

Biology 30 – Evolution Project

Work alone or with a partner (groups of 3 must select 2 topics) to research one of the following topics and present your research to the class. Your presentation can be in the form of a PowerPoint or a Prezi.

- THIS IS **NOT** AN OPINION PROJECT. I AM ONLY INTERESTED IN THE **SCIENTIFIC EVIDENCE** WHICH SUPPORTS THE THEORY. NOT YOUR PERSONAL, MORAL, RELIGIOUS, OR OTHER VIEWS ON THE THEORY. MARK'S WILL BE DEDUCTED FOR FAILING TO STICK TO THE ASSIGNED PROJECT.
- Keep in mind this is a **30 Level Science Course**. The expectation is that your PowerPoint be very thorough and professional looking. Your concept must be well researched, clearly explained and include **many** relevant examples.
- Accurate content, clear and audible Presentation.
 - Aim for **20 slides minimum** (not including the title page or reference page(s)).
 - Organize with headings and logical flow of content.
 - Limited word count (~20 word max per slides) and **minimum font size of 28**.
 - Maximum of **2 large** pictures per slide.
 - **MAKE REFERENCE OR POINT TO AND EXPLAIN EVERY PICTURE/DIAGRAM YOU INCLUDE**. Take the time to explain what we are seeing and why it is helpful in understanding your concept. If you don't understand the picture/diagram then see me beforehand or don't include them.
 - Length: 4-9 minutes (**Rehearse and time as you will be stopped if you go over**).
 - Know how to pronounce ALL words. Do not use words you do not know the meaning of.
 - No embedded videos.
 - The last slide should include sources cited.
 - Prepare a script that you can read or refer to that matches your slides.
 - This is a presentation, do not simply turn your back and read your presentation to us.
 - Email or share your presentation to me **BEFORE** the class presentation.
 - Print off all sheets **before** the day of the presentations.
 - The order of the presentations will be random. If your group is called and you are not ready or it is not emailed or shared with me you will be automatically docked 20 percent.

Task

- Explain your concept **within the context of EVOLUTION**. For example explain "Evolutionary Fitness" as an evolutionary concept, not the concept of physical fitness as in exercising at the gym with weights and a cardio equipment.
- Teach us everything there is to know/everything you learned about your concept.
- Provide a sufficient amount of examples to help us fully understand your concept.
- Include a sufficient amount of images and diagrams to help us fully understand your concept.
- If applicable explain how an understanding of your concept can be used to provide scientific evidence which supports the theory of evolution. In other words, use your concepts to convince us that evolution took place.

Topics

Section 1: Descent with modification

This web page will be an excellent starting resource for section 1: http://evolution.berkeley.edu/evolibrary/article/evo_15

Topic 1: Mutations – types and how they create variation and drive evolution.

Topic 2: Migration/Gene Flow – include concepts of Bottle Neck and Founder Effect.

Section 2: Selection

This web page will be an excellent starting resource for section 2: http://evolution.berkeley.edu/evolibrary/article/evo_25

Topic 3: Fitness and Natural Selection

Topic 4: Genetic Drift

Topic 5: Adaptation

Section 3: Evidence for Evolution

This web page will be an excellent starting resource for section 3: http://evolution.berkeley.edu/evolibrary/article/lines_01

Topic 6: Fossil Evidence

Topic 7: Homologous and Analogous Structures (Anatomical & Cellular)

Section 4: Evidence & other Evolutionary Concepts:

Topic 8: Comparative Embryology & Development

Topic 9: Distribution in time and space (study of when & where organisms were distributed on earth and how this supports the theory)

Topic 10: Adaptive Radiation

Topic 11: DNA Comparisons and Biochemical Similarities

Topic 12: Convergent and Divergent Evolution

Topic 13: Direct observation of Evolution –examples of evolutionary changes humans have observed directly.

Topic 14: The process of speciation

Topic 15: Coevolution – Predation (+,-)

Topic 16: Coevolution – Parasitism (+,-)

Topic 17: Coevolution – Mutualism (+,+)

Topic 18: Coevolution – Commensalism (+,0) Amensalism (-,0) and Neutralism (0,0)

Topic 19: Coevolution – Competition (-,-)