**![C:\Users\e810760\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\59Q10LEJ\trilobite[1].jpg]()Evolution Presentation
(1 major assessment grade)**

**Due Date:** February 24, 2016

**Grading:** Half of each grade will be the accuracy of your information (Were the concepts used correctly)

Half of each grade will be the presentation and drawings (Do they show decent with modification)

**Purpose**: To use the concepts of mutation, natural selection and evolution in a presentation of the discovery of a currently nonexistent organism.

**Stage 1**

As part of your graduate degree fromKapa University, you are researching an interesting fossil you found in the paleontology archives. Something about the fossil reminds you of an organism you just recently caught on a field survey.

**Draw the fossil of your organism’s earliest ancestor**. (This should be a multicellular organism, but very primitive looking.)

**Explain**: How old is your fossil? Show evidence using radiometric dating using the isotope of your choice (research the different radiodating isotopes and use one that is consistent with your time frame. Must be around 400 million years old)

**Stage 2**

Eureka! You’ve discovered a miraculously preserved specimen of an organism that seems to match many characteristics of your fossil. (There should be some MAJOR evolutionary steps between this and your fossil.)

**You should give detailed lab drawings of the specimen** for your research paper you are working on.

**Explain**: How was your organism preserved? (Ice, Amber, something else?)

**Explain**: How is the organism different than your fossil? How is it similar? (You think about 50 million years have passes)

**Explain**: How did the Hox gene change to go from your fossil to the preserved specimen? (Describe the kind of mutation that would cause the evolutionary jumps that you are identifying) [point mutation, translocation mutation, etc]

**Stage 3**

A paleontologist friend of yours hinted that there is a new fossil exhibit going up in the Smithsonian. She wanted to inform you that one of the fossils looks like it could be related to your preserved specimen. You check out the fossil and estimate that should be dated about 200 million years after your preserved specimen.

After talking with the curator of the museum, you are contracted to give more background on the fossil they are showing. They want you to extrapolate what the creature would look like before it died. **Graphically represent the organism for your client.**  In order to do this you’ll have to consider the environment that it lived in. **Make sure to give a brief description of the environment it lived in.**

**Explain**: You should explain 5 different stresses the organism faced living in its environment. You should then explain 5 adaptations that it had to have, tying the adaptations back to your drawing, to survive in its environment.

**Stage 4**

At the end of your contract you realize that the organisms died about off about 65 million years ago due to a catastrophic event. You should explain what the event was and how it changed the earth.

**Explain**: What new stresses were introduced because of this event?

**Draw the currently living organism that descended** (survived the catastrophe), make sure to show the new adaptation that allowed it to survive

This is the organism that you were reminded of by the fossil from stage 1.

**Stage 5**

While capturing specimens to study you notice that there are two distinct varieties of this organism. This must be a new species!

**Explain**: Explain what kind of speciation occurred (Allopatric or Sympatric) and the reproductive barriers that developed to keep the two species from currently reproducing. (What kind of isolation occurred?)

**Provide a picture to compare it to the specimen from stage 4.** The audience should be able to tell the difference between the two specimens and how they can be different species of the same genus.

**Presentations will be on February 24th and 26th in class.**