Diversity of Animal Life

Chapter 9

Animals…

- are multicellular
- are eukaryotic
- are heterotrophs
- are mobile (few immobile)
- reproduce sexually
- have adaptations that allow them to survive and reproduce
- are herbivores, carnivores or omnivores
- are invertebrates or vertebrates

Invertebrates…

- animals WITHOUT a backbone

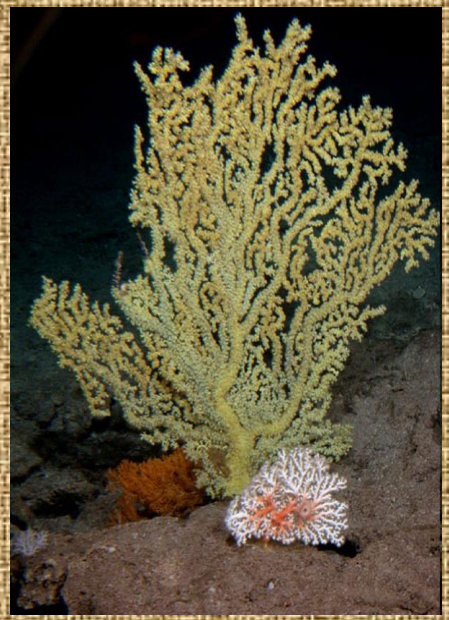
  Examples –

  - sponges
  - jellyfish (Cnidarians)
  - worms
  - snails (Mollusks)
  - crabs (Crustaceans)
  - spiders (Arachnids)
  - insects (Arthropods)

Sponges…

- live in H_2O attached to one place
- have pores that circulate H_2O throughout carrying food and O_2 and removes waste
- reproduce by asexually (budding) and sexually (sperm/egg)

Cnidarians…



- are invertebrates
- live in H_2O
- have stinging cells that inject poison(tentacles)
- are carnivores
- are either polyps (sea anemone, coral) or medusas (jellyfish)
- reproduce sexually and asexually

Worms…

- are the simplest invertebrate animals to have a brain
- can regrow body parts
- range in size from microscopic to meters
- reproduce both sexually and asexually
- can be parasitic (need a host to survive)
- can be roundworms (heartworms in dogs)
- flatworms (tapeworms)
- can be segmented worms (Earthworms)

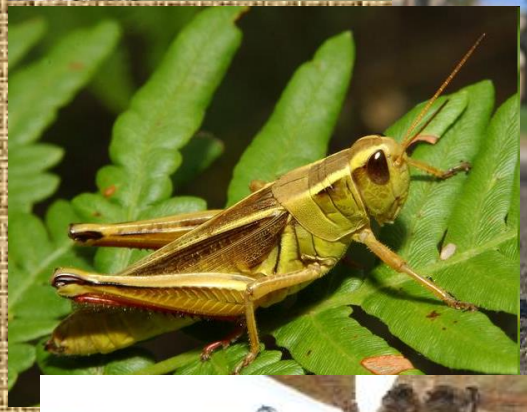
Mollusks…

- are soft–bodied invertebrates
- may have hard shell and move using a foot
- are either gastropods (snails), cephalopods (octopi) or bivalves (oysters, clams, scallops)

Arthropods…

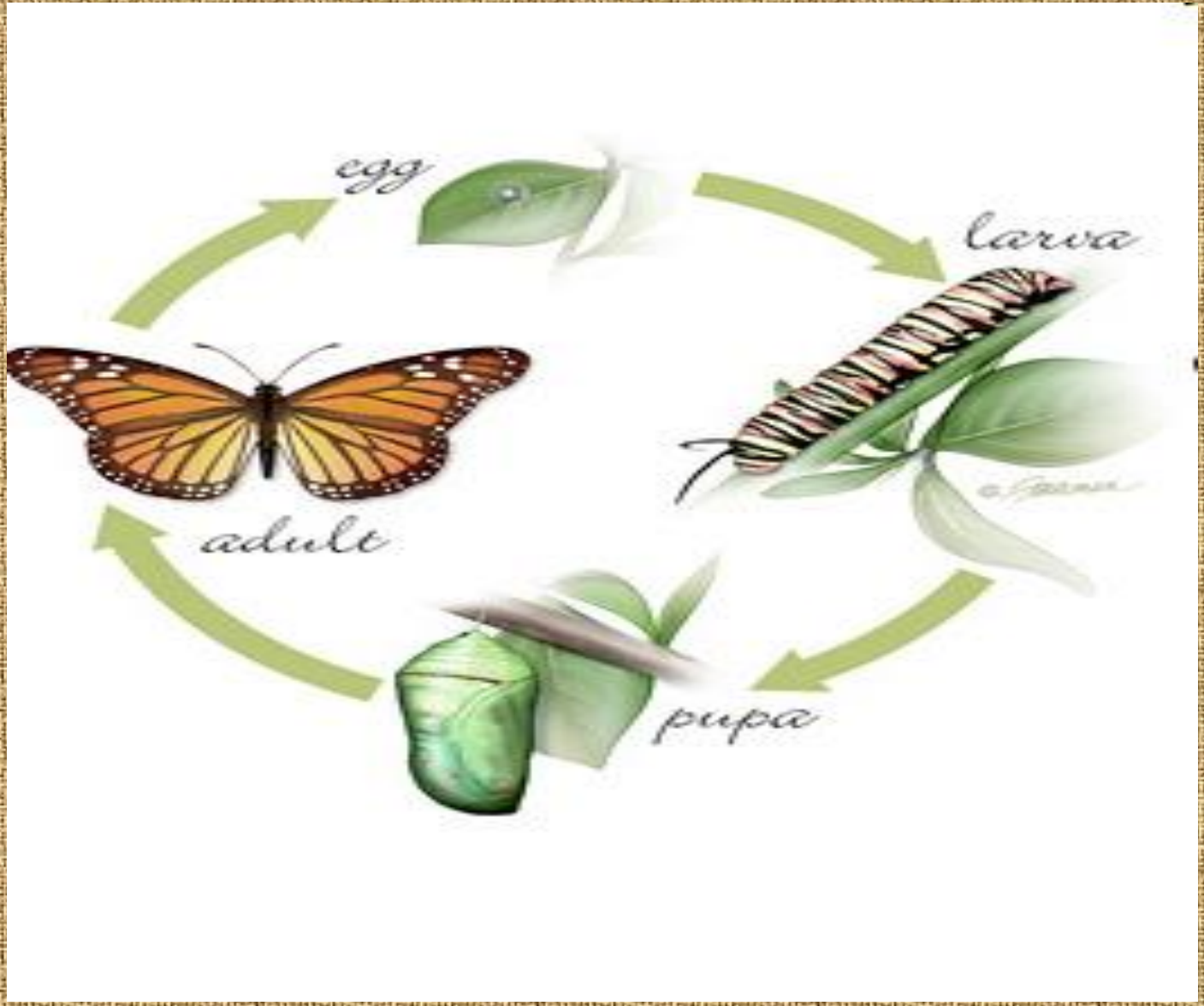
- are hard-bodied invertebrates
- have an exoskeleton (molt)
- have an open circulatory system
  - reproduce sexually
  - may use pheromones to communicate
  - include crustaceans (crabs), centipedes, millipedes or arachnids (spiders, ticks, scorpions)
  - may inject venom to kill prey
  - eat a wide variety of organisms

Arthropods… (cont'd)

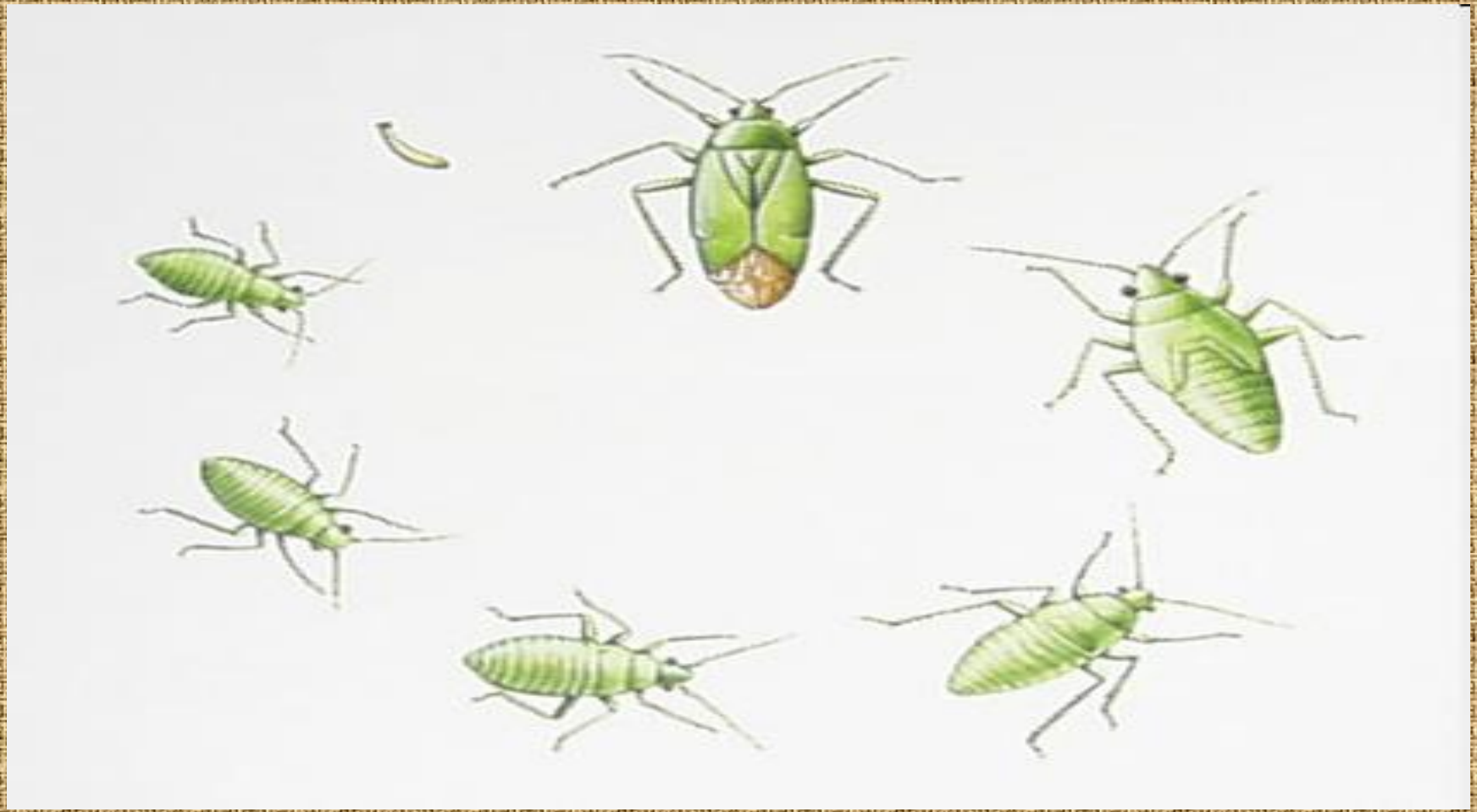


- have many defenses against predators (camoflage, speed, smell/taste)
- can be harmful (cause disease, destroy crops) or beneficial (eat pests, pollinate) to humans
- Rhinocerous beetles, Praying Mantids, Grasshoppers, Elephant Stag Beetles, Ladybugs, Butterflies and Moths
- undergo either complete or gradual metamorphosis

Complete Metamorphosis



Gradual Metamorphosis



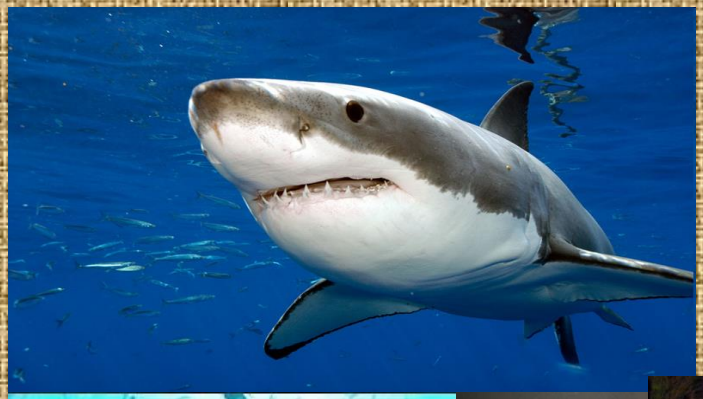
Echinoderms…

- are radially symmetrical invertebrates
- live on ocean floor
- have a H_2O vascular system
- spiny skin is supported by an endoskeleton
- reproduce sexually
- can regenerate appendages
- are filter feeders
- can be starfish, sea cucumbers, sand dollars or brittle stars

Vertebrates…

- animals WITH a backbone (bone or cartilage)
- are also known as chordates
- have an endoskeleton
- are either ectotherms (fish, amphibians, repitles) or endotherms (birds, mammals)
- Ectotherms (cold-blooded → your body is = to the outside temp)
- Endotherms (warm-blooded→your body regulates itself)

Fish…



- vertebrates that live in the H_2O and have fins
- most are ectotherms, have scales and breathe O_2 through gills

- can be jawless (lamprey), cartilaginous (sharks, skates, rays) or bony (catfish, trout)

Amphibians…

- are ectothermic vertebrates
- spend ½ life on land and ½ in H_2O
- have a 3-chambered heart
- reproduce through external fertilization
- populations are dwindling due to pollution and habitat destruction
- include toads, frogs, and salamanders

Reptiles…

- are ectothermic vertebrates
- breathe through lungs
- have dry, tough scaly skin
- reproduce through internal fertilization(eggs are laid)
  - have a 3 – chambered heart
  - can carnivores or omnivores
- have individual adaptations to survive and reproduce
- include snakes, lizards, turtles, crocodiles and alligators

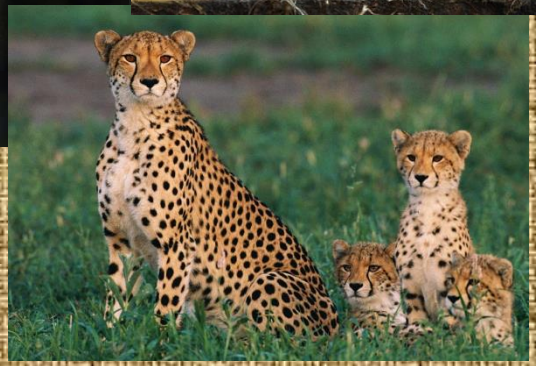
Birds…

- are endothermic vertebrates
- have feathers
- have bodies adapted for flight (hollow bones)
- have a 4–chambered heart
- reproduce through internal fertilization (eggs laid)
- have bills/beaks shaped according to the type of food they eat
- must learn to fly

Mammals…

- are endothermic vertebrates
- have a 4 – chambered heart
- have skin covered with thick fur/hair
- have teeth shaped according to the type of food they eat
- have complex brains
- have highly developed senses

Mammals…



- feed their young with milk
- young stay with the parents for a period of time after birth
- can be monotremes (platypus)
- can be marsupials (young are born alive and develop in the mom's pouch)
- can be placentals (young stay inside mom until fully developed)

The End