



# BACTERIA

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# Introduction

- Bacteria are of immense importance because of their rapid growth, reproduction and mutative rates as well as their ability to exist under adverse condition.
- Bacteria were first observed by A.V. Leeuwenhock.

## Shape And Size

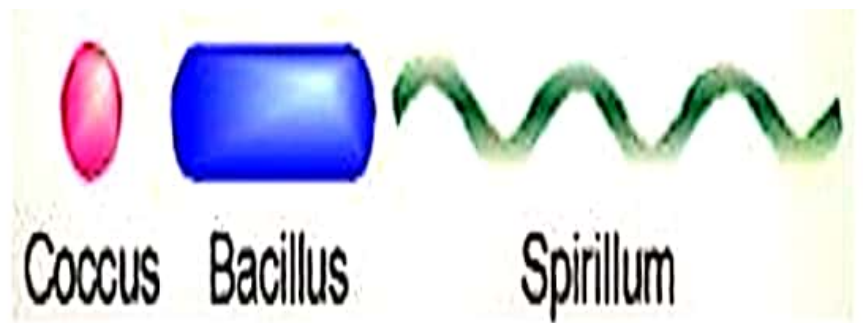
Based on shape bacteria are classified as-

- Spherical or Coccus
- Rod shaped or Bacillus
- Coil shaped or Spirillum

When they are in pairs –  
Diplocoques.

When in form of chain-  
Streptocoques.

Irregular banches-  
Staphylocoques



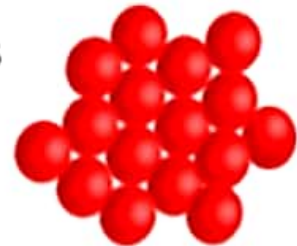
Diplocoques



Streptocoques



Staphylocoques



## Structure

- Bacteria are prokaryotic and unicellular.
- Bacteria have cell walls.
- Bacteria have circular DNA called **Plasmids**.
- Bacteria can be anaerobes or aerobes.
- Bacteria are heterotrophs or autotrophs.
- Autotrophs are photosynthetic and heterotrophs are chemosynthetic.
- Inside the cell wall protoplasm is present surrounded by protoplasmic membrane.

- The **Gram stain**, which divides most clinically significant bacteria into two main groups, is the first step in bacterial identification.
- Bacteria stained **purple** are **Gram +** - their cell walls have thick peptidoglycan and teichoic acid.
- Bacteria stained **pink** are **Gram -** their cell walls have thin peptidoglycan and lipopolysaccharides with no teichoic acid.

# Bacterial Reproduction

- Sexual reproduction called “conjugation”
- Involves two bacteria and a “sex pilus”
- Results in genetically unique bacteria
- Asexual reproduction called “binary fission”
- Results in genetically similar/identical bacteria
- Can occur very, very quickly

# Bacteria And Their Roles

## Natural Recycling

- Bacteria are Decomposers.
- They also convert gas in the air into nitrogen that plants need to grow.

## Health And Medicine

- They can keep you healthy!
  - They help make insulin.
  - Help digestion
  - Make vitamin

## Clean up

- Bacteria are used to clean up:
  - Oil spills
  - Gasoline leaks

It is used in food for making:

Cheese, Yogurt, Apple Cider, Olives, Pickles, Buttermilk, Sour Cream

# MY LEARNING OUTCOMES

- Shape And Size Of Bacteria
- Bacterial Reproduction
- Gram Positive Gram Negative
- Roles Of Bacteria