



Types of Microorganisms

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Subject : Microbiology



Introduction

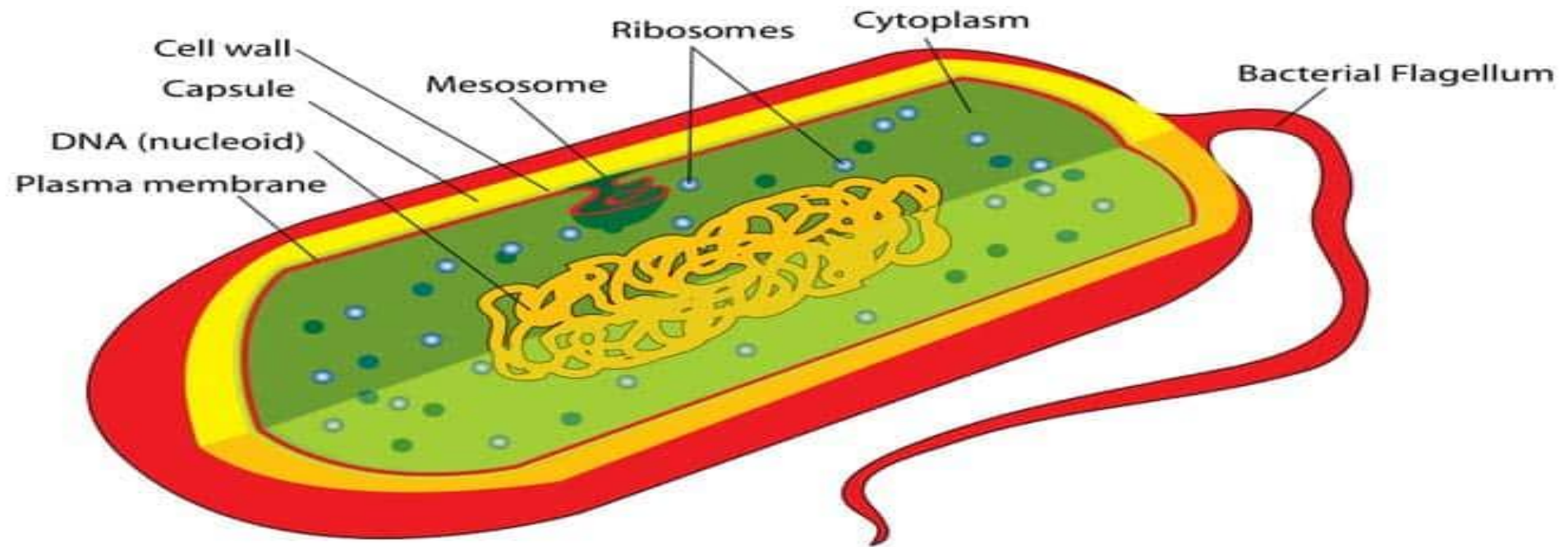
- Microorganisms (microbes) = tiny living things, mostly invisible to naked eye.
- Found everywhere on Earth.
- Play crucial roles in biological processes.
- Important in both health and disease.
- Main types: Bacteria, Viruses, Fungi, Protozoa.



Bacteria

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- **Characteristics**
 - Prokaryotic
 - Unicellular
 - No true nucleus/organalles.
 - Cell wall: made of peptidoglycan.
 - Flagella: help in movement.
 - Reproduction: binary fission (asexual).

Structure of Bacteria



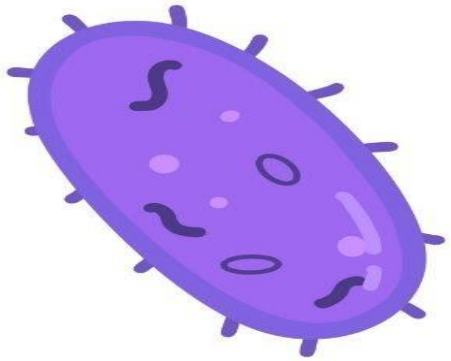
Types of bacteria

- **Gram-positive:**
- Thick cell wall, stain purple.
- Example: *Staphylococcus aureus*.
- **Gram-negative:**
- Thin cell wall, stain pink.
- Example: *Escherichia coli*.

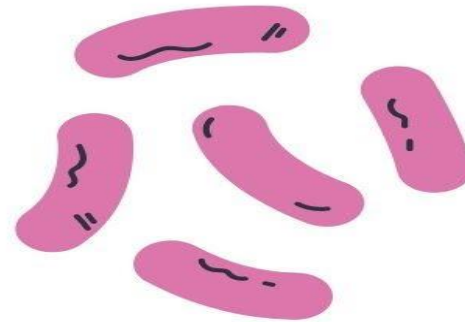
Types of Bacteria

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GRAM POSITIVE BACTERIA



GRAM NEGATIVE BACTERIA



Role of Bacteria

- **Beneficial:**
- Nitrogen fixation in soil.
- Aid in digestion (gut flora).
- Antibiotics production.
- **Pathogenic:**
- Cause pneumonia, TB, cholera, strep throat.



Shapes of bacteria

- **Shapes:**
- **Cocci** → spherical (Streptococcus)
- **Bacilli** → rod-shaped (E. coli)
- **Spirilla** → spiral (Helicobacter pylori)

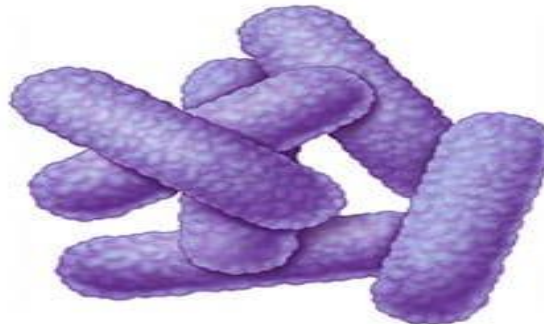


Shapes of bacteria

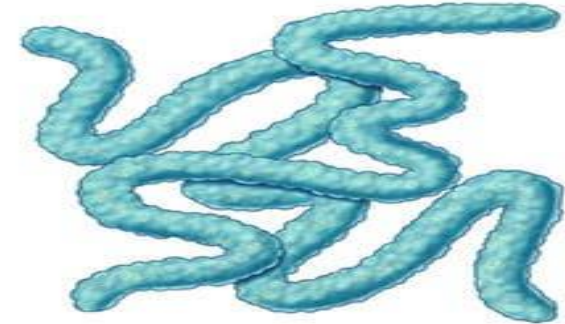
Bacteria



**Sphere-shaped
(cocci)**



**Rod-shaped
(bacilli)**



**Spiral-shaped
(spirochetes)**

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THANK YOU.....