VIRAL LIFE CYCLES

1. Attachment
    - To a receptor on the host cell.
    - Very specific match between surface viral protein and surface host protein
    - Jumping species?
        - Avian Flu
        - Swine Flu
        - Chickenpox
        - Cow pox
    - Acyclovir and other antiviral medications may inhibit the attachment of the virus to host cells
2. Enter Cell
    - Bacteriophages INJECT their nucleic acid into the bacterial cell
    - Animal viruses are ENDOCYTOSED inside once attachment is successful
3. Lytic or Lysogenic Cycle
    - Lytic Cycle: "break" cell
        - Viral nucleic acid replicates itself using its polymerase, then uses host ribosomes and amino acids to build its capsids and assemble virions.
        - New viruses burst out of the host cell, destroying the host cell in the process
        - Infected cells release "interferon" which alerts nearby cells of viral threat
    - Lysogenic Cycle
        - DNA viruses are capable of integrating with our DNA and "hiding" latent for many months or years. HIV, a retrovirus (RNA that copies itself to DNA) can also do this.
            - Herpes viruses: varicella, and Herpes simplex both choose sensory cell bodies for their sites of latency. Epstein-barr can remain latent in B lymphocytes.
        - Host stress may trigger the virus to enter the lytic cycle.
            - Physical stress: cold, heat, current illness, fatigue, steroid treatment
            - Emotional stress
            - Varicella (lytic) →shingles (latent form)
        - DNA viruses may turn on oncogenes "cancer" genes
            - Epstein-Barr is linked with leukemia
            - Hepatitis B is linked with liver cancer
            - Human Papilloma Virus (HPV) is linked with cervical cancer
4. Halting Viruses
    - Acyclovir seems to act by inhibiting attachment and viral replication
    - Interferon: host cells alert nearby cells of viral threat—cells go into "lockdown" and decrease endocytosis of substances