



Pathogens & Viruses



Pathogen

- A **pathogen** is a **disease-causing organism**.
- Pathogens can include:
 - **Fungi**
 - **Bacteria**
 - **Protoctists**
 - **Viruses**



Viruses

- **Not living organisms** (cannot carry out life processes on their own).
- **Very small particles** – smaller than bacteria.
- **Parasitic**: can only **reproduce inside living cells** (host cells).
- Infect **every type of living organism** (plants, animals, bacteria, protoctists, fungi).
- Wide variety of **shapes and sizes**.
- Have **no cellular structure**.
- Structure:
 - **Protein coat**
 - Contain **one type of nucleic acid** → either **DNA** *or* **RNA**.



Examples of Viruses

- **Tobacco Mosaic Virus (TMV)**: infects tobacco plants, causes leaf discolouration by preventing chloroplast formation.
- **Influenza Virus**: causes flu in humans.
- **HIV (Human Immunodeficiency Virus)**: causes AIDS by attacking the body's immune system.

 Exam Tip:

- Always state that **viruses are not considered living organisms** because they **can only reproduce inside host cells**.
- Be able to give **one plant virus (TMV)** and **two human viruses (flu, HIV)** as examples