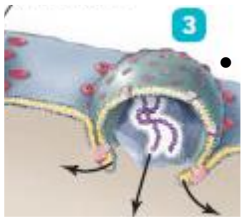
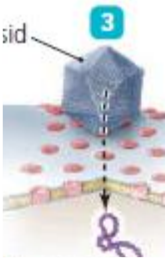
- Afterwards, enzymes pump viral genome (sometimes leftover E. coli DNA) into capsid head.

- **Release**
  - All the while, lysozyme has been hard at work on the cell wall and newly assemble virions burst out.

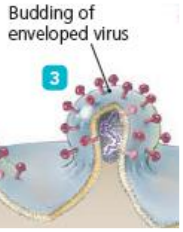
8. *Compare and contrast the lysogenic replication cycle of bacteriophages with the lytic cycle.*
   - **Attachment** and **Entry** proceed as normal.
   - The host DNA is not destroyed. Instead, the virus is fused with the host DNA. So, all daughter cells are infected.
   - The inactive bacteriophage is suppressed by its own repressor protein.
   - After the cell is fully grown, during **Induction**, the inactive viral DNA is cut out by recombination. It then enters the lytic cycle and resumes with **Synthesis**, **Assembly**, and **Release**.

9. *Explain animal virus replication: attachment, penetration, uncoating, synthesis, site of assembly, and release.*





   - **Attachment**
     - Animal viruses lack both tails and tail fibers. Instead they have glycoprotein spikes.
   - **Entry {3 Methods}**
     - *Direct Penetration* involves a capsid sinking into the membrane and slipping its genome in hole.
     - *Membrane Fusion* involves the viral envelope and cell membrane fuse and dump the capsid into the cell.
     - *Endocytosis* involves the entire enveloped or naked virus being engulfed by the cell.
   - **Synthesis and Assembly**
     - DNA viruses typically enter the nucleus. RNA viruses are replicated in the cytoplasm.
   - **Release**
     - Enveloped animal viruses are often released by a process called budding.
     - Naked animal viruses may be released in one of two ways: **exocytosis** or causing the **cell to lyse**.



10. *Compare the replication and synthesis of DNA viruses and RNA viruses.*
    - **dsDNA** is synthesized in a very similar manner as normal cell DNA does in the nucleus.
    - Cells do not use **ssDNA**, so cell enzymes need to make a complementary DNA strand for the virus.
    - Likewise, RNA is not used as genetic material in cell. There are four types of RNA:
      - Each type below basically creates a template for further replication of starting material.
      - **+ssRNA** can act directly as mRNA in translation. *RNA polymerase* transcribes a negative strand.
        i. **Retroviruses (a kind of +ssRNA)** uses a DNA intermediary transcribed with *reverse transcriptase*.
      - **–ssRNA** uses *RNA-dependent RNA transcriptase* to make +ssRNA and continue.
      - **dsRNA** can split into +ssRNA and –ssRNA. The positive strand is used for mRNA translation.

11. *Compare and contrast the release of viral particles by lysis and budding.*