Microorganisms

Name: _____ **Date:** _____

1. 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

2. 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.

3. 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.

4. 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.

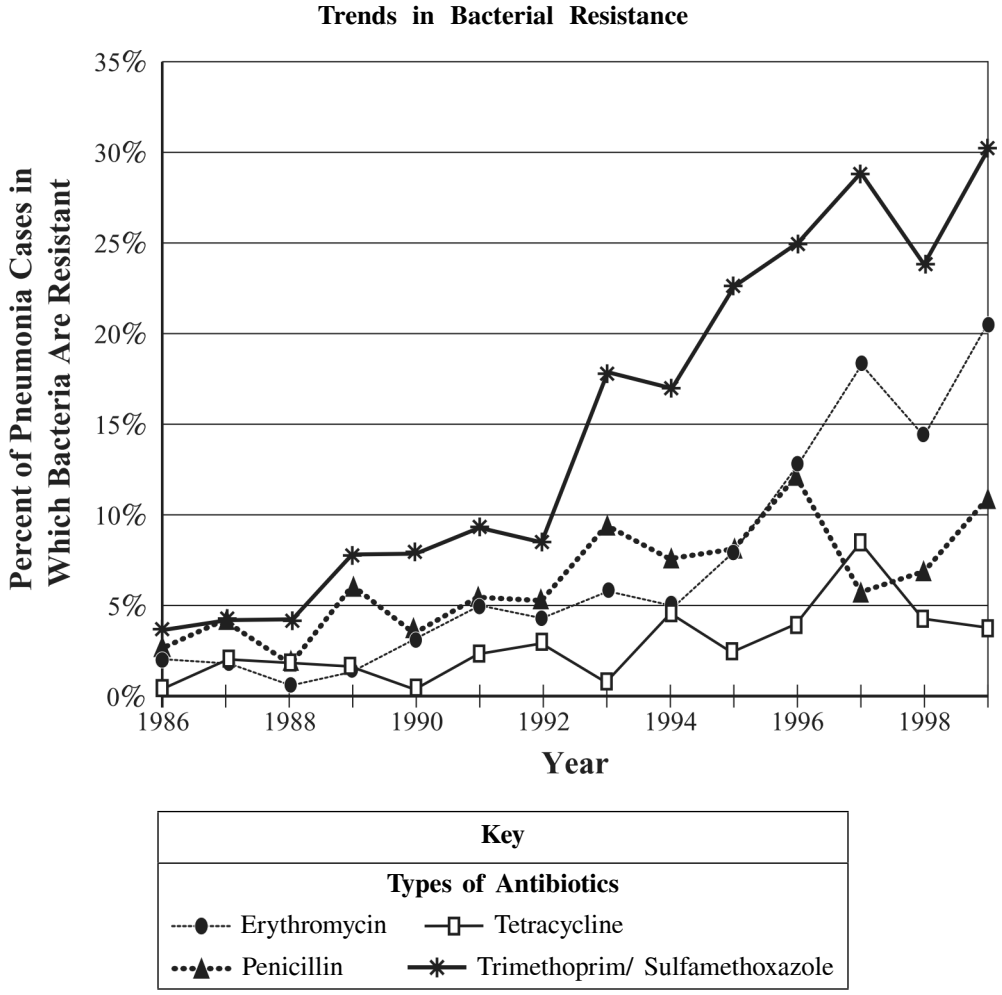
5. Which of the following is incapable of reproducing outside a host cell?

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

The following section focuses on bacterial resistance to several antibiotics.

One of the most important developments in modern medicine was the discovery of antibiotics. Antibiotics are used to treat infections caused by bacteria. However, strains of bacteria that are resistant to antibiotics are emerging. The rate of increase in infections caused by these antibiotic-resistant strains of bacteria is a concern for human health.

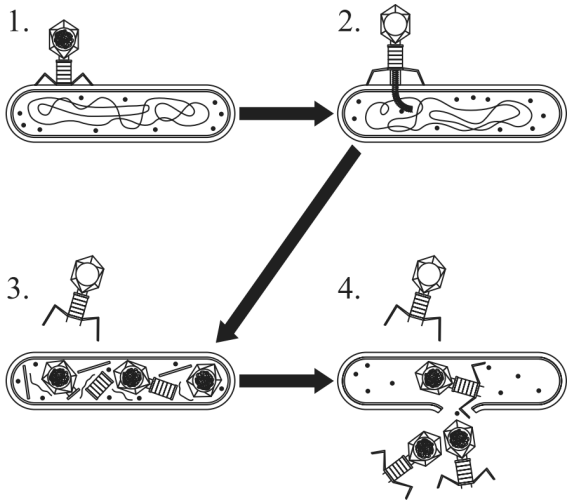
The bacterium *Streptococcus pneumoniae* is a major cause of the respiratory disease pneumonia. The graph below shows trends in bacterial resistance to different antibiotics in pneumonia cases from 1986 to 1999.



6. Antibiotics are helpful in treating an infection when the number of bacteria becomes too large for the body's immune system to fight on its own. What process enables the bacteria to multiply inside the body?

A. binary fission
B. fertilization
C. meiosis
D. nitrogen fixation

7. 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

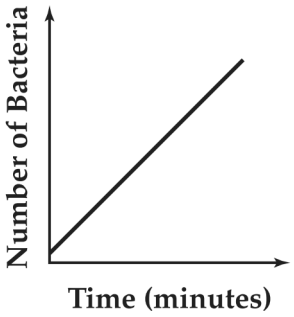
8. Yellow fever, encephalitis, and measles are diseases in humans. The disease-causing agents take over the machinery of the cells and use it to reproduce.

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

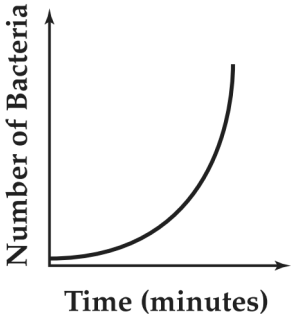
A. fungi
B. ticks
C. viruses
D. worms

9. A population of bacteria, starting with a single cell, can double in number every twenty minutes. Which of the following graphs *best* shows the relationship between number of bacteria and time?

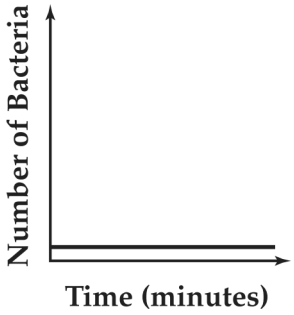
A. **BACTERIAL GROWTH OVER TIME**



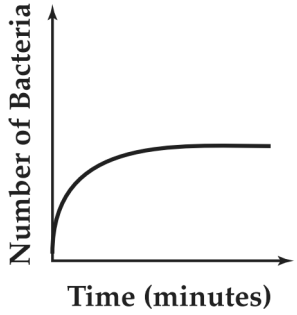
B. **BACTERIAL GROWTH OVER TIME**



C. **BACTERIAL GROWTH OVER TIME**



D. **BACTERIAL GROWTH OVER TIME**



10. A student with a cold virus sneezes during class. How might this cold virus affect the classroom environment?

A. It could contaminate the entire environment.

B. It could make other viruses more infectious.

C. It could increase bacterial infections.

D. It could stay active in the classroom for two months.

11. Antibiotics would be effective against—

A. bacterial pneumonia.

B. the malaria protist.

C. the flu virus.

D. viral meningitis.

12. 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.

13. 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.

14. Malaria is a common disease in many countries. What is the cause of this disease?

A. a virus

B. a bacterium

C. a fungus

D. a parasite

15. A student has four microscope slides of cells from four different organisms. He must match the slides of cells with the correct organism tissue listed in the table.

Slide	Cell
P	Fish Skin
Q	Alligator Hide
R	Plant Leaf
S	Tadpole Skin

He observes chloroplasts in the cells on one of the slides.

Which slide is he observing?

A. Slide P

B. Slide Q

C. Slide R

D. Slide S

16. Some scientists disagree on whether or not viruses are alive. A major reason for this disagreement is that viruses

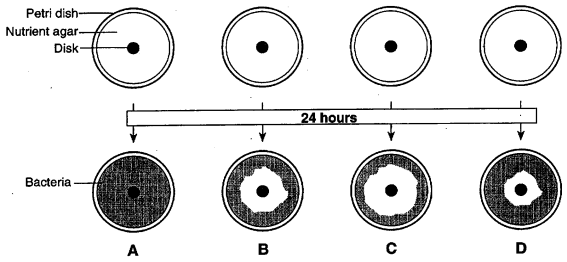
A. cannot manufacture food

B. are not composed of units of structure known as cells

C. do not contain nucleic acid

D. do not contain the element carbon

17. A student conducted an investigation to determine the effectiveness of three different mouthwashes in destroying bacteria. He covered the surface of the nutrient agar in four petri dishes with bacteria found in the human mouth. One paper disk, 1 centimeter in diameter, that had been soaked in a specific mouthwash was placed on the agar surface of plates. Sterile procedures were used throughout the experiment. Each petri dish was placed in an incubator at a temperature of 37° C for a 24-hour period. The diagram shown represents the sequence of events in this investigation. The shaded areas in the petri dishes represent regions of bacterial growth.



The student can determine which mouthwash is most effective in destroying bacteria by observing the

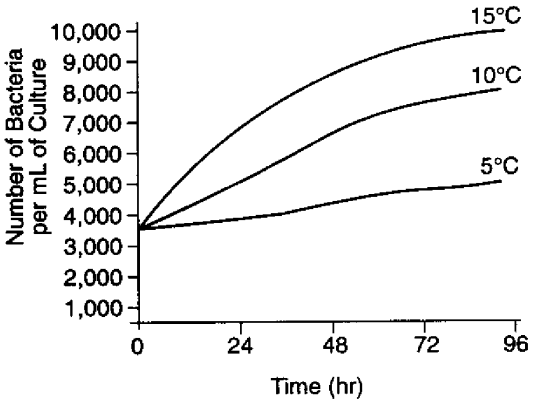
A. size of bacterial cells in each plate

B. rate of mouthwash evaporation for each disk

C. amount of bacterial growth around each disk

D. color of the mouthwash on each disk

18. The graph represents the results of an investigation of the growth of three identical bacterial cultures incubated at different temperatures. Which inference can be made from this graph?



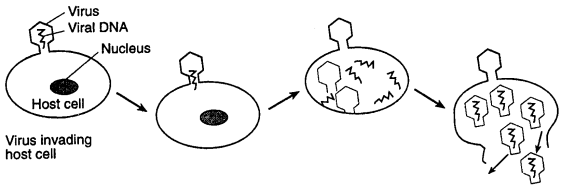
A. Temperature is unrelated to the reproductive rate of bacteria.

B. Bacteria cannot grow at a temperature of 5° C.

C. Life activities in bacteria slow down at high temperatures.

D. Refrigeration will most likely slow the growth of these bacteria.

19. Viral activity is represented in the diagram shown. Invading the host cell enables the virus to



A. increase its size

B. synthesize needed oxygen

C. obtain nutrients

D. reproduce

20. Some deep-sea bacteria live near submerged volcanoes and make their own food using energy derived from minerals coming from the volcanoes. These bacteria would be classified as

A. heterotrophic
B. autotrophic
C. photosynthetic
D. abiotic

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1.
Answer: A
Points: 1

2.
Answer: C
Points: 1

3.
Answer: C
Points: 1

4.
Answer: D
Points: 1

5.
Answer: D
Points: 1

6.
Answer: A
Points: 1

7.
Answer: D
Points: 1

8.
Answer: C
Points: 1

9.
Answer: B
Points: 1

10.
Answer: A
Points: 1

11.
Answer: A
Points: 1

12.
Answer: B
Points: 1

13.
Answer: B
Points: 1

14.
Answer: D
Points: 1

15.
Answer: C
Points: 1

16.
Answer: B
Points: 1

17.
Answer: C
Points: 1

18.
Answer: D
Points: 1

19.
Answer: D
Points: 1

20.
Answer: B
Points: 1