

# Viruses

Name \_\_\_\_\_

Date \_\_\_\_\_

Block \_\_\_\_\_

At the boundary of life, between the \_\_\_\_\_ (which are not alive) and the \_\_\_\_\_ (which are), lie the viruses and bacteriophages (phages).

These twilight creatures are \_\_\_\_\_ responsible for causing many diseases in living things (\_\_\_\_\_ in humans, for example).

## **Viruses are found everywhere.**

Viruses consist of a **core of** \_\_\_\_\_, **either** \_\_\_\_\_, **and a protective coat of** \_\_\_\_\_ **and sometimes** \_\_\_\_\_.

In isolation, viruses and bacteriophages show none of the expected signs of life. They do not respond to \_\_\_\_\_, they do not \_\_\_\_\_ they do not do any of the things we normally associate with life.

Strictly speaking, they should not be considered "living" organisms at all. However, they are more complex than a lifeless collection of macromolecules and they do show one of the most important signs of life: the ability to \_\_\_\_\_

## **Bacteriophages attack bacteria (prokaryotes)**

- **viruses attack** \_\_\_\_\_ **cells.**

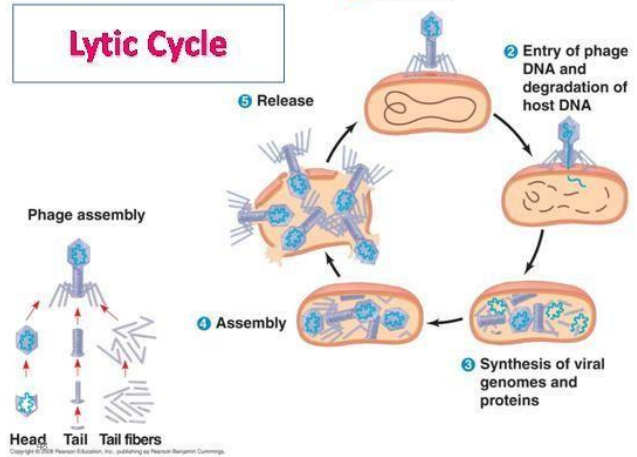
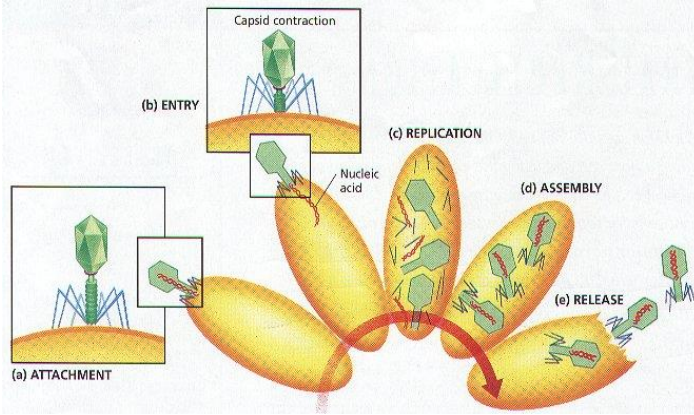
Viruses and bacteriophages invade cells and use the host cell's machinery to synthesize more of their own macromolecules.

Once inside the host the bacteriophage or virus will either go into a \_\_\_\_\_ - **destroying the host cell during reproduction.**

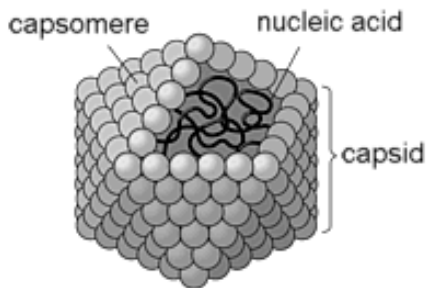
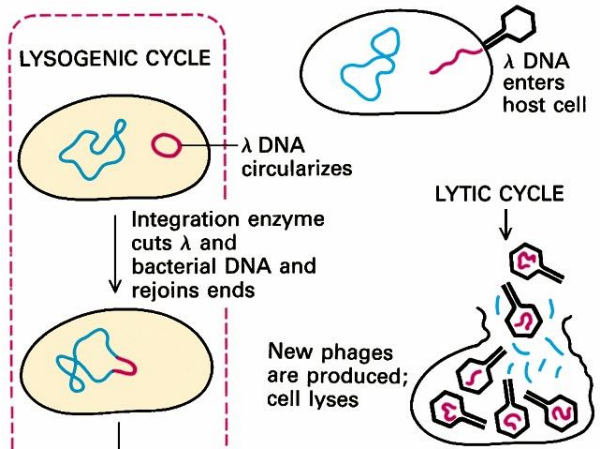
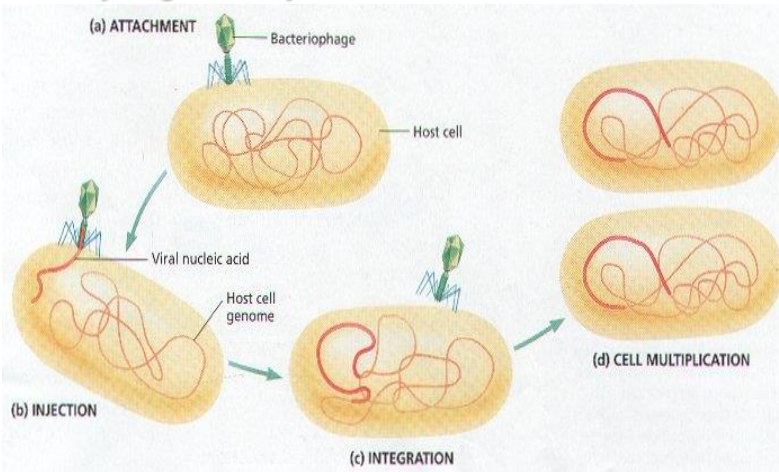
or

It will go into a \_\_\_\_\_ - a parasitic type of partnership with the cell

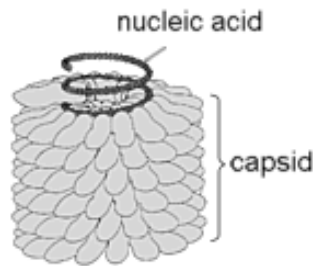
### The Lytic Cycle



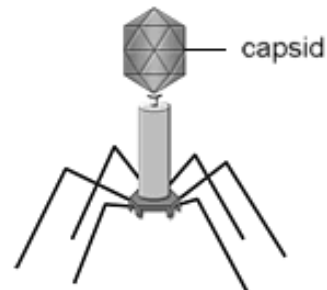
### The Lysogenic Cycle



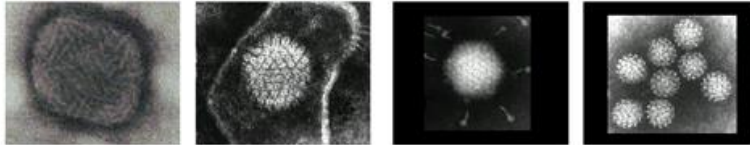
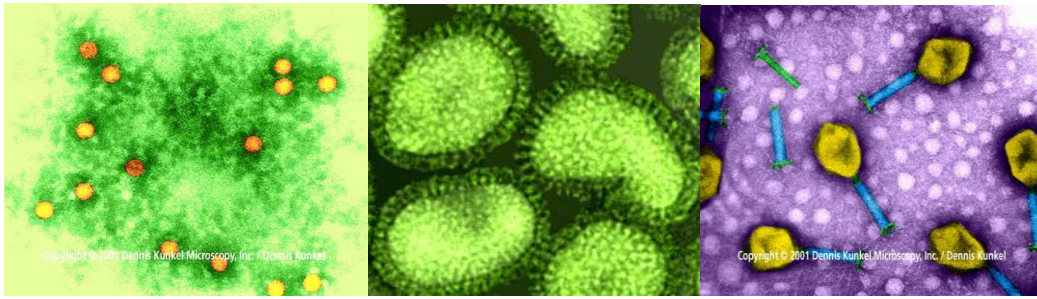
**Polyhedral**



**Helical**



**Binal**

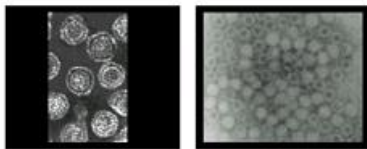


Poxviridae

Herpesviridae

Adenoviridae

Papovaviridae  
human papilloma



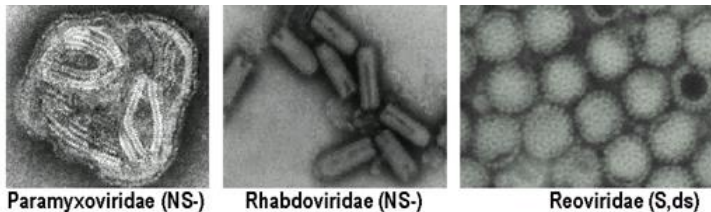
Hepadnaviridae

Parvoviridae

### DNA Viruses

— 100 nanometers

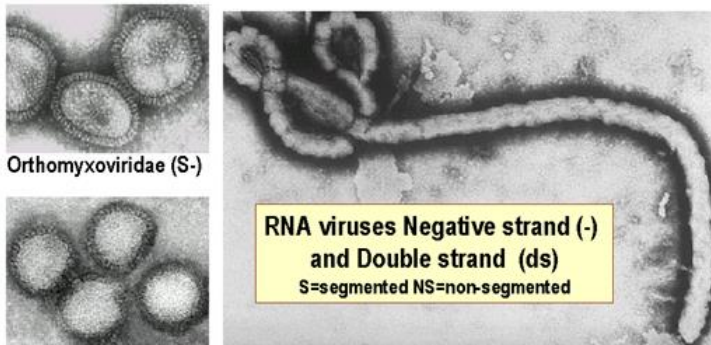
A \_\_\_\_\_ is a DNA virus that has been inserted into a host cell chromosome.



Paramyxoviridae (NS-)

Rhabdoviridae (NS-)

Reoviridae (S, ds)



Orthomyxoviridae (S-)

Bunyaviridae (S-)

Filoviridae (NS-)

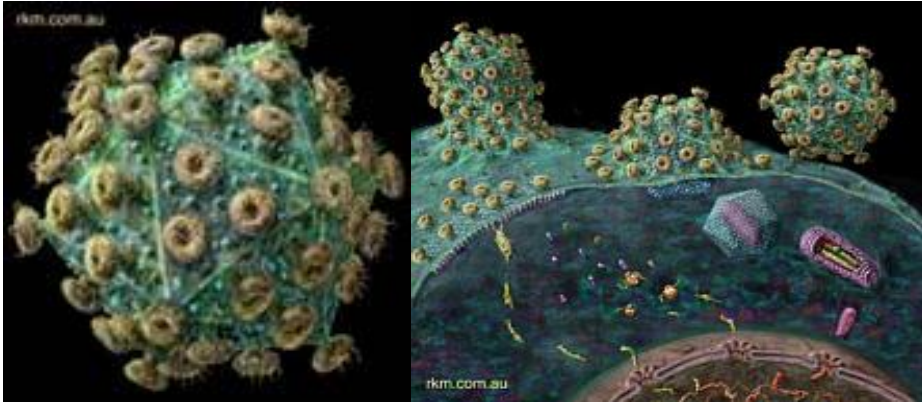
100nm

RNA viruses Negative strand (-)  
and Double strand (ds)  
S=segmented NS=non-segmented

A \_\_\_\_\_ injects the enzyme, reverse transcriptase into the cell to copy viral RNA into DNA.

HIV is a retrovirus injecting the enzyme, \_\_\_\_\_ into the cell to copy viral RNA into DNA.





Viruses are \_\_\_\_\_ – a protein on the surface of the virus has a shape that matches a molecule in the plasma membrane of its host, allowing the virus to lock onto the host cell.

**HIV** doesn't target just any cell, it goes right for the cells that want to kill it.

“\_\_\_\_\_ are HIV's primary target. These cells help direct the immune system's response to various pathogens.

HIV undermines the body's ability to protect against disease by depleting T cells thus \_\_\_\_\_.

The virus can infect \_\_\_\_\_ a day, yet only 1.8 billion can be replaced daily.

After many years of a constant battle, the body has insufficient numbers of T-Cells to mount an immune response against infections. At the point when the body is unable to fight off infections, a person is said to have the disease \_\_\_\_\_.

It is not the virus or the disease that ultimately kills a person; it is the inability to fight off something as minor as the common cold.