Review Questions – L7: Introduction to Animal Diversity (chapter 32)

1. What are the differences between prokaryotes and eukaryotes?
2. Make a series of diagrams depicting the development of multicellular organisms. Include the move from prokaryote to early eukaryote, origin of mitochondria, and origin of multicellularity.
3. What is endosymbiosis?
4. What is a protist? Are protists a monophyletic or paraphyletic group? How is an animal different from a protist?
5. What group is the closest living relatives to animals?
6. What was the Cambrian explosion and why was it important?
7. What is endosymbiosis?
8. Define the terms sessile and planktonic.
9. What is a tissue? Which animals have tissues? What are the three tissue layers called and what does each form?
10. What layers of tissue do diploblasts have? What animals are diploblastic?
11. What layers of tissue do triploblasts have? What animals are triploblastic?
12. Draw a series of pictures that show (and help you understand) each of the following terms: zygote, cleavage, 8-celled stage, blastula, gastrula, gastrulation, archenteron, endoderm, ectoderm, blastopore
13. What is the difference between a gastrovascular cavity and a complete digestive tract? Which animals have a gastrovascular cavity? Which animals have a complete digestive tract?
14. What is a coelom? What is its function?
15. Differentiate between a coelomate, pseudocoelomate and acelomate.
16. What is the difference between segmentation and tagination?
17. What is the difference between endoskeletons and exoskeletons?
18. What is metamorphosis?
19. What are the differences between protostome and deuterostome development?

Review Questions – L8: Animal Diversity (Ch. 33 & 34)

Need to know
- Taxa name and examples of organisms in each taxa. This is also what you need to know for the lab quiz. Use the list I sent you for the lab quiz to determine which taxa (and what level – phylum, subphylum, class, etc) you need to know.
- For the list of terms (see below), you should be able to place them on a phylogenetic tree to show which groups of organisms have which structures/developmental patterns, etc.
  - Use the Animal Phylogeny worksheet to help you. Worksheet was handed out on Tues. and also posted to web on Tues 2/4.
- You should know what each of these terms listed below mean. Many of the terms are from Lecture 7, Ch. 32, and the rest are from L8: Animal Diversity, Ch 33 & 34.
- You should be able to answer the review questions listed below.
- You should be able to answer the questions from Part 7 of your Diversity Lab
Terms
protostome  bilateral symmetry  hair
deuterostome  cephalization  Pharyngeal gill slits
deooskeletons  diploblasts  jointed appendages
exoskeletons (including cuticle)  triploblast  amniotic egg
true coelom  true tissue  post anal tail
pseudo coelom  gastrovascular cavity  four limbs
no coelom (acoelomate)  complete digestive tract  lungs
segmentation  notochord  bony skeleton
tagmentation  jaws  vertebrae
radial symmetry  keratin  dorsal hollow nerve cord
mammary glands

1. What are cnidocytes and what are they used for? Which phylum contains organisms with cnidocytes?
2. What is a radula and what is it used for? Which phylum contains organisms with a radula?
3. What is a parasite? Name a phylum that contains organisms that are parasites.
4. List two phyla that contain organisms which undergo metamorphosis.
5. List three groups of organisms (phyla or class as appropriate) that contain organisms which fly – provide a common name example for each.
6. Chitin is a polysaccharide found in the cell wall of fungi. It is one of the traits that links fungi as being closely related to animals because it is also found in animals. In which phylum of animals is chitin found?
7. Which class(es) in the Phylum Arthropoda has body parts split into cephalothorax and abdomen and has 2 pair of antennae? (See the Arthropoda table you filled out in lab – you should be able to group to class by characteristics. (Note that some classes have the same set of characteristics (e.g. Arachnida and Merostomata – you would only need to distinguish between them based on recognizing organisms in their groups e.g., spider vs. horseshoe crab)
8. The echinodermata have a water vascular system. What is its function?
9. List the four derived traits of the phylum chordate that are present in embryos.
10. Which two subphylum of organisms are chordates but not vertebrates?
11. What trait is found in the Class Chondrichthyes but not in the Class Cephalaspidomorphi (Petromyzontida)? For a hint, go here: http://www.youtube.com/watch?v=FnpJhjmSbBY
12. What is the difference between an endoskeleton made of cartilage and one made of bone (ossified skeleton)?
13. Which groups of vertebrates have cartilage? Which have bone?
14. What benefit did the rod shaped bones and strong muscles in the fins of the lobe-finned fish (Class Sarcopterygii) have over the ray-finned fish (Class Actinopterygii) who have fins with bony rays?
15. What is the function of a swim bladder? Which groups of fish have a swim bladder?
16. Which group(s) of fish have lungs?
17. What is an operculum? Which groups contain organisms with an operculum?
18. Questions on amphibians, reptiles, birds and mammals found under Review Questions for L9: Animal Diversity Wrap-Up

1. What characterizes a lophotrochozoan?
2. What characterizes an ecdyszoan?
3. What is a metazoan? eumetazoan? Why are sponges not eumetazoan?
4. You should be able to tell the story of the vertebrates move to land. Below are some questions whose answers should be contained in that story.
   A. Which group of fish did the tetrapods emerge from? What traits did they have that assisted in the move to land?
   B. Tiktaalik is a transitional fossil. Which traits does this fossil organism have that are more related to land dwelling tetrapods? Which traits are more related to fish?
   C. What characteristics of amphibians limits them (mostly) to living in or near water?
   D. Which animals are contained in the group known as the amniotes? What derived character are the amniotes named for?
   E. What are the functions of each of the extraembryonic membranes in the amniotic egg? What is the function of the shell? What ecological change was possible for those animals that had the amniotic egg?
5. If you exclude birds, would the Class Reptilia be a monophyletic or paraphyletic group?
6. What adaptations for flight occurred in the birds?
7. What are the three main groups of mammals and where are they found? Which group retained the amniotic egg? Why are eutherians still considered amniotes even though they don’t lay eggs.