

Viruses

TEKS

- Compare the structures of viruses to cells, describe viral reproduction, and describe the role of viruses in causing disease such as Human Immunodeficiency Virus (HIV) and influenza

VOCABULARY

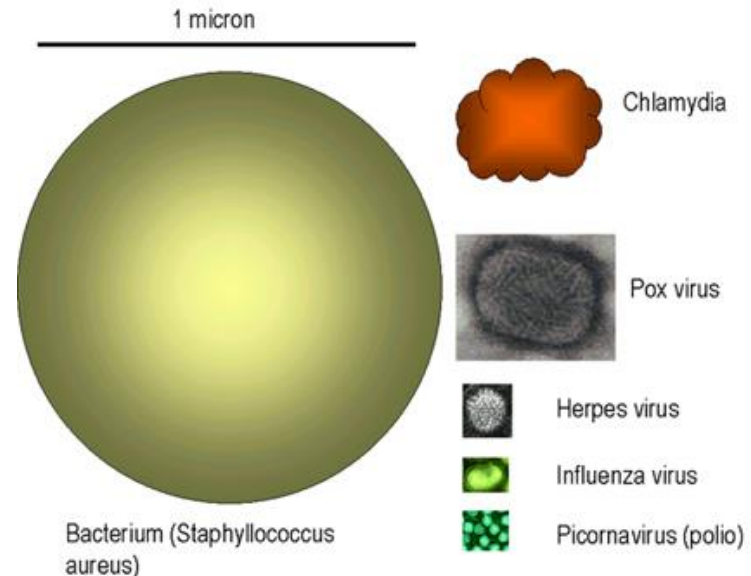
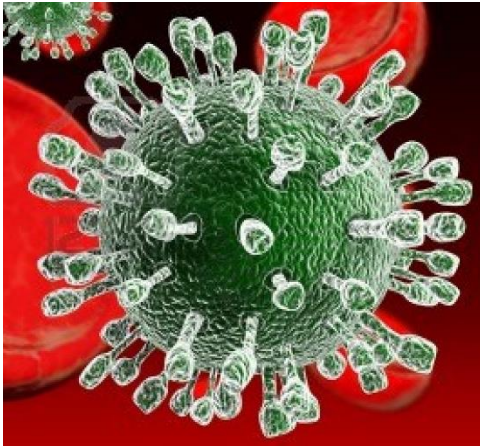
- Virus
- Capsid
- Envelope
- Human Immunodeficiency
Virus (HIV)
- Influenza

Prerequisite questions

- What are the eight characteristics which all living things have in common?
- What are the 4 organelles/molecular structures that all living things must contain?

What is a virus?

- Are **Non-living** particles
- Composed of **nucleic acid** in a protein coat
- Smaller than any **bacteria**
- Named for **disease they cause, or for the organ or tissue they infect**



Viruses...are they alive?

They are considered **NON LIVING** because they:

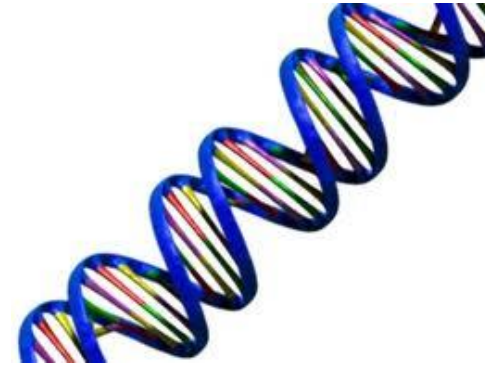
1. don't **grow**
2. don't **develop**
3. don't **reproduce**
4. don't **carry out respiration**



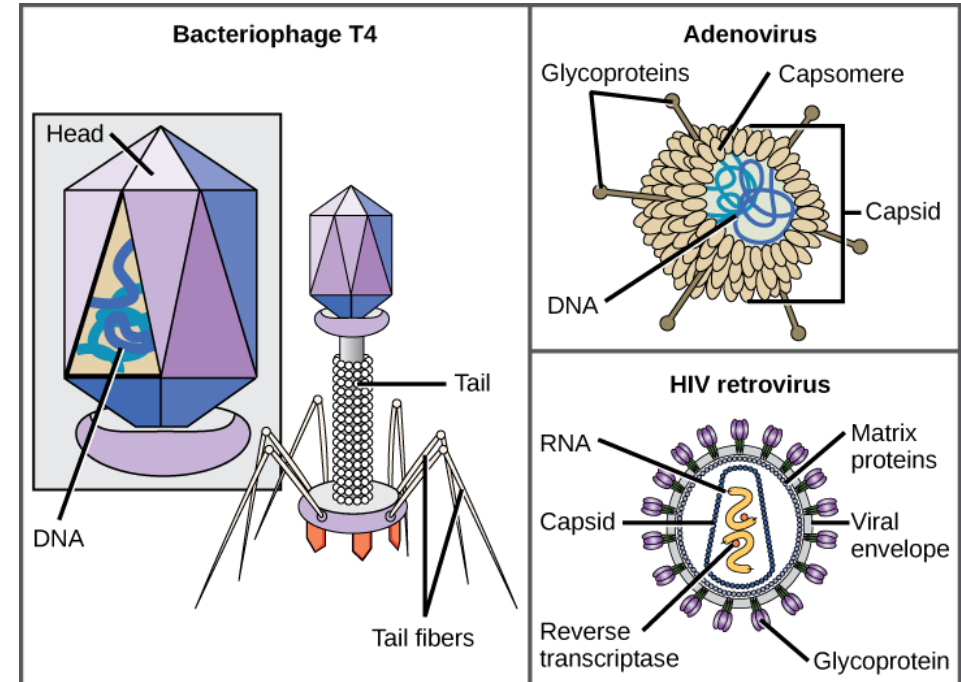
*Viruses DO NOT divide on their own, they are **REPLICATED** (Copied) in a host cell

Structures found in all viruses

1. Nucleic acids (either DNA or RNA)

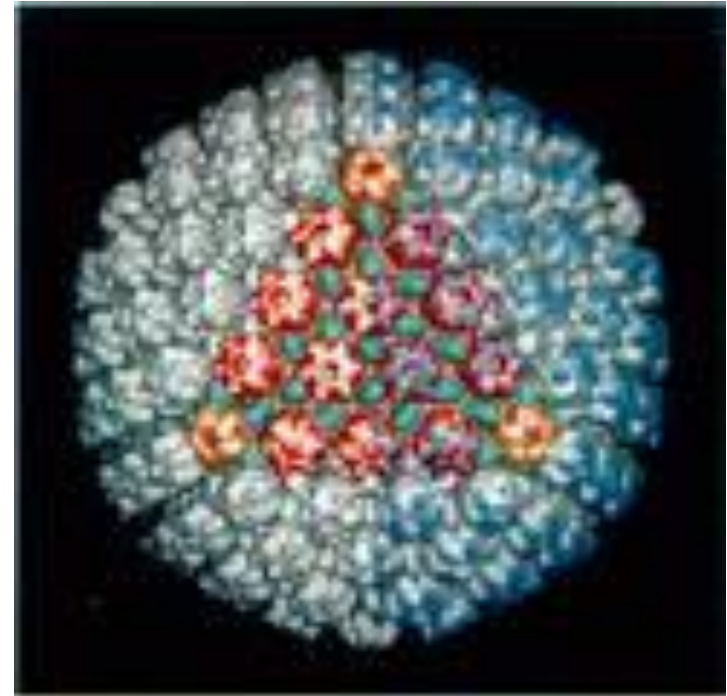


2. Capsid - protein coat that surrounds the nucleic acid

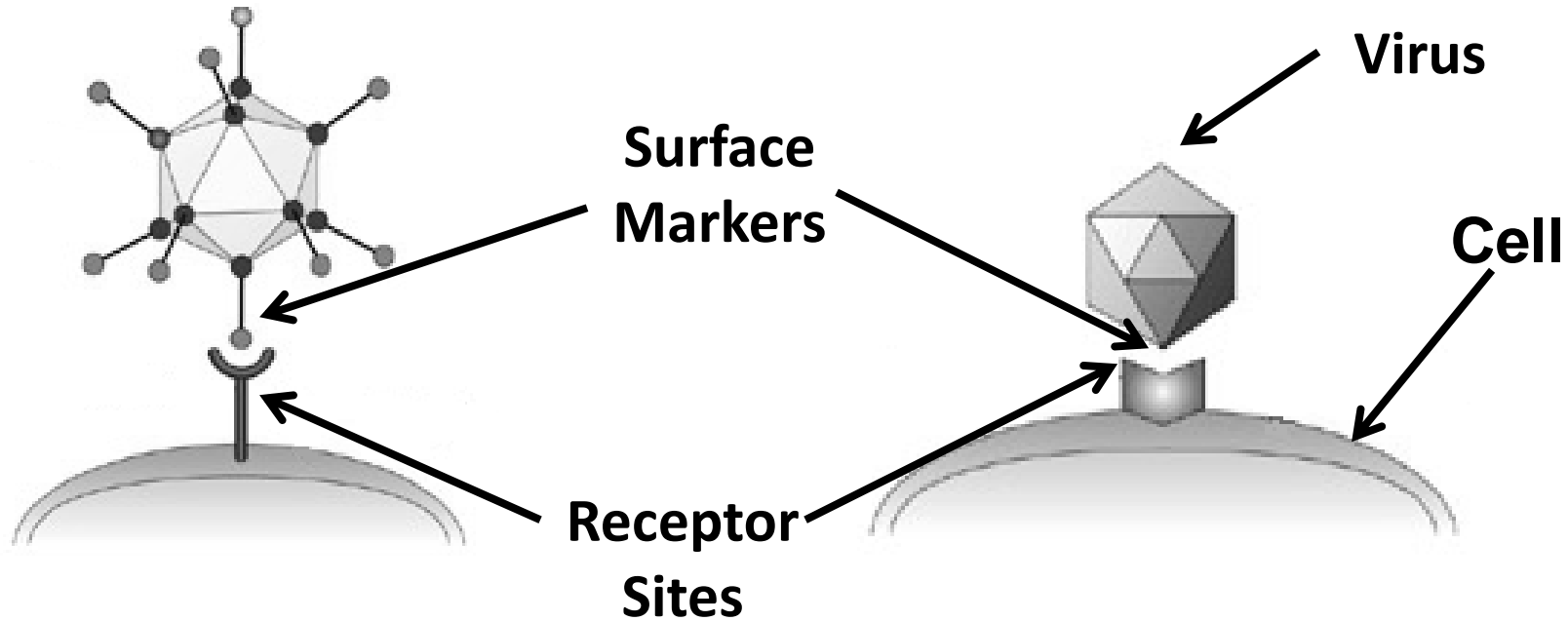


What is that sticking off the capsid?

- Projections on some capsids determines what cell can be infected and how the virus infects the cell
- Think of them like keys to get through the cell membrane

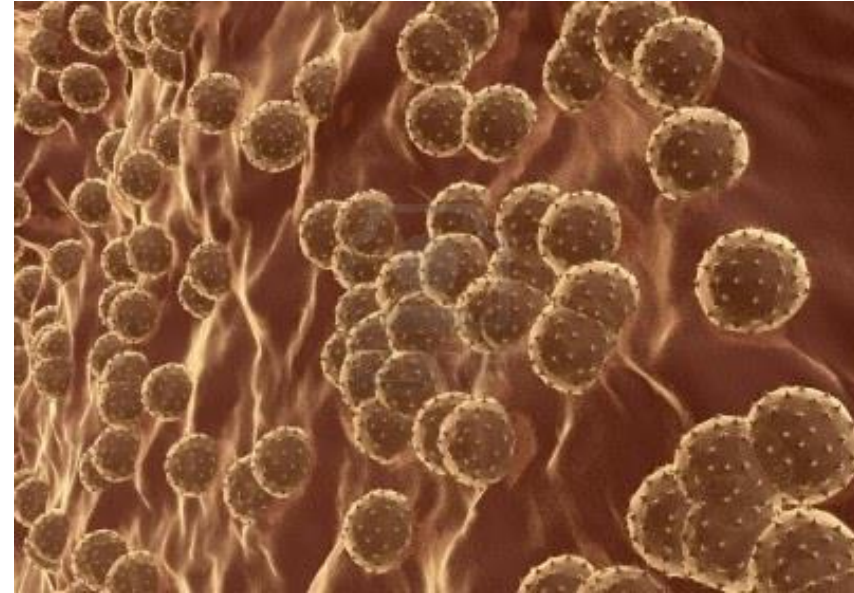
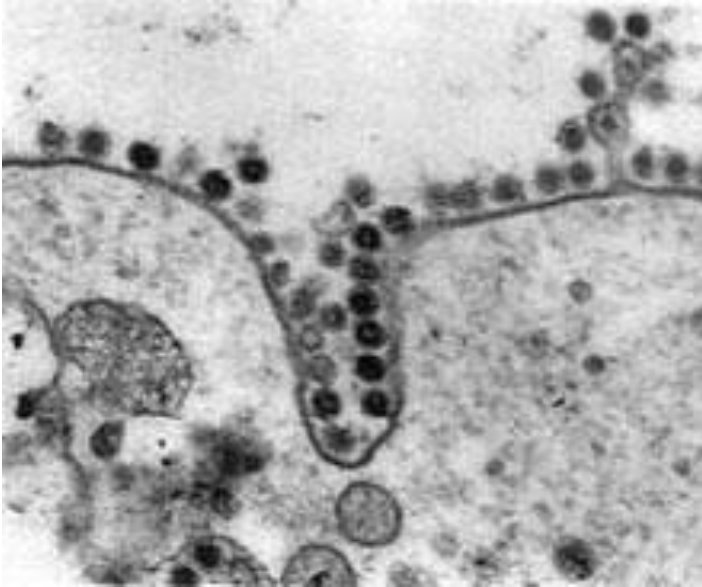


A virus recognizes cells it can infect by matching its surface marker with a receptor site on a cell.



This process of protein reception is very similar to the enzyme/substrate complex specificity.

Viral Replication

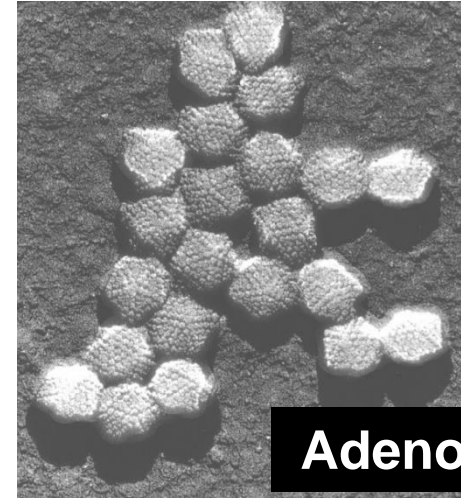
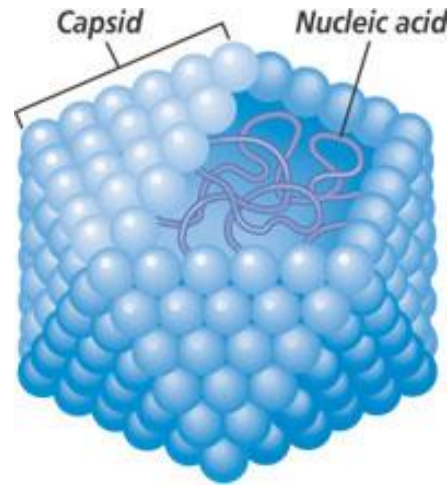


- Remember viruses do NOT reproduce
- Viruses require a **HOST CELL** to replicate (they are built)

4 Most Common Viral Shapes:

1. Polyhedral

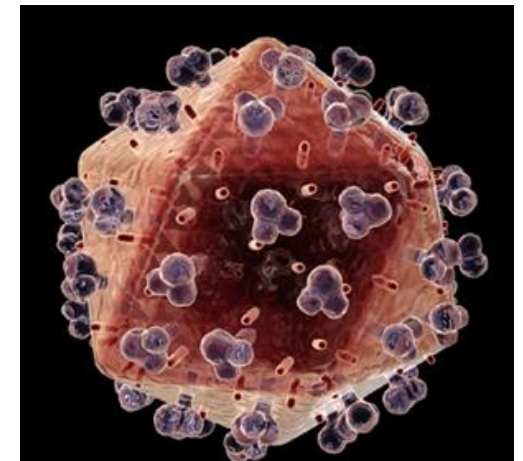
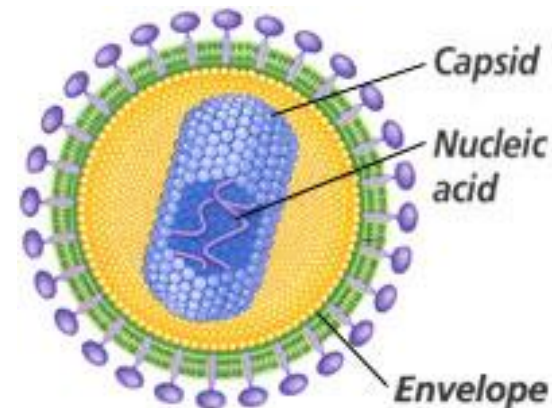
- Papilloma virus
 - causes warts



Adenovirus

2. Envelope studded with projections

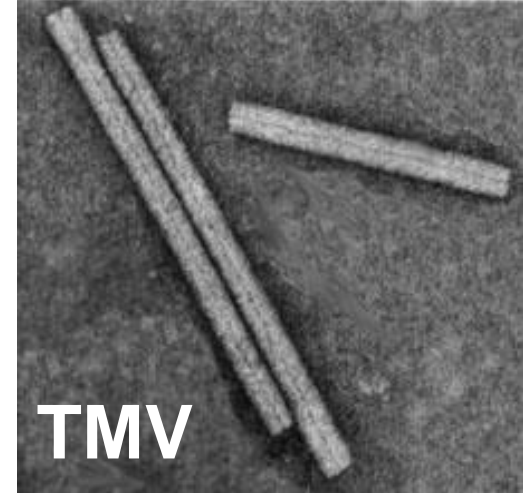
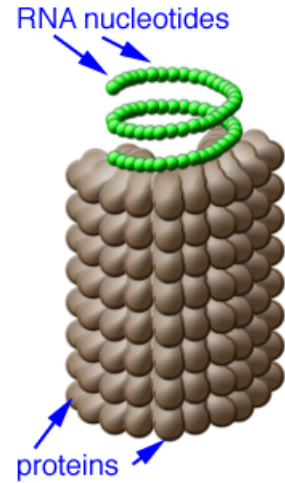
- Influenza (flu)
- HIV



Viral Shapes

3. Helical

- tobacco mosaic virus
 - Plant virus



4. Bacteriophage

- polyhedral-shaped head
- cylindrical tail
- leglike fibers
- Only infects **BACTERIA**

