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# Section 19–2 Viruses (pages 478–483)

**Key Concepts**

- What is the structure of a virus?
- How do viruses cause infection?

## What Is a Virus? (pages 478–479)

**1.** What are viruses? _____

_____

**2.** What do all viruses have in common? _____

_____

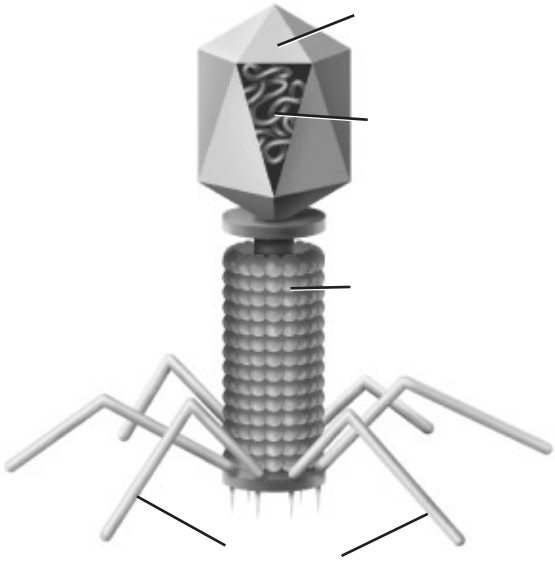
_____

**3.** Is the following sentence true or false? Most viruses are so small that they can be seen only with the aid of a powerful electron microscope. _____

**4.** What is the structure of a typical virus? _____

_____

**5.** Complete the illustration of a T4 bacteriophage by labeling the parts.



**6.** A virus's protein coat is called a(an) _____.

**7.** How does a typical virus get inside a cell? _____

_____

_____

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**8.** What occurs when viruses get inside cells? _____

_____

_____

_____

_____

**9.** Why are most viruses highly specific to the cells they infect? _____

_____

_____

**10.** What are bacteriophages? _____

## Viral Infection (pages 480–481)

**11.** Why is a lytic infection given that name? _____

_____

**12.** Circle the letter of each sentence that is true about a lysogenic infection.

**a.** The virus lyses the host cell immediately.

**b.** The virus embeds its DNA into the host's DNA.

**c.** The virus's DNA is replicated along with the host cell's DNA.

**d.** A host cell makes copies of the virus indefinitely.

**13.** Complete the flowchart about a lytic infection.

The bacteriophage attaches to the bacterium's _____.

↓

The bacteriophage injects its _____ into the cell.

↓

The cell makes mRNA from the bacteriophage's _____.

↓

The virus wrecks the cell, causing it to _____

↓

The bursting of the cell releases new bacteriophage _____.

**14.** What is a prophage? _____

_____

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## Retroviruses (page 482)

**15.** What are retroviruses? _____

_____

**16.** What happens when retroviruses infect a cell? _____

_____

_____

## Viruses and Living Cells (pages 482–483)

**17.** Circle the letter of each reason why some biologists do not consider viruses to be alive.

**a.** They can't infect living cells.

**b.** They can't evolve.

**c.** They can't regulate gene expression.

**d.** They can't reproduce independently.

**18.** Complete the table comparing viruses and cells.

**Virus and Cells**

| Characteristic | Virus | Cell |
|---|---|---|
| **Structure** | DNA or RNA core, capsid | Cell membrane, cytoplasm; eukaryotes also contain nucleus and organelles |
| **Reproduction** | | Independent cell division either asexually or sexually |
| **Genetic Code** | | DNA |
| **Growth and Development** | No | |
| **Obtain and Use Energy** | | Yes |
| **Response to the Environment** | No | |
| **Change Over Time** | | |