How do small things make a big difference?

Microbes, ecology, and the tree of life

Teacher Workshop

July 28-30

Project NEURON and Project MICROBE
University of Illinois

Workshop Goals

- Experience Project NEURON/Project Microbe Curriculum Materials as a learner and teacher
- Interact with University of Illinois Scientists and Educators
- Develop a community of teachers
- Integrate Curriculum Materials with your local curriculum

Day 3: July 30

Time	Session
9:00 -9:20	Microbes in the news
9:20 – 10:30	Lesson 6: What can happen when my microbiome is disturbed?
10:30-11:30	Whole unit reflection & report out
11:30-12:00	Unit post-assessment
12:00-12:30	Attitude survey and bagels
12:30-12:45	CPDU forms and stipend paperwork

Lesson 6: What happens when my microbiome is disturbed?

Learning Objectives

1. Define and apply ecology concepts of disturbance, resilience, recovery, & diversity.
2. Interpret graphs demonstrating the effects of antibiotics on the resilience and recovery of the gut microbiome.
3. Compare and contrast two different antibiotics' effectiveness at treating a *C. difficile* infection.
4. Evaluate and defend a treatment plan for a *C. difficile* infection.

NPR human microbiome video

https://www.youtube.com/watch?v=5DTrENdWvvM

Lesson 6: What can happen when my microbiome is disturbed?

Activities

- Activity 1: What is a microbiome disturbance?
- Activity 2: Case study of recurrent *C. difficile* infections
- Activity 3: Comparison of treatment methods

Activity 1: What is a microbiome disturbance?

Image: http://ngm.nationalgeographic.com/2013/01/125-microbes/oeggerli-photography

Activity 2: Case Study

Part A: Develop a hypothesis

Part B: Analyze data

STOP

(whole group discussion)

Part C: Construct an argument based on evidence

- Work in groups of 3-4
- Work through Parts A-B of the case study
- 20 minutes

Activity 2:
Scientific Practice: Arguing from Evidence

Claim, Evidence, Reasoning

- An explicit process where students make a claim, support it with evidence and link the two through reasoning

McNeill and Krajcik (2012), *Supporting grade 5-8 students in constructing explanations in science: The claim, evidence, and reasoning framework for talk and writing.*

Activity 3: Treatment Comparison

How does antibiotic treatment compare to a fecal transplant treatment?

- Create a model representing the effects on the human microbiome.

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Whole Unit Reflection and Discussion
40 minutes work time then discussion

1. What went well?
2. What did not go well?
3. How would you use this unit or modify it for your classroom?

Post – Assessment
30 minutes

Attitude Survey
30 minutes

https://www.surveymonkey.com/s/MICROBE2014

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Bagels

CPDU forms
&
Stipend paperwork

Thanks!

For additional information visit:
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