



### Viruses 101 video notes

In 1897, Dutch scientist \_\_\_\_\_ called tiny particles in the liquid extracted from a plant disease \_\_\_\_\_, which is the Latin word for \_\_\_\_\_.

In 1935, American biochemist \_\_\_\_\_ isolated crystals of \_\_\_\_\_, and concluded that living organisms do not crystallize. In other words, \_\_\_\_\_.

Characteristics of life	Virus	Cell
<b>Structure</b>	DNA or RNA is copied, some with envelope	Cell membrane, cytoplasm; eukaryotes also contain nucleus and many organelles
<b>Reproduction</b>	Only within a host cell	Independent cell division, either asexually or sexually
<b>Genetic Code</b>		
<b>Growth &amp; Development</b>		
<b>Obtain &amp; use energy</b>		
<b>Response to environment</b>		
<b>Change over time</b>		

### Viruses Are Not Considered Living

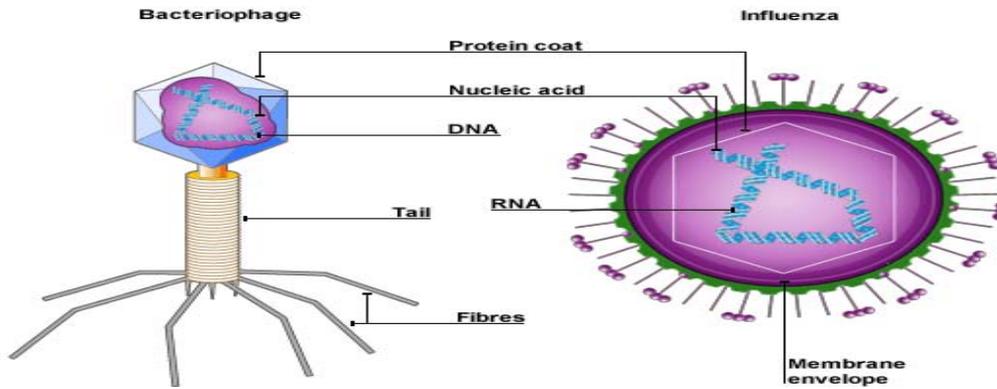
- A virus is not a \_\_\_\_\_
- A virus is a \_\_\_\_\_ made of \_\_\_\_\_
- A virus can only reproduce by \_\_\_\_\_
- A virus uses the \_\_\_\_\_ of the cells of the host to make \_\_\_\_\_

### Check for Understanding 1

**A Virus Has Two/Three Essential Features**

- A Nucleic Acid – DNA or \_\_\_\_\_
- A Capsid – a protein coat \_\_\_\_\_
  - o Protects nucleic acid \_\_\_\_\_
- IN ADDITION, TAIL FIBERS ARE USED TO \_\_\_\_\_

**Label the diagram below:**

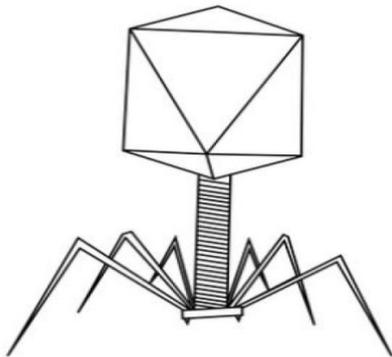


- Some may have a membrane like structure outside the capsid called an \_\_\_\_\_
- Examples: Influenza, Chickenpox \_\_\_\_\_

**Viral Shape**

- The shape of the virus is determined by either its \_\_\_\_\_
- Two examples of shape
  - o Icosahedron has 20 triangular faces - \_\_\_\_\_
  - o Helix is a \_\_\_\_\_ - rabies, measles, and tobacco mosaic virus

**Check for Understanding 2:** Label the 3 major structures of the following virus and tell the function of each.

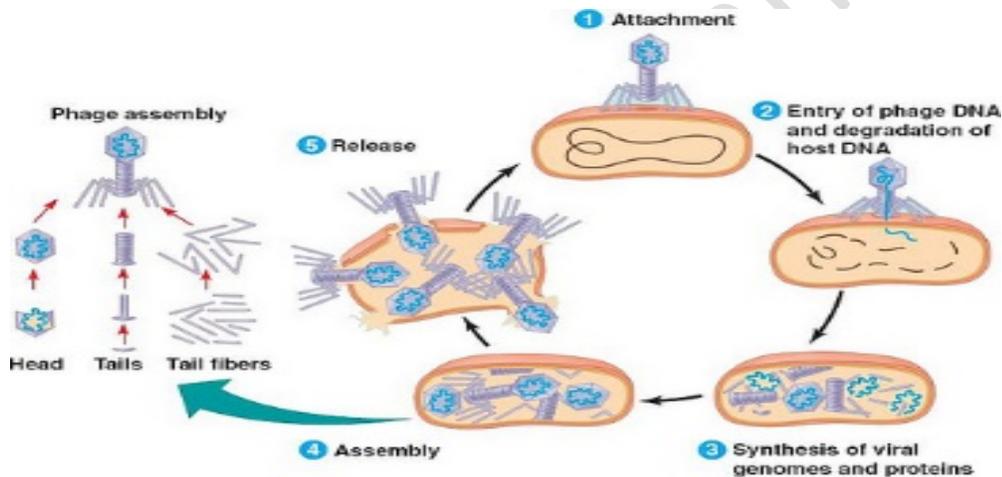


## There are two types of Viral Infections

- Viruses use their genetic information to make multiple use their genetic information to make multiple \_\_\_\_\_.
- Viruses that infect bacteria are called \_\_\_\_\_
- Some viruses enter cells and \_\_\_\_\_
- Some viruses are initially in an \_\_\_\_\_ within the host cell then are \_\_\_\_\_

## Lytic Infections Cycle

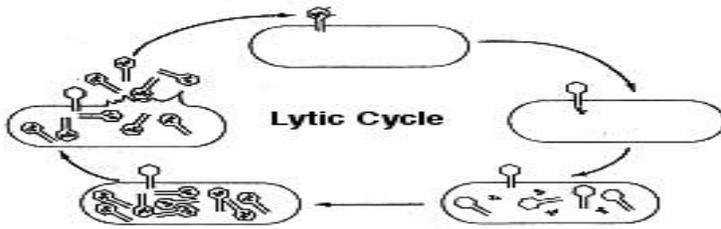
1. A virus injects it's DNA inside of a host cell and breaks \_\_\_\_\_
2. Viruses uses the cell's organelles and \_\_\_\_\_
3. The newly made viruses cause the cell to burst \_\_\_\_\_
4. Examples - \_\_\_\_\_



## How do Lytic Viruses Replicate?

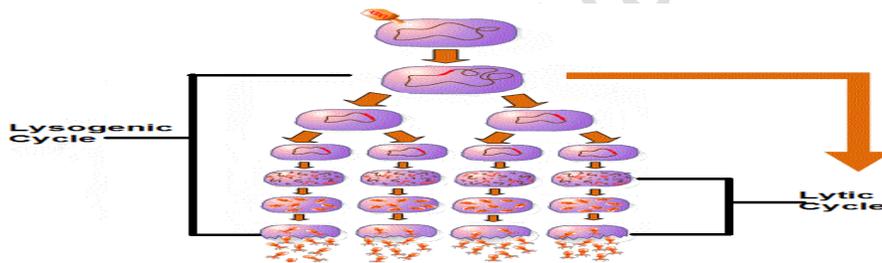
- The lytic cycle: 1. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_
- 4. \_\_\_\_\_ 5. \_\_\_\_\_
- Results in \_\_\_\_\_

**Check for Understanding 3** – write what is occurring at each stage of the lytic cycle in the diagram below



**Lysogenic Infections Cycle**

1. A virus injects it's DNA inside of a host cell where it \_\_\_\_\_
2. Virus DNA may replicate with host DNA for many generations (months, years) \_\_\_\_\_
3. Environmental factors and certain chemicals trigger the virus to become \_\_\_\_\_. Removes itself from host cell DNA and \_\_\_\_\_
4. Lysogenic infections turns in an \_\_\_\_\_, bursts from host cell, and infects other cells.



Source: Adapted from Lysogenic Cycle, Discovery Health

- Lysogenic Cycle** – The lysogenic cycle: 1. \_\_\_\_\_ 2. \_\_\_\_\_  
 3. \_\_\_\_\_ 4. \_\_\_\_\_ 5. \_\_\_\_\_  
 6. \_\_\_\_\_

**Advantages & Limits**

Lytic cycle – Replication of new viruses is \_\_\_\_\_ However, the host is also immediately \_\_\_\_\_ from passing onto the next generation of host cells.

Lysogenic cycle – Many more viruses can be made because \_\_\_\_\_

However, \_\_\_\_\_ takes longer because it is \_\_\_\_\_

**Check for Understanding 4** – Write whether each statement describes a lytic cycle infection, lysogenic cycle infection, or both

1. This infection can stay in the body for years before become \_\_\_\_\_
2. This infection makes copies of its virus, bursts out the host cell, and invades other cells immediately \_\_\_\_\_
3. Examples of this virus are Common cold, Rabies, Aids \_\_\_\_\_
4. Examples of this virus are Hepatitis B, HIV \_\_\_\_\_
5. Replicates copies of itself with the host cell DNA without immediately killing the host cell \_\_\_\_\_
6. Injects it's viral DNA, Makes copies of its DNA to make more viruses, leaves the host cell and infects other cells \_\_\_\_\_

**Check for Understanding 4** – Write whether each statement describes a lytic cycle infection, lysogenic cycle infection, or both

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