

Chapter Nine: Classification

Teacher Notes

Lesson One: Sorting It All Out

-Why Classify

-Classification-the division of organisms into groups, or classes, based on specific characteristics.

-Scientists classify living and extinct organisms; scientists classify organisms to help make sense and order of the many kinds of living things

-Scientists have a system that classifies according to characteristics they share

-How Do Scientists Classify Organisms?

-Before the 1600's many scientists divided organisms into two groups-plants and animals.

-In the 1700's Carolus Linnaeus founded taxonomy; tried to classify based on their shape and structure; he used a seven-level system that is still used today.

-Taxonomy-the science of describing, naming, and classifying organisms.

-Classification Today

-scientists use shared characteristics to hypothesize how closely related living things are.

-the more shared characteristics the closer the organisms are related.

-Branching Diagrams

-Characteristics are listed along the line that points to the right.

-each of these characteristics is shared by the animals to the right of it.

-Levels of Classification

-Every living thing is classified into one of six kingdoms

-kingdoms are the largest most general group

-Living things in the same kingdom are then separated into different phylum

-Animals in the same phylum are then separated into different classes

-Animals in the same class are then separated into different orders

-Animals in the same order are then separated into different families

-Animals in the same family are then separated into different genus

-Animals in the same genus are then separated into different species (which is the smallest category).

-Scientific Names

-is always the same for specific kinds of organisms no matter how many common names there might be.

-this is used to all scientists can communicate with each and know what organism they are talking about.

-Two-Part Names

-Each species was given a two part scientific name.

-The first part of the name is the genus name; the second part is the species name.

-all genus names begin with a capital letter; all species names are lowercased.

-both words are either underlined or in italics

- are usually Latin or Greek and contain information about an organism.
- Dichotomous Keys-an aid that is used to identify organisms and that consists of the answers to a series of questions.
 - there are only two alternative responses for each question and you work through each question to figure out with living organism you are trying to identify.
- A Growing System
 - new organisms are still being discovered and classified.
 - some of these organisms fit into existing categories and some do not.

Lesson Two: The Six Kingdoms

- What is It?
 - organisms are classified by their characteristics
 - kingdoms continue to be added because scientists continue to learn more
 - most scientists agree that the six kingdom classification system works best.
- The Two Kingdoms of Bacteria
 - Bacteria are extremely small, single-celled organisms that differ from all other living things.
 - They are prokaryotes-organisms lacking a nucleus
 - Archaeobacteria-a kingdom made up of bacteria that live in extremely environment.
 - most found where other organisms can't survive
 - Eubacteria-a kingdom that contains prokaryotes except archaeobacteria.
 - live in soil and water and on the inside of the human body
 - some convert milk into yogurt; some cause pneumonia
- Kingdom Protista
 - Protista-a kingdom of mostly one-celled eukaryotic organisms that are different from plants, animals, bacteria, and fungi.
 - scientists think the first appeared about 2 billion years ago
 - animal-like protists are called protozoans
 - plant-like protists are called algae
- Kingdom Fungi
 - Fungi-a kingdom made up of nongreen, eukaryotic organisms that have no means of movement, reproduce by using spores, and get food by breaking down substances in their surroundings and absorbing the nutrients.
- Kingdom Plantae
 - Plantae-a kingdom made up of complex, multicellular organisms that are usually green, have cell walls made of cellulose, cannot move around, and use the sun's energy to make sugar by photosynthesis.
- Kingdom Animalia
 - Animalia-a kingdom made up of complex, multicellular organisms that lack cell walls, can usually move around, and quickly respond to their environment.
 - have sense organisms to help them respond to the environment.
 - Simple Animals-animals that surprise you such as sponges, worms, insects, and corals.