



THOMAS EDISON ENERGYSMART CHARTER SCHOOL

2017-2018

Honors Biology Assignment for Incoming 9th Graders

Dear Parents/Guardians,

Congratulations !!! Your child is placed in the Honors Biology program at Thomas Edison Energysmart Charter School due to her/ his academic ability which she/ he demonstrated in her previous grade levels. The goal of Thomas Edison EnergySmart Charter School is to assist your child in becoming a lifelong learner. The summer months provide the perfect opportunity to extend and enrich your child's learning experiences. Biology is an exciting science to study - relevant and ever changing. During the course of the year, we will discuss, experiment, question and analyze. The summer reading assignments have 2 purposes. First, the Biology curriculum is extensive and intensive. Your summer work will allow us to proceed at a more reasonable pace through the year. Secondly, having a firm foundation in science concepts will be beneficial to you as we proceed through the rest of the curriculum. All students are expected to read through and follow directions for the Honors Biology packet. Packets will be due by September 1, 2017 and will count as 1st marking period project grades. **Only hard copy** of the assignment will be accepted. Online submission will be available to students who will not be present in school on September 1st. Please consider that ten points will be taken off for each day late. Summer packets must be stapled.

Please note the following:

- 1 day late, 10 points are taken off
- 2 days late 10 more points are taken off
- 3 or more days late, the grade will be 50%

We thank all parents for their continued support and wish you a great Summer Vacation.

With Best Wishes,

Teecs Science Department

Assignment #1 : Biology Essay: Choose **any two** of the 3 essay topics listed below and write a science essay.

1. A scientist working with *Bursatella leacfui*, a sea slug that lives in an intertidal habitat in the coastal waters of Puerto Rico, gathered the following information about the distribution of the sea slugs within a ten-meter square plot over a 10-day period.

- Summarize the pattern. '
- Identify THREE physiological or environmental variables that could cause the slugs to vary their distance from each other.
- Explain how the variable could bring about the observed pattern of distribution.
- Choose ONE of the variables that you identified and design a controlled experiment to test your hypothetical explanation. Describe results that would support or refute your hypothesis

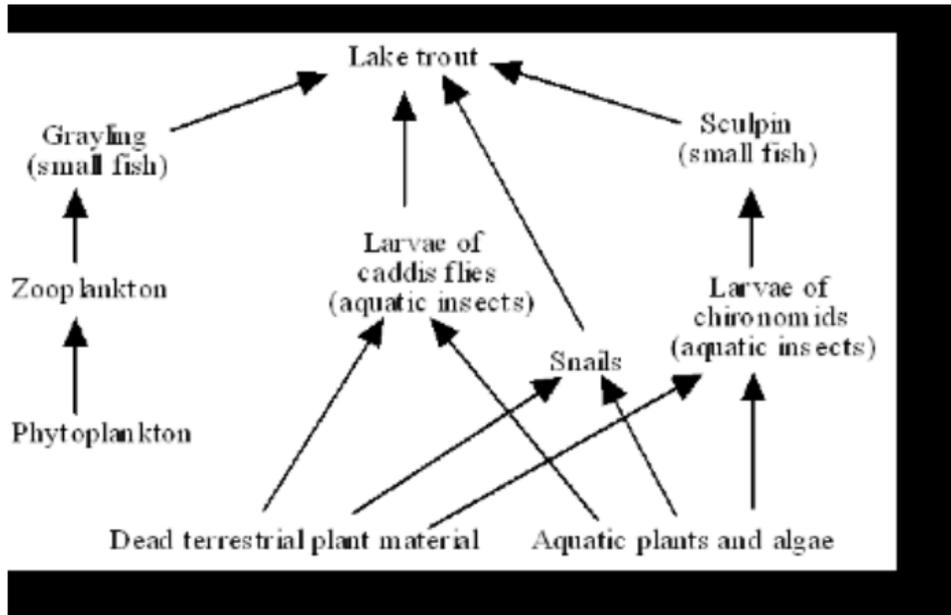
2) Living organisms play an important role in the recycling of many elements within an ecosystem. Discuss how various types of organisms and their biochemical reactions contribute to the recycling of either carbon or nitrogen in an ecosystem. Include in your answer one way in which human activity has an impact on the nutrient cycle you have chosen.

3) Interdependence in nature is illustrated by the transfer of energy through trophic levels. The diagram below depicts the transfer of energy in a food web of an Arctic lake located in Alaska.

a) Choosing organisms from four different trophic levels of this food web as examples, explain how energy is obtained at each trophic level. . .

b) Describe the efficiency of energy transfer between trophic levels and discuss how the amount of energy available at each trophic level affects the structure of the ecosystem.

c) If the cells in the dead terrestrial plant material that washed into the lake contained a commercially produced toxin, what would be the likely effects of this toxin on this food web?



Explain.

Assignment # 2 :

Honors Biology students will have an opportunity to choose a science book to read this summer, which will be graded at the beginning of the year. This assignment will be counted in the project grade for the first marking period. The assignment is due the first day of school, September 1st, 2017.

Below is a list of possible summer reading books (also displayed on the district website).; you must select one of those books to read. It should be available in the neighboring library. In order to gain credit for the assignment, you will respond to each topic listed below with a paragraph, and type your essay in a clear format. All grammar and spelling should be correct. Be sure to provide textual evidence (i.e. quotes) from the book that support your answers. Our expectation is that this written assignment will be completed to the same quality level as assignments for your English class.

This assignment should be 12 point Times New Roman, 1.5 spaced, and should not exceed 2 pages. Any paper going over this limit will result in point deduction.

In addition, you are expected to be able to draw on this knowledge throughout the year.

Topic 1: The Big Idea

What are the major ideas that the author is trying to convey? Is there some kind of injustice, struggle, or accomplishment? This should not be a summary of the book. Instead, use the text to support the overarching ideas of the book.

Topic 2: What is the author’s purpose? Do you agree/disagree with the author’s perspective?

Choose the above question based on the context of your book. Is your book more factual? If so, then what is the author’s purpose? Are they simply delivering information, or is there something more to it? Is the book more of a combination of facts and the author’s own ideas, trying to get you to believe something? If so, do you agree/disagree with the author? Be sure to provide textual evidence for your answer in both cases.

Topic 3: Application to life and science

How does this book apply to life and science in general? Was there something unfair that happened to the characters in the book that you can relate to? Is there something about this book that is common in scientific practice? This should connect back to some of your big ideas.

Part 4 – Book Review

Would you recommend this book to someone else? Why or why not?

Ecology	Silent Spring	Rachel Carson
Viruses	<i>The Hot Zone (contains some violent imagery and themes when discussing disease)</i>	Richard Preston
Evolution	Your Inner Fish: A Journey into the 3.5-Billion-Year History of the Human Body	Neil Shubin

TIPS FOR WRITING BIOLOGY ESSAYS

1. The first thing to do is carefully read the question twice. Be sure that you answer all parts of the question asked and that you answer only the question that is asked. If you are given a choice of two topics within a question, choose carefully and do not answer both.
2. Pay close attention to the verbs used in the directions (Such as, describe, explain, compare, give evidence for, graph, calculate, etc) and be sure that you follow the directions as stated.
3. Brainstorm about the topic for a moment. Make notes or an outline in your green booklet. The reader won't see these and you won't score points for them, but it may improve the organization of your essay and that will help the reader follow your ideas.
4. Write an essay. Outlines and diagrams, no matter how elaborate and accurate, are not essays will not get credit by themselves. Diagrams, properly labeled, will earn points and may be quick way to convey what you know, but be sure to refer to them in the text.
5. Get right to the point.
6. Define your terms. Say something that each of the terms you use. If you can't recall a specific term, take a stab at it. If you can't think of the name of a concept, describe the concept. Underline important terms to call attention to them.
7. Answer the parts of the question in the order called for, and label them a, b, etc as they are labeled in the question.
8. Answer question thoroughly. Examples are always appropriate. **BE SURE TO INCLUDE THE OBVIOUS**, most points are earned for the basics.
9. Write as neatly as possible and scratch out errors neatly- one line.
10. Make an effort on every question, don't leave questions blank.

10 Things to include if asked to design an experiment:

1. problem statement
2. hypothesis
3. identify independent variable(s)-what treatments you will apply, etc.
4. identify dependent variable(s)-what will you measure
5. identify several variables to be controlled (VERY IMPORTANT)
6. describe organism/materials/apparatus to be used
7. describe what you will actually do (how will you apply the treatment)
8. describe how you will take & record data
9. describe how you will analyze data (graphs, charts)
10. state how you will draw a conclusion (compare results to hypothesis)

GRAPHS

- a. set up with independent variable along x-axis and dependent along y-axis
- b. mark off axes in equal increments and label with proper units
- c. plot points and attempt to sketch in the curve (line)
- d. if more than one curve is plotted, write a label on each curve
- e. give your graph an appropriate title

Biology Essay Rubric

Categories	Criteria				Points
	1	2	3	4	
Organization	Sequence of information is difficult to follow.	Reader has difficulty following work because the writer "jumps around"	Student presents information in a logical sequence that the reader can follow.	Information is logical; interesting sequence which the reader can follow.	_____
Content Knowledge	Student does not have grasp of information; student cannot answer questions about the subject.	Student is uncomfortable with content but is able to demonstrate basic concepts.	Student is at ease with content, but fails to elaborate.	Student demonstrates full knowledge and comprehension! Student could teach the class! ☺	_____
Followed Instructions of Assignment	Student did not follow directions whatsoever.	Student followed some of the directions of the assignment.	Student followed most of the directions of the assignment.	Student followed directions completely.	_____
Grammar and Spelling	Essay has 4 or more spelling errors and/or grammatical errors.	Essay has 3 misspellings and/or grammatical errors.	Essay has no more than 2 misspellings and/or grammatical errors.	Essay has no misspellings or grammatical errors.	_____
Completed on Time	Submitted 3 days late.	Submitted 2 days late.	Submitted 1 day late.	Submitted on time.	_____
Total Points =					____ / 20