

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Period: \_\_\_\_\_

# Viruses, Bacteria, Fungi, and parasite Webquest

## *Learn Your Germs*

### Microbes

What are microbes? <http://www.edu.pe.ca/SouthernKings/microintro.htm>

1. What are microbes?
2. How old are microbes?
3. List 5 types of microbes.

Click "Where do microbes live" at the top of the page.

4. Name 6 environments where microbes live.
5. How are animals dependent on microbes?
6. How are microbes dependent on animals?
7. Which is more numerous, the amount of microbes or the amount of people?

Click cafeteria on the left.

8. Which microbes have you been eating? List at least 3 types of foods that microbes are associated with and tell: either the microbe that helps produce the food or the process in which the food is made.
9. How do we classify microbes? Complete the table below using the website.

[http://www.bbc.co.uk/bitesize/ks3/science/organisms\\_behaviour\\_health/disease/revision/2/](http://www.bbc.co.uk/bitesize/ks3/science/organisms_behaviour_health/disease/revision/2/)

Microbes	Fungi	Bacteria	viruses
Illustrate, sketch each microbe			
Cell wall (yes or no)			
Cell membrane (y/n)			
Nucleus (y/n)			

### Bacteria

What are bacteria? <http://www.enchantedlearning.com/subjects/bacterium/>

10. What are bacteria?
11. How old are bacteria?

12. How do bacteria reproduce?

13. List 3 harmful and 3 helpful effects of bacteria.

<http://micro.magnet.fsu.edu/cells/index.html> (Use the Relative Size and Detection Chart at the top of the page!)

14. Can bacteria or viruses be seen with the naked eye?

15. Can bacteria be viewed with a light microscope?

16. Which kind of microscope is needed to view virus? Why?

<http://www.emc.maricopa.edu/faculty/farabee/BIOBK/BioBookmito.html> Click on Prokaryotic Cell Division at the top of the page.

17. What do we call the process of cell division in bacteria?

18. Why is this process less complex than mitosis in eukaryotic cells?

19. Watch the animated gif, briefly describe the events that occur during binary fission.

20. Is this sexual or asexual reproduction?

21. How do the two daughter cells compare to the parent cell?

<http://www.micro.cornell.edu/cals/micro/research/labs/angert-lab/bacterialendo.cfm>

22. Why do certain bacteria become endospores?

23. What kinds of conditions can they survive?

## Viruses

[http://www.biology4kids.com/files/micro\\_virus.html](http://www.biology4kids.com/files/micro_virus.html)

24. What 3 things can viruses do?

25. What are the basic parts of a virus? a.

a. Small piece of \_\_\_\_\_ (never both). That strand of \_\_\_\_\_ is considered the core of the virus.

b. The second big part is a \_\_\_\_\_ to protect the nucleic acid. That coat is called the \_\_\_\_\_. The capsid protects the core but also helps the virus infect new cells.

c. Some viruses have another coat or shell called the \_\_\_\_\_. The envelope is made of lipids and proteins in the way a regular cell membrane is structured. The envelope can help a virus get into systems unnoticed and help them invade new host cells.

26. What are the three basic structures of viruses?

27. What are two things smaller than a virus?

<http://micro.magnet.fsu.edu/cells/virus.html>

28. Are viruses living organisms?

29. Label the following diagram.

### Bacteriophage Structure

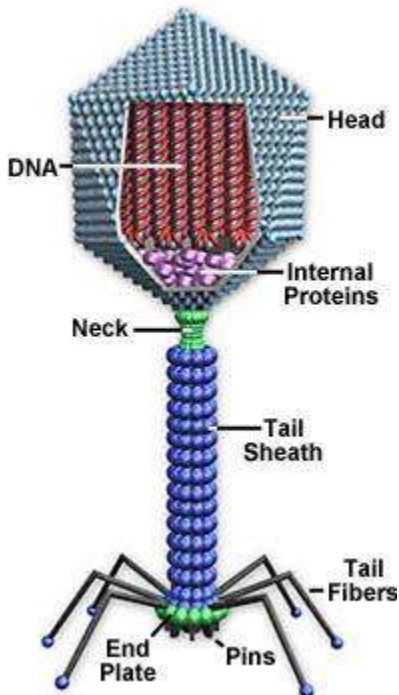


Figure 1

30. Without a \_\_\_\_\_, viruses cannot carry out their life-sustaining functions or reproduce.

31. Viruses are generally \_\_\_\_\_ by the organisms they \_\_\_\_\_, animals, plants, or bacteria.

32. Viruses are further classified into families and genera based on three structural considerations:

1) the type and size of their \_\_\_\_\_,

2) the size and shape of the \_\_\_\_\_,

3) whether they have a lipid \_\_\_\_\_ surrounding the nucleocapsid (the capsid enclosed nucleic acid).

33. Who is credited with discovering the virus? Which virus was he working with?

34. Name two other viruses and how they infect an individual.

Virus Infection <http://science.howstuffworks.com/life/cellular-microscopic/virus-human2.htm>

35. A virus particle \_\_\_\_\_ to a host cell.

36. The particle \_\_\_\_\_ its genetic instructions into the host cell.

37. The injected genetic material \_\_\_\_\_ the host cell's enzymes.

38. The enzymes \_\_\_\_\_ for more new virus particles.

39. The new particles \_\_\_\_\_ the parts into new viruses.

40. The new particles \_\_\_\_\_ from the host cell.

<http://www.cdc.gov/westnile/index.html> click "frequently asked questions"

41. Human illness from the West Nile virus is rare. Most people infected by the West Nile virus have no \_\_\_\_\_.
42. List three ways you can protect yourself from the West Nile virus.
43. West Nile virus is spread by the bite of a \_\_\_\_\_.
44. Is there evidence that West Nile virus can be spread from one person to another?
45. Why do zookeepers at the Bird House need to be concerned about the West Nile virus?

<http://www.cdc.gov/vhf/ebola/>

46. What is Ebola hemorrhagic fever? What year did we first see Ebola outbreak?
47. Where is Ebola virus found in nature?
48. How does Ebola spread?
49. What are the symptoms of Ebola?
50. How does Ebola kill?
51. How do you stop Ebola from spreading?
52. Can it be treated or cured?
53. How do you propose we stop the virus from spreading across the nation?
54. What years did USA had an occurrence of Ebola? How many deaths? How did it get to the USA?

Think Bacteria and Viruses are the same? [http://www.diffen.com/difference/Bacteria\\_vs\\_Virus](http://www.diffen.com/difference/Bacteria_vs_Virus)

55. Complete the following table comparing viruses and bacteria:

Characteristic	Bacteria	Virus
Nucleus?		
How do they reproduce?		
Can it cause disease?		
What is its structure?		
Living or non-living?		
Size?		
Beneficial?		
Can it be treated?		

## Fungi

The fungus among us:

<http://www.virtualmuseum.ca/sgc-cms/expositions-exhibitions/champignons-mushrooms/English/index2.html>

Click on It's a Fungusful World!:

56. List at least 3 examples of fungi: 1) \_\_\_\_\_ 2) \_\_\_\_\_ 3) \_\_\_\_\_

Click on Fungus in our Lives:

57. Fungi are used to make \_\_\_\_\_, beers, wines, and blue cheeses.

58. Fungi are great \_\_\_\_\_, playing a major part in breaking down organic matter (decomposers).

59. Explain why fungi play a critical role in the success of forests.

60. Fungi supply plants with fresh \_\_\_\_\_.

61. Fungi can also cause famine and \_\_\_\_\_ in plants, animals, and humans.

Fungal Friends:

62. Provide at least 2 examples of how fungi are beneficially used in the medical field.

63. What is the scientific name of the mold that penicillin is produced from?

Fungal Foes:

64. Provide an example of how fungi have changed the course of history.

65. Describe at least 2 human illnesses that can result from fungi.

- a. \_\_\_\_\_
- b. \_\_\_\_\_

Click on Fungal Science:

- 66. Until the 1700's, biologist thought fungi were \_\_\_\_\_.
- 67. Only when the \_\_\_\_\_ was invented were scientists able to reveal important differences.
- 68. All fungi are masses of fine branching threads or tubes, called \_\_\_\_\_, spreading outwards in their quest for food.
- 69. A mass of hyphae is known as a \_\_\_\_\_ or \_\_\_\_\_.
- 70. Unlike a plant or animal, the body of a fungus is not divided into tissues or \_\_\_\_\_.
- 71. Unlike plants, fungi lack \_\_\_\_\_, the molecule used in photosynthesis.
- 72. Fungi utilize plant or other organic matter by releasing a variety of powerful \_\_\_\_\_ into their surroundings.
- 73. Fungi toughen their cell walls with \_\_\_\_\_, the material that also forms the exoskeletons of insects, crabs, and lobsters.

Fungal Lifestyles:

- 74. Define saprobe: \_\_\_\_\_
- 75. Describe how some soil-dwelling fungi actually catch their own prey.

76. What is the absence of lichen a good indicator of?

Fungal Habitats:

- 77. What 2 things do all fungi need to survive?

Spores: Fungi's Secret Weapon

- 78. Fungal spores can travel enormous distances, sometimes thousands of \_\_\_\_\_, before gravity, rainfall or a downdraft brings them back to earth.
- 79. Describe at least 3 other methods some species of fungi use for dispersing their spores:
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_

Fungi that cause disease

[http://kidshealth.org/kid/health\\_problems/infection/athletes\\_foot.html](http://kidshealth.org/kid/health_problems/infection/athletes_foot.html)

- 80. How can someone get athlete's foot?

81. What are the symptoms?

82. How do you get rid of athlete's foot?

<http://www.sciencedaily.com/releases/2009/10/091015112138.htm>

- 83. If there are millions of fungi, why are there only a few hundred that are harmful to humans?

Fungi as helpers:

<http://herbarium.usu.edu/fungi/FunFacts/penicillin.htm>

84. Who is credited with discovering Penicillin?

85. How does Penicillin work?

86. Why doesn't Penicillin work on all bacteria?

## **Parasites**

<http://www.cdc.gov/parasites/about.html>

87. What is a parasite?

88. What are the 3 types of parasites?

89. What are Parasitic Infections and what is the effect of these on the world?

[http://www.sumanasinc.com/scienceinfocus/sif\\_malaria.html](http://www.sumanasinc.com/scienceinfocus/sif_malaria.html)

"Click to view animation" – watch the narrated or step through animation.

90. What is Plasmodium falciparum?

91. What disease does it cause and how is it passed to humans?

92. What organ does the parasite travel to once in the human body? What does it do there?

93. Where do the merozoites go now? What do they do there?

94. What are gametocytes? What do they allow the parasite to do?

95. How does the parasite return to a mosquito? What happens once it is there?

96. Return to the home page – what are the symptoms of this disease?

<http://discoverykids.com/games/so-you-want-a-pet-parasite/>

Play the game. Pick 4 parasites and answer the questions

97. Name of parasite:\_\_\_\_\_. List 3 facts.

98. Name of parasite:\_\_\_\_\_. List 3 facts.

99. Name of parasite:\_\_\_\_\_. List 3 facts.

100. Name of parasite:\_\_\_\_\_. List 3 facts.

101. In what ways do animals and humans "get" parasites?