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## Unit 7: Worksheet 9 The Virus

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1. A virus is not considered to be a living thing by many biologists. It is not a cell and, therefore is lacking many of the cell parts. All viruses contain a protective \_\_\_\_\_ and a core of \_\_\_\_\_.

2. Since viruses cannot live outside a cell they are considered to be \_\_\_\_\_

3. Viruses are very specific in the types of organisms they infect. What are the 3 major groups of viruses, based on the organisms that they infect?

a).
b).
c).

4. Viruses can only reproduce in a living cell. The \_\_\_\_\_ is the reproductive cycle of most viruses.

5. During the first step, the virus is about to come in contact with the cell. After contact with the cell the virus injects its \_\_\_\_\_ into the cell.

6. This Nucleic acid piece becomes part of the cell's DNA. After a short period of time the viral DNA takes over the control of the cell and begins to produce \_\_\_\_\_.

7. After this has been completed, the cell will assemble these parts. The viral DNA will produce an enzyme that will allow water to rush in causing the cell to rupture and the newly formed \_\_\_\_\_ to escape.

8. The \_\_\_\_\_ is the alternate reproductive form of viral reproduction. During this process the viral DNA attaches itself to the cell's DNA and hides.

9. The cell will now grow and reproduce making many cells containing this hidden viral DNA. If something happens to the cell and activates the phage DNA, the cell will under go the \_\_\_\_\_, eventually killing the cell.

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10. Viruses contain certain enzymes needed to carry on their reproductive cycles. Most viruses contain the enzyme \_\_\_\_\_, which is used to produce m-RNA.

11. Retroviruses contain the enzyme \_\_\_\_\_, which allows the virus to produce DNA from its RNA core.

12. Some examples of animal viruses are: \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_

Using the Viral Classification chart, answer the following questions.

<b>Virus Group</b>	<b>Virus Shape</b>	<b>Diameter (nm)</b>	<b>Examples</b>
Papovirus ds DNA	Polyhedral	40-57	Human warts and cervical cancer viruses
Adenovirus ds DNA	Polyhedral	70-80	Respiratory viruses
Herpesvirus ds DNA	Polyhedral	150-250	Epstein-Barr and Herpes viruses
Picornavirus ss RNA	Polyhedral	18-40	Polio and common cold viruses
Togavirus ss RNA	Polyhedral	40-60	Rubella, Yellow fever, and encephalitis viruses
Retrovirus ss RNA	Polyhedral	100-120	HIV and tumor viruses
Rhabdovirus ss RNA	Helical	70-180	Rabies
Paramyxovirus ss RNA	Helical	150-300	Measles and Mumps
Orthomyxovirus ssRNA	Helical	80-200	Flu viruses

1. How many viruses contain ds DNA as their nucleic acid? \_\_\_\_\_

2. How many viruses contain ds RNA as their nucleic acid? \_\_\_\_\_

3. Of the viruses how many have examples larger than 15 nm and smaller than 181 nm.  
\_\_\_\_\_

4. Are there any viruses that contain both DNA and RNA in the same structure?  
\_\_\_\_\_

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5. The rabies virus belongs to the \_\_\_\_\_ family.
6. What type of nucleic acid does a rabies virus contain? \_\_\_\_\_
7. Name the 2 main viral structures. \_\_\_\_\_ and \_\_\_\_\_
8. What is the family of respiratory viruses? \_\_\_\_\_
9. What type of a virus causes AIDS? \_\_\_\_\_
10. What is the main difference that separates viruses from each other?  
\_\_\_\_\_
11. What viral family contains the largest viruses? \_\_\_\_\_
12. What viral family contains the smallest viruses? \_\_\_\_\_
13. What is the shape of the herpes virus? \_\_\_\_\_

#### Viral Classification

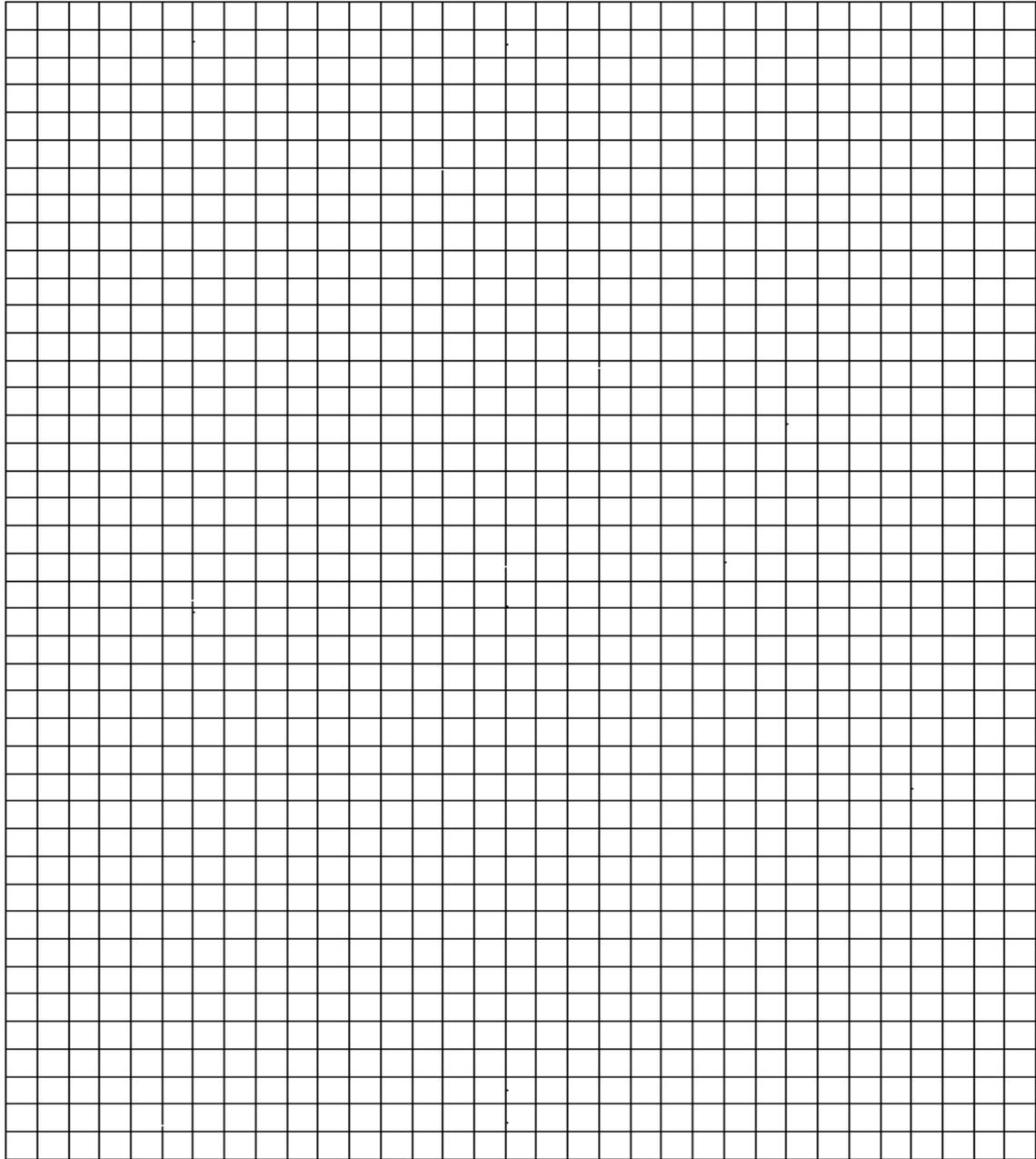
The temperature and of the organism's body may have an effect on the growth patterns of many species of viruses. A local university under took a study of viral reproduction. It measured the temperature of the organism and the change viral number over a 2-day period. The results of the study are found in the data table below. Examine the data, line graph it, and answer the questions that follow.

Temperature of the organism in degrees C	Number of Viruses per Cell	
	A	B
30	60	77
35	115	88
36	128	260
37	143	200
38	243	150
40	47	34
45	21	2
46	2	2

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Graph Title: \_\_\_\_\_



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1. What is the average number of virus A in the experiment? \_\_\_\_\_. Virus B?  
\_\_\_\_\_.

2. What is the average temperature of the experiment? \_\_\_\_\_.

3. At what temperature did virus A develop the best? \_\_\_\_\_<sup>0</sup>C.

4. If 38 degrees C is equivalent to 98.6 degrees F. What type of organism would virus A infect? \_\_\_\_\_.

5. DNA and RNA are very heat sensitive. That means they may mutate or completely break apart if the temperature is not satisfactory. Based on the above data, what temperature(s) seem to be the best for viral development?  
\_\_\_\_\_.

6. At what temperature(s) would the most cell destruction take place for Virus A?  
\_\_\_\_\_.