



LESSON PLAN

Subject: Grade 4 Science

Lesson: The Balance of Change

Standards Addressed:

- Understand the effects of environmental changes, adaptations, and behaviors that enable organisms to survive in changing habitats. (4.L.1)

Objectives:

- Students will classify changes in an organism’s environment as beneficial or harmful.
- Students will analyze how changes in historical human behavior were driven by responses to changing environments.
- Students will predict which organisms would be more likely to gain an advantage during specific environmental changes.

Materials Needed:

- A device for watching the “The Balance of Survival” video
- “The Balance of Change” activity sheet
- Drawing supplies and large paper or posters

Outline:

- Before the lesson, students should know what an endangered species is, and how changes in environments and population density impact an organism’s ability to survive.
- Show “The Balance of Survival” video and discuss as a class.
- Students may complete “The Balance of Change” activity sheet individually or in pairs.
- Review the activity sheet and discuss as a class.

Take It Further:

Guide students to https://www.fws.gov/raleigh/es_tes.html to look up endangered species in North Carolina today. Students will select three animals from the list and create a chart that follows the following format.

Animal	Habitat Description	Food Sources	Why Are They Endangered?

Cross-Curriculum Connection:

Students will choose one animal they have researched. They must draw a picture of the animal and write a paragraph describing what sort of environment would best support this animal and what can be done to preserve that environment.



The Balance of Change

Grade 4 Science

Name: _____

Date: _____



Activity 1:

In the video, we learned about a bird called the passenger pigeon that is now extinct. Passenger pigeons lived in large groups that could eat all of the seeds and nuts in a whole area. One of their favorite foods was acorns. *Read this quote from the town diary.*

“April, 1755
 There was a frost so strong that the acorns were hurt... The cold has lasted for this entire month. People here in Carolina say it has been a cold and extraordinary winter.”

Would the cold and long-lasting winter of 1755 have been good or bad for the population of passenger pigeons?

How do you know this?

If a flock of passenger pigeons ate all of the acorns that survived the frost, what might happen to the forest? *Explain why you think that.*

“Autumn, 1760
 In the fall there was a most unusual number of wild pigeons here. In many places the woods were ruined wherever they rested for the night.”



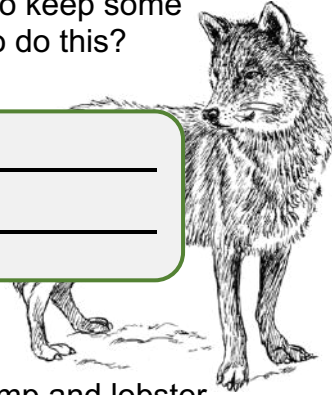


The Balance of Change



Activity 2:

When the Moravians moved to North Carolina they needed a lot of wood for fire and for building their houses. Animals, like the Carolina parakeet, and the red wolf depended on thick forests for their habitat. The Moravians chose to keep some trees from being chopped down. Why do you think they decided to do this?



Activity 3:

A lot of colonial cooking involved ingredients like shrimp and lobster. But shrimp and lobster both live in the ocean and the Moravians moved to a part of North Carolina that was far away from the sea. Which nearby environment could they explore to find a similar food source?

Circle one:

Grassy Field

Stream

Forest

Which one of these animals do you think they adapted to eat instead of shrimp?

Circle one:

Crayfish

Snails

Water Snakes



Activity 4:

Pumpkins and corn were new food to the Moravians. They were introduced to them by the native peoples in the area. Based on what you know about this environment, what would be a good reason to grow these instead of plants from Germany?





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Activity 5:

Read about each of the animals below. Then read about the environment.



Chipmunks live in grassy fields and on the edge of wooded areas. They build burrows underground where they can stay warm and dry and where they can store food for the winter like nuts, seeds, and small insects.



Salamanders are amphibians that live on land and in the water. They hunt for prey like snails, worms, and slugs, which like moist soil. They lay their eggs in still areas of water so they don't get washed away by the current.



River Otters live near areas of free-flowing water where they hunt for swimming prey like fish, frogs, and crayfish. They live in dens along the river bank with underwater entrances. This protects them from predators like coyotes.

The environment in this area used to be a forest with a free-flowing stream running through it. Recently, beavers have moved in and blocked the flow of the stream with their dam. This has flooded the area and turned it into a swamp, with still water and many puddles that fill up when it rains. Now the seeds and young trees drown before they can grow while older trees fall over and decompose quickly in the wet environment. These decomposing stumps are full of moist soil, fungi, and organisms like worms and beetles.

Which of these animals is most likely to benefit from this change and why?





The Balance of Change

ANSWER KEY



Activity 1:

In the video, we learned about a bird called the passenger pigeon that is now extinct. Passenger pigeons lived in large groups that could eat all of the seeds and nuts in a whole area. One of their favorite foods was acorns. *Read this quote from the town diary.*

“April, 1755
There was a frost so strong that the acorns were hurt... The cold has lasted for this entire month. People here in Carolina say it has been a cold and extraordinary winter.”

Would the cold and long-lasting winter of 1755 have been good or bad for the population of passenger pigeons?

_____ **Bad** _____

How do you know this?

_____ **Cold weather would injure the acorns which in turn would mean less food for the passenger pigeons.** _____

If a flock of passenger pigeons ate all of the acorns that survived the frost, what might happen to the forest? *Explain why you think that.*

_____ **If pigeons ate all of the surviving acorns, there would be none left to grow and create new oak trees. This would limit the growth of the forest.** _____



“Autumn, 1760
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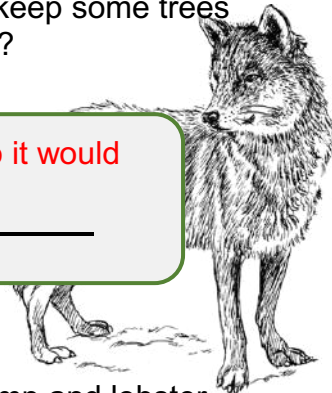
The Balance of Change

ANSWER KEY



Activity 2:

When the Moravians moved to North Carolina they needed a lot of wood for fire and for building their houses. Animals, like the Carolina parakeet, and the red wolf depended on thick forests for their habitat. The Moravians chose to keep some trees from being chopped down. Why do you think they decided to do this?



_____ They were trying to preserve the forest as a habitat for the wildlife and so it would last longer for their own use. _____

Activity 3:

A lot of colonial cooking involved ingredients like shrimp and lobster. But shrimp and lobster both live in the ocean and the Moravians moved to a part of North Carolina that was far away from the sea. Which nearby environment could they explore to find a similar food source?

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Pumpkins and corn were new food to the Moravians. They were introduced to them by the native peoples in the area. Based on what you know about this environment, what would be a good reason to grow these instead of plants from Germany?

_____ They already knew that pumpkins were adapted to grow well in this environment.





The Balance of Change

ANSWER KEY

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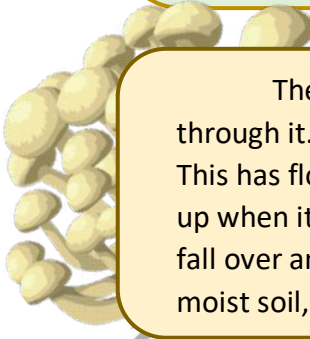
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Which of these animals is most likely to benefit from this change and why?

_____ **Salamanders** would benefit most from a wet environment where they can lay their eggs away from a current and where there are lots of worms for them to eat. _____
