

End of Year Project for Biology

I. About the Project

The purpose of this project will help you to review what you have learned to help you and your classmates prepare for the ECA test.

Points possible = 100! (Remember that if you turn it in late, the total amount of points you can receive will be 75!)

Due date = April 20, 2012 (This gives you 4 weeks [5 if you include spring break] to complete this project.)

You may work with a partner, but no more than 2 people may work together. Keep in mind that if your partner does not pull through with his/her responsibility, your grade will still reflect the work turned in. If you are working for a marketing company and your presentation is not up to standards because your partner did not do his/her share of the work, you will lose the client and possibly your job. Therefore, if you choose to work with a partner, please choose carefully. *Note that you will only be given the first day in class to work on this so the rest of your work will be on your own at home. Make sure that if you work with a partner, you will easily be able to meet after school and on weekends if necessary.

II. Types of Projects

You have a variety of projects you can choose from:

1. Create a game: Make sure you list the questions and answers on a separate sheet so it will be easy for me to grade. These should be high school level questions. You should have at least 50 questions.
 - a. The questions should challenge the students to see if they understand the concepts that were taught this year.
 - b. You can make a board game. Include the pieces and directions so students know how to play the game.
 - c. You can use Power Point to make a game similar to Jeopardy or Who wants to be a millionaire?
 - i. This website (<http://jc-schools.net/tutorials/ppt-games/>) has wonderful templates for making online games. You will need to make your own questions and tweak it so it works properly. If you use this site make sure you let me know so I don't think you copied another student's work.
 - ii. Make sure your work is easily accessible. If you bring in a flashdrive, I can download the project to my computer to grade later. Don't wait till the last day to bring this in – just in case there are technical difficulties.
 - d. Make sure the questions are also typed on a piece of paper so I can easily grade them.
2. Create a rap or a song: If you like making beats, then create a rap or a song to help summarize some of the things you have learned this year.
 - a. You must have at least 5 raps/songs covering 5 different topics.
 - b. In each rap/song you must include at least 10 facts associated with that topic.
 - c. Type each rap/song and highlight the facts so it is easy for me to grade.
 - d. You will get extra credit if you perform for our class 😊
3. Make a movie: Either with a video camera or your computer, you may make a movie. It can be a documentary (very factual) or you can be creative with a murder mystery or a fictional story you create.
 - a. Make sure that you type up a list of the facts that you present in your movie so it is easy for me to grade.
 - b. Make sure you include at least 50 facts regarding what you learned.
4. Make a children's book: You may make one large children's book, or several shorter books from different topics.
 - a. You may want to make 5 different books with 10 facts each.
 - b. You need to have at least 50 facts total.

- c. Make sure it is colorful and fun to read. Pop up books are also fun!
5. If you have another creative idea – please let me know about it! Power Point presentations are not acceptable (unless they are creative such as the game above.) Posters are not acceptable unless they are in addition to your final project.

III. Topics

(You should have already studied these this year.)

Chapter 1:

1. Nature of Science
2. Characteristics of Life
3. Scientific Method
4. Laboratory Procedures and using the microscope

Chapters 3 – 6:

1. Cycles of life (carbon, nitrogen, water)
2. Energy Transfer (Food webs and energy pyramids)
3. Biotic Relationships (parasites, predators, symbiosis)
4. Ecosystems
5. Population dynamics (growth curves, changing size of populations)
6. Ecological equilibrium (succession)
7. Human Impact of the Environment (pollution, climate change)

Chapter 2:

1. General Chemistry (atoms, bonding)
2. Organic Chemistry (lipids, proteins, carbohydrates)
3. Enzymes

Chapters 7 – 10:

1. Cell Theory (discovery of cells)
2. Organelles in cell (structure and function)
3. Cell Differentiation (prokaryotes and eukaryotes)
4. Transport in and out of cells
 - a. Passive, facilitated, and active transport
 - b. Endocytosis, exocytosis
 - c. Osmosis and diffusion
 - d. How does surface area and concentration affect molecules moving in and out of the cells?
5. Cell Energy (ATP)
6. Photosynthesis
7. Cellular Respiration

Chapters 11 – 15

1. DNA and RNA
2. Protein Synthesis (transcription and translation)
3. Mutations
4. DNA replication and chromosome structure
5. Mitosis
6. Meiosis
7. Genetic Diversity
8. Heredity
9. Gregor Mendel
10. Probability and Punnett Squares

11. Pedigree charts

12. Sex linked, Multiple Alleles, incomplete dominance, co-dominance, polygenic traits, etc.

Chapters 16 – 19

1. Origin of Life
2. Charles Darwin and Theory of Evolution
3. Natural Selection
4. History of the Earth
5. Linnaeus and Classification system

IV. Rubric

Make sure you look at the rubric before you turn in your project so you can assure you will earn an A!

| | A | B | C | D |
|--------------------|--|--|--|--|
| Appearance | Project is neat with lots of color, and eye appealing. Writing is typed, and it has a professional appearance. 25-23 pts | Project is neat with lots of color, and eye appealing. Writing is neat, but it is lacking a professional appearance. 22-20 pts | Project is neat with some color. 19-16 pts | Project is a bit sloppy. Lacking color. 17 - 15 pts |
| Creativity and Fun | Project is an original – it is not copied from another student. Project provides fun in learning. 25-23 pts | | | Project is an original – it is not copied from another student. But project does not provide much fun in learning. 17 - 15 pts |
| Learning | Project is very informative. It provides at least 50 questions/facts that challenge the students to really learn and understand the concepts. Questions/Facts are at a high school level. 50 - 45 pts | Project is very informative. It provides at least 50 questions/facts that challenge the students to really learn and understand the concepts. Questions/Facts are lower than high school level. 44 - 40 pts | Project is very informative. It provides at least 35 questions/facts that challenge the students to really learn and understand the concepts. Questions/Facts are at a high school level. 39 - 35 pts | Project is very informative. It provides at least 35 questions/facts that challenge the students to really learn and understand the concepts. Questions/Facts are lower than high school level. 34 - 30 |