

## 5-Step Lesson Plan

PRE-PLANNING: KNOW, SO, SHOW	<b>OBJECTIVE.</b> What will your students be able to do?	<b>KEY POINTS.</b> What three-five key points will you emphasize?
	<b>SWBAT</b> create a food chain.	<ul style="list-style-type: none"> <li>• <b>Parasitoids</b> are the wasps and flies that kill caterpillars.</li> <li>• A <b>food chain</b> is an illustration of how energy moves through an ecosystem.</li> <li>• <b>Primary consumer</b> is an organism (like a caterpillar) that eats producers.</li> <li>• <b>Secondary consumer</b> is an organism (like a wasp) that eats herbivores.</li> <li>• <b>Tertiary consumer</b> is a predator (like a bear) that eats organisms in levels below.</li> </ul>
	<b>SWBAT</b> explain the relationship of organisms in a food chain.	
	<b>SWBAT</b> explain how depletion of plant life affects the lives of all other organisms in the food chain.	
	(5.b. Students know matter is transferred over time from one organism to others in the food web and between organisms and the physical environment.) Pg. 557 – 572, 574 – 575	
	Day 1: Power Point and Food Chain Day 2: Newspaper write-up and illustration Day 3: Presentations	
<b>CONNECTION TO THE BIG GOAL.</b> How does the objective connect to the big goal?		
By studying food chains, students will begin to understand the importance of plant life or producers in an ecosystem. This relates to their understanding of energy transfer from one organism to another; it also while allows students to begin to conceptualize the importance of preserving plant life in our environment because of insect and animal dependence on producers. Students will show understanding of the food chain by creating their own chain, representing all consumers and producers in the rainforest ecosystem.		
<b>ASSESSMENT.</b> How will you know whether your students have made progress toward the objective? How and when will you assess mastery?		
Students will write a newspaper article explaining how organisms gain energy in a food chain. They will show their understanding when connecting their knowledge to the “real world,” by explaining, in an oral presentation, how depletion of plant life affects an entire food chain. Knowledge of the food chain will appropriately lead to an understanding of the food web.		
LESSON CYLCE: GO	<b>OPENING.</b> (_5_min.) How will you communicate <i>what</i> is about to happen? How will you communicate <i>how</i> it will happen? How will you communicate its <i>importance</i> ? How will you communicate <i>connections</i> to previous lessons? How will you engage students and capture their interest?	<b>MATERIALS.</b>
	We’ve already started to study the relationship between producers and consumers. We know that producers create their own food using energy from the sun. We know that consumers cannot create their food. They must eat or “consume” other organisms, either producers (these are our herbivores) or other consumers (these are our carnivores), or both (omnivores). Now that we have some background knowledge, we’re going to begin to learn how animals are related to one another in their ecosystems. We’re going to understand why all producers and consumers are both needed in a balanced food chain. You are going to create your very own food chain; once you have completed your food chain and observed how our organisms are related you will write your very own newspaper article explaining your findings.	Student Science Notebook Key Points Poster Power Point Presentation
	<b>INTRODUCTION TO NEW MATERIAL.</b> (_Day 1, 30min.) What key points will you emphasize and reiterate? How will you ensure that students actively take-in information? How will you vary your approach to make information accessible to all students? Which potential misunderstandings will you anticipate?	Yarn Plant Label
	Take three minutes, and answer the following questions in your science notebook: What is a chain? What does it look like? (Please illustrate your chain). How do you think we can relate the idea of a “chain” to plants and animals in an ecosystem? Students share responses.	Caterpillar Label Parasitoid Label (Wasp)
	Review Key points poster: Parasitoid, food chain, primary, secondary, tertiary consumer.  Using PPT illustrate examples of multiple food chains, including our food chain of study:  Plant (producer) > Caterpillar (primary consumer) > Wasp (secondary consumer) > Bird (tertiary consumer)	Bird Label Newspaper Template/Rubric

**GUIDED PRACTICE. (Day 1, 15\_ min.)**

How will you clearly state and model behavioral expectations?

How will you ensure that all students have multiple opportunities to practice?

How will you scaffold practice exercises from easy to hard?

How will you monitor and correct student performance?

As you learned in our power point, caterpillars are primary consumers that eat producers or plants. In fact caterpillars consume more plant life than any other organism in the rain forest. Once a wasp (our secondary consumer) finds a well-fed caterpillar, it will deposit its offspring in the caterpillar and its offspring will eat the tissue of the caterpillar. When the offspring of the wasp are fully developed our bird (tertiary consumer) will eat the new wasp.

Now that we have a picture in our minds of what a food chain looks like, you are going to create your own human food chain without using your notebooks.

You will work in your table groups of 4. Look at the symbol on your desk card to see who you will be representing in the food chain.

**Hearts = caterpillars**

**Diamonds = birds**

**Spades = trees/plants**

**Clubs = parasitoids/wasps**

I have given each of you a sticky name label. Each group also has 3 long pieces of yarn. Write your organism on your name label. Stick your label on the left side of your chest (where your heart is). When I tell you to stand, you and your group will have 2 minutes to create a food chain connecting yourselves with yarn. You must decide whether you represent the producer, primary, secondary or tertiary consumer in the rain forest. Share your answer with your group. You will then tell me what you represent as I check each of your groups. If you are unsure what you represent, discuss your answer with your group.

*For example: I am a \_\_\_\_\_ and I am a \_\_\_\_\_ consumer.*

**I'm setting the timer for two minutes. BEGIN!**

In order to check student understanding I will check each group's food chain and each student will explain his contribution and place to the food chain.

Now that you have successfully created your very own food chain, we're going to discuss the dependence of organisms upon one another.

I want to build a road in the rain forest. I decide to cut down a large amount of trees and plants, so I can be sure to have enough room to build my roads. If you are a producer or a plant, I want you to let go of your piece of yarn.

*What happens to our food chain? Does the caterpillar still have a food source?*

*If the caterpillar does not have food what do you think happens to the connection between the caterpillar and the wasp? (Students drop yarn between caterpillar and wasp).*

*How then is the bird affected once the connection between the caterpillar and the wasp is destroyed?*

Students will see that the food chain is disrupted when producers are destroyed. The lives of other organisms are affected when producers are destroyed.

**INDEPENDENT PRACTICE. (\_Day 2, 50\_ min.)**

How will you clearly state and model behavioral expectations?

In what ways will students attempt to demonstrate independent mastery of the objective?

How will you provide opportunities for extension?

Students work independently.

Since you've seen the effects of destroying the rainforest, you are now ready to share your findings with the rest of the school.

Using your newspaper template, write a one page article explaining how cutting down a large number of trees in the rain forest affects the lives of other organisms. In your article, you must **utilize all of the our five key terms: parasitoid, food chain, primary consumer, secondary consumer, and tertiary consumer.**

**Your article should answer the following questions:**

- 1) **What is a food chain?**
- 2) **What type of consumer is a caterpillar?**
- 3) **Why is a wasp identified as a *secondary* consumer?**
- 4) **How did the destruction of plant life affect the rest of the food chain?**
- 5) **Describe the connection of all organisms in a food chain.**

**Along with your explanation, you must include an illustration of your food chain, labeling all types of consumers and the producer.**

Challenge question: As a scientist, what would you do to protect your environment? In Los Angeles, we use roads, cars and gasoline. How do you think these things affect our environment? How can we *reduce* our gasoline and car usage? Create a pledge form for friends and relatives requesting their reduction in fossil fuels for one week.

**CLOSING. (\_Day 2, 50 min.)**

How will students summarize what they learned?

How will students be asked to state the significance of what they learned?

How will you provide all students with opportunities to demonstrate mastery of (or progress toward) the objective?

**Students will answer the following questions in their individual presentations:**

- 1) **What is a food chain?**
- 2) **What type of consumer is a caterpillar?**
- 3) **Why is a wasp identified as a *secondary* consumer?**
- 4) **How did the destruction of plant life affect the rest of the food chain?**
- 5) **Describe the connection of all organisms in a food chain.**

**Submitted By: Brianna Rojas**

