Chapter Ten: Bacteria and Viruses
Section 3: Viruses

Virus: a microscopic particle that gets inside a cell and often destroys the cell

- Cause diseases such as a cold, the flu, and AIDS

Viruses are tiny…smaller than the smallest bacteria

- 5 billion virus particles can fit in a single drop of blood
- Change rapidly…can make it difficult to fight

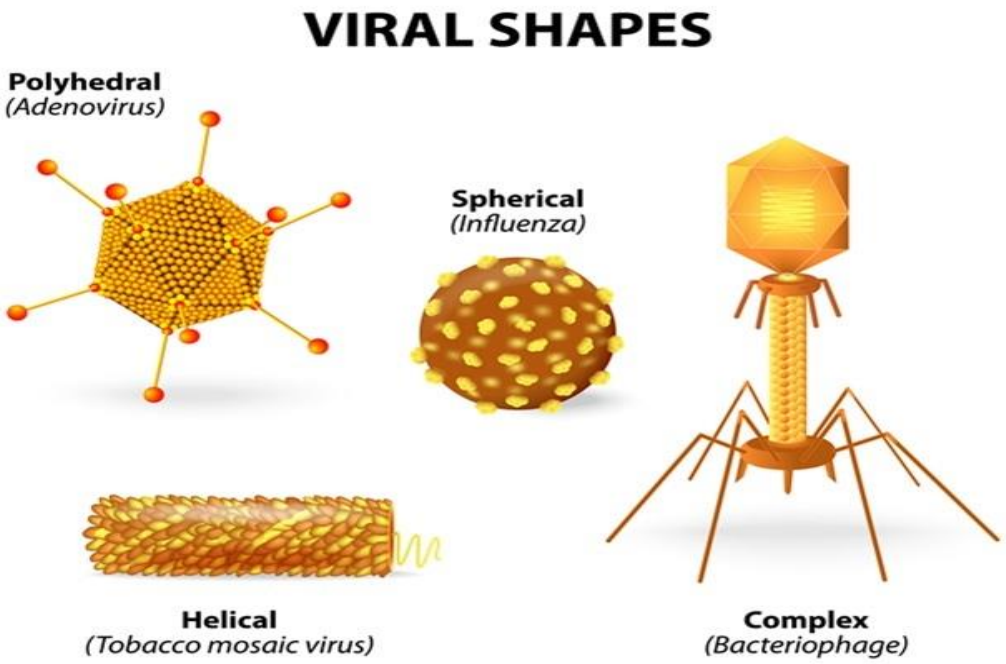
Like living things, viruses contain protein and genetic material.

- Viruses can't eat, grow, break down food, or use oxygen.
- Viruses cannot function on its own…live inside a host
    - **Host:** a living thing that a virus or parasite lives on or in
        - virus forces the host to make viruses rather than healthy new cells

Viruses can be grouped by its shape, type of disease it causes, its life cycle, and kind of genetic material it contains.

4 Main Shapes of viruses:

1. Crystals…the polio virus
    - Polyhedral shape – common cold viruses
2. Spheres…influenza and HIV
    - Spherical shape – influenza
3. Cylinders…the tobacco mosaic virus – harmful to plants (tobacco plant) causes discoloration of leaves
    - Helical
4. Spacecraft…attack bacteria only – also called Complex

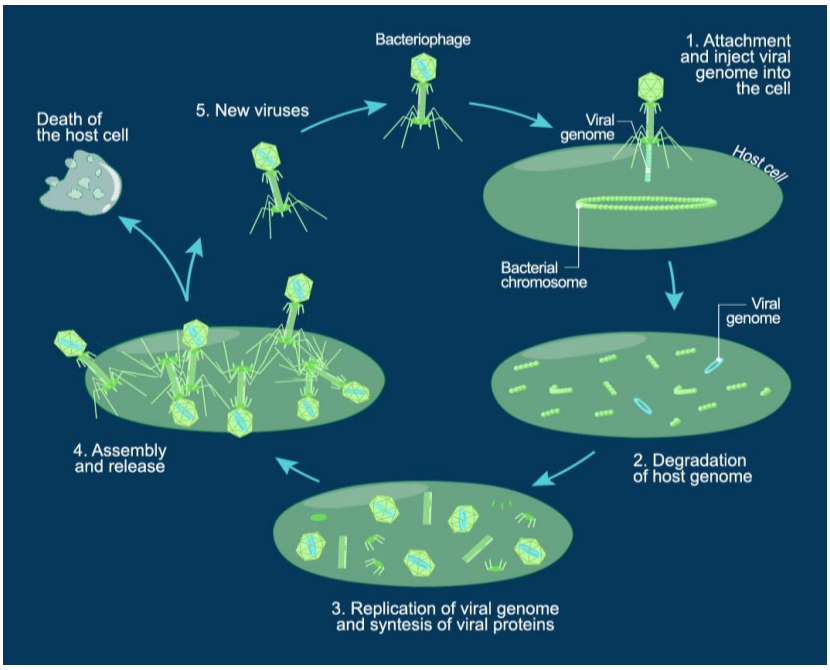


Every virus is made up of genetic material inside a protein coat

- The protein coat protects the genetic material and helps a virus enter a host
- Genetic material is either DNA or RNA
    - DNA – double stranded
        - warts and chickenpox virus
    - RNA – single stranded
        - colds and the flu

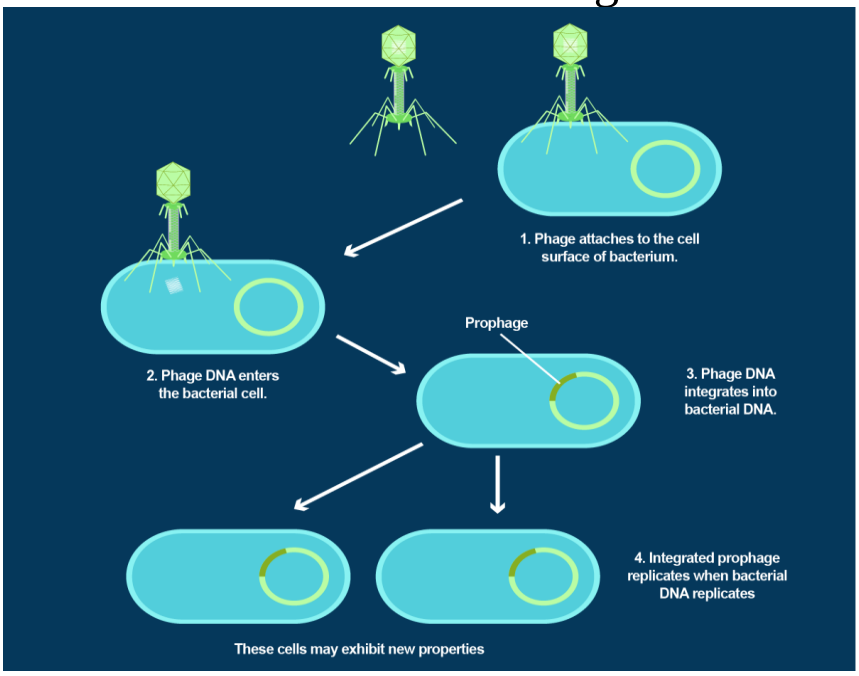
Viruses make more of themselves like living things (replicate)

- *Lytic cycle:* when a virus attacks living cells and turns them into virus factories
- Can kill the host afterwards



Lysogenic cycle: the virus enters the cell but doesn't make new viruses right away

- Each new cell gets a copy of the virus's genes when the host cell dies
- The virus becomes inactive for a long time



Antibiotics do not kill viruses

Scientists have developed antiviral medication

- It stops viruses from reproducing.

Many viral diseases do not have cures

- Prevention is the best thing for fighting a viral disease
- Vaccinations prevent viral diseases by giving your immune system a head start in fighting off the virus

Best practices for fighting a virus:

- wash your hands often
- get plenty of rest
- drink extra fluids
- gargling with salt water and doing nasal rinses help