

i3 STC Kit Extension Activities

North Carolina



Grade: 4th	
Kit Name: Animal Studies	
Essential Standard(s): (List number, standard, clarifying objectives where appropriate)	
4.L.1.4 Explain how differences among animals of the same population sometimes give individuals an advantage in surviving and reproducing in changing habitats.	
Unpack the Standard (What does it mean?? What is the “Big Idea”?): Adaptation and Survival (Natural Selection) Unpacked: Students know that there is variation among individuals of one kind within a population. Students know that sometimes this variation results in individuals having an advantage in surviving and reproducing. Survival advantage is not something that is acquired by an organism through choice, rather it is the result of characteristics that the organism already possesses.	
What is the Engaging (will get the student interesting) Essential Question that the students will be trying to answer as a result of this Extension? Why do certain animals, within the same population, have an advantage in survival?	
Which activities in the kit touch on the Standard(s) and how can they be adjusted to better address the Standard(s)? This standard is touched on in Lessons 10/11(response to environmental changes). This extension would be a good fit placed between Lessons 10 and 11.	
Kit Activity	Extension Suggestions
Lesson 10 How do animals repond to a change in their habitat?	<p>Focus and Review:</p> <ul style="list-style-type: none"> - Review ways that we have learned that humans adapt to their environment. - Those adaptations were choices. - Animals also have adaptations, but many of these are not choices. Instead, they are differences that they are born with that may either help them or hurt them. - One of these is Camouflage - animal’s color or pattern that helps it blend in with its surroundings; helps an animal hide <p>I do/We do:</p> <ul style="list-style-type: none"> - Teach the word variation= differences. - Sometimes, animals have variations (or differences) that help them to survive better than other animals of the same kind. - Tell “The Peppered Moth Story” and allow students to pair-share and/or ask you questions as you read. (adapted from (http://www.techapps.net/interactives/pepperMoths.swf) where you should go to see a picture of the difference in the colors of the moths) <p>In the early 19th century, parts of Britain (England) became industrialized, which meant lots of factories were built. Because of the factories, parts of Britain became polluted in the nineteenth century, and smoke killed lichens growing on trees and blackened their bark. Before the pollution, light colored moths had been well camouflaged on the light colored tree trunks. Because the pollution had turned the tree trunks black, the light colored moths were easy to be seen by predators (birds that eat moths). Dark moths were rare before the factories were built because they were easier to see and were more often eaten by birds. With the dark, polluted trees, however, the</p>

dark moths, were now well camouflaged in the black background. As birds switched from eating mainly dark moths to mainly pale moths, the most common moth color changed from light to dark. **Natural selection** had caused a change in the British moth population. After the pollution, dark colored moths had an advantage in surviving and reproducing to make more moths.

- Explain that **natural selection**= a natural process resulting in the survival of organisms best adapted to the environment It is a natural process. This means that it happens naturally. In these cases, animals do not choose to change their appearance in order to survive.

Two do:

With a partner, write to explain which you think would survive winter better in snowy Alaska: a brown rabbit or a white one. Why do you think this?

If a bird had to eat bugs out of a tree, would one with a beak that looked like this:  or this:  survive better? Why would that beak work better?

I do: (If possible, you can do this activity during recess before or after the lesson.)

Take kids outside to play "Find the Moth" game.

Scatter 30 "naturally colored" moths and 30 brightly colored moths on the ground. Give students 30 seconds to be "birds" and fly around and collect as many moths and bring them back to a bucket as they can.

Have students separate the moths based on natural or bright color. (Hopefully) observe that more brightly colored moths were found.

*** You could also play this game inside by hiding moths around the classroom on the walls.

Test questions:

1. What does the word **variation** mean?

- A. population B. to change C. difference D. modify

2. What is **natural selection**? _____

3. If a non-poisonous frog lived in a forest, would it survive better if it was red or green? _____

4. Why would this color of frog have a better chance of surviving than the other one? _____

5. Why did dark moths survive better during the Industrial Revolution in Britain?

- A. The light moths tasted better.
B. The dark moths were better camouflaged on the polluted trees.
C. The dark moths were easier to see.
D. They did not survive better.

Additional Suggestions (Literature connections; online resources):