

Viruses vs Living Things

Name: _____

Date: _____

1. Which of the following lacks a nucleus?
 - A. a plant cell
 - B. an animal cell
 - C. an amoeba
 - D. a virus

2. Which of the following is an example of an antigen that might be recognized by the immune system of an individual?
 - A. a viral protein
 - B. a fat molecule
 - C. saline solution
 - D. oxygen molecule

3. The Sabin vaccine is a liquid containing weakened polio viruses. Vaccinated individuals become protected against polio because the weakened viruses
 - A. prevent further viral invasion.
 - B. induce an inflammatory response.
 - C. promote production of antibodies.
 - D. are too weak to cause illness.

4. Which of the following require a host cell because they are *not* able to make proteins on their own?
 - A. blue-green algae
 - B. bacteria
 - C. protozoans
 - D. viruses

5. How do human diseases caused by bacteria and diseases caused by viruses react to antibiotics?
 - A. Neither responds to antibiotics.
 - B. Both respond to antibiotics.
 - C. Viral diseases respond to antibiotics; bacterial diseases do not.
 - D. Bacterial diseases respond to antibiotics; viral diseases do not.

6. Which of these describes the action of antibiotics?
 - A. Antibiotics replace the immune system.
 - B. Antibiotics lower body temperature.
 - C. Antibiotics destroy viruses.
 - D. Antibiotics slow bacterial growth.

7. A scientist thinks he has discovered a drug that interferes with the functioning of a virus in the human body. To effectively block infection, the drug can
- A. weaken viral respiration.
 - B. destroy viral mitochondria.
 - C. reduce the ability of the virus to absorb cells.
 - D. prevent the virus from entering cells.
8. Some antibiotics destroy disease-causing bacteria by entering the bacterial cells and interfering with the critical life processes that keep them alive. However, antibiotics are not able to destroy viral infections because
- A. the wall surrounding a virus cannot be penetrated by antibiotic chemicals.
 - B. viruses are not cells, so they do not perform the processes that antibiotics normally disrupt.
 - C. viruses are constantly moving, so antibiotics cannot reach them.
 - D. antibiotics are destroyed by the protein coating that surrounds the viral DNA.
9. How does a virus cause a person to develop a common cold?
- A. invades the host cell to reproduce
 - B. removes energy from the host cell
 - C. produces toxins in the host cell
 - D. protects the host cell from bacteria

10. A tomato plant in a greenhouse was found to be infected with tobacco mosaic virus. A few weeks later, nearby plants were also found to be infected with the virus.

Which of the following *best* describes how the virus reproduced?

- A. The virus made its own spores.
 - B. The virus produced seeds in the tomatoes.
 - C. The virus used the host plant's resources and machinery to reproduce.
 - D. The virus immediately killed the host plant and was free to reproduce.
11. Which of the following is one important difference between a virus and a bacterial cell?
- A. A virus is much larger in size than a bacterial cell.
 - B. A virus always causes more severe disease than a bacterial cell.
 - C. A virus can never reproduce on its own, but a bacterial cell can.
 - D. A virus does not contain genetic material, but a bacterial cell does.

12. A variety of respiratory diseases in humans can be caused by adenoviruses. Which of the following describes the structure of an adenovirus?

- A. a prokaryotic cell that is propelled by a flagellum
- B. a nucleic acid core that is surrounded by a protein coat
- C. a set of ribosomes that is held together by microtubules
- D. a single cell that contains a plasma membrane and a circular chromosome

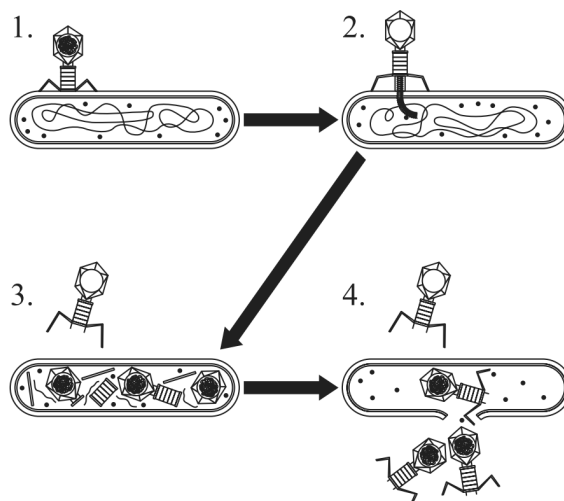
13. Which of the following statements explains why viruses are able to reproduce only inside host cells instead of being able to reproduce on their own?

- A. Viruses cannot function at temperatures other than 98.6° F.
- B. Viruses lack spindle fibers that correctly align chromosomes for division.
- C. Viruses are too small to effectively make copies of themselves on their own.
- D. Viruses lack the cellular machinery needed to make copies of their genetic material.

14. Which of the following is incapable of reproducing outside a host cell?

- A. alga B. mold C. moss D. virus

15. A process is illustrated in the diagram below.



Which process is illustrated in the diagram?

- A. bacterial conjugation
- B. facilitated diffusion
- C. gamete formation
- D. viral reproduction

16. Yellow fever, encephalitis, and measles are diseases in humans. The disease-causing agents take over the machinery of the cells and use it to reproduce.

Based on this information, the agents that cause these diseases are which of the following?

- A. fungi B. ticks
- C. viruses D. worms

17. Which of these describes a pathogen that infects a human by injecting its DNA into a body cell?
- A. A parasite that robs the cell of nutrients, interfering with organ functions
 - B. A bacterium that creates a toxin that destroys the cell, keeping the cell from working in a normal manner
 - C. A fungus that eats keratin found in skin cells, causing inflammation and interfering with the skin tissues' ability to protect
 - D. A virus that changes the way a cell works, causing the cell to make more viruses instead of performing its intended function

18. A virus can be classified by its type of—
- A. mitochondria.
 - B. nucleic acid.
 - C. chromosomes.
 - D. carbohydrates.

19. Antibiotics would be effective against—
- A. bacterial pneumonia.
 - B. the malaria protist.
 - C. the flu virus.
 - D. viral meningitis.

20. In 1992, scientists announced that they may have found a vaccine that protects monkeys against a certain disease. Several monkeys vaccinated in 1990 and then exposed to the virus have not acquired the disease after two years. What conclusion about the vaccine is *most* appropriate?
- A. The vaccine is reliable because the scientists have not become infected.
 - B. The vaccine is reliable based on current information.
 - C. The vaccine is not reliable because not enough time has passed to be sure.
 - D. The vaccine should be put on the market before any monkeys die.

21. This chart shows the worldwide number of measles cases over twenty years.

Worldwide Cases of Measles

Year	Measles Cases
1980	3,800,000
1985	2,800,000
1990	1,400,000
1995	800,000
2000	1,000,000

Which is *most likely* the cause of the decline in measles cases from 1980 to 1990?

- A. antibiotics
- B. chemotherapy
- C. quarantines
- D. vaccinations

22. How are parasites and viruses similar?
- A. Both are contagious diseases.
 - B. Both infect host organisms.
 - C. Both reproduce using host cells.
 - D. Both break down food using oxygen.
23. Why do doctors suggest that people get a flu vaccine each year?
- A. Viruses replicate more rapidly over time.
 - B. Viruses can mutate from year to year.
 - C. Vaccines are absorbed by the body after a year.
 - D. Vaccines get stronger over time.
24. Which is the *best* way to help prevent the flu from becoming a pandemic?
- A. getting a vaccination
 - B. taking antibiotics
 - C. eating fruits and vegetables
 - D. washing hands often

25. What is the *best* way people can avoid diseases caused by viruses?
- A. taking aspirin
 - B. injecting antibiotics
 - C. getting vaccinated
26. Which scientific field is responsible for developing vaccinations against infectious diseases?
- A. biotechnology
 - B. cardiology
 - C. kinesiology
27. For many years scientists debated whether viruses should be considered living organisms.
- Which statement could a scientist use to support the position that viruses are *not* living?
- A. Viruses have genes encoded in DNA.
 - B. Viruses require a host cell in order to reproduce.
 - C. Viruses infect both plant and animal cells.
 - D. Viruses replicate to produce more viruses.

28. The virus is considered an exception to the cell theory because the
- A. mitochondria of the virus contain genetic material
 - B. virus contains genetic material but no organelles
 - C. chloroplasts of the virus contain genetic material
 - D. virus contains no genetic material and is multi-nucleated

29. Which statement illustrates an exception to the concept that the cell is the unit of structure and function of all living things?
- A. Viruses contain genetic information but lack other cellular components.
 - B. The cell is a complex “chemical factory.”
 - C. Lysosomes contain hydrolytic enzymes.
 - D. Most bacteria are classified as heterotrophic organisms.

30. The phrase “is not a cell but has the ability to reproduce within a living cell” can be used to describe

- A. an alga
- B. a yeast
- C. a bacterium
- D. a virus

31. Which organism is considered an exception to the cell theory because it has a noncellular structure?

- A. alga
- B. bacterium
- C. virus
- D. moss

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| Answer: | D | Answer: | D |
| 2. | | 22. | |
| Answer: | A | Answer: | B |
| 3. | | 23. | |
| Answer: | C | Answer: | B |
| 4. | | 24. | |
| Answer: | D | Answer: | A |
| 5. | | 25. | |
| Answer: | D | Answer: | C |
| 6. | | 26. | |
| Answer: | | Answer: | A |
| 7. | | 27. | |
| Answer: | D | Answer: | B |
| 8. | | 28. | |
| Answer: | B | Answer: | B |
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| Answer: | A | Answer: | A |
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| Answer: | C | 30. | |
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| 15. | | | |
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