

# Great Bear Rainforest Activity Plan

## Inquiry:

How do food webs contribute to life in the Great Bear Rainforest?

After choosing an organism and researching its ecology, students create a food web as a class to show linkages between organisms in the GBR. Students then answer questions about their organism and present the information as a poster.

## Learning Objectives

Students will:

- Research an organism in the Great Bear Rainforest
- Describe how energy is transferred through trophic levels
- Create a food web poster

## Preparing for the Activity Plan

- Explore the biodiversity of the GBR on the following websites:

### **Biodiversity of the Central Coast**

<http://www.centralcoastbiodiversity.org/>

**Dead stuff: The secret ingredient in our food chain** – John C. Moore (3:50)  
Ted-Ed video and lesson materials on the “brown food web”

<https://ed.ted.com/lessons/dead-stuff-the-secret-ingredient-in-our-food-chain-john-c-moore>

### **Energy Flow and Trophic Levels**

Explanation of energy transfer through trophic levels

<https://kids.britannica.com/students/assembly/view/90132>

# Materials

- computer / projector
- student computers / tablets / devices
- access to Internet
- index cards
- poster paper
- markers
- yarn (optional)

# Background Information

Great Bear Rainforest biodiversity:

## **First Nations**

First Peoples are diverse, and the unique knowledge each group holds is part of their individual world views. However, they share a common belief that we are all connected to nature and to each other. This notion that we are all connected with everything in the world is expressed by many First Peoples in the phrase “All my relations.” Inherent in this view of the world is the understanding that everything in the universe has a place there and deserves respect. From this vantage point, people view their relations with others as well as the natural world differently than someone who only sees it through a microscope or telescope.

—*Science First Peoples, page 10*

<http://www.fnesc.ca/wp/wp-content/uploads/2015/08/PUBLICATION-61496-Science-First-Peoples-2016-Full-F-WEB.pdf>

## **No Crap: Missing ‘Mega Poop’ Starves Earth**

<https://www.livescience.com/52587-missing-giant-poop-is-hurting-earth.html>

## **Species Guide (Biodiversity of the Central Coast)**

<http://www.centralcoastbiodiversity.org/species-guide.html>

# Delivering the Activity Plan

## Access Prior Knowledge

- As a class discuss and draw a simple local food chain. Discuss the difference between a food chain and a food web:
  - » **Food chain:** living things that are linked to each other because each organism feeds on another
  - » **Food web:** interconnection of food chains
- Conduct a Google search for images related to “food chain” and “food web,” and project for the class.
- Show class the video, “Trophic Levels,” and have them take notes on the various trophic levels.

### **Trophic Levels** (2:53)

<https://www.youtube.com/watch?v=mCHdhXMFhcU>

- From what they learned in the video, have students define the following terms and write down definitions on chart paper or on the board.
  - » trophic
  - » primary consumer
  - » secondary consumer
  - » tertiary consumer
- Review the process of photosynthesis.

## Inquire

- Show the class the Ted-Ed video on the “brown food web”

### **Dead stuff: the secret ingredient in our food chain**

<https://ed.ted.com/lessons/dead-stuff-the-secret-ingredient-in-our-food-chain-john-c-moore>

- Ask students to explain how humans interact with food webs.
- Mind map “biodiversity.”
  - » **Biodiversity:** a variety of life in a particular ecosystem or habitat.

## Experience

### Part 1: Choose an Organism

**Note:** This part of the activity will need advanced planning / facilitation.

- Have students choose an organism found in the GBR. Make sure there is a variety of **producers, primary consumers, secondary consumers, tertiary consumers, and detritivores.**

This can be done by having students draw from a hat, either:

- » a trophic level
- » a type of organism (e.g. flowering plants). Use the following website for a species guide:

#### **Biodiversity of the Central Coast**

<http://www.centralcoastbiodiversity.org/species-guide.html>

- » or a specific organism; a wildlife list can be found here:

#### **Wildlife list (Great Bear Tours)**

<http://www.greatbeartraveltours.com/wildlife-list>

**Note:** For younger grades, it may be preferable to have a pre-determined food web, and have students draw specific organisms. Similarly, if the class is large it may be simpler to divide the class in half and have each group work on a food web. Students could work on the same organisms, or they could have a terrestrial web for one group and a marine web for the other.

### Part 2: Research an Organism

- Students research their organism's ecology including:
  - » habitat
  - » prey
  - » predators
  - » competition
  - » conservation
  - » human relationship

- Each student receives an index card to complete:
  - Side A: image and name of the organism
  - Side B: notes about the organism's ecology

**Note:** Teacher could create extras as exemplars (or to provide webs of unpopular organisms).

- As a class, create a food web. Lay out cards and use yarn (starting with the sun) to show links between the creatures in the Great Bear Rainforest (predators and prey). Other options would be to tape the cards to a white board and draw the links with marker, pin them to a tack board, or spread them on the floor or lab bench.

## Explore

### Part 3: Analysis of a Food Web

- For the following questions, choose to discuss as a class or in small groups, or give the questions as an assignment.
  - » Where were the detritivores placed? Could there be more linkages?
  - » What happens if species are removed from high trophic levels? What about low levels?
  - » What are the keystone species in the GBR?
  - » Did you uncover a conservation issue in your research?
  - » Think about your organism's place in the class food web. What does it depend on? What depends on it? What would happen if it were removed?
  - » Is biodiversity important? Why/why not?
- Have students create a poster of their organism using information from the class food web.

They should include:

- » What are its prey? What competes with it for that prey?
- » What are its predators?
- » How do humans use it/impact it?
- » What ecosystem services does it provide? (Does it provide shade or a home?)

- Ask students what their local environment has in common with the Great Bear Rainforest. Create another mind map to compare and contrast between their local environment and the GBR.
- Have students create a poster illustrating the connections between their home environment and the coastal temperate rainforest.

## Assess

- Look for evidence of students' research and ability to connect the concepts of organisms and the food web.
- As a class create a peer assessment rubric to assess the food web posters.

## Go Beyond

- As a class go outside! Preferably somewhere "wild."
- Have students find a life form (grass, fungi, moss, lichen, tree, shrub, "weed", bird, etc.) and:
  - » Note its identifying features. (Is it a tree? Is it tall or short? What texture is the bark? Is it deciduous?)
  - » Draw a quick sketch, include notes about size and colour.
  - » Describe its habitat. (Is it in shade? Is it in the sun? Soil? Sand? Growing out of a crack in the sidewalk? Perched in a tree? If so, what kind of tree? Is the branch leafy? Can it see around?)
  - » How does it "make its living" (where does it get energy)? Who are its predators? Competitors? How does it reproduce?

Back in the classroom, have students use their field notes to identify the organism. There are some good resources here:

### **Biodiversity of the Central Coast: Identification Resources**

<http://www.centralcoastbiodiversity.org/identification-resources.html>



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