

Kingdom Prokaryotae/ Monera/bacteria

Specific objectives

1. Make a well labeled diagram to show the structure of bacterial cell.
2. Describe characteristic of bacteria
3. Differentiate between bacteria and viruses
4. State the role of bacteria in the environment.

Their main features of Kingdom monera are:

- They are unicellular (single-celled), but some bacteria such as blue-green bacteria may form single rows of cells.
- Have varied methods of nutrition including autotrophic and heterotrophic modes
- Reproduce asexually by binary fusion and sexually by conjugation
- All bacteria are prokaryotes, i.e. they have no membrane-bound organelles such as a nucleus

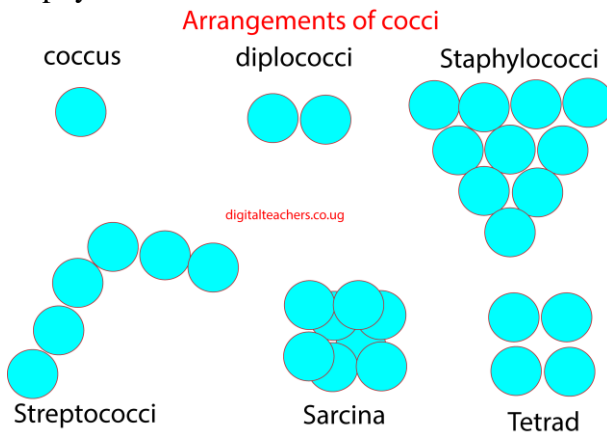
The kingdom contains cyanobacteria (blue-green bacteria) and bacteria that are unicellular.

Blue-green algae photosynthesize and are capable of fixing nitrogen.

Bacteria are classified into gram positive bacteria when their cell wall is stained by gentian violet or gram negative when their cell walls are not stained by gentian violet. Gram negative bacteria are more susceptible to antibiotics than gram positive bacteria.

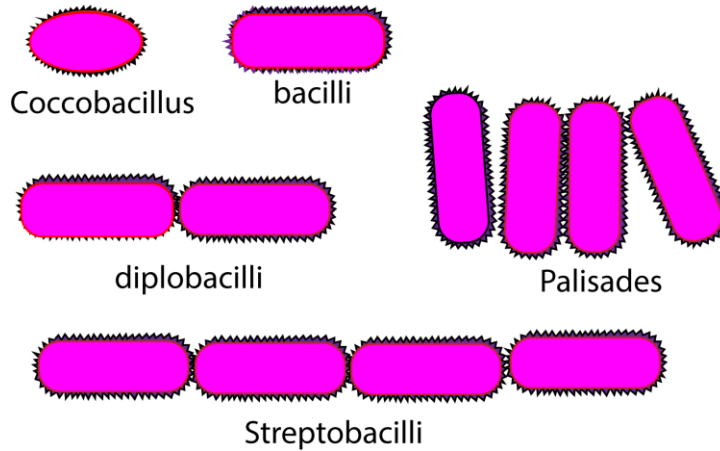
Bacteria are generally distinguished by their shapes, i.e.,

- Cocci are spherical. Cocci may stick together in chains or streptococci or in clusters or staphylococci



- Bacilli are rod shaped

Arrangement of Bacilli



- Spirilla are spiral shaped



Common bacterial disease

- (1) For plants
 - (2) aster yellows
 - (3) bacterial wilt
 - (4) blight
 - a. fire blight
 - b. rice bacterial blight
 - (5) canker
 - (6) crown gall
 - (7) rot
- (ii) For animals
 - (a) Infectious disease.
 - (b) Cholera.
 - (c) Leprosy.
 - (d) Tuberculosis.
 - (e) Plague.
 - (f) Syphilis.

Prevention of bacterial diseases

- Keeping proper hygiene
- Eating well cooked food
- Proper sanitation
- Antibiotics

Importance of bacteria

1. Cause decay and recycling of matter
2. Symbiotic bacteria in intestine synthesize vitamin B12 while those I herbivores produce enzyme cellulase to digest cellulose.
3. Food production: cheese, yoghurt and vinegar, etc.
4. Manufacturing process. E.g. making soap powder, tanning leather.
5. Used in genetic engineering to make useful material.

Why bacteria very common in nature

- Have different feeding; photosynthetic, chemosynthetic, saprophytic, parasitic.
- Resist varying temperature
- Easily develop resistance to drugs
- Have reproduction rate by binary fission
- Have symbiotic relationship with many organisms