

*Ponds in Peril!*  
Global Change in the Classroom



Dan Preston, Oregon State University  
[daniel.preston@oregonstate.edu](mailto:daniel.preston@oregonstate.edu)

# What is global change?





# The *Ponds in Peril* Project



# Eutrophication





An aerial photograph of a river flowing through a patchwork of green agricultural fields. Numerous semi-transparent circular overlays are placed across the image, each containing a pie chart. These charts represent data points, likely related to agricultural runoff, distributed across different land parcels. The river is a prominent dark, winding feature in the center of the landscape.

# Agriculture Runoff

# Livestock





# Lawn Fertilizer





Impacts







Invasive Species: A nonnative species that often causes harm within its new range





# Oregon Invaders



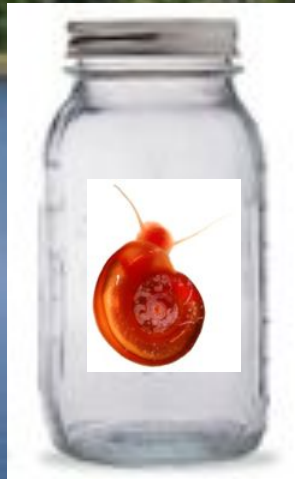


# *Ponds in Peril!*

A classroom experiment that emphasizes  
global change, food webs, and the  
scientific process (and it's fun!)



# *Ponds in Peril!*



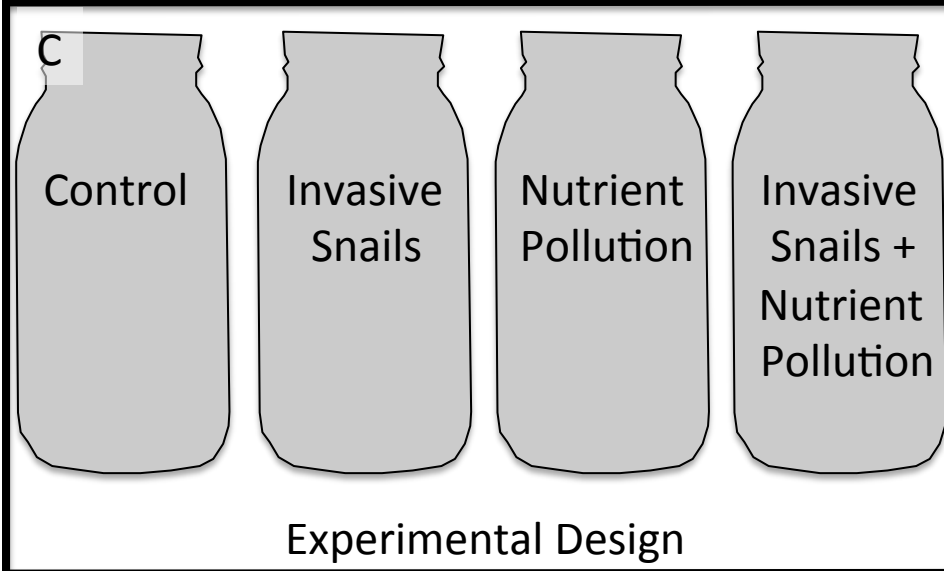






# Aquatic Macroinvertebrates!









Control

④ Snails

Nutrients

⑥ Snails and  
Nutrients

# Today's Workshop

- Station 1: Scientific Process
  - Hypotheses, Experimental Design
- Station 2: Aquatic Organisms
  - Diversity, Food Webs, Adaptations
- Station 3: Data Collection
  - Units, Graphing, Etc.
- (Station 4: Scientific Process Cont.)





Control

④ Snails

Nutrients

⑥ Snails and  
Nutrients

# Take Home Messages

## 1) Scientific Process

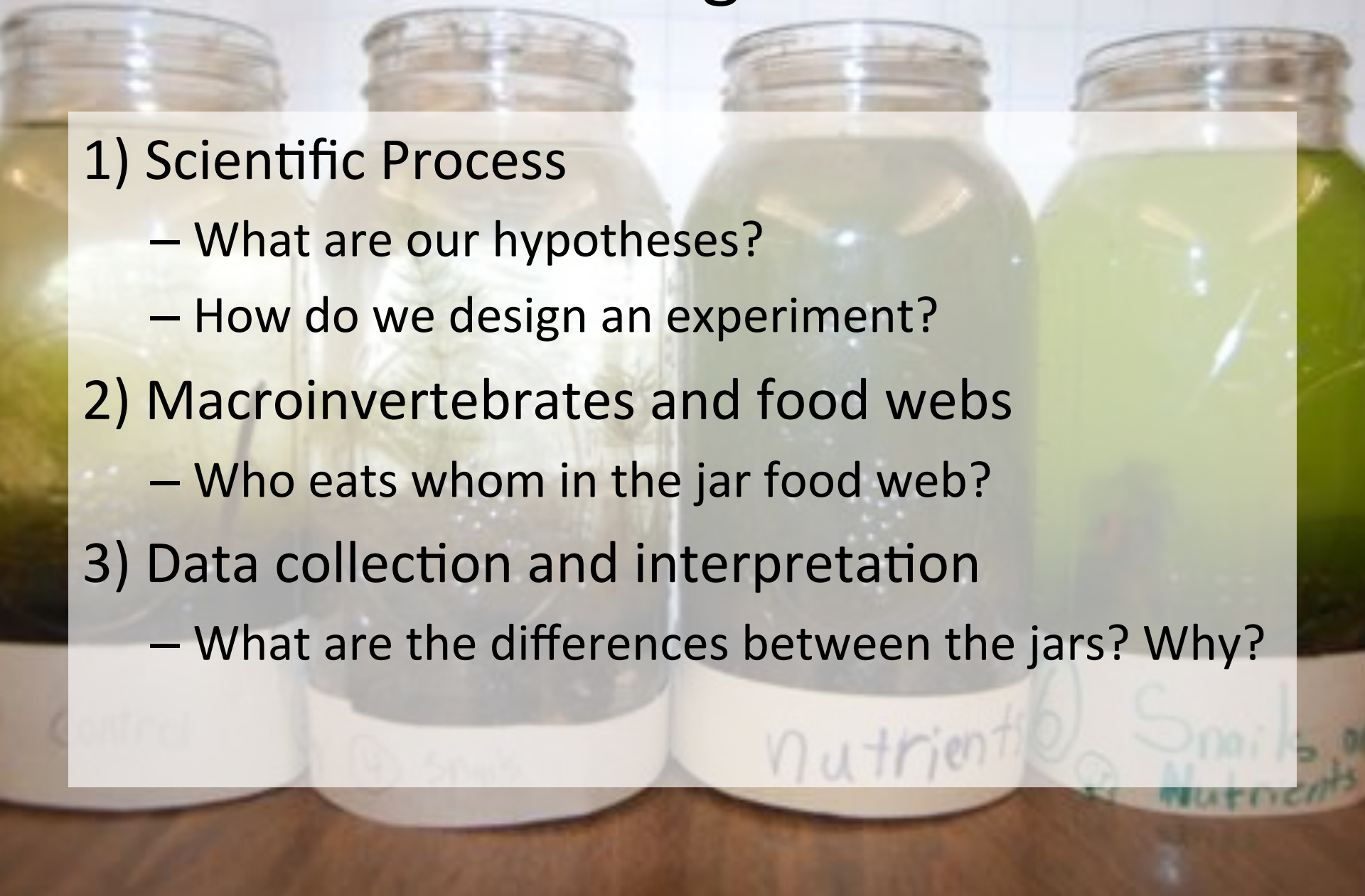
- What are our hypotheses?
- How do we design an experiment?

## 2) Macroinvertebrates and food webs

- Who eats whom in the jar food web?

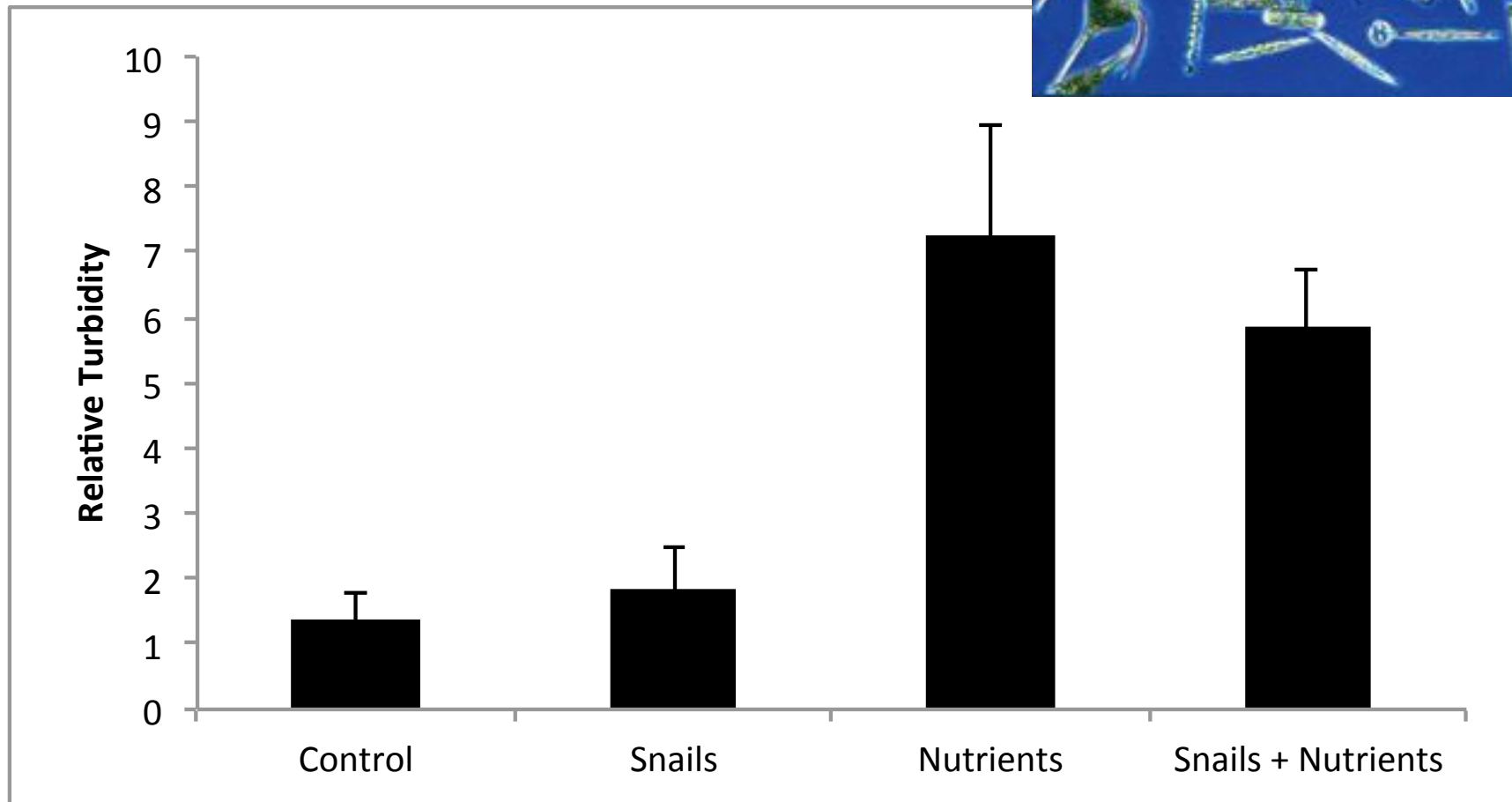
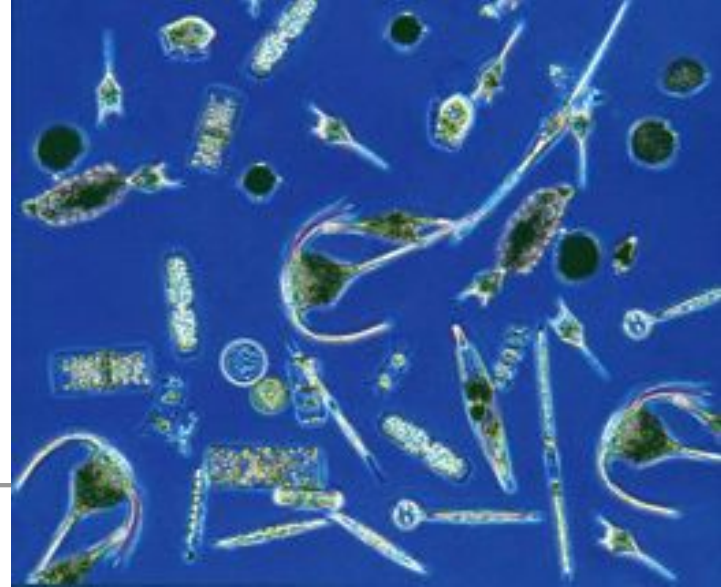
## 3) Data collection and interpretation

- What are the differences between the jars? Why?

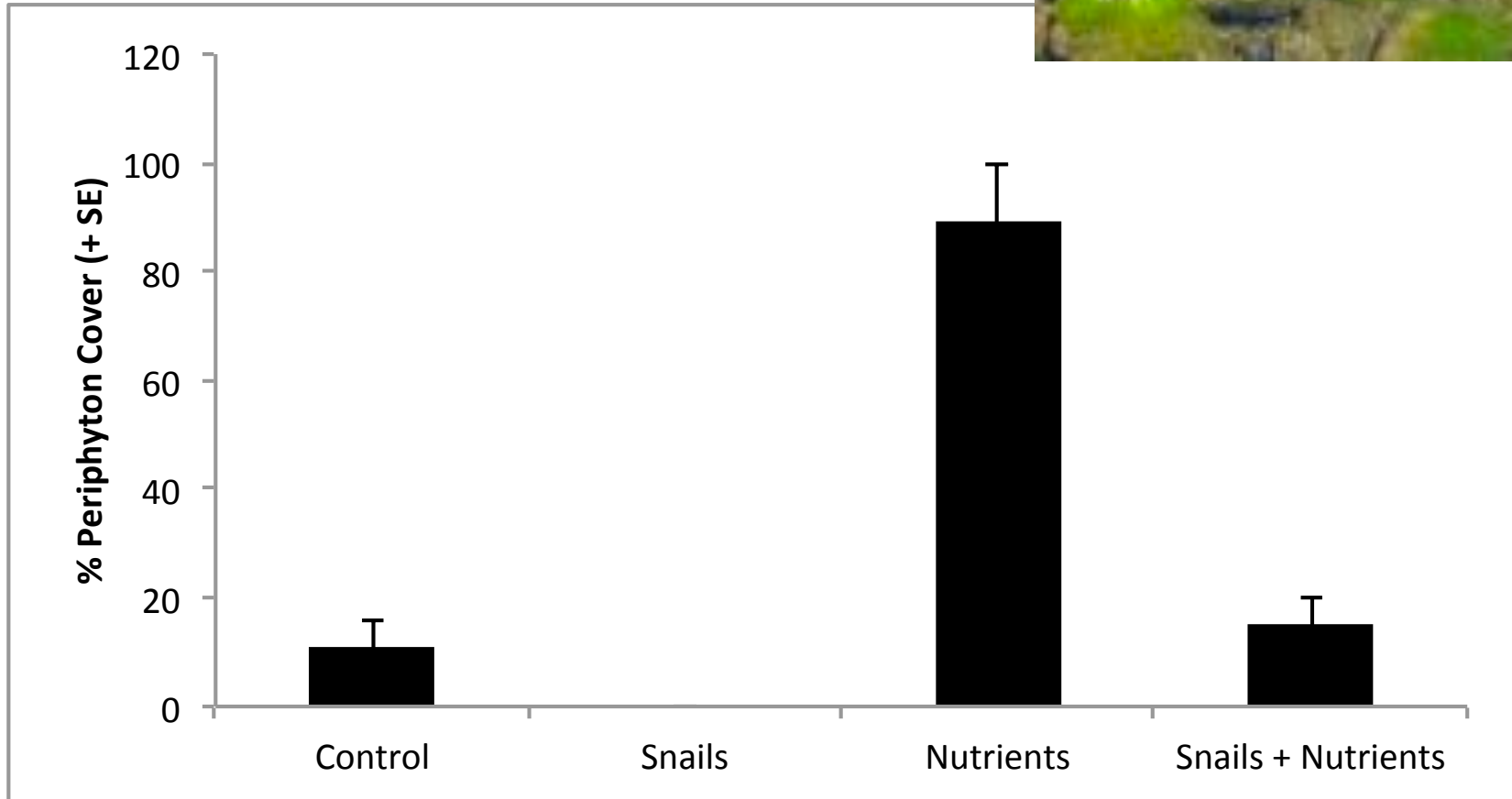





# Phytoplankton – Algae in the water column



# Periphyton – Attached algae







The project is...

Low cost, engaging, incorporates science standards, flexible, fun!

Resources Available:

- *Science Scope* Article
  - Instructions, Materials List, etc.
- 10 Worksheets

# HOW THE DEAD ZONE FORMS

