

Lesson 1: Meet the Germs

Student Worksheets

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Name: _____

List different types of diseases you have heard of.

Write the definitions of each term in the box.

Bacteria	
DNA	
Microorganism	
Virion	
Virology	
Virus	

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Write in this chart what you have learned about the differences between viruses and bacteria.

VIRUSES	BACTERIA

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What diseases did you choose to research?

QUIZ QUESTIONS

1. What was Beijerinck's major insight regarding how to identify viruses?
 - a. A filter can be used to separate viruses from bacteria because of their different sizes.
 - b. Bacteria are always smaller than viruses.
 - c. Only bacteria infect plants.
 - d. DNA can be used to identify the differences between viruses and bacteria.
2. What did Beijerinck conclude from his study of viruses?
 - a. Viruses divide like cells when they reproduce.
 - b. Viruses could only replicate in cells.
 - c. Viruses are a special type of bacteria.
 - d. Diseases are not caused by viruses.
3. Draw a line to connect each concept comparing viruses and bacteria. Choose all that apply.

VIRUSES	<input type="radio"/>	<input type="radio"/> Reproduce by fission
		<input type="radio"/> Infect cells to reproduce
		<input type="radio"/> Can cause disease
BACTERIA	<input type="radio"/>	<input type="radio"/> Vaccines can prevent disease
		<input type="radio"/> Living organism
		<input type="radio"/> Much smaller
		<input type="radio"/> Not affected by antibiotics
BOTH	<input type="radio"/>	<input type="radio"/> Do not have a nucleus

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4. Viruses and bacteria have differences in structure.

Write Y (yes) or N (no) to indicate which structures can be found in each.

Structure	Virus	Bacteria
Protein coat (also called capsid)		
Sugar coat (also called capsule)		
Cell wall		
Cell membrane		
Genetic material		

5. What is the main difference between how viruses and bacteria reproduce?

- Viruses must infect a living cell. Bacteria can reproduce without being in a cell.
- Viruses need proteins. Bacteria do not.
- Viruses must grow dramatically in size. Bacteria become smaller.
- Viruses infect people. Bacteria do not.

6. Write a short passage to explain why many scientists consider viruses to be non-living.

7. Indicate which of the following statements are true or false.

- All viruses have the same shape. T F
- Viruses can be bigger than bacteria. T F
- Viruses reproduce by taking over cells. T F
- All viruses cause disease. T F
- All viruses are comprised of protein molecules. T F

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8. If a virus is 200 nanometers long and a bacterium is 10 microns long what is the ratio of their lengths?
Show your work.

- a. 200:10
- b. 1:50
- c. 1:20
- d. 200:1
- e. 5:1

9. Order the events in the life-cycle of a virus by writing the letters from the list into the correct box.

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- a. The new virus is released
- b. The cell makes copies of viral proteins
- c. Virus particle attaches to host cell
- d. Virus particle assembles
- e. DNA is inserted

10. Classify the diseases according to whether they are caused by a virus or bacteria.

Disease	Virus	Bacteria
Influenza		
Common cold		
Zika		
Pertussis		
Smallpox		
Hepatitis B		
Tetanus		
Measles		
Mumps		