

Title of Book: If Sharks Disappeared
Author: Lily Williams
Publisher/Year: 2017
ISBN: 9781626724136 (hardback)

Grade Levels for Recommended Use: 6th-12th Grade

TEKS:

7th Grade Science

5 (B) diagram the flow of energy through living systems, including food chains, food webs, and energy pyramids

Aquatic Science

11(A) identify how energy flows and matter cycles through both fresh water and salt water aquatic systems, including food webs, chains, and pyramids

Biology

12(C) analyze the flow of matter and energy through trophic levels using various models, including food chains, food webs, and ecological pyramids

Environmental Systems

7(A) relate carrying capacity to population dynamics

Brief Summary: Students investigate the impact of apex predators in oceanic ecosystems through the book *If Sharks Disappeared* by Lily Williams, and terrestrial ecosystems through an online activity Rabbits and Wolves, found on shodor.org

Materials needed:

- The book, *If Sharks Disappeared* by Lily Williams
- Handout found on page two of this document for each student
- Computer for each individual or pair of students with internet access and Java
- Brains and pencils!

Suggested Activity: Complete each section of the handout found on page two of this document in order from top to bottom with students. Directions are on the handout.

*A couple of notes that are good for the teacher to know before doing the activity:

1. The online activity simulation has its limits. For example, the coding within the activity does NOT allow the plants to die out completely, which is inaccurate and *may* cause misunderstanding to some students.
2. The directions in the worksheet say, “after reading the book”, which if read by a student means the student, but they are not going read the book, the teacher is.
3. Make sure students complete the “what you know” box in the first section *before* you read the book to the class as a whole.

References: www.shodor.org/interactivate/activities/RabbitsAndWolves/ (Simulation)

Adapted by: Christoffer J. Becho (2018)

Predator/Prey Relationships

Book – *If Sharks Disappeared* by Lily Williams

Directions: Before reading the book *If Sharks Disappeared* by Lily Williams write down everything you know about predator/prey relationships, then after reading the book write everything you learned about predator/prey relationships.

What You Know – Prior Knowledge	What You Learned – Acquired Knowledge

Online Activity – Rabbits and Wolves Simulation

Directions: Go to the URL website listed below. Play with the simulation and adjust parameters (forest size, initial number of wolves, rabbit reproduction probability, etc.) and see what happens. Write down what you observe from the different scenarios and what you learned from the activity.

www.shodor.org/interactivate/activities/RabbitsAndWolves/

What You Observe – During Simulation	What You Learned – After Simulation

Conclusion Question

Compare and contrast the oceanic ecosystem from the book *If Sharks Disappeared* by Lily Williams and the terrestrial (i.e. land) ecosystem from the online simulation *Rabbits and Wolves*. What are some similarities and what are some differences?
