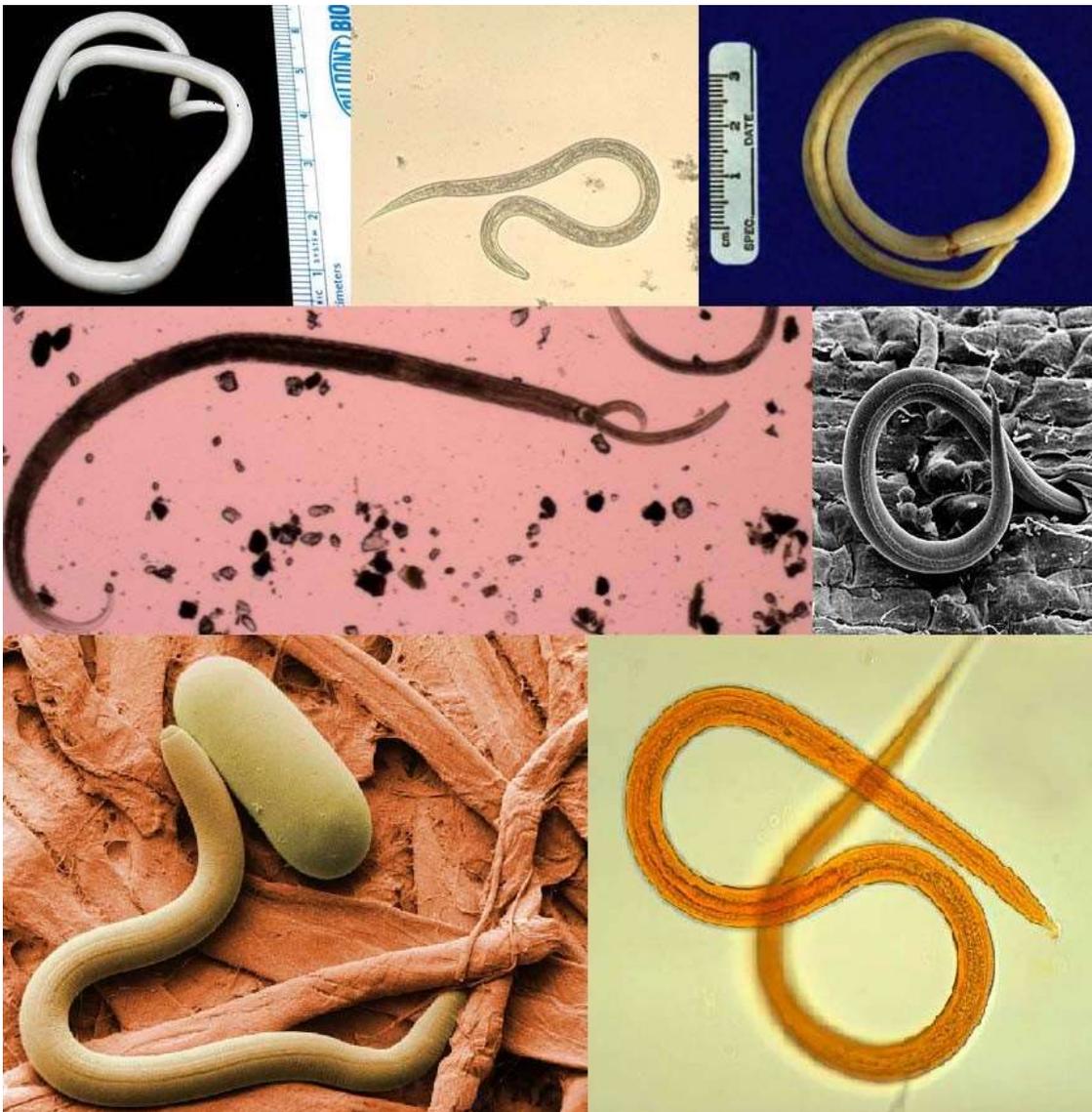
Phylum G

- First organisms to have tissues.
- Invertebrates – these do NOT have a backbone, spinal cord, or notochord
- Their radial symmetry allows them to interact with their entire environment without turning or moving
- They use tentacles to create water currents, which carry food items directly to them
- Examples: Jellyfish, sea anemones,



Phylum E

- Bilateral symmetry
- Invertebrates – these do NOT have a backbone, spinal cord, or notochord
- Do not have a segmented body, but they do have a worm-like body
- They have a more advanced nervous system
- The body is paper-thin to ensure that all of its cells are bathed in oxygen (no respiratory system). Many are parasitic.
- Examples: Planaria, tapeworms, flukes



Phylum A

- Most abundant animal phylum in the world, and very diverse.
- Invertebrates – these do NOT have a backbone, spinal cord, or notochord
- Bilateral symmetry.
- No segmentation
- The general body plan is a slender, worm-like body that is tapered at both ends, and covered in a tough, resistant cuticle that protects them from being harmed.
- Many are parasitic.
- Examples: roundworms, hookworms, pinworms



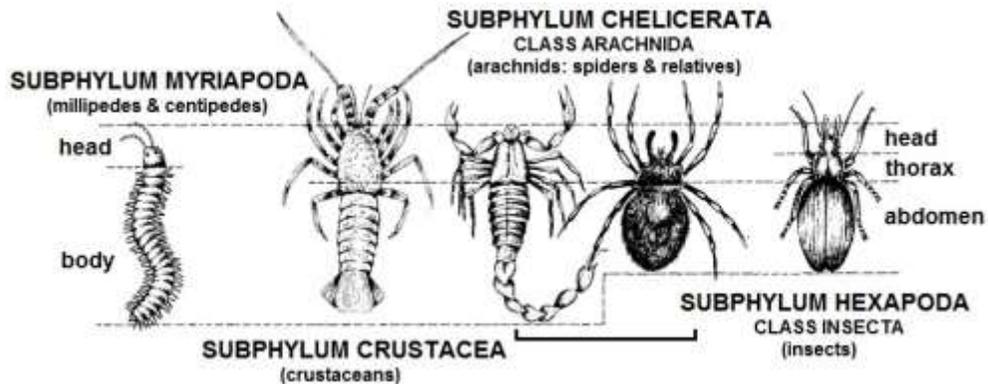
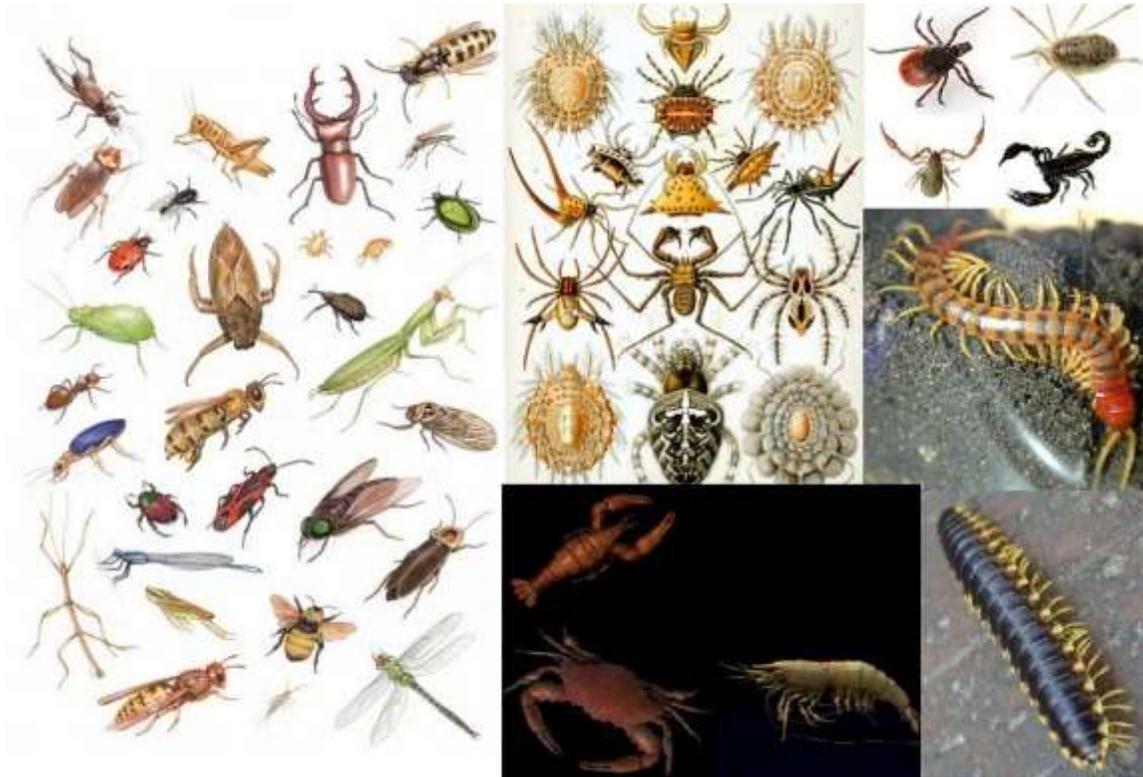
Phylum D

- All have a soft body, but most also have a shell
- Not worm-like
- Invertebrates – these do NOT have a backbone, spinal cord, or notochord
- Like other higher animals, at some phase of their development, they have bilateral symmetry and complex tissues
- No internal skeleton or segmentation
- Examples: clams, oysters, squid, octopi, snails, slugs



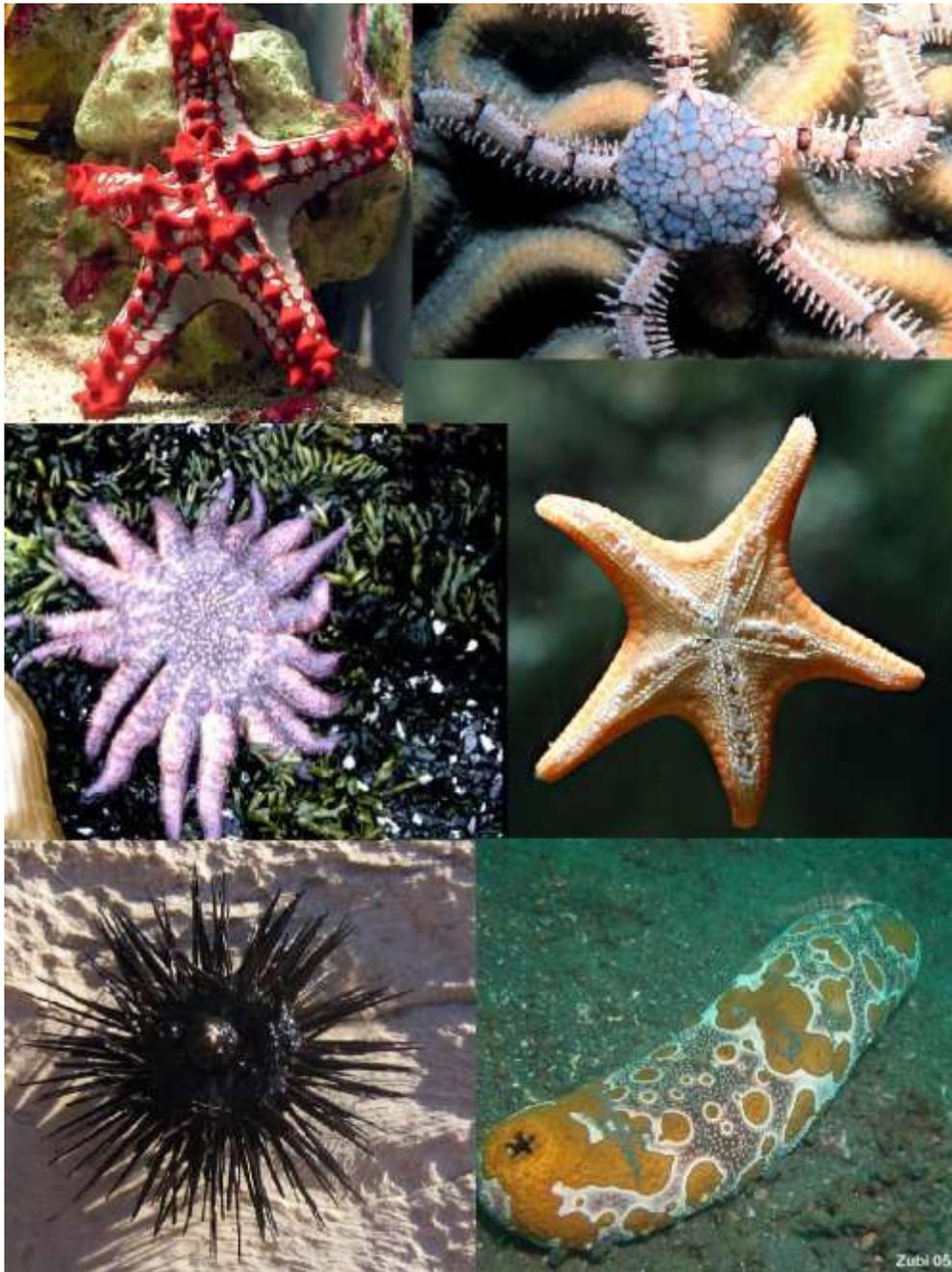
Phylum F

- A flexible body that is divided into many identical segments (segmented body)
- Invertebrates – these do NOT have a backbone, spinal cord, or notochord
- The same muscles, nerves, and even organs are present in each segment.
- No exoskeleton or jointed appendages
- Bilateral symmetry, more complex tissues
- Examples: earth worms, leeches



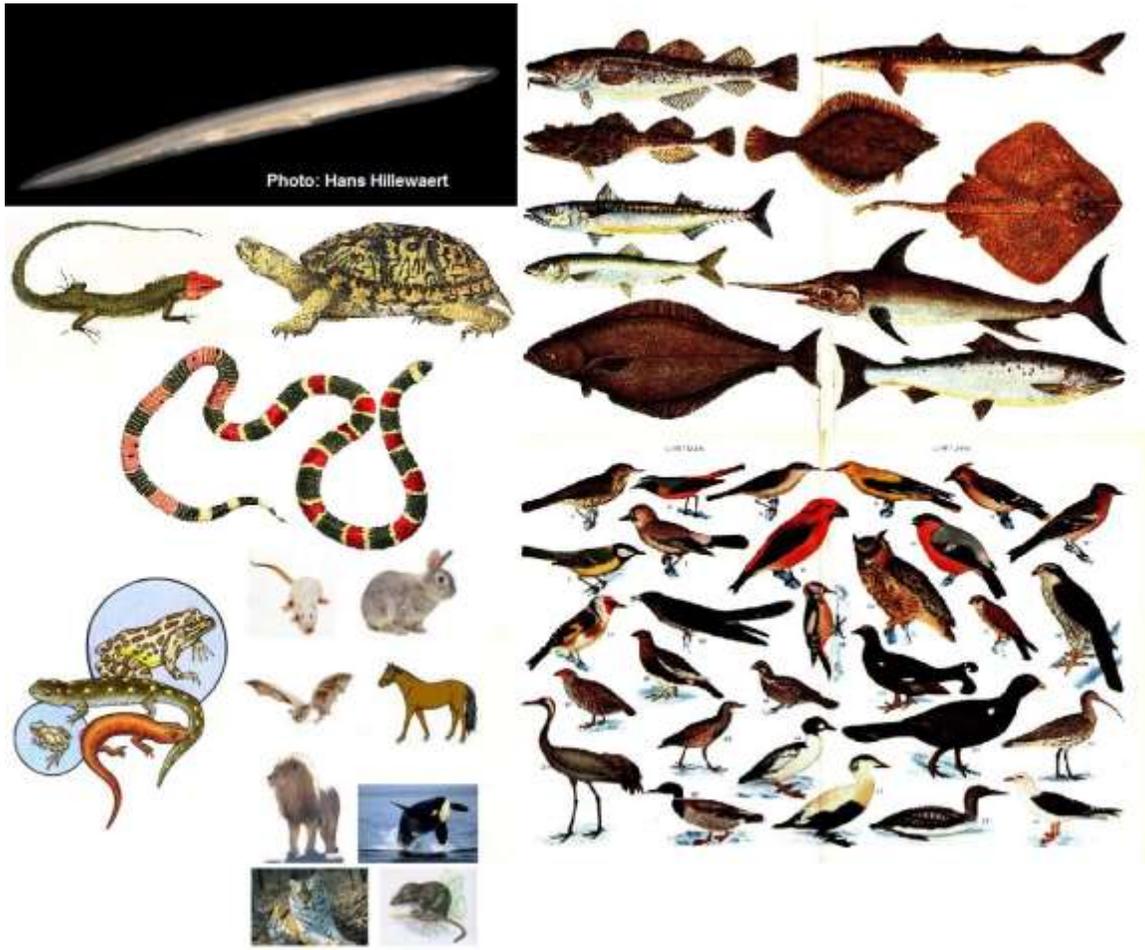
Phylum B

- Specialized, segmented animals with bilateral symmetry
- Invertebrates – these do NOT have a backbone, spinal cord, or notochord
- They have a hard external skeleton with jointed legs
- The most diverse phylum of animals, making up over half of all currently described species on earth!
- Some have **wings**
- Examples: insects, spiders, crabs, lobsters



Phylum I

- Invertebrates – these do NOT have a backbone, spinal cord, or notochord
- Adults have radial body symmetry, reflecting their sedentary lifestyle
- They can be divided into 5 equal parts
- They have bony plates and spiny skin in their exoskeletons – not porous
- All the members of this animal group are marine
- Possess tube feet
- Examples: Sea stars, sea cucumbers, sea urchins



Phylum C

- At some stage in their life cycle, all have
 - a **dorsal hollow nerve cord** (dorsal means their back),
 - a flexible **skeletal rod called a notochord**,
 - gill slits, and
 - a post-anal tail (a tail which extends past the anus).
- Includes the **vertebrata subphylum** (animals with vertebrae, or a “backbone”).
- **Bilateral symmetry, internal skeletons** of cartilage or bone, **complex tissues**.
- Includes the classes:
 - all fish (multiple classes)
 - amphibians (frogs, etc.)
 - reptiles (lizards, snakes, etc.)
 - aves (birds)
 - mammals (anything with hair, milk, live young, including YOU)