

LESSON PLAN

Food Web Rescue

Mr. Brennan · Cedar Hollow Middle School

Subject	Science
Grade	7
Time	50 minutes
Levels	Support, On Level, Challenge

OVERVIEW

Students become the new ranger of the fictional Cedar Hollow Preserve and restore a pond, a marsh, and the woods: they release producers, consumers, and decomposers, draw energy arrows from the food to the eater, and predict how a change will most likely affect another population. The game, slides, and worksheets share three food webs.

OBJECTIVES

- Identify producers, consumers, and decomposers and explain how each gets energy.
- Read and draw food web arrows from the organism eaten to the eater.
- Use the approximate 10 percent rule to explain why top predators are few.
- Predict the most likely effects of a population change, including indirect effects.

VOCABULARY

Producer: makes its own food from sunlight (algae, grass).

Consumer: eats other living things to get energy.

Decomposer: breaks down dead things and returns nutrients (bacteria, fungi).

Food web: connected food chains; arrows go from food to eater.

Consumer levels: primary eats producers, secondary eats primary, tertiary eats secondary.

10 percent rule: about 10 percent of energy passes up each level (approximate).

SUCCESS CRITERIA

- I can sort producers, consumers, and decomposers.
- I can draw an arrow from the food to the eater.
- I can estimate energy with the 10 percent rule.
- I can predict what most likely happens if a population changes.

MATERIALS

- Game link (one device per student or pair)
- Intro slide deck with the preserve food webs
- Level 1, 2, and 3 worksheets with answer keys
- Sticky notes for the exit ticket

LESSON SEQUENCE

TIME	SEGMENT	WHAT HAPPENS
5 min	Hook	Slide 2: the hawks leave Cedar Hollow Woods. Who wins, who loses? Turn and talk.
10 min	Model	Slides 3 to 7: targets, vocabulary, arrows, energy pyramid, and the foxes-leave think-aloud.
3 min	Quick check	Slide 8 on whiteboards. Adjust level codes as needed.
12 min	Play the game	Slide 9: students play at their level. Ask: which way does that arrow point, and why?
13 min	Worksheet	Students complete their level's worksheet. Early finishers try the next level's predictions.
7 min	Exit ticket	Slide 10: completion code, exit questions, and a return to the hook predictions.
50 min	Total	

DELIVERING THE GAME

Example class codes (same code, same game for the whole class):

BREN7-1 Support

BREN7-2 On Level

BREN7-3 Challenge

- Post the game link or file in Canvas, a Google Site in Google Classroom, or your website.
- Give each group its code with the level suffix. Use a new base code per period, for example BREN7P2-2.
- Students type their completion code into the assignment; paste codes on the teacher screen to verify.
- Teacher screen passphrase: **heron pond** (tap the small "Made by GBG Education" credit 5 times to open the teacher screen and check completion codes).

DIFFERENTIATION

Level 1: Support

Game: job sorts, 3 choices, a second try. Worksheet: 14 pt type, word banks, a picture chain.

Level 2: On Level

Game: consumer levels, hints. Worksheet: level sorts, arrows from field notes, energy math.

Level 3: Challenge

Game: two-step predictions, no hints. Worksheet: chain reactions and a claim-evidence answer.

ACCOMMODATIONS

- Read-aloud button in the game.
- Large-print Level 1 worksheet; accept drawings.
- Posted food web; English learners work in pairs.

ASSESSMENT

Quick check, completion codes, worksheet predictions, and the exit ticket. Builds toward MS-LS2-4: students predict from a model, not yet from empirical data.

OBSERVATION READY

DANIELSON FRAMEWORK FOR TEACHING (2022) ALIGNMENT

- **1c Setting Instructional Outcomes** (Domain 1: Planning and Preparation): Four "I can" outcomes are targeted by every game level and worksheet.
- **3a Communicating About Purpose and Content** (Domain 3: Learning Experiences): The teacher models reading arrows and thinks aloud through the fox removal ("most likely," "at first").
- **3b Using Questioning and Discussion Techniques** (Domain 3: Learning Experiences): Students defend predictions about the hawks; the teacher asks "Which arrow tells you that?"
- **3d Using Assessment for Learning** (Domain 3: Learning Experiences): The quick check, in-game feedback, and circulation surface arrow-direction errors for reteaching.
- **3e Responding Flexibly to Student Needs** (Domain 3: Learning Experiences): Class codes set each student's level; the teacher switches codes after the quick check when needed.

RESEARCH-BASED STRATEGIES

- **Worked examples:** Slides 6 and 7 model an energy calculation and a removal prediction.
- **Feedback (Technology):** The game explains every answer; Level 1 adds hints and a second try.
- **Retrieval practice:** Roles, arrows, and energy rules are recalled in the game, worksheet, and exit ticket.
- **Argumentation / Classroom discussion:** Students make and defend claims about the hawks, citing arrows.

STANDARDS ALIGNMENT

- **MS-LS2-3** (NGSS): Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.
- **MS-LS2-4** (NGSS): Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.
- **MS-LS2-2** (NGSS): Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.

Observation Ready section: Danielson Framework for Teaching (2022). Other frameworks available on request.