**Virus Model and Research Project**

Objective: To develop an understanding of a variety of viruses and evaluate their impacts on various organisms.

Choose a virus from the list below. No two students can select the same virus in each class. You must tell your teacher which virus you selected. If the teacher isn’t informed, you may not turn in a project. No group projects.

1. [Bronchiolitis](http://www.merckmanuals.com/home/childrens_health_issues/respiratory_disorders_in_children/bronchiolitis.html)
2. [Chickenpox](http://www.merckmanuals.com/home/childrens_health_issues/viral_infections_in_infants_and_children/chickenpox.html)
3. [Cytomegalovirus (CMV) Infection](http://www.merckmanuals.com/home/infections/viral_infections/cytomegalovirus_cmv_infection.html)
4. [Dengue Fever](http://www.merckmanuals.com/home/infections/viral_infections/dengue_fever.html)
5. [Epstein-Barr Virus (EBV) Infection](http://www.merckmanuals.com/home/infections/viral_infections/epstein-barr_virus_ebv_infection.html)
6. [Hantavirus Infection](http://www.merckmanuals.com/home/infections/viral_infections/hantavirus_infection.html)
7. [Hemorrhagic Fevers](http://www.merckmanuals.com/home/infections/viral_infections/hemorrhagic_fevers.html)
8. [Herpes Simplex Virus Infections](http://www.merckmanuals.com/home/infections/viral_infections/herpes_simplex_virus_infections.html)
9. [Human Immunodeficiency Virus Infection](http://www.merckmanuals.com/home/infections/human_immunodeficiency_virus_hiv_infection/human_immunodeficiency_virus_infection.html)
10. [Influenza](http://www.merckmanuals.com/home/infections/viral_infections/influenza.html)
11. [Measles](http://www.merckmanuals.com/home/childrens_health_issues/viral_infections_in_infants_and_children/measles.html)
12. [Polio](http://www.merckmanuals.com/home/childrens_health_issues/viral_infections_in_infants_and_children/polio.html)
13. [Rabies](http://www.merckmanuals.com/home/brain_spinal_cord_and_nerve_disorders/brain_infections/rabies.html)
14. [Roseola Infantum](http://www.merckmanuals.com/home/childrens_health_issues/viral_infections_in_infants_and_children/roseola_infantum.html)
15. [Rotavirus Infection](http://www.merckmanuals.com/home/childrens_health_issues/viral_infections_in_infants_and_children/rotavirus_infection.html)
16. [Rubella](http://www.merckmanuals.com/home/childrens_health_issues/viral_infections_in_infants_and_children/rubella.html)
17. [Severe Acute Respiratory Syndrome (SARS)](http://www.merckmanuals.com/home/infections/viral_infections/severe_acute_respiratory_syndrome_sars.html)
18. [Smallpox](http://www.merckmanuals.com/home/infections/viral_infections/smallpox.html)
19. [Subacute Sclerosing Panencephalitis (SSPE)](http://www.merckmanuals.com/home/childrens_health_issues/viral_infections_in_infants_and_children/subacute_sclerosing_panencephalitis_sspe.html)
20. [Yellow Fever](http://www.merckmanuals.com/home/infections/viral_infections/yellow_fever.html)
21. [Ebola](http://www.who.int/mediacentre/factsheets/fs103/en/)
22. [Zika](https://www.cdc.gov/zika/)

**Part 1: Research book (50 points)**

You must create a book with all the information below. You are to research the information over the virus you picked. Ensure to use only credible websites. Your book must be a minimum of 10 pages. Be creative and it must be neat. MUST BE HAND WRITTEN.

* **Title Page: Common name / scientific name of virus**
* **Page 1: Structure or image of your virus.** You can print or draw. Image must be large and detailed with each part labeled.
* **Page 2: Description of structure of your virus.** You must describe the basic structure of your virus, the membranous envelope (if found), the protein capsid, and what type of nucleic acid (DNA or RNA) core it has, and size of the virus.
* **Page 3: How does a virus evolve?** Are virus living? Explain two method that help virus evolve? Why does a virus become resistant to drugs?
* **Page 4: What species does it infect?** Identify species and explain how the infection spreads. For example how did the virus get inside the affected organism? What cells are affected?
* **Page 5: History and Geography:** When did it start? How has it survived throughout history? Where in the world is it most common
* **Page 6: How does your virus spread:** How fast does it spread and method it spreads
* **Page 7: Symptoms an infected in host.** Minimum of 3. Pretend you are a doctor. What symptoms would an organism develop that are unique to only your virus? (Sore throat isn’t unique) Describe any permanent damage or death that might occur due to infection with this virus
* **Page 8: Treatment or cure.** What can or is being done? Anything?
* **Page 9: Interesting facts:** Provide 2 additional interesting facts about the virus.
* **Page 10: Bibliography:** Include all the resources (websites) you used to help with the project.

 **Part 2: Virus Model (50 points)**

You are to create a model of the virus you selected. Below are the instructions and guidelines for creating your model. Your model must be creative and neat.

* It must be 3 dimensional
* It must show the main parts of the virus,
	+ Nucleic acid core (DNA or RNA)
	+ Protein coat (capsid)
	+ Envelope (If it has it)
* Label all identified structures
* Must be able to sit on it own.
* Some things to keep in mind:
	+ Should be light weight
	+ Make it sturdy
	+ No food products. I will not accept project
	+ Nothing flammable. I will not accept project
* Model must contain name of virus and your name.

\*\*\* This project will replace your lowest test grade. It will not replace a missing test.

\*\*\* If you need materials for your project (poster, paper, glue, etc.) please come see me before or after school.

\*\*\* Both your research book and virus model MUST be handmade. You may not print anything for the entire project. Everything must be hand written. The only items you can print are pictures.

\*\*\* This project requires a lot of you time. **DO NOT PROCRASTINATE!**

\*\*\* Use the rubric to help guide you as you research and create both your book and model. GOOD LUCK!

**The entire project is due Thursday April 27th. NO EXCEPTION**

**Virus Project Rubric**

**Research Book**  **Points**

1. Title Page 2 \_\_\_\_\_\_
2. Structure or image of your virus. 4 \_\_\_\_\_\_
3. Description of structure of your virus. 4 \_\_\_\_\_\_
4. How does a virus evolve? 6 \_\_\_\_\_\_
5. What species does it infect? 6 \_\_\_\_\_\_
6. History /Geography 4 \_\_\_\_\_\_
7. How does your virus spread? 4 \_\_\_\_\_\_
8. Symptoms an infected in host. Minimum of 3 4 \_\_\_\_\_\_
9. Treatment or cure. 4 \_\_\_\_\_\_
10. Interesting facts. (2) 4 \_\_\_\_\_\_
11. Bibliography 4 \_\_\_\_\_\_
12. Creativity and Neatness 4 \_\_\_\_\_\_

**Total Points for Book: \_\_\_\_\_\_\_\_\_**

**Virus Model**  **Points**

1. It is 3 dimensional 10 \_\_\_\_\_\_\_
2. Main parts of the virus present 20 \_\_\_\_\_\_\_
3. Labeled all structures 5 \_\_\_\_\_\_\_
4. Stands on its own/Light weight 5 \_\_\_\_\_\_\_
5. Model labeled (virus name & your name) 5 \_\_\_\_\_\_\_
6. Creative and Neatness 5 \_\_\_\_\_\_\_

**Total Points for Model: \_\_\_\_\_\_\_\_\_**

**Total Project Points: \_\_\_\_\_\_\_\_\_\_\_**