

# Classification of Microorganism into Different Kingdoms

1. Monera (bacteria—first organisms developed on earth)
  - a. Largest group
  - b. Some are harmful causing disease (pathogenic)
  - c. Some are helpful.
  - d. Some are harmless.
  - e. Thousands of different kinds of bacteria.
    - i. Different in growth habits
    - ii. Different in appearance
      1. Five basic cell shapes
  - f. What they need to thrive
    - i. Food
    - ii. Water
    - iii. With or without oxygen
    - iv. Proper temperature
    - v. Proper acid (pH)
    - vi. Need a host
    - vii. No inhibitors (additives to stop cell division)
  - g. They multiply (binary fission—cell division)
    - i. Cold temperatures retard cell division
    - ii. Warm temperatures excel cell division.
  - h. Bacteria spread from one person to another.
    - i. Sneezing
    - ii. Coughing
    - iii. Touching surfaces (they can live up to three days on surfaces)
    - iv. Body contact (bumping, rubbing, slapping, kissing)
  - i. Prevent getting bacteria into their bodies.
    - i. Wash hands often
    - ii. Keep hands away from eyes, ears, mouth, and nose.
  - j. Review part of the video by Schlesinger about bacteria.
    - i. Discuss what they saw about bacteria.
2. Protists (came after there was oxygen in the air)
  - a. Animal-like (protozoan)
    - i. Live in
      1. Water—fresh and salty
      2. Soil
      3. Bodies of other organisms
    - ii. Move around
    - iii. Get food
      1. From their environment
      2. Feed upon bacteria
    - iv. Need oxygen
  - b. Plant-like (algae)
    - i. Produce their own food (photosynthesis)
    - ii. Live in water
    - iii. Many are very different from each other
      1. Single-celled
      2. Multicellular

### 3. Fungi

#### a. Molds

- i. Grow in colonies
- ii. Looks are fluffy, filament-like, moist, glossy, and slimy.
- iii. Grow spores (like seeds) that can detach themselves and are carried off by wind currents then attach themselves to a new host (moisture must be present) to start new mold colonies.
- iv. Mold is used in food
  1. Give flavor and color to cheeses.
  2. Used to make soy sauce.
- v. Mold is used to make chemicals
  1. Make citric and lactic acids and enzymes.
- vi. Used to make drugs
  1. Antibiotics such as penicillin.

#### b. Mushrooms

- i. Parasites (live off something else)
  1. Trees, roots, stumps, and fertile soil
- ii. Decomposers (break down organic matter—living and non-living).
- iii. Cannot digest food
- iv. Secret enzymes that break down the food first then they can take the food into their system.
- v. Produce spores and drop to the ground and will find a host to live on

#### c. Yeast

- i. Single celled organisms
- ii. Useful in the production of foods and beverages.
  1. Rising bread dough
  2. Fermentation of wine, whiskey, brandy, and beer
  3. Making vinegar
- iii. Live only on sugars and starches
  1. Produce carbon dioxide gas and alcohol