Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Pd \_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**UNDERSTANDING- Viruses and Bacteria Web Quest**

Watch the videos and visit the links to answer the questions below.

**PART 1: VIRUS WEBSITES**

**WEBSITE #1:** What is a virus? (<http://www.biology4kids.com/files/micro_virus.html>)

1. What are the three things that viruses CANNOT do, which causes scientists to classify viruses as non-living?

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. What are the two basic parts of a virus?

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**WEBSITE #2:** Cell Size and Shape (<http://learn.genetics.utah.edu/content/cells/scale/>)

3. Scroll through the interactive and list the sizes of each item listed below:

* 1. Grain of Rice = **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_mm**
  2. Red Blood Cell= \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **µm**
  3. *E. coli* bacterium= \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **µm**
  4. **Measles virus = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ nm**
  5. **Influenza virus= \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ nm**
  6. **HIV = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ nm**
  7. **Hepatitis virus = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ nm**
  8. **Rhinovirus = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ nm**

4. Which is larger, a bacteria or a virus? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**WEBSITE #3: Cell vs. Virus: A battle for Health** (<http://ed.ted.com/lessons/cell-vs-virus-a-battle-for-health-shannon-stiles>) -3:59

1. Each cell in your body is surrounded by a cell membrane. The job of the cell membrane is to:
2. Make proteins
3. Surround and protect the inner components of the cell
4. Package the inner components of the cell for delivery outside of the cell
5. Store the cell’s DNA
6. The nucleus of the cell contains an important molecule found in all cells. This molecule is the “blueprint of life” and is called:
7. Sugar
8. Protein
9. ATP
10. DNA
11. Cells need energy to perform all of their functions. Where in the cell is energy made?
12. Nucleus
13. Golgi apparatus
14. Mitochondria
15. Nucleus

**WEBSITE #4: How do germs spread (and why do they make us sick)? (**<http://ed.ted.com/lessons/how-do-germs-spread-and-why-do-they-make-us-sick-yannay-khaikin-and-nicole-mideo#review>) -5:06

1. Germs include:
2. Fungi
3. Bacteria
4. Protozoa
5. Viruses
6. All of the above
7. Another word for replication is:
8. Transmission
9. Multiplication
10. Strength
11. Replacing

**WEBSITE #5: What we know (and don’t know) about Ebola** (<http://ed.ted.com/lessons/what-we-know-and-don-t-know-about-ebola-alex-gendler>) - 4:01

1. What animals are thought to be the natural carriers of the Ebola Virus?
2. Monkeys
3. Fruit bats
4. Elephants
5. Rats
6. What do Ebola victims usually die from?
7. Loss of vital organs
8. Opportunistic infections
9. Bleeding from immune system overload
10. Brain hemorrhage
11. What is the best treatment currently available for the Ebola virus?
12. Supportive care and rehydration therapy
13. Preventative Ebola vaccine
14. Amputation of the infected area
15. Leeches
16. Where does the Ebola virus get its name?
17. The doctor who discovered it
18. The river in the area where the first outbreak occurred
19. The first victim to die from it
20. Word for ‘death’ in the local language
21. Which diseases kill more people than Ebola?
22. Influenza
23. Measles
24. Malaria
25. All of the Above

**WEBSITE #6: CHOOSE ONE OF THE WEBSITES BELOW AND RECORD ONE FACT ABOUT VIRUSES FROM THE SITE. (Check the site you chose)**

* Check out the animation and play the quiz at the end to learn more about viruses! (<http://www.childrensuniversity.manchester.ac.uk/interactives/science/microorganisms/whatareviruses/>
* Flu Attack! How a Virus Invades Your Body video (<https://www.youtube.com/watch?v=Rpj0emEGShQ&safety_mode=true&persist_safety_mode=1&safe=active>)
* Virus Reproduction (<http://www.phschool.com/atschool/phsciexp/active_art/virus/index.html>)
* CDC Flu spread: Look at the weekly updates of the flu virus in the United States (<http://www.cdc.gov/flu/weekly/usmap.htm>)
* Infect a bacteria with a virus using this interactive (<http://www.phschool.com/atschool/phsciexp/active_art/virus/index.html>)

15. LIST**ONE FACT** LEARNED FROM ABOVE WEBSITE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**PART 2: BACTERIA WEBSITES**

**WEBSITE #1:** Bacteria Dichotomous Key (<http://web.biosci.utexas.edu/psaxena/MicrobiologyAnimations/Animations/DichotomousKeys/micro_dichotomous_keys.swf>)

16. What are the three basic shapes of bacteria? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

17. Besides shape, what other method is used to identify bacteria? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**WEBSITE #2:** Probiotics- Billions of Invisible Doctors (<http://www.youtube.com/watch?v=OQZMvIAKF-Q>)

19. Do probiotic bacteria play a positive or negative role? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Explain your answer. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**WEBSITE #3:**  Black Death (<https://www.youtube.com/watch?v=_uwOnb3-AWU>)

21. What bacteria caused the Black Death? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

22. What organism carried this bacteria from host to host? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**WEBSITE #4: CHOOSE ONE OF THE WEBSITES BELOW AND RECORD ONE FACT ABOUT BACTERIA FROM THE SITE. (Check the site you chose)**

* Label a Bacteria Cell Game (<http://www.sheppardsoftware.com/health/anatomy/cell/bacteria_cell_tutorial.htm>)
* Infectious Disease Quiz (<http://science.nationalgeographic.com/science/health-and-human-body/human-diseases/infectious-disease-quiz/>)
* Disease Detectives Activities- explore any of the activities to learn about microbes (also includes infectious diseases caused by viruses) (<http://www.diseasedetectives.org/online_activities>)
* Read about Bacteria used in food production (<http://www.effca.org/content/bacteria-food-production>)

23. LIST**ONE FACT** LEARNED FROM ABOVE WEBSITE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Bacteria vs. Viruses

Use your notes to complete the table below.

|  |  |  |
| --- | --- | --- |
|  | Virus | Bacteria |
| Living or  Non-living? |  |  |
| Drawing | Label protein coat, membrane proteins, genetic material | Label cell wall, cell membrane, cytoplasm, ribosomes, genetic material, flagellum |
| Shapes |  |  |
| How is it named? |  |  |
| Does is cause infection? |  |  |
| Treatment |  |  |
| How can it be helpful/useful? |  |  |
| Example(s) |  |  |