

Unit 3:

Classification

- GPS S7L1: Students will investigate the diversity of living organisms and how they can be compared scientifically.

ELEMENTS

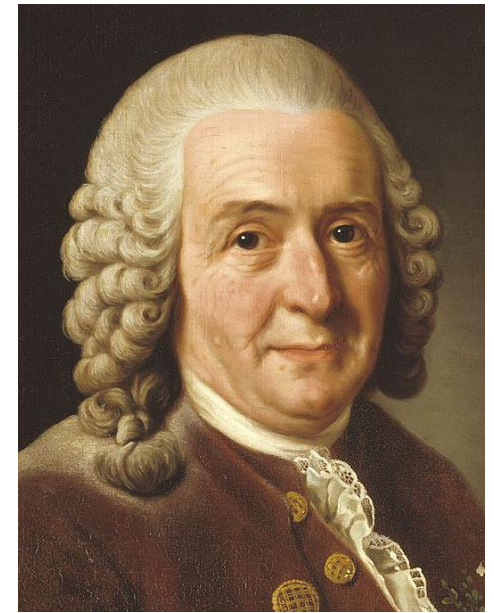
- Element a) Demonstrate the process for the development of a dichotomous key.
- Element b) Classify organisms based on physical characteristics using a dichotomous key of the six kingdom system (archaebacteria, eubacteria, protists, fungi, plants, and animals).

Classification

- Classification is the process of grouping things based on their similarities.
- The scientific study of how living things are classified is taxonomy.
- Phylogeny is the evolutionary history of an organism and is used to classify organisms.

Naming System

- Carolus Linnaeus developed the system of naming organisms in the 1750s.
- He used a two-part naming system called binomial nomenclature.
- The system uses the genus and species for identifying organisms.



Naming System

- A species is a group of organisms that share similar characteristics and can reproduce among themselves.
- Genus refers to a group of similar species.

Levels of Classification

- **K** Kingdom King
- **P** Phylum Phillip
- **C** Class Came
- **O** Order Over
- **F** Family For
- **G** Genus Great
- **S** Species Steaks

Levels of Classification

- The more levels of classification two organisms have in common the more closely related they are.
- Its like figuring cousins and kin folks. If you have a big family you are more closely related to 1st cousins than 3rd cousins.

Kingdoms

- The first and largest categories in the scientific classification system are the kingdoms.

Kingdoms

- There are 6 Kingdoms in scientific classification.
 - Eubacteria
 - Archaeabacteria
 - Protists
 - Fungi
 - Plants
 - Animals

Plantae

(Plants)

Plant Facts

- Plants are eukaryotes.
- Each cell of a plant has a nucleus.
- Plants are multicellular.
- Cell walls contain cellulose and chloroplasts.

Plant Facts

- Plants are autotrophs.
- Plants make their own food through photosynthesis.
- All plants reproduce sexually (sperm & egg)

Examples of Plants

- Trees

Grasses

- Bushes

Weeds

- Flowers

- Mosses



Animals

(Animalia)

Animal Facts

- Animals are eukaryotes.
- Each cell of an animal has a nucleus.
- Animals are multicellular.
- Animal have no cell walls or chloroplasts.

Animal Facts

- Animal cells comprise tissue and organs
- Animals are heterotrophs.
- Animals feed on other organisms
- Most animals reproduce sexually (sperm & egg) but some reproduce asexually

Examples of Animals

- Birds

Worms

- Reptiles

Arthropods

- Mammals

Mollusks

- Fish

Sponges



Eubacteria & Archaeabacteria

Bacteria Facts

Bacteria are prokaryotes.

Bacteria do not have a nucleus.

Bacteria are unicellular. They have only one cell.

Cell walls of bacteria contain peptidoglycan.

Bacteria Facts

- Bacteria are small like as small as one millionth of a meter!
- Bacteria can be autotrophs or heterotrophs.

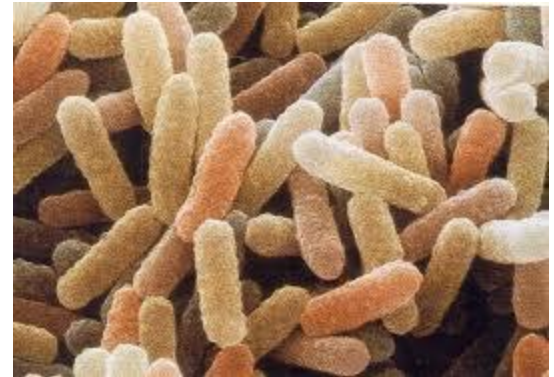
Autotrophic Bacteria

- Autotrophic bacteria can capture sunlight like plants do and create energy through photosynthesis.
- Autotrophic bacteria can also convert chemical substances in their environment into food.



Heterotrophic Bacteria

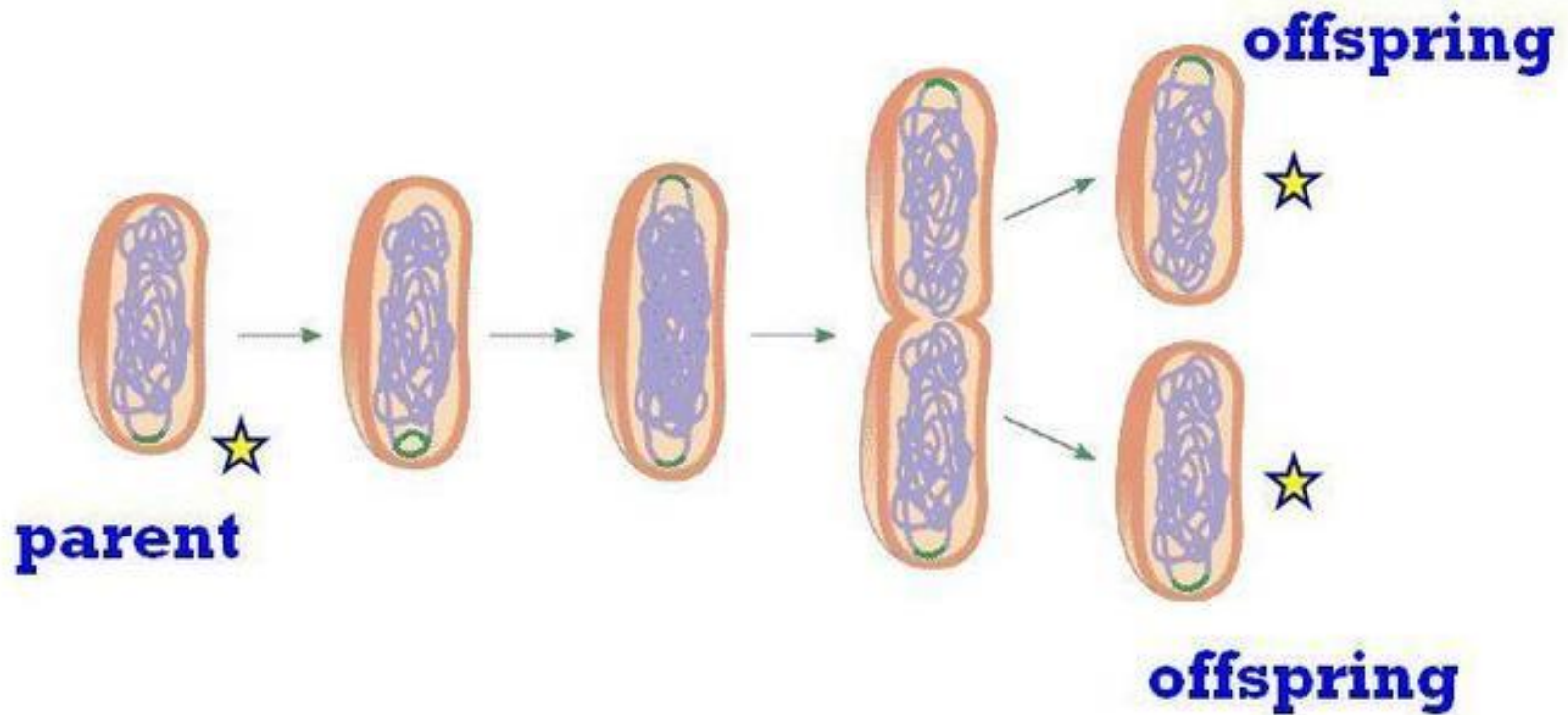
- Heterotrophic bacteria consume other organisms or the food other organisms make.
- Example: milk, meat, or decaying leaves on a forest floor



Bacteria Facts

- Asexual reproduction – fission
- Sexual reproduction - conjugation

Binary fision - a process where one cell divides to form two identical cells. This is an example of asexual reproduction.



Fungi

Fungi Facts

- Fungi are eukaryotes.
- Each cell of a fungi has a nucleus.
- Fungi can be unicellular or multicellular.
- Cell walls contain chitin.

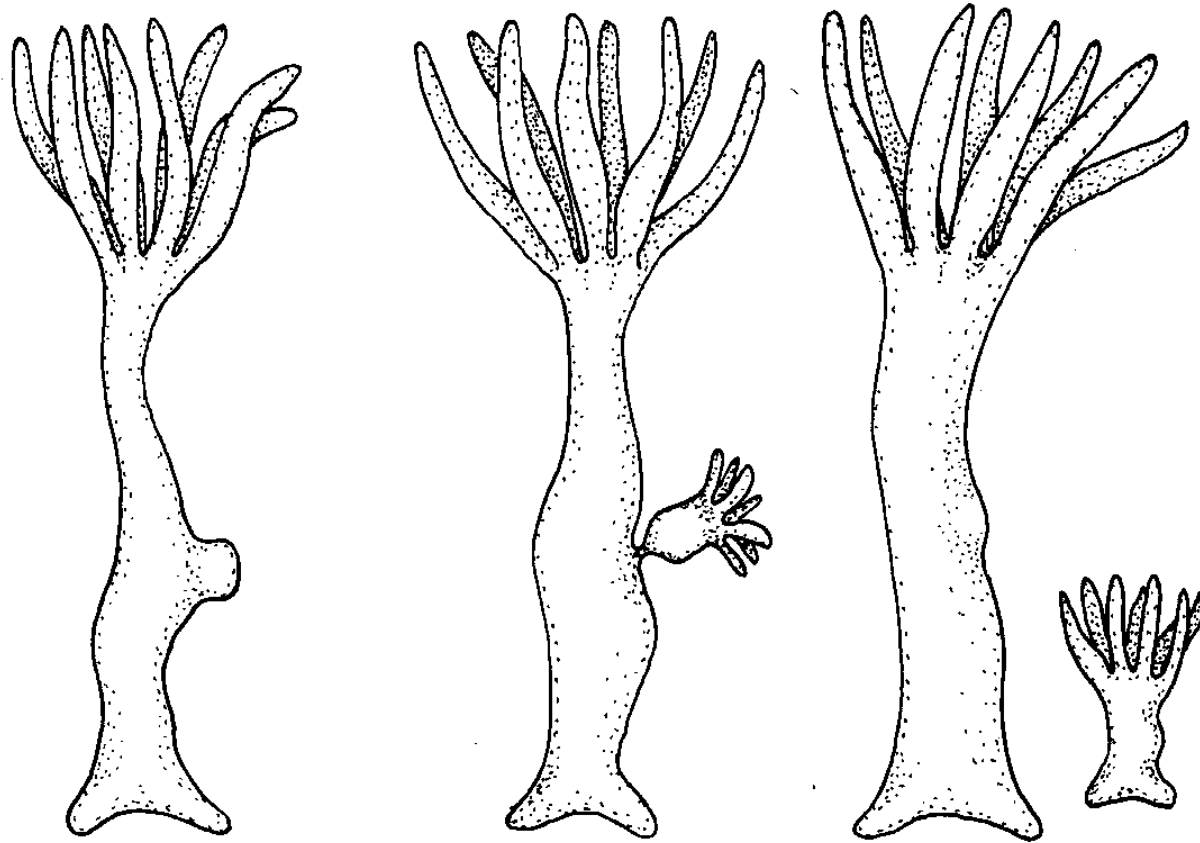
Fungi Facts

- Fungi are heterotrophs.
- Fungi feed by absorbing their food from decaying matter.

Fungi Facts

- Asexual reproduction – spores, budding
- Sexual reproduction – genetic material exchanged through joined hyphae

Asexual Reproduction: Budding



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Examples of Fungi

- Ringworm
- Athletes foot
- Mushrooms
- Yeast

Mold



Protista

Protist Facts

- Protists are eukaryotes.
- Each cell of a protist has a nucleus.
- Protists can be unicellular or multicellular.
- Cell walls contain cellulose or chloroplasts.

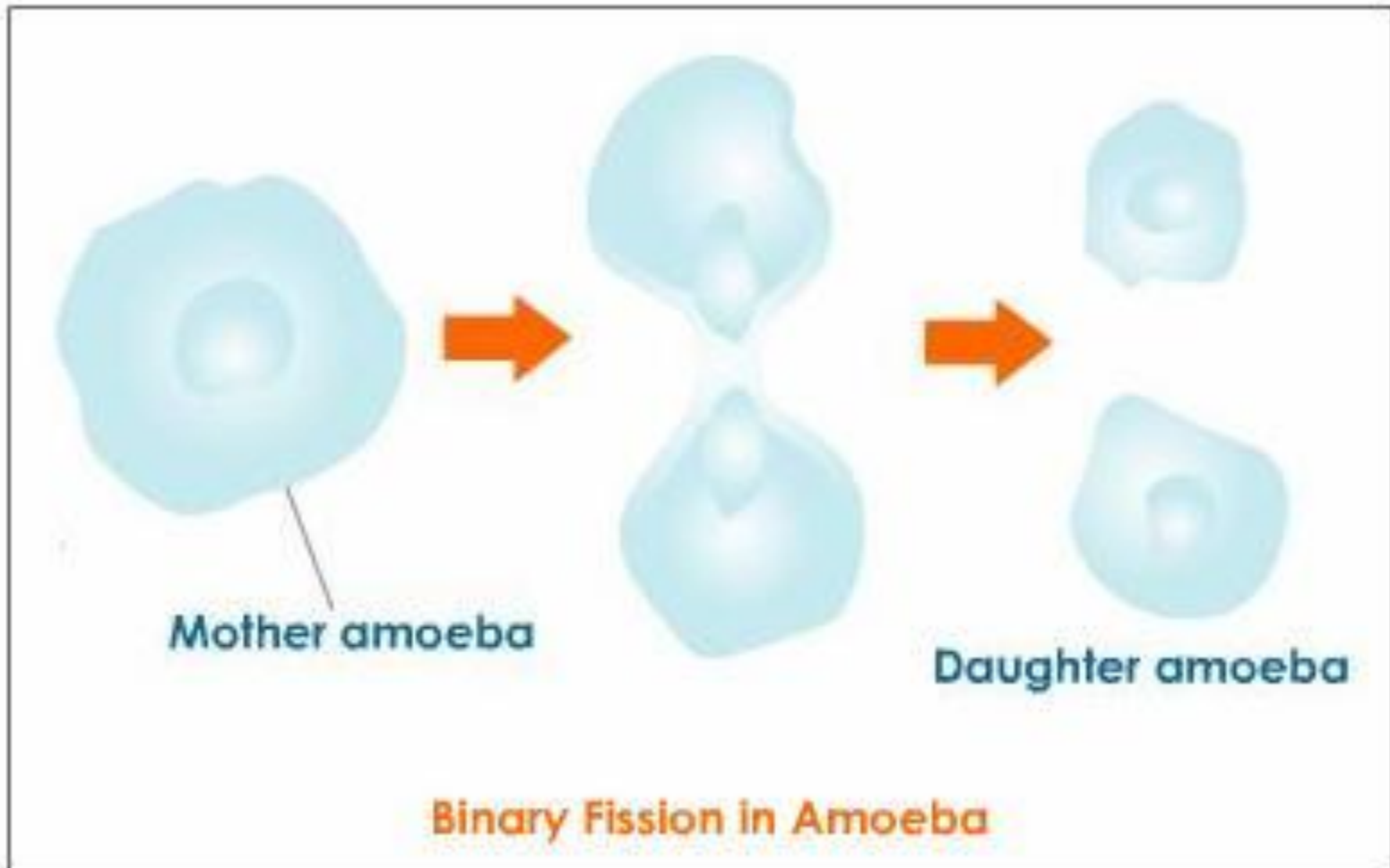
Protist Facts

- Protists can be autotrophs or heterotrophs.
- Protists can be plant-like, animal-like, or funguslike.
- All protists are found in moist or wet environments.

Protist Facts

- Asexual reproduction – fission
- Sexual reproduction - conjugation

Asexual Reproduction: Ameoba



Examples of Protists

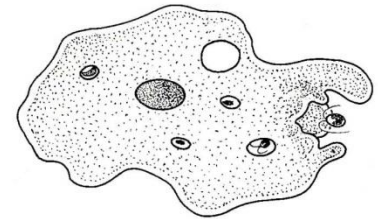
Plant-like

algae



Animal-like

diatoms, amoeba,
paramecium



Fungus-like

slime molds

