

TRI-MIND: NATURAL SELECTION

Evolution Mini-Project

Learning goal: When an environment changes, the survival value of some inherited characteristics may change

Opening question: How can environmental changes affect populations?

Final Product Options: Commercial, narrative/story, newspaper article, scientific research report, assembly presentation for other students/teachers, your choice (get teacher approval)

Your Assignment:

Research one of these examples of natural selection in response to environmental change: Peppered Moth, antibiotic resistant bacteria, beaks in the Galapagos finches, pesticide resistance, heavy metal tolerance in plants, change in flowering time in relation to global climate change. Change in polar bear migration and how it impacts Canadian ecosystems

Be prepared to talk about it in class and to answer this question: How is ___ (example you chose) an example of natural selection in response to environmental change.

You have a few options for this – you can do something analytical, creative or practice

Topic Selection examples: These are just examples – the choice is yours, if you find another example of how environmental change has led to the evolution of a species please check with me for approval

# 1 (Analytical)	# 2 (Creative)	# 3 (Practical)
Ex: Evaluate the impact of polar bear migration on Canadian ecosystems.	Create an informative cartoon or flyer on the changes that led do the formation of the different galapogos finch species.	Write an article to persuade Americans that the problem of antibiotic resistant bacteria is one of the leading societal issues for humans today.

Be sure to include:

- Description of the environmental change
- Population(s) affected by the change
- Descriptions of the genetic variation in the population(s)
- Impact of the environmental change on the population(s) and their inherited traits
- Correct use of vocabulary: natural selection, evolution, adaptation, population

Rubric

Using the rubric below, identify how well the project meets the requirements. You will receive a peer-review grade based on how close you are to my evaluation.

Here is the opening question: "**How can environmental changes affect populations?"**

For the rubric below, circle the ranking in which you (and if in a group, you must reach consensus) would put the project. Then answer the questions below and staple this sheet to the back of the project, if applicable.

Components	Has met and is ready to deepen understanding (Meeting the standard)	Well on the way to meeting the standard (Approaching the standard)	Has not met yet (Hasn't met the standard)
<ul style="list-style-type: none"> Information about case study population(s) Descriptions of the genetic variation in the population(s) 	Includes background information about the population(s), and demonstrates deep understanding of the genetic variation in the population(s)	Includes only superficial background information regarding the population(s) and/or superficial understanding of the genetic variation in the population(s)	Does not include background information about the population(s), and/or does not indicate what genetic variation is present in the population(s)
<ul style="list-style-type: none"> Description of the environmental change Impact of the environmental change on the population(s) and their inherited traits 	Includes a detailed description of the environmental change, and demonstrates deep understanding of how the change impacts the survival value of inherited traits	Includes only a superficial description of the environmental change and/or superficial understanding of how the change impacts the survival value of inherited traits	Does not include a description of the change and/or does not indicate how the change impacts the survival value of inherited traits
Correct use of vocabulary (natural selection, evolution, adaptation, population)	Correctly applies terminology to the case study of environmental change, demonstrating deep understanding of terminology	Correctly uses terminology, but does not demonstrate deep understanding of how terms apply to the case study	Does not meet the other descriptors for vocabulary