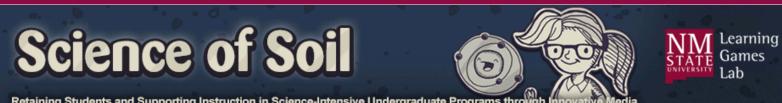


# **Evaluation of Innovative OnLine Learning Tools for Soil Science**



**United States** National Institute of Food and **Department of** Agriculture





Findings About the Project

#### Learning Modules

The Science of Soil project was created to fill the gaps in Soil and Environmental Science undergraduates' knowledge of key concepts in the classroom. The Science of Soil module suite includes short animations, interactives and live action videos that teach a range of mathematical and Soil and Environmental concepts. The entire suite will be available in Fall of 201

Multidimensional Thinking Animation V his short animation explores the differences between the first, second, and third dimensions in unit measurement, as well as the

> mportance of correct unit labeling. Production History

· Learning Guides (Coming in Fall 2013)

ientific Graph Reading Interactive



eriment that teaches efficiency, deficiency and optimization within losing curves. Also included in this module is the short Magic o Reading Graphs walkthrough that teaches all the basics of graph

Production History • Learning Guides (Coming in Fall 2013)

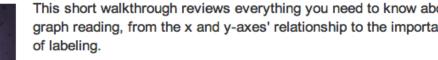
#### The Magic of Reading Graphs View modul

### Project Objectives

• Develop online resources for undergraduate plant, soil, and environmental sciences education

• Develop educational animations, games, simulations, and interactive modules to increase conceptual understanding of STEM content

• Increase the number and quality of graduates in plant, soil, and environmental science majors



Based on lab experience, exemplary teaching, and focus group interviews, the team identified needed outcomes for interactive modules.

### Products

- Based on an intensive design process, learning modules were integrated with instruction in soil, plant, soil and plant science classes for use by students.
- After using them, students should know content better, feel more confident in their ability to apply **learned material** to real-world contexts, and be better able to envision themselves in related careers.

#### **Skill Sets Addressed**

The developed materials address frequently misunderstood concepts specific to soil and environmental sciences.

310-541-1504

scassidy@wexford.org

575-646-5658

jgleason@nmsu.edu

## These are freely available at scienceofsoil.org

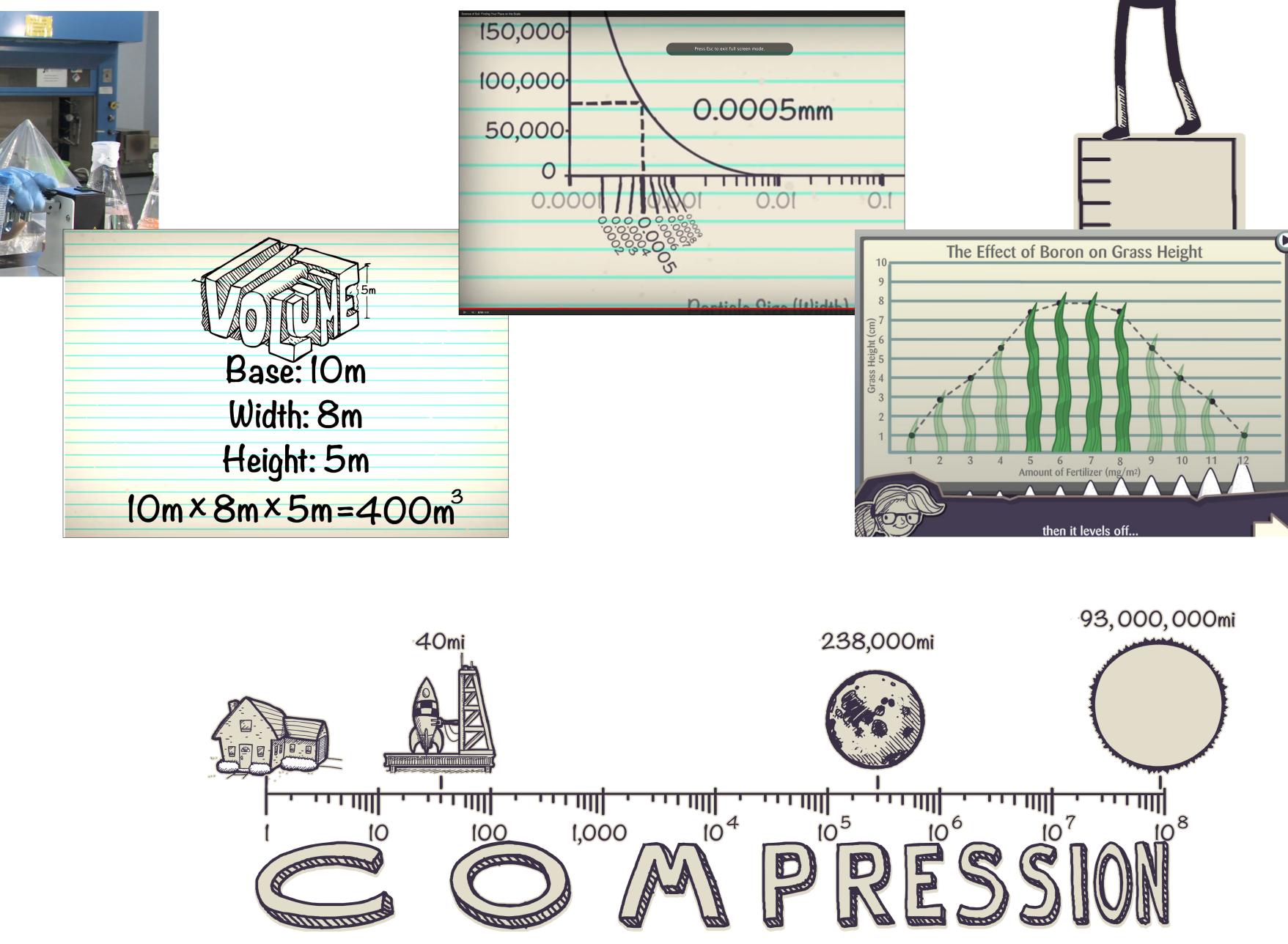
### Products were shown in SOIL and HORT classes

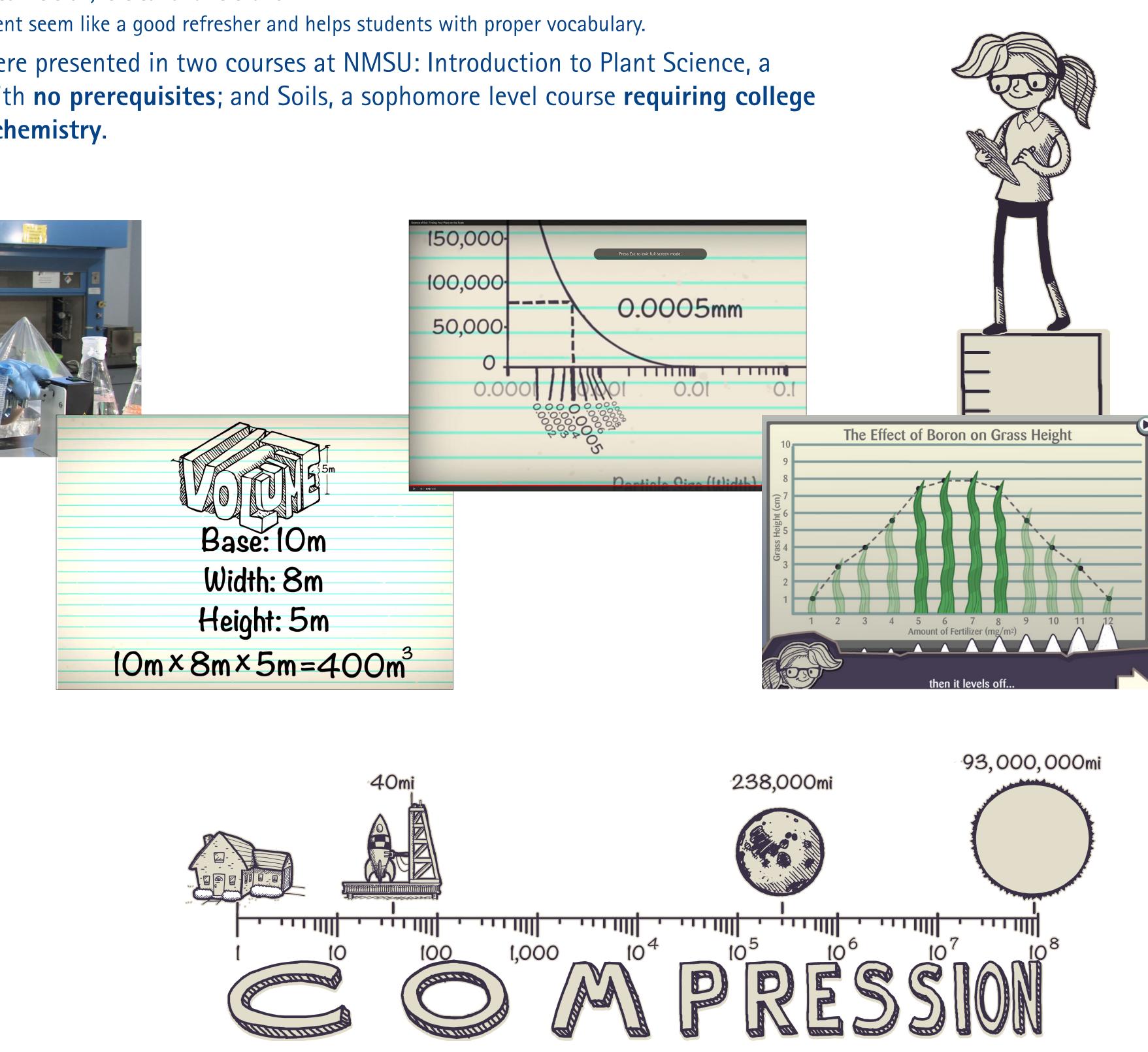
#### Students' feedback on animations

- Length, style, and approach are appropriate.
- Content (graphing and unit conversion) is clear and relevant.
- The casual style makes content seem like a good refresher and helps students with proper vocabulary.

The learning products were presented in two courses at NMSU: Introduction to Plant Science, a freshman level course with **no prerequisites**; and Soils, a sophomore level course **requiring college** algebra and freshman chemistry.







- How to develop, read and interpret graphs
- When to use logarithms and how to read a log scale
- Working in 2 and 3 dimensions

one semester.

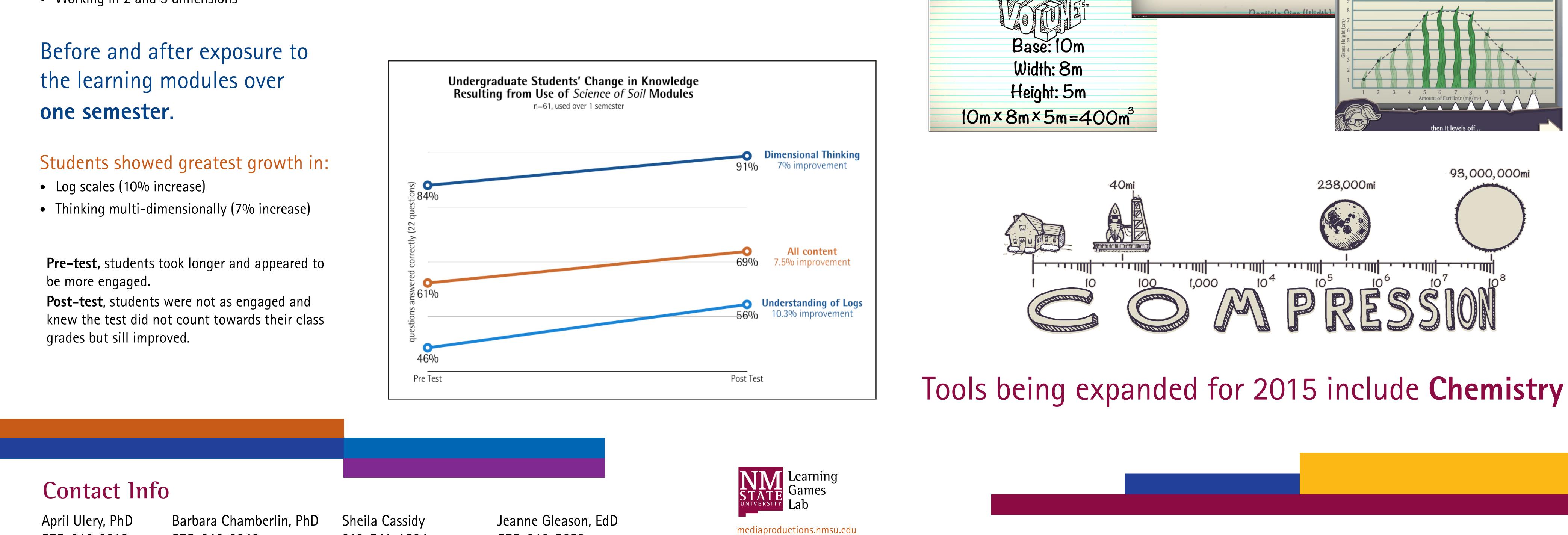
575-646-2219

aulery@nmsu.edu

be more engaged. **Post-test**, students were not as engaged and grades but sill improved.

575-646-2848

bchamber@nmsu.edu



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