

Biology, Zoology 13.1

Zoology

1. The study of animals
2. eucaryotic, organized nuclei and membrane-bound organelles (Monera)
3. heterotrophic (algae)
4. multi-cellular, tissues, organs (protozoan and fungi)
5. lack cell walls and plastids (plants)
6. variety: sponges, worms, oysters, jelly fish, insects, kangaroo, man

The basis for classifying animals (Phylum, C, O, F, G, S)

1. Representative forms: from jellyfish and oysters to spiders and kangaroos.
2. Habitat: where it lives, ecological niche
3. Cellular/body organization
 - a) Cells, Tissues (monoblastic, diploblastic, triploblastic), Organs, Systems
 - b) Digestive gut, body cavity, body segmentation.
4. Symmetry
 - a) Asymmetrical
 - b) Spherical
 - c) Radial: ventral-dorsal orientation
 - d) Bilateral:
 1. anterior-posterior orientation (head-tail reference relative to spine)
 2. ventral-dorsal orientation (front-back reference relative to spine)
 3. lateral-medial orientation (side-middle-side reference relative to spine)
5. Integument: skin, shells, fur, hair, spines, feathers, quills, etc.
6. Skeleton
 - a) Invertebrates: No back bone. Over 95% of all animal species are invertebrates. Most are soft bodied, but many have an exoskeleton.
 - b) Vertebrates: notochord or vertebral column (backbone). Internal/endoskeleton
7. Muscle system: hydraulic, muscle action
8. Movement: locomotion, mobility, motile, sessile, gliding, jet propulsion, flying, swim
9. Nervous system/ Senses: Interaction with the environment: / Touch, taste, smell, hear, see
10. Behavior/activity: taxes, innate, instinct, reflex, memory/simple thinking, abstraction, moral
11. Nutrition: Heterotrophic
12. Digestion: ingestion, digestion, assimilation
13. Respiration-ventilation, gills, lungs, trachea, diffusion, final electron acceptor
14. Circulation: diffusion, open, closed
15. Immunity:
16. Excretion: eliminating wastes
17. Reproduction: asexual, sexual
18. Life cycle/embryology: form and stages

Understanding classification of animals

1. 'Species' problem is the result of disagreement about how to classify and name animals.
2. As of 2011, over 1.7 million species of organisms have been identified on earth. A million on land and 250,000 in oceans. Some estimate about 8.7 million total.
3. Animals are general grouped by similarity in body plan designs.
4. Some animals develop a different body plan after becoming adults such as the starfish.
5. The simplest animal is the sponge. It develops from one tissue type (ectoderm) and all activity is on a cellular level.
6. Cnidaria develop from two tissue types (ectoderm and endoderm).
7. All other animals develop from three tissue types (ectoderm, endoderm and mesoderm).
8. Organizing animals into groups gives insight into design patterns, helps to understand the function of organs, guides research questions, and allows for discussion and thought about animals comparisons and naming.
9. The 'Cambrian explosion' refers to an evolutionary dilemma resulting from the observation that all the body plans existing today are already found in the deepest rock layers of Cambrian in the earth.
10. Creationists are not surprised by the finding of all body plans buried in the layers of the earth. The creation model predicts the finding of all body plans buried deep in the earth as a result of having been created at nearly the same time and then buried in mud during and after Noah's world-wide catastrophic flood.
11. 31,673 species of non-aquatic animals can be grouped into 249 orders and families or *kinds*. Creationist researcher John Woodmorappe calculated that about 8,000 animal genera (including some now-extinct animals) was sufficient to house animals needing to be saved from the flood. This amounts to 16,000 individual animals. About six sq ft per animal was available for each animal on the ark.