



Biology Grade 8

Chapter 1: The Immune Response

INSTRUCTOR: SUHAIB AUDI

introduction



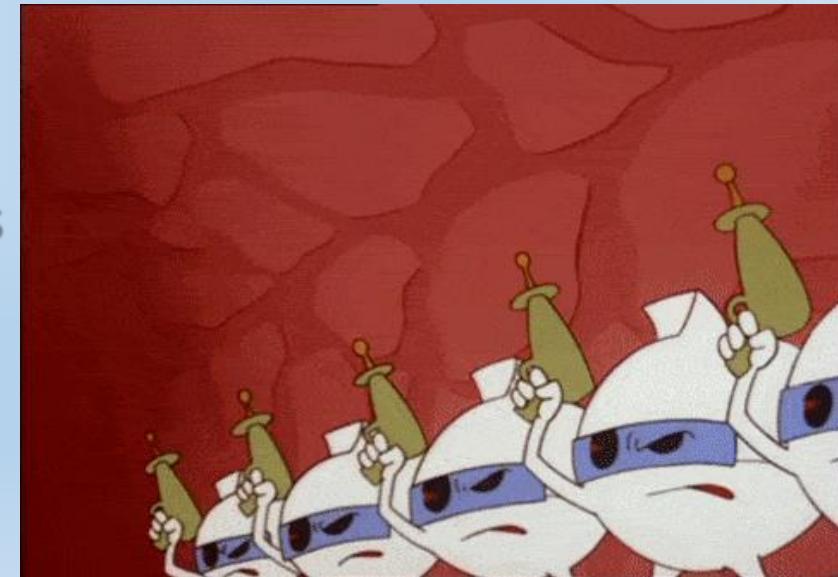
□ Immunology:

Is the **scientific study of the immune system**, its functions, and how it defends the body against diseases. It explores how our bodies recognize harmful invaders and produce immune responses.



□ The Immune system:

The immune system is like a highly trained army protecting our bodies from **pathogens**—harmful microorganisms such as bacteria, viruses, and fungi. It consists of different types of **cells, tissues, and organs** working together to defend against infections.

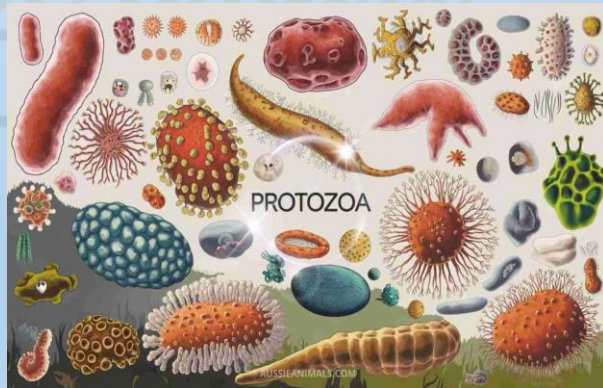
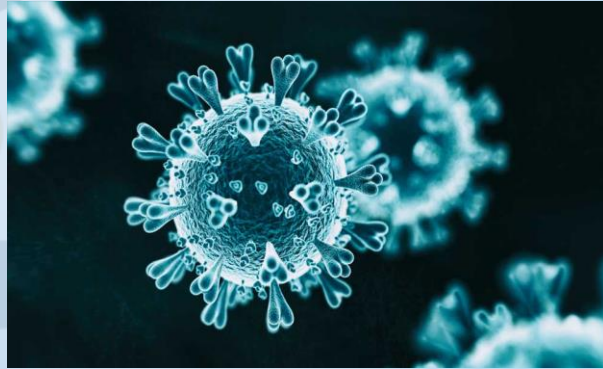


Microbes: The Tiny Living World

Microbes, also known as microorganisms, are living organisms that are too small to be seen with the naked eye. They exist everywhere—in the air, water, soil, and even inside our bodies.

Types of Microbes:

- Bacteria
- Viruses
- Fungi
- Protozoa
- Algae



Pathogenic vs. Nonpathogenic Microbes

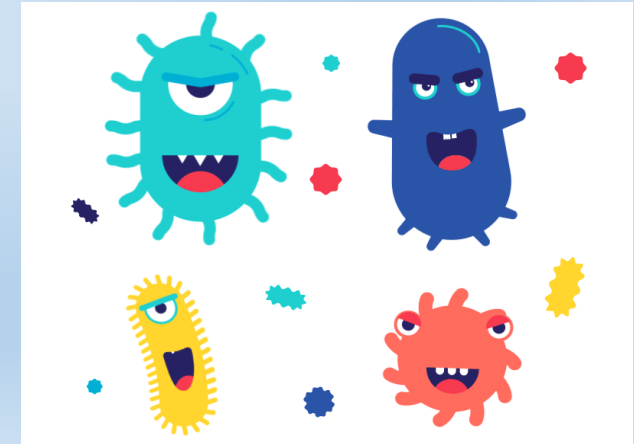
Microbes can be classified into two main groups based on their effects on living organisms:

1. Pathogenic Microbes (Harmful Microorganisms)

These are **disease-causing** microbes that invade the body and disrupt normal functions. They can be **bacteria, viruses, fungi, or protozoa**.

2. Nonpathogenic Microbes (Beneficial or Harmless Microorganisms)

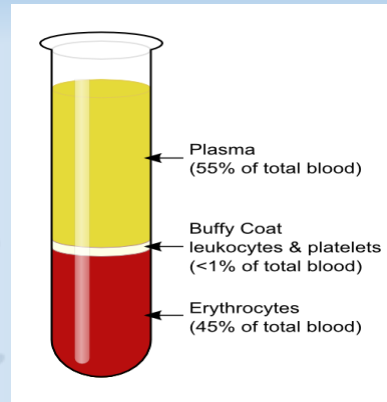
These microbes do **not cause disease**; many play beneficial roles in nature and human health.



❖ Constituents of Blood:

Blood is composed of: Blood cells and Plasma

- **Plasma:** is a liquid part, it helps the blood to flow. (55%)
- **Blood cells:** is a solid part (45%)



1. Red Blood Cells (RBCs) / Erythrocytes

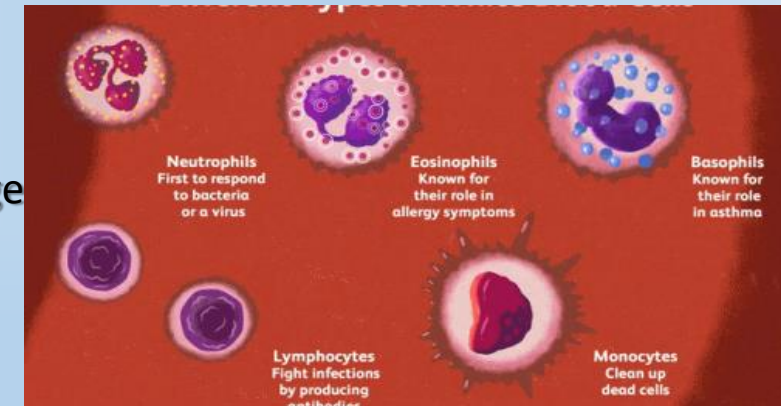
- They have a disc shape.
- They are anucleated cells (they do not have a nucleus).
- They are responsible for transporting respiratory gases (O_2 and CO_2) between the lungs and the rest of the body.

2. White Blood Cells (WBCs) / Leukocytes

- They are nucleated cells.
- They are responsible for defending the body against intruders such as pathogens (antigens).

3. Platelets

- They are responsible for blood clotting.
- They help close wounds and stop bleeding.





Red Blood Cell

White Blood Cell

Platelet