



## A Lesson on Changing the Ecosystem by Brittany Bonner

**Grade Level:** Grade 4

**Subject Area:** English Language Arts

**Lesson Length:** 3 hours

**Lesson Keywords:** Reading, Writing, Math, Changing the ecosystem.

**Lesson Description:** This lesson provides students the opportunity to use reading and writing skills they've acquired throughout this year to learn about how people are changing the world's ecosystems. By reading and rereading the story, and focusing on the material through multiple questions about the text, students will identify the negative impacts of overpopulation and over-farming. Student's are also asked to perform simple math problems, to come up with estimates that support the story. When combined with writing about the passage, students will discover how much they can learn from a story.

### Common Core Standards Covered with This Lesson

CCSS.ELA-Literacy.RL.4.1: Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.

CCSS.ELA-Literacy.RI.4.3: Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.

CCSS.ELA-Literacy.RI.4.7: Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.

CCSS.ELA-Literacy.RI.4.8: Explain how an author uses reasons and evidence to support particular points in a text.

CCSS.ELA-Literacy.W.4.1: Write opinion pieces on topics or texts, supporting a point of view with reasons and information.

CCSS.ELA-Literacy.L.4.4: Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 4 reading and content, choosing flexibly from a range of strategies.

CCSS.ELA-Literacy.L.4.4c: Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation and determine or clarify the precise meaning of key words and phrases.

CCSS.ELA-Literacy.L.4.6: Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being (e.g., quizzed, whined, stammered) and that are basic to a particular topic (e.g., wildlife, conservation, and endangered when discussing animal preservation).

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## Lesson Content: Book/Story/Reading Passage

**Instructions:** Please read the following reading passage as many times as needed (aloud and silent) before starting to go through other lesson pages. Understanding the content of this passage is very important since the lesson activities will be all about this content. Feel free to print the passage if needed.

### Changing the Ecosystem

by

**Content:** A food chain is a link between plants and animals. It starts with a plant. The next part of the link is a plant eater. When the prairie plants were uprooted, the animals that depended on them lost their food source. So while the farmers produced more food for people, they broke the animals food chain.

A food chain is part of a bigger system called a food web. That web links the living things in an ecosystem. The herbivores in that system depend on the plants. If the plants are removed, the herbivores cannot survive. Then the carnivores, the animals that eat other animals, lose their food, too. Remove just one kind of plant from an environment and you disrupt the food web. Plow up the land and you destroy the whole system.

Read the following time-line and figure out the rate of population growth. To do that, divide the bigger number by the smaller number. You can estimate the answer. For example, one million is two times 500 thousand. For between 1880 and 1890 the population more than doubled.

1880 ? ? ? Population of the city is 503,185; farms continue to expand

1890 ? ? ? Population of the city is 1,099,850

1900 ? ? ? Population is 1,698,676

1910 ? ? ? Factories expand in the city; population is 2,185,283

1920 ? ? ? City population has grown to 2,701,705

1929 ? ? ? A farmer near Chicago reports plowing up several frogs as he

? ? ? ? ? got his field ready for planting this spring.

1930 ? ? ? City population is 3,376,438

We do not have population information on the butterflies, but we do know about the bison. By 1880, only a few hundred bison still live in this country. By 1900, Illinois and other Midwestern states were becoming known as the nations breadbasket. Millions of acres of land had been turned from prairie into farms. Read this letter from a farmer to understand what this change meant for the animals.

Dear Martha,

Today, I was plowing the new field, and I saw a meadowlark. I really like that kind of bird. I love its song. Its a good neighbor, too. It eats the insects, and you know we have too many of them. That bird kept flying back and forth. It seemed to be looking for something. Maybe it was looking for its nest from last year. Theres about ten acres of prairie that Ive left near the road. So I thought the bird would go there. But it flew away. Im not sure where it went.

I got the whole field plowed today. Tomorrow well put in the seed. This is going to be a great year. I hope you can come to visit this spring. Of course, well have some work for you to do, but it will be good to be together again.

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## Task 1: Vocabulary

**Instructions:** Please complete the following vocabulary activity by choosing the correct meaning of each word selected from the passage and use of each word correctly in a sentence.

**Q: 1 WordPhrase:** Ecosystem **WordPhraseTier:** 2

**Question:** In the second paragraph, the author says that a food web links living things in an ecosystem. What is an ecosystem?

- A:** A system that farmers made, by plowing the land.
- B:** A community of living things and nonliving things, that work together to survive.
- C:** Webs that spiders use to store their food.
- D:** All of the above

**Question:** Pick the sentence below that correctly uses the term "ecosystem".

- A:** If people cut down all the trees in the jungle, the ecosystem will never be the same.
- B:** My mom spilled coffee on the keyboard and now the whole ecosystem is broken.
- C:** Grandma said she mailed my birthday present 2 weeks ago but it still has not arrived, the mail ecosystem must be broken.
- D:** None of these

**Q: 2 WordPhrase:** Food web **WordPhraseTier:** 2

**Question:** In the story, the author says the "food web" links the living things in an ecosystem. What does the term "food web" mean in this story?

- A:** A system that fixes broken food chains.
- B:** A website people can go on, to see what type of food certain animals eat.
- C:** A system of interactions between different food chains.
- D:** A spider web that can hold a lot of bugs.

**Question:** Please choose the sentence below that uses the term "food web" properly.

- A:** Andrew looked at the food web to see what he wanted to order for dinner.
- B:** Ms. Miles' fourth grade class, created a food web to show how many animals depend on bees in the ecosystem.
- C:** Alice walked through a spider web during her nature walk and accidentally ruined the spider's food web.
- D:** Farmers need to plant more seeds, so people can choose from a larger food web at the grocery store.

**Q: 3 WordPhrase:** Herbivores **WordPhraseTier:** 3

**Question:** In the second paragraph the author says, "If the plants are removed, the herbivores cannot survive," What is a herbivore?

- A:** An animal that eats meat.
- B:** An animal that lives around plants.
- C:** Plants that depend on other plants to survive.
- D:** An animal that only eats plants.

**Question:** Please choose the sentence that uses the word "herbivore" correctly.

- A:** While mowing the grass, I accidentally ran over my moms new purple herbivores that she just planted.
- B:** Cows and sheep can live together in the same space because they are both herbivores.
- C:** It rained so much last night that the herbivores grew as tall as the tree.
- D:** The bird was flying back and forth, looking for the herbivore she made last year.

**Q: 4 WordPhrase:** Carnivores **WordPhraseTier:** 3

**Question:** If herbivores depend on plants, and carnivores depend on herbivores, then what is a carnivore?

- A:** An animal that eats meat.
- B:** An animal that cannot live around plants.
- C:** Plants that depend on other plants to survive.
- D:** An animal that only eats plants.

**Question:** Choose the sentence below that uses the term "carnivore" correctly.

- A:** While playing in the barn, I accidentally broke grandpa's carnivore and now he can't plow the field.
- B:** The T-Rex was the scariest dinosaur of them all because it was the largest land carnivore.
- C:** Mom said if I do good on my spelling test, she will take me to the carnivore this weekend.
- D:** The bird was flying back and forth, looking for the carnivore she made last year.

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## Task 2: Forum Discussion

**Instructions:** Short answer. Please read the questions carefully and answer using 1-3 sentences.

### 1 - The farmer says, "That bird kept flying..."

In the letter to Martha, the farmer says, That bird kept flying back and forth. It seemed to be looking for something. What do you think the bird was looking for?

### 2 - Breaking the food chain

How does farming and producing more food for people, break the animal's food chain??

### 3 - The population doubled

In the third paragraph, the author says that between 1880 and 1890 the population doubled. In 2-3 sentences, explain how the author came to that conclusion and then create a math problem to support your answer.?

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Task 3: Writing Activity

**Instructions:** Using 2-3 paragraphs, write a short essay on different ways people can stop changing the ecosystem. Make sure to use specific examples from the story to support your answer.??

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