1. Life consists of all kinds of living organisms with great diversity of size, shape, color, habitat, metabolism, etc.
2. Looking for grouping patterns into which similar organisms can be categorized uniquely.
3. There are too many to study individually; we need to bring order out of the chaos, for easier, more efficient study and understanding of life on this planet.
4. (see handout which defines species with 4 clear parts)
5. YES; by definition! It's a particular level of classification, one of several groupings in the hierarchy.
6. see #4. 7. More than 3 million. 8. Ornithologists; Paleobotanists; they also classify and identify fish
9. Carolus Linnaeus (Karl von Linné) 10. Felis domesticus; Felis; domesticus
11. a) Internationally understood and unchanging; b) precision 12. Structures which indicate related ancestry
13. (see glossary): Likeness in form, as result of evolution from same ancestors.
14. a) homologous structures have similar origin and similar development pattern, especially the early development of relatively non-adaptive features.  
   b) actual relationship is more likely and more logical than mere coincidence.  
   c) specialists who study the organisms meet and decide, following certain rules found to be effective.
15. Kingdom - Phylum (phyla) [= plant Division] - Class - Order - Family - Genus (genera) - Species (species).
16. Taxonomy and Systematics 17. Felis (3); Carnivora (4); Mammalia (7); Chordata (12)
18. Homo sapiens 19. (see #6)
20. Prokaryote cells Eukaryote cells
   1. no nuclear membrane have nuclear membrane
   2. no cytoplasmic movement have cytoplasmic movement
   3. no mitochondria, golgi bodies have mitochondria, golgi bodies
   4. separate chromosomes strands 1 circular chromosome
   5. may move by several means move by gliding or flagellum
   6. have no plasmids may have plasmids
21. Differences are more fundamental, at the cellular level.  22. Prokaryotes (see bottom left column, page 43)
23. Photosynthesis: using energy of sunlight to make food  
   Chemosynthesis: using energy from other chemicals to make food
24. Autotroph: organism which gets its energy and produces food from nonliving substances (blue-green "algae" algae, and plants, e.g. trees)  
   Heterotroph: organism which gets its energy from other organisms (many bacteria, all animals, incl. us).  
   Autotrophs are also called producers, and Heterotrophs are also called consumers. This is based on whether they produce or consume food, respectively
25. Several (as many as 17) could exist, including the blue-green algae. Presently, they are all placed in the kingdom Monera. see bottom left of page 43)
26. animals, plants, protists, and fungi
27. Certain groups or animals and plants were pulled out and categorized into a third kingdom, the Protists, since they were considered too "non-animal-like" or "non-plant-like" to remain in those two original kingdoms. Later, as we learned more about them, certain Protists were also removed and placed in their own kingdom (Monerans), and still later, another group of Protists were placed in their own kingdom (Fungi), so now we have 5 kingdoms. As we learn more about these organisms, especially the Monerans, they will very likely be further subdivided into their own separate kingdoms in the future.
28. Possible reasons for classification mis-fits:  
   a. our classification system is imperfect and needs to be improved so that these "mis-fits" do fit into their own categories neatly, or...  
   b. "mis-fit" is only our perception; that's just the way they were created, or...  
   c. they may represent living forms which are transitional between the two groups they seem to fit into, suggesting that one group might have arisen from the other group by gradual change.
29. You should have listed the phyla of Monerans as shown, and then the following groups of Eukaryotes:  
   kingdom Protista (9 phyla and examples of each, all listed!)  
   kingdom Fungi (5 phyla, not listed separately)  
   kingdom Plants (9 divisions and examples of each, all listed!)  
   kingdom Animals (32 phyla, 12 main ones listed, with examples, including 6 classes of Arthropoda and 7 classes of the subphylum Vertebrata  
   You should have a minimum total of 33 lines of essentially phyla and their examples, or 44 lines if you listed the classes of Arthropods and Vertebrates, as done in the text.