



## A Lesson on Changing the Ecosystem by Seth Strickland

**Grade Level:** Grade 4

**Subject Area:** English Language Arts

**Lesson Length:** 2 hours

**Lesson Keywords:** Ecosystems, food web, environment

**Lesson Description:** It is important for students to understand the natural world around them and how they influence it. Through the close reading of this passage they learn key concepts of ecosystems and their related food webs. They also apply some mathematical principals in calculating population increases. Their discussions take a progressive approach, allowing them to form their own thoughts and opinions. The writing assignment allows students to expand on their understanding of our local ecosystem and the important role each organism plays in it.

### 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.RL.4.4: Determine the meaning of words and phrases as they are used in a text, including those that allude to significant characters found in mythology (e.g., Herculean).

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

CCSS.ELA-Literacy.SL.4.1: Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.

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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:** environment **WordPhraseTier:** 2

**Question:** The author states, "Remove just one kind of plant from an environment and you disrupt the food web." What does the word "environment" mean in this sentence?

- A: habitat
- B: field
- C: forest
- D: location

**Question:** Which one of these sentences uses the word "environment" in the same way as the passage?

- A: How is the environment around here?
- B: The employee complained about a hostile work environment.
- C: The giraffe is well suited to its environment.
- D: How far away is that new store, Environment?

**Q: 2 WordPhrase:** expand **WordPhraseTier:** 2

**Question:** A timeline is provided in the passage. In that timeline the author says, "Factories expand in the city; population is 2,185,283." What does the word "expand" mean in this sentence?

- A: give clarification
- B: to deteriorate
- C: pollute
- D: to become larger or more extensive

**Question:** Find the sentence that uses the word "expand" similarly to the passage above.

- A: Could you expand your answer?
- B: I jumped across the expanse.
- C: I'd love to expand my opinion.
- D: The distance between the Earth and the Moon continues to expand.

**Q: 3 WordPhrase:** herbivore **WordPhraseTier:** 3

**Question:** Our reading contains the sentence "If the plants are removed, the herbivores cannot survive." What does the word herbivore mean?

- A: Meat eating animals
- B: Producers
- C: Plant eating animals
- D: A type of plant

**Question:** Which sentence utilizes the word "herbivores" correctly?

- A: There are often diseases called herbivores.
- B: That is a question I've never herbivore.
- C: Herbivores diets are strictly plant based.
- D: The herbivore plant grows in temperate climates.

**Q: 4 WordPhrase:** ecosystem **WordPhraseTier:** 3

**Question:** In the passage we learned "That web links the living things in an ecosystem." What is an ecosystem?

- A: a complex network
- B: a biological community
- C: all living things
- D: a type of transportation

**Question:** Which sentence uses the word "ecosystem" correctly?

- A: Where can I catch the ecosystem?
- B: I prefer the ecoststem brand.
- C: Marine ecosystems are very complex.
- D: Where is the ecosystem on the map?

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## Task 2: Forum Discussion

**Instructions:** This discussion forum will have questions for students to respond. Read the posted questions, and respond to each. Students are responsible for posting one initial and two peer responses for each topic.

### 1 - The medowlark

At the end of the passage the author adds a letter from a farmer. How does this letter connect the topic of changing an ecosystem? (Hint: What was the medowlark looking for?)

### 2 - Population Growth

Why do you think the author included the timeline with human population? What does this tell us about our impact on the environment?

### 3 - Food Web

Can you give an example of a food web? You can use any ecosystem you would like. A good example for St. Pete would be the beach.?

### 4 - Your Opinion

How do you think we could help prevent disrupting our local ecosystem? Is there anything you could do??

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Task 3: Writing Activity

**Instructions:** This reading is about the importance of each piece of a food web. As you read, if you remove one thing the whole ecosystem can be affected. Write a short essay, at least 250 words, about a food web in your yard or a park, and explain the importance of each organism in it. Provide at least four pieces to your web. ??

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