

15-1 WHY CLASSIFY

1. This prevents confusion when different species of organisms have the same common name and it allows people to communicate about organism in a common language.
2. This means that researchers can expect members of a group to share important characteristics.
3. Small groups are manageable, where as it is impossible to study all of the Earth's living organisms as a whole or as individuals.

15-2 BIOLOGICAL CLASSIFICATION

1. Binomial nomenclature
2. Taxonomy
3. Linnaeus
4. Taxa
5. Family
6. Species

Classification of the Common House Cat	
Taxon	Taxon Characteristics
Kingdom: Animalia	Multicellular; heterotrophic; no cell wall (p. 328)
Phylum: Chordata	Possess notochord, hollow dorsal nerve cord, and pharyngeal slits at some point in life (p. 645)
Class: Mammalia	Endothermic; mammary glands (pp. 737-738)
Order: Carnivora	Sharp incisors and canines; placental; meat-eaters (pp. 739; 746-747; 748)
Family: Felidae	Catlike (p. 322)
Genus: <i>Felis</i>	Similar teeth, feet, and claws; purr (pp.

	322; 323)
Species: <i>F. domesticus</i>	Interbreed and produce fertile offspring in the natural environment (p.322)

15-3 TAXONOMY TODAY

1. Because the taxa above the level of species do not have a clear biological identity and taxonomists may have different ideas about what characteristics are important, the placement of an organism into taxa is subject to interpretation.
2. Taxonomists compare fossils, homologous structures, embryos, the structure of organic molecules, amino acid sequences in proteins, and nucleotide sequences in RNA and DNA.

15-4 THE FIVE-KINGDOM SYSTEM

1. Lacks cells walls, Animalia
2. Unicellular; nuclej, Protista
3. Cell walls contain cellulose; photosynthetic; many cells; eukaryote, Plantae
4. Lacks a nucleus, Monera
5. Cell walls contain chitin rather than cellulose, Fungi

Kingdom	Characteristics
Animalia	Multicellular; heterotrophic; no cell wall
Fungi	Heterotrophic; cell walls do not contain cellulose
Monera	Prokaryotic

Plantae	Photosynthetic; autotrophic; cell walls contain cellulose
Protista	Unicellular; eukaryotic