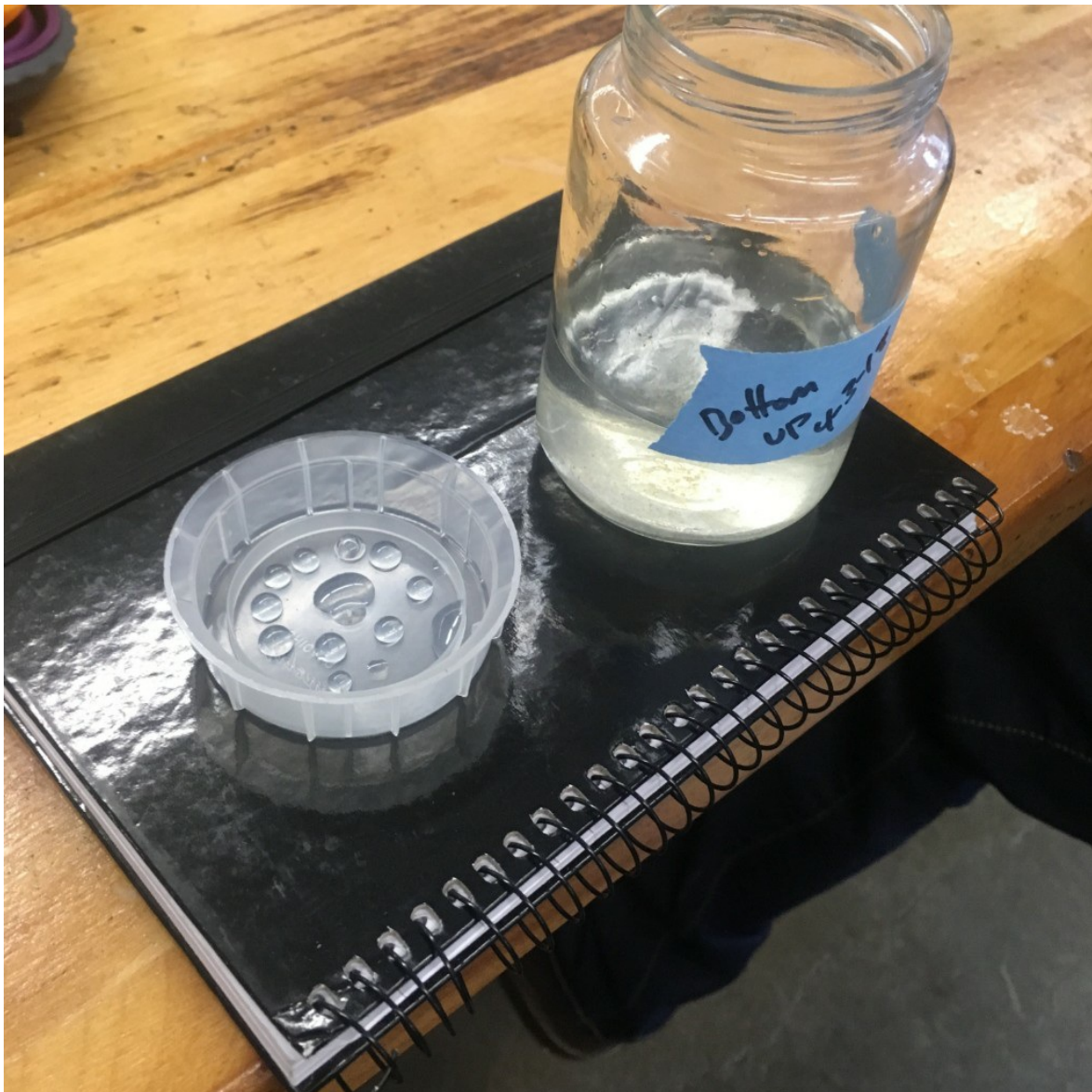


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Food Chain Dynamics In A Simple Ecosystem

By Jessica Joyner, J. Phil Gibson, Anna Petrovicheva



Module Description:

Demonstrating predator-prey dynamics rarely fit the timeline of a lecture course or the scope of student experiences. This lab explores food chain dynamics in a microcosm of a simplified ecosystem with a primary producer and a grazer. It can be accomplished in two class sessions (one for experimental setup and the other for data collection). The primary producer is a marine algae and the grazer is brine shrimp (*Artemia* sp.), both of which are accessible and have low risk in culturing and maintenance. For the ecological context of predator-prey dynamics, the population densities are compared after a 2-week incubation of student designed experiment. Additionally, the concepts of 'bottom-up' or 'top-down' influences on an ecosystem can be taught and discussed in a broader context of ecosystem ecology.

Teaching Setting:

The module was designed for use in an introductory Ecology course with a mix of Biology and Sustainability majors, most of which were upperclassmen. The resource includes the lab exercise, a hypothesis workshop, teaching notes, and Excel sheet templates to estimate population sizes and compare means among groups via t-test or ANOVA.

Full Citation:

Joyner, J., Gibson, J. P., Petrovicheva, A. (2018). [Food Chain Dynamics In A Simple Ecosystem. Plants by the Numbers](#), QUBES Educational Resources. [doi:10.25334/Q4C41H](https://doi.org/10.25334/Q4C41H)

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Related Materials and Opportunities:

This module is one of several that was adapted by participants in the Botany Society of America (BSA)-sponsored Faculty Mentoring Network (FMN) “Plants by the Numbers” held during the Spring 2018 semester. If you are interested in adopting [plant-focused modules](#) that address quantitative reasoning skills, apply by August 24, 2018 to join the [“Plants by the Numbers II” FMN for Fall 2018](#). Dr. Phil Gibson also presented a [session at the BioQUEST/QUBES Summer Workshop](#) in which he describes the modules used in the BSA “Plants by the Numbers” FMN at the 2018 BioQUEST/QUBES Summer Workshop.

If you adopt and adapt this module, you are highly encouraged to share your adaptation back with the QUBES community using the QUBES Resources System for sharing Open Education Resources.

QUBES on Social Media



QUBES is a community of math and biology educators who share resources and methods for preparing students to use quantitative approaches to tackle real, complex, biological problems.

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