

**Lesson Topic: Unit 4 Natural Selections and Adaptations**

**Grade level: 7<sup>th</sup>**

**Length of Unit: 4 weeks**

**Content Standards**

**Students who demonstrate understanding can:**

**MS-LS4-1.** Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past.

**MS-LS4-2.** Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.

**MS-LS4-3.** Analyze displays of pictorial data to compare patterns of similarities in the embryological development across multiple species to identify relationships not evident in the fully formed anatomy.

**MS-LS4-4.** Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.

**MS-LS4-6.** Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.

**Big Ideas:**

Students will understand

- Adaptation by natural selection acting over generations is one important process by which species change over time
- Humans influence certain characteristics through artificial selection by selective breeding
- The fossil record provides evidence for the existence, diversity, extinction, and change of life forms throughout history
- Comparisons of the fossil record with organisms living today as well as embryos of different species enable the reconstruction of evolutionary history and lines of evolutionary descent

**Essential Question(s):**

- What is natural selection?
- How do adaptations result in population differences over time
- What is the significance of the fossil record in providing evidence for biological evolution
- Describe how humans can influence the traits of a population through artificial selection
- How do scientists use embryos to show relationships between species?

**Student objectives (outcomes):**

Students will be able to:

- Explain how fossils provide evidence that organisms have evolved over time.
- Identify three ways that organisms can be compared to support the theory of evolution. Describe four steps of Darwin's theory of evolution by natural selection.
- Explain how mutations are important to evolution.
- Give two examples of natural selection in action.
- Outline the process of speciation.
- Explain how fossils are dated.
- Describe the geologic time scale and the information it provides scientists.
- Describe the possible causes of mass extinctions.
- Explain the theory of plate tectonics.
- Outline the major developments that allowed for the existence of life on Earth.
- Describe the different types of organisms that arose during the four eras of the geologic time scale.

**Assessment Evidence****Performance Task(s):**

Test: Natural Selection and Evolution  
Test: History of Life on Earth Natural Selection Lab 'Moth' Lab

**Other Evidence:**

Moth Demo using butcher paper and newsprint bark and moths.

<b>Learning Plan</b>	
<b>Learning Activities:</b> Natural Selection Notes History of Life Notes	
<b>Resources</b> <a href="http://www.pbs.org/wnet/nature/dogs-that-changed-the-world-introduction/1273/">http://www.pbs.org/wnet/nature/dogs-that-changed-the-world-introduction/1273/</a> <a href="http://video.pbs.org">http://video.pbs.org</a> <a href="http://www.ck12.org/">http://www.ck12.org/</a> <a href="https://www.youtube.com/watch?v=pHvNSaxQlto">https://www.youtube.com/watch?v=pHvNSaxQlto</a> David Attenborough Magic in the Rocks	

