

IB Biology Summer Work—Internal Assessment Preparation

In preparation for your Internal Assessment for Biology, you will do a review of basic vocabulary and concepts that you need to be familiar with to make your IA a success. The following can be completed in the format of your choice. This can include a PowerPoint, word doc., Etc. You can choose to type the answers or handwrite them neatly. Summer homework will be due the first day of school.

Section 1: General Vocabulary

Instructions: Define/describe the following terms.

1. Independent Variable
2. Dependent Variable
3. Control Variable
4. Uncertainty of Measurement

Section 2: Statistical Analysis

Describe of each type of statistical test. This should include what each test shows, the mathematical manipulation of how to find the value, and what type of data is appropriate for each test.

1. Standard Deviation
2. Standard error
3. R^2 value
4. T-test
5. Paired t-test
6. ANOVA
7. Chi-squared test

Section 3: IA Topics Research—Complete THREE TOPICS according to the criteria below:

Include the following information based upon topics you would like to investigate for your IA. Please put your topics in order of first choice, second choice, then third choice.

There are PLENTY of websites available for you to get ideas from for this part of the assignment. Google “IB Biology IA Ideas” to start. Please reference the section below on the IB animal policy.

1. Name of overarching concept: This is the BROAD topic (photosynthesis, ecology, etc).
2. Scientific explanation of concept—What is the concept? Give a definition and overview of the concept. Include citations for this information, if needed.
3. What about this topic would you like to investigate? Give a broad indication of your experiment that includes an independent and dependent variable--what would you be changing and what would you be measuring?
4. Explain what you would like to do. This is the general procedure. If you found a link to an idea, you may include that here.
5. Personal interest—Why did you find this topic interesting? This should be YOUR OWN THOUGHTS and it should also include connection to BOTH A and B below:
 - A. Application based on personal interest—Link your personal interest to the scientific concepts using citations.
 - B. Application based on community/global interests—How does your topic apply to local community issues or global perspectives in biology?

If you have questions, please contact dafant@auburnschools.org.

IB Animal Policy (copied from the IB website, Guidelines for the Use of Animal in IB World Sciences)

Live animals in experimentation

Any planned and actual experimentation involving live animals must be subject to approval by the teacher following a discussion between teacher and student(s) based on the IB guidelines. This discussion should look at the 3Rs principles and the decision should be justified in terms of these principles:

- replacement
- refinement
- reduction.

Any investigation involving animals should initially consider the replacement of animals with cells or tissues, plants or computer simulations. If the animal is essential to the investigation, refinements to the investigation to alleviate any distress to the animal, and to reduce the numbers of animals involved, should be made.

Experiments involving animals must be based on observing and measuring aspects of natural animal behaviour. No experimentation should result in any cruelty to any animal—vertebrate or invertebrate. Therefore, experiments that administer drugs or medicines, or those that manipulate the environment or diet beyond that which can be regarded as humane, are unacceptable in IB schools.

Experiments involving human subjects

Any experimentation involving human subjects must be carried out with their direct, legally obtained written permission. In addition, the investigation must not use human subjects under the age of 16 without the written consent of parents or guardians. The following conditions must be observed.

- Subjects must provide written consent.
- The results of the investigation must be anonymous.
- Subjects must participate of their own free will.
- Subjects have the right to withdraw from the investigation at any time.

Investigations involving any body fluids must not be performed due to the risk of the transmission of blood-borne pathogens. An exception would be an investigator using his or her own saliva or sweat.