



3055 BA SANGAM COLLEGE

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WORKSHEET 7

School: **Ba Sangam College**

Subject: **Biology**

Year: **13**

Name:

Strand	13.3 Biodiversity Change and Sustainability
Sub strand	13.3.1 Sub Cellular Form of Life Viruses
Content Learning Outcome	Describe general structure of virus and reproductive cycles

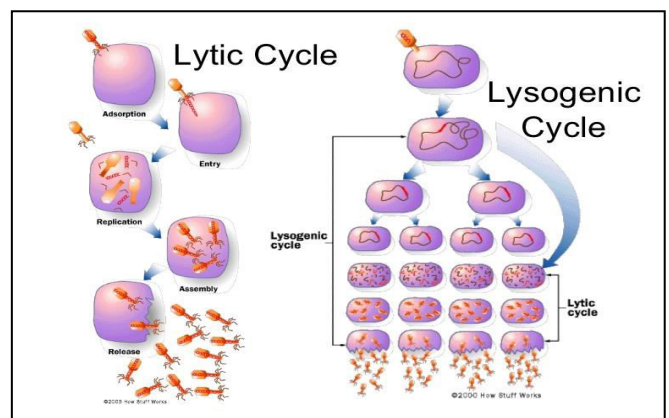
Lytic and Lysogenic Life Cycle

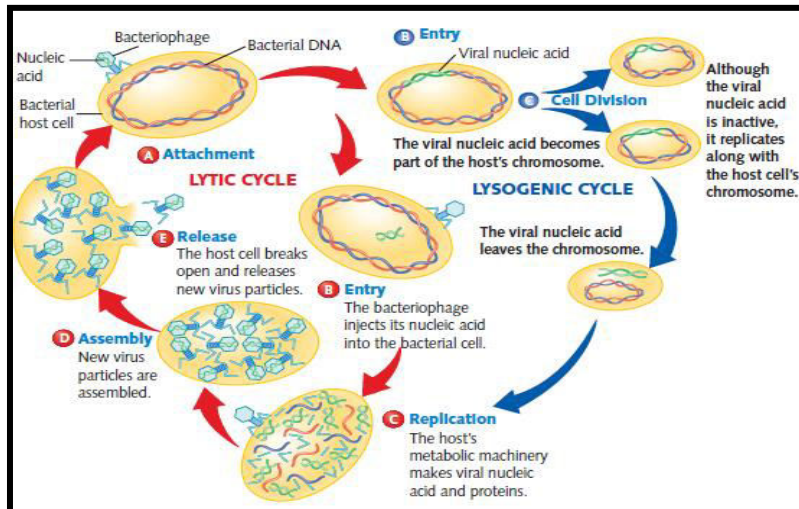
- Lytic Life Cycle-reproduction occurs, cells burst.
- The phage virus in the virion stage attaches to the bacteria(host)by its tail fibers.
- The phage injects its DNA into the host but the protein coat remains outside.The virion is now in the vegetative stage.The viral DNA controls the host cell and directs it to produce copies of viral DNA,protein and head and tail.New phage virus is then assembled and is released from the host cell by lysis or extrusion.
- **Virulent phage**-a phage that reproduces only by the lytic cycle
- Lysogenic Life Cycle-reproduction does not immediately occur(dormancy)

The viral DNA is injected into the host cell and this injected DNA becomes incorporated into the bacterial chromosome.This is now called a pro-virus.As the bacterial chromosomes replicate,so does the viral DNA (prophage).

Reproduction occurs as follows:

- 1.Attachment**-(adsorption)-virus attaches to the host cell surface
 - 2.Penetration** - the virus is engulfed by the cell as it enters the host cell. It can now enter into the Lysogenic cycle, or continue in the Lytic cycle.
 - 3. Biosynthesis** - viral components (made of protein coat, capsid, DNA/RNA) are manufactured using materials found in the host cell
 - 4. Maturation** –assembly of completed viral components
 - 5. Release** - viruses leave host cell to infect new cells, often destroying host (lysis)
- Bacteriophage - viruses that infect bacteria.
Retroviruses -- RNA viruses that have a DNA stage





Economic Importance of Virus

- Preparing antidotes/vaccine
- Controlling harmful animals and insects
- Control of disease
- In laboratory-for the research of genetics
- In the evidence of evolution

Ecological importance

1. Essential to the regulation of saltwater and freshwater ecosystems.
2. Microorganisms constitute more than 90% of the biomass in the sea. It is estimated that viruses kill approximately 20% of this biomass each day.
3. responsible for the rapid destruction of harmful algal blooms that kill other marine life

Activity

1. i. What is the lysogenic cycle?

(2 marks)

ii. What is a provirus?

(1 mark)

iii. How are the normal functions of the host affected by the provirus?

(2 marks)

2. What happens to the provirus when the host cell reproduces?

(2 marks)