Adapted Value of Mistakes
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Image source:

Module Description:
This module is adapted from BIOMAAP materials on the value of mistakes
application of growth mindset in a microbiology lab. Serial dilutions and understanding graphs are two fears that students at our community college struggle with in an introductory microbiology lab. Modifications of the BIOM materials on value of mistakes and growth mindset were used to examine changes in student mindsets as they progressed to work through serial dilution and creating a figure legend for a graph. During the activity the students were allowed to work on simple to complex serial dilution problems with reflective opportunities and exposure to brain research describing our physiological response to mistakes. These in class formative assessments were designed to allow students to understand that making mistakes is a useful part of learning.

BIOMAAP materials on growth mindset was also adapted as part of the Lab activity to expose students to the brain research that showed that growth mindset individuals pay more attention to mistakes, leading to better error correction and deeper learning.

The student activity is an interrupted short journaling assignment that students complete in class individually and in groups as they proceeded through the serial dilution calculations. This assignment goes well with the “Introduction to Growth Mindset” module of BIOMAAP.

Teaching Setting:

This resource was designed for use in a freshmen microbiology lab in a community college setting, where the class size is small and student demographics range from traditional to non-traditional students, various ethnicities and first generation college going cohort.

Citation:

Related Materials and Opportunities:

This resource is an adaptation of:


and contains some content adapted from:

*Resource previously featured as a Resource of the Week.

The author created this resource while participating in the Spring 2019 Biology Students Math Attitudes and Anxiety Program (BIOMAAP) Faculty Mentor Network (FMN). In this FMN, participants learned how math attitudes can impact Biology students and explored a range of tools to address math attitudes and anxiety in their Biology courses. In addition to the resource featured in this ROW, FMN participants created adaptations of several BIOMAAP resources, including:

- “Intro to BIOMAAP - Student Math Anxiety Overview”
- “Introduction to Growth Mindset”
- “Figure of the Day”
- “Answer Checking”
- “Reflective Writing”

Additional FMN products will be archived on the BIOMAAP FMN page, so check back! You can learn more about BIOMAAP and browse all BIOMAAP resources on the BIOMAAP group on QUBES. If you are interested in learning about upcoming BIOMAAP activities and opportunities, please join the BIOMAAP group. If you are interested in participating in an FMN, apply today for one of the Fall 2019 FMNs.

You can learn more about BIOMAAP resources during their conference session at the 2019 QUBES/BioQUEST Summer Workshop, “Evolution of Data in Classroom: From Data to Data Science” (July 14-19, 2019 at the College of William and Mary in Williamsburg, VA). Participants in the 2019 QUBES/BioQUBEST Summer Workshop will explore how to build on the ways data is currently used in classrooms to introduce students to appropriate data science practices. If you are not able to attend this workshop, you can foll
QUBES and BioQUEST on Twitter and Facebook, where conference-related content will include #QBioEd19.

Also be sure to check back later on the workshop website where you will find posters and session materials presented at the workshop along with recordings of presentations. You can also subscribe to receive upcoming QUBES Newsletters where we will be sharing highlights from the 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 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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