

CASE

*Curriculum for Agricultural
Science Education*

Principles of Agricultural Science – Animal

Scientific Classification and Taxonomy

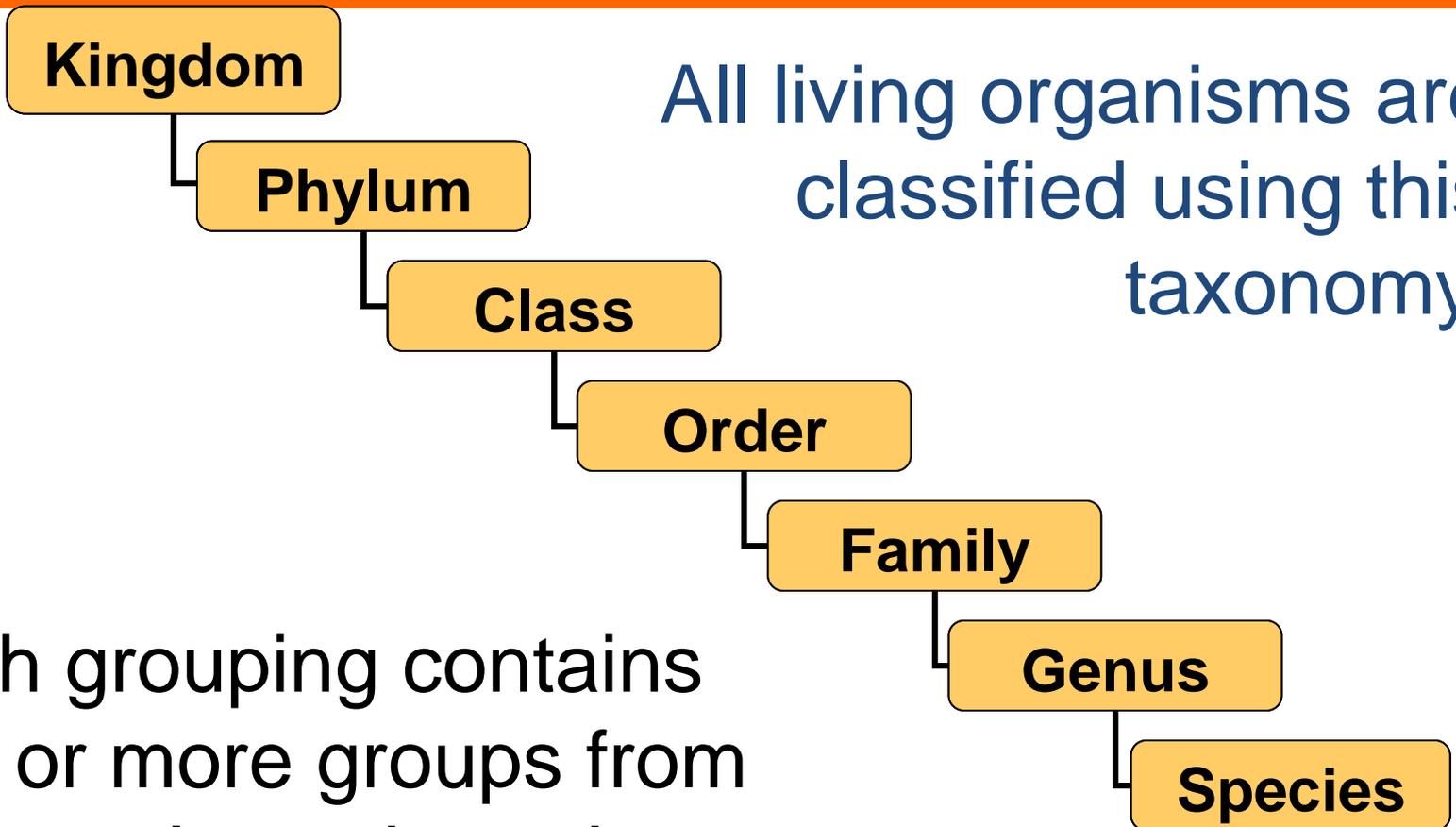
Unit 2 – Lesson 2.2 Naming Animals

Scientific Classification of All Living Organisms

Taxonomy – the science concerned with the naming and classification of organisms.

- Aristotle is credited with the first system of classifying living things.
- Carolus Linnaeus is credited with developing the modern method of classification.

Taxonomy



All living organisms are classified using this taxonomy.

Each grouping contains one or more groups from the next lower branch.

Kingdom

- Kingdom is the highest category in the Linnaean system of classification.
- Organisms are distinguished by cellular organization and methods of obtaining nutrition.
- These distinctions define the five kingdoms of living things.

The Five Kingdoms



- **Animalia** – multi-cellular, ingest food, movement
- **Plantae** – multi-cellular, photosynthesize
- **Fungi** – molds and yeasts
- **Monera** – bacterial organisms
- **Protista** – paramecia and amoebae

The Animal Kingdom



Characteristics of animal organisms8b

- Multi-cellular
- Specialized tissues
- Ingest food
- Sexual reproduction
- Ability to move

Phylum

- Phyla are based on similarities in basic body structure or organization.
- Examples of animal phyla:
 - Arthropoda
 - Mollusca
 - Chordata
 - Subphylum - Vertebrates

Phylum

- Animals discussed in this course will be in the phylum **Chordata**, subphylum **Vertebrate** and have the following characteristics:
 - Backbone and endoskeleton
 - Closed circulatory system with pumping heart
 - Direct development of young

Class

- Further categories of animals are based on:
 - Body covering
 - Reproductive system
 - Temperature regulation
- Examples:

Mammalia – have hair, nurse young, give birth to live young

Reptilia – cold-blooded, lay eggs, scaly skin

Aves – birds; warm blooded, two legs, wings, feathers, and lay eggs

Osteichthyes – Boney fish; live in water, permanent gills, fins, scales

Order and Family

- Breaks classes into smaller groups with common characteristics
- All families are named for a type of genus
 - Ending “idae” for animals
 - Ending “aceae” for plants
 - Added to the stem of the genus name

Genus

- Refers to a group of closely related species
- Three criteria:
 - Descendants are grouped together
 - Compact group
 - Distinct features within group

Species

- The basic unit of taxonomic rank.
- Refers to the largest natural population that can interbreed and produce fertile offspring.

Binomial Nomenclature

- System of naming organisms by their genus and species using Latin.
 - The genus is identified first and the first letter is capitalized
 - The species is second with the first letter in lower-case.
 - Both words should be italicized
- For example:

Genus *Canis* *lupus* Species

A diagram illustrating the components of binomial nomenclature. The text "Genus" is on the left, "Species" is on the right, and the italicized binomial name "Canis lupus" is in the center. An arrow points from "Genus" to "Canis", and another arrow points from "Species" to "lupus".

Use of Taxonomy: Classification of the Wolf

Kingdom	Animalia	Animal Kingdom
Phylum	Chordata	Animals with vertebrae
Class	Mammalia	Animals that suckle young
Order	Carnivora	Flesh or meat eaters
Family	Canidae	The dog family
Genus	<i>Canis</i>	Dogs
Species	<i>lupus</i>	Grey wolf

References

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