9 Major Animal Phyla
The 33(?) Phyla of the Animal Kingdom
Phylum Porifera
• all aquatic – mostly marine, some freshwater
• sessile
• asymmetrical
• no true tissues (no mouth, no digestive cavity, no muscles, no nervous system)
• epithelial, collar, and amoeboid cells
• asexual and sexual reproducers
• most are hermaphrodites
• food and shelter for many organisms
• endoskeleton – spicules of CaCO$_3$ or silica
Water in through pores

Water out

Osculum

Central cavity

Sponge wall

Amoeboid cell

Pore

Epidermal cell

Spicule

Collar

Flagellum

Collar cell (choanocyte)
Phylum Cnidaria
• radial symmetry
• two layers of tissue – endoderm and ectoderm with a jellylike mesoglea layer inbetween
• specialized nerve, muscle, digestive, and reproductive tissue
• tentacles with nematocysts
• many species considered at risk
• most have 2 life cycle stages – polyp (asexual) and medusa (sexual)
The mesoglea, situated between the epidermis and gastrodermis, is thin in polyps and thick in medusa.
Phylum Platyhelminthes
• flattened
• unsegmented
• bilateral symmetry
• hydrostatic skeleton
• three cell layers
• 3 cell layers but acoelomates
• no circulatory or respiratory systems
• degree of cephalization
• mainly parasites
Phylum Nematoda
• roundworms
• soil and aquatic
• unsegmented
• deparate mouth and anus
• 3 cell layers but pseudocoelomates
• no circulatory or respiratory systems
• hydrostatic skeleton
• scavengers, parasites
Phylum Annelida
• segmented
• terrestrial, marine, freshwater
• 3 cell layers; coelomates
• grow larger than non-segmented worms
• hydrostatic skeleton
• bilateral symmetry
• complete digestive and circulatory system
• some are hermaphrodites
• some have parapodia and/or setae
Phylum Mollusca
• most are marine and live freely
• some swim, some creep slowly, some are terrestrial
• body plan contains a foot (muscular, used for motion), mantle (covers gills and secretes shell), and visceral mass (contains organs)
• varying degrees of cephalization
• bilateral symmetry
• 3 cell layers; coelomates
• radula used for scraping and boring
Phylum Echinodermata
• spiny-skinned
• larvae are bilaterally symmetrical, adults are radial
• digestive and circulatory systems, but no respiratory or excretory systems
• endoskeleton
• 3 cell layers, coelomates
• sexual reproduction
• move using ‘hydraulics’
• no head → no cephalization
Watch me walk

Watch me eat
Phylum Arthropoda
• dominate numbers of individuals and numbers of species; variable shapes and sizes
• segmented body with jointed appendages
• complex sensory systems, some with antennae
• aquatic and terrestrial
• digestive, excretory, and (open) circulatory systems
• 3 cell layers; reduced coelom
• exoskeleton → moulting