**Title:** What’s Eating You?

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**Key Science Concepts:** Food chains, food webs

**Targeted Grade Level:** Grades 3-5

**Description:** Learners will explore food chains and food webs by classifying producers and consumers and the role they serve in a food chain and food web.

**Grade Level Expectations:**

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| --- | --- |
| 3rd | * 4.A.a Identify sunlight as the primary source of energy plants use to produce their own food.
* 4.A.b Classify populations of organisms as producers or consumers by the role they serve in the ecosystem.
* 4.A.c Sequence the flow of energy through a food chain beginning with the Sun.
* 4.A.d Predict the possible effects of removing an organism from a food chain.
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| 4th | * 4.A.a Classify populations of organisms as producers and consumers by the role they serve in the ecosystem.
* 4.A.b Differentiate between the types of consumers (herbivore, carnivore, omnivore, and detrivore/decomposer).
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**Scott Foresman Reading Materials:**

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| 3rd | * Textbook pages 106-107, 108-109, 111, 118-119
* Leveled Reader – *Ways Plants and Animals Interact* and *Plants and Animals Living Together*
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| 4th | * Textbook pages 84-89
* Leveled Reader – *Ecosystems* and *Life in an Ecosystem*
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| 5th | * Textbook pages 144-145
* Leveled Reader – *Inside Ecosystems*
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**Featured Picture Books:**

1. Title: *Who Eats What?*

Author: Patricia Lauber

Illustrator: Holly Keller

Publisher: HarperCollins

Price: $5.95 ([www.amazon.com](http://www.amazon.com))

Summary: This book explains how every link in a food chain is important because each living thing depends on others for survival.

1. Title: *What Do You Do When Something Wants to Eat You?*

Author: Steve Jenkins

Publisher: Houghton Mifflin Harcourt

Price: $6.99 ([www.amazon.com](http://www.amazon.com))

Summary: This book explains what different creatures do when another wants them for dinner. He identifies the animal on one page and then follows up with its defense mechanism on the next page.

**Time Needed:** This lesson will take several class periods. Suggested scheduling is as follows.

Day One: **Engage** with a discussion of producers/consumers and herbivore/carnivore/omnivore/detrivore.  **Engage** with read aloud titled *What Do You Do When Something Wants to Eat You?* Complete a KWL chart as whole class.

Day Two: **Explore** with the Food Chain Game.

Day Three: **Explain** with a read aloud titled *Who Eats What?* and foldable.

Day Four: **Elaborate** with a food web activity.

Day Five: **Evaluate** with the Food Chain Quiz.

**Academic Vocabulary Words:** prey, predator, producer, consumer, decomposer/detrivore, food chain, food web, carnivore, omnivore, herbivore, ecosystem, niche, community, population

**Misconceptions:**

1. Students believe plants are nonliving things and are not considered producers, so therefore they do not have a role in the food chain.
2. Students believe the direction of the arrows should be the opposite direction. They believe the energy flow should go the opposite direction.
3. Students believe the Sun is not a part of the food chain.
4. Students believe food chains and food webs are the same thing.

**Lesson Narrative:**

**Day One: Engage**

***Materials:*** whiteboard/Expo marker or chart paper/marker; *What Do You Do When Something Wants to Eat You?* by Steve Jenkins; KWL chart; student copies of KWL chart

***DOK:*** 1

 ***Safety:*** n/a

***Lesson:***

1. Begin the lesson with the question: “What did you eat for dinner last night?" Break responses down into individual ingredients (i.e. separate lasagna into pasta, beef, tomatoes, and cheese) and write them on the board or chart paper. Chart paper make be the best way to record information so you may refer to it when reviewing the previous day’s lesson at the beginning of each science class. Once you have a broad sampling, categorize the ingredients into producers and consumers. Use questions such as: Which of these foods come from plants? Which of these foods don't come from plants? If mushrooms are on the board, remember that technically mushrooms are fungi not plants! Students should have prior knowledge of the definitions of producer and consumer. You may need to review plants are producers, or more scientifically, organisms that make their own food through photosynthesis. Review animals are consumers, or more scientifically, organisms that eat producers or other consumers. Write both of these terms and their definitions on the board or chart paper.
	* Producer – a living thing that makes its own food
	* Consumer – a living thing that eats other living things
2. Break down the consumer category further into herbivore, carnivore, omnivore, and detrivore (or decomposer). Use the questions below to help categorize and facilitate discussion.
	* Of the consumers, which are animals that eat plants? (herbivore)
	* Which are animals that eat other animals? (carnivore)
	* Which eat both? (omnivore)
	* Are there any decomposers? (Mushrooms, crab, shrimp, and lobster are likely to be the only decomposers.)

Write all of these terms and their definitions on the board or chart paper.

* Carnivore – an animal/consumer that eats only other animals
* Herbivore – an animal/consumer that eats only other plants
* Omnivore – an animal/consumer that eats both plants and animals
* Detrivore – an organism that gets nutrients by breaking down dead organisms
1. To give the students a visual aid about the above terms, you may want to draw the diagram below on the board or chart paper.
2. Next, read aloud a picture book titled *What Do You Do When Something Wants to Eat You?* The purpose of the read aloud is to introduce students to food chains.
3. To end today’s lesson, guide students through completing a KWL chart. The KWL chart will help the teacher understand what students already know about food chains (K) and what they want to learn (W). The last section (L) will be completed on the last day of the unit.

**Day Two: Explore**

***Materials****:* whiteboard/Expo marker or chart paper/marker; 1 sash for each animal; 1 Ziploc sandwich bag for each animal; 4-5 liters of popped popcorn; 1 data board; 1 marking pen; 1 kitchen timer with bell; 1 roll of 1” masking tape; student copies of the Food Chain Game worksheet; teacher directions for the Food Chain Game

***DOK:***  2

***Safety:*** n/a

***Lesson:***

1. Review the diagram and definitions from yesterday’s lesson. Facilitate discussion with the students about what they learned . Tell students today they will pretend to be animals/consumers to investigate food chains.
2. Before introducing the game, students will need to understand food chains. Write an example of a simple food chain on the board:

SEED MOUSE OWL

Explain to students when one animal eats another animal or plant, they both become part of a food chain. A food chain is the path energy takes as one living thing eats another. The arrows represent the direction of the energy flow; in this case, the energy flows from the seed to the mouse to the owl. In other words, the seed gives energy to the mouse when the mouse consumes/eats the seed; the mouse gives energy to the owl when the owl consumers/eats the mouse. The Sun is the source of all the energy in a food chain. Plants use the Sun’s energy to make food. Animals eat plants to get some of that energy. Some animals eat those animals to get some of that energy, and so on. Add the Sun to the food chain before the seed.

SUN SEED MOUSE OWL

1. Make sure you have completed the necessary preparation steps provided in the teacher directions prior to students completing the lab. Pass out the student copies of the “Food Chain Game” worksheet and all needed materials. Explain to students how to play the game using the teacher directions. Then, model how to play and guide them through the first round of play. Once they understand how to play, play as many rounds as you have time for.
2. After the game facilitate a discussion with the students about how they learned how to balance the food chain.

**Day Three: Explain**

***Materials:*** book *Who Eats What?* by Patricia Lauber; 18”x24” manila paper for each student (cut into four 4.5”x24” strips); stapler, pencils; black pens; colored pencils and/or crayons; Scott Foresman textbook and leveled readers

***DOK:*** 2-3

***Safety:*** n/a

***Lesson:***

1. Review the diagram from day one and the simple food chain from day two. Facilitate discussion with the students about what they learned from both of these. Tell students today they will learn more information about food chains.
2. *Before Reading* – Show students the book you will read to them. Explain you will model a skill to help them decide what the author wants us to get as the most important point. The skill is called “main idea.” Determining importance is hard to do for two reasons. First, authors seldom come right out and say what they think is important. Instead, they expect us to figure out for ourselves what they think is important. Second, to figure out the main idea we must look at several clues and decide how they go together. After reading I go back and think about what is the most important about what I just read. The secret is to reread what the author has written, put yourself in the author’s place, look for clues the author provides, and then try to think of those clues in combination to decide how they go together.
3. *During Reading –* While reading aloud, model for the students how you put yourself in the author’s shoes to understand her thoughts. Go back and reread certain parts you feel are important and explain to students why. Point out clues the author gives so indicate what is the most important part. Model combining various clues together to determine the main idea.
4. *After Reading –* Follow up the read aloud by reviewing the steps you took to determine the main idea. Make sure students understand authors always have a purpose for writing. As readers, they need to always think about their purpose for reading, especially when reading nonfiction text.
5. Pass out four 4.5”x24” strips per student. Model how to fold the strips to form a foldable explaining the important terms relating to food chains. Using the textbook, leveled readers and other picture books, walk students through completing the foldable. Click here to view a sample foldable.

**Day Four: Elaborate**

***Materials:*** whiteboard/Expo marker or chart paper/markers; student copies of “Live Food Web” worksheet; teacher directions; 1 index card per student; 1 piece of yarn per student (long enough to hang index card around neck); 1 ball of yarn; hole puncher; markers

 ***DOK:*** 2-3

***Safety:*** Make sure students understand the importance of using self-control when passing the ball of yarn.

***Lesson:***

1. Review the diagram from day one; the simple food chain from day two; and the main idea from the picture book from day three. Facilitate discussion with the students about what they learned from these. Tell students today they will learn even more information about food chains.
2. Explain to students there are some simple food chains in nature, but usually two or more food chains link to form a food web. A food web is made of many food chains put together. If you did not draw the food chain from day two on chart paper, redraw on the board. If you did draw it on chart paper, redraw it on a separate piece. Write another simple food chain below the first. Ask students how you could link the two chains to make a food web. For example:

SEED MOUSE OWL

BERRY SHREW SNAKE

Then ask students what is missing from the food web. The Sun! Draw a picture of the Sun on the food web with arrows pointing to the seed and the berry.

1. Make sure you have completed the necessary preparation steps provided in the teacher directions prior to students completing the lab. Pass out student copies of the “Live Food Web” worksheet and all needed materials. Explain to students how to play the game using the teacher directions. Then, model how to play and guide them through the first round of play. Once they understand how to play, play as many rounds as you have time for.
2. After the game facilitate a discussion with the students about how a food web works.

**Day Five: Evaluate**

***Materials:*** student copies of “Food Chain Quiz” worksheet; pencils

***DOK:*** 2-3

***Safety:*** n/a

***Lesson:***

1. Review the diagram from day one; the simple food chain from day two; the main idea from the picture book from day three; and the food web from day four. Facilitate discussion with the students about what they learned from each of these. Tell students today they will show what they have learned this week.
2. Pass out student copies of the “Food Chain Quiz” worksheet. Give them time to complete.
3. You may check the multiple choice questions using technology, if available. Some examples of technology are eInstruction clickers and Promethean Expressions.
4. After grading each student’’ quiz, make notes of misconceptions and concepts students did not understand and spend time re-teaching and reviewing.

**Websites & Extension Activities**

<http://magma.nationalgeographic.com/ngexplorer/0309/quickflicks/>

<http://www.ecokids.ca/pub/eco_info/topics/frogs/chain_reaction/index.cfm>

<http://www.bbc.co.uk/schools/ks2bitesize/science/tests/food_chains.shtml>

<http://www.totally3rdgrade.com/food_chain.html>

<http://www.emints.org/ethemes/resources/S00000328.shtml>

<http://www.pearsonsuccessnet.com> (Go to Take it to the Net for fourth grade – Food Chains game & Food Webs game)

**More Picture Books to Read**

1. Title: *Food Chains and You*

Author: Bobbie Kalman

Publisher: Crabtree Publishing

Price: $6.95 ([www.amazon.com](http://www.amazon.com))

Summary: This book explains how the transfer of energy takes place from the Sun to various plants and animals, including people.

1. Title: *What are Food Chains and Webs?*

Author: Bobbie Kalman

Publisher: Crabtree Publishing

Price: $6.95 ([www.amazon.com](http://www.amazon.com))

Summary: This book explains food chains and webs and discusses their different levels and/or types.

**Bibliography**

Foresman, Scott. Scott Foresman Science. Illinois: Pearson Education, Inc., 2006.