

IB Biology II Summer Assignment 2020-2021

Dear IB Biology II Students,

Please purchase a science notebook for the school year. You will complete the summer assignment in your notebook. The summer assignment is due first day of school. NO LATE WORK WILL BE COLLECTED.

For class updates or questions you may:

Email Mr. Krebs: David.Krebs@knoxschools.org

SUMMER ASSIGNMENT 2020

Part 1: Study Topic 6.3 & 11.1 Immunity (75 points – you might have done this already)

Task # 1 → Read Topic 6.3 and 11.1 Immunity and answer all **challenge and exercise** questions in book.

Task # 2 → Bring in a one page handwritten outline of what you learned for open note assessment on the first day of school. Be able to explain:

1. Principle of immunity
2. Describe the process involved in blood clotting
3. Cause, transmission, and social implications of HIV and AIDS
4. Describe bacterial resistance
5. Explain step by step how antibodies are created
6. Outline how monoclonal antibodies are produced.
7. Outline the steps involved in allergic reactions.

Part 2: Internal Assessment (IA) Design outline and Raw Data Collection (100 Points)

Step 1: Complete the information in the table below **IN YOUR NOTEBOOK**. (40%)

Instructions: This means that you will have generated a RESEARCH QUESTION, INDEPENDENT VARIABLE, DEPENDENT VARIABLE, CONTSTANTS, BACKGROUND QUESTIONS TO RESEARCH, AND FIVE EXPERIEMNTAL GROUPS IN ADDITION TO A CONTROL GROUP for your IA idea.

* Reference the last two pages on this document for examples and definition of terms.

Step 2: Raw Data Collection (60%)

Instructions: Run the experiment that you designed and collect all your data.

Be sure to include five experimental groups (treatment groups) and one control.

The table on the next page might help you design your experiment. It will be part of your grade.

Research question					
Independent variable					
Dependent variable: Quantitative data			Dependent variable: Qualitative data		
Constant variables					
Background Questions					
Hypothesis					
Control group	Experimental group # 1	Experimental group # 2	Experimental group # 3	Experimental group # 4	Experimental group # 5

Research Question

- The research question is clearly stated and precisely formulated
- Research questions includes IV and DV
- Research question includes scientific name of organism, if relevant (Genus species)
Example: What natural fertilizers will allow the daisies to increase in mass the most over a three week period?

Background

- The background sets the research question to context
- Appropriate and relevant biology is described and explained
- Citations relevant to the research question is used
- Background information is used to form a hypothesis
- Null and alternative hypothesis is given if a statistical test of significance is used.

Variables

- Independent variable (IV) = the thing you vary
- Dependent variable (DV) = the thing you measure
- Controlled variable (DV) = the things you are controlling between all trials

Examples:

IV: four natural fertilizers (compost, animal manure, cottonseed meal, alfalfa meal) and water

DV: the dried biomass of the daisies as measured on a digital scale

CV: volume of soil, volume of water added daily, breed of daisy seed used, mass of fertilizer added, time fertilizer is added, daylight exposure, ambient temperature

Hypothesis

Must be in " If, then.. Because statement".

Ex : If five groups of daisies are exposed to four different types of natural fertilizer and one group is exposed to water only, then the group exposed to backyard compost will grow the most because of (cite recent research.)

Extra Credit (15 points)

Complete the practice assessment problems on canvas. Three exams posted.