**HAPPY SPRING ASSIGNMENT**

Your assignment over Spring Break is to complete a slide show presentation on the Immune System. You will not be presenting these to the class, but will be handing them in as a project grade. They can either be e-mailed or brought in on a flash drive. Your presentation should essentially cover Chapter 43 in your text book. You should use the text as your primary reference. **The best way to begin this assignment would be to read Chapter 43!**

The following are some of the objectives for understanding immunity outlined by the AP powers that be. You must have a firm grasp on the following in order to be prepared for the AP exam!

* Plants, invertebrates and vertebrates have multiple, nonspecific immune responses.
* Immune cells interact by cell-cell contact, antigen-presenting cells (APCs), helper T-cells and killer T-cells.
* Not all individuals in a population in a disease outbreak are equally affected; some may not show symptoms, some may have mild symptoms, or some may be naturally immune and resistant to the disease.
* Mammals use specific immune responses triggered by natural or artificial agents that disrupt dynamic homeostasis.
  + The mammalian immune system includes two types of specific responses: cell mediated and humoral.
  + In the cell-mediated response, cytotoxic T cells, a type of lymphocytic white blood cell, “target” intracellular pathogens when antigens are displayed on the outside of the cells.
  + In the humoral response, B cells, a type of lymphocytic white blood cell, produce antibodies against specific antigens.
  + Antigens are recognized by antibodies to the antigen.
  + Antibodies are proteins produced by B cells, and each antibody is specific to a particular antigen.
  + A second exposure to an antigen results in a more rapid and enhanced immune response.

In order to fully understand the concepts outlined above, we need to spend a little time researching all the parts and players of the immune system. Your task is to make a Powerpoint Presentation or Prezi that outlines your understanding of the Immune System (especially as it relates to vertebrates).

Questions that need to be answered in your Presentation. (Chapter 43)

* What is Innate Immunity? Who has Innate Immunity?
* What is Adaptive Immunity? Who has Adaptive Immunity? Why is it called Acquired Immune Response?
* What is a humoral response?
* What is a cell-mediated response?
* Which one leads to immunological memory?
* Which one confers an immediate response?
* How does the invertebrate immune system work? (43.1)
* What is Toll Like Receptor Signaling?
* What are the Inflammatory Response and how is histamine involved?
* What is autoimmunity?
* What are some diseases of the immune system?
* What is phagocytosis?

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* The Parts (cells and organs) Involved:

For each part listed, describe its function and structure. Provide a picture. (You can do this in chart form, if you’d like.)

- Lymphocytes (general – what are they? What do they include?)

- (Why are they called “B” and “T” cells?”)

- T Cells (Helper and Killer, cytotoxic)

- B Cells and Antibodies and Recognition (receptors)

- Memory Cells

- Antigen Presenting Cells

- Antigens (what are they? What is an epitope?)

- MHC (major histocompatibility complex)

- Natural Killer Cells

**E-mail me your finished presentation: oldendorfe@averillpark.k12.ny.us**

