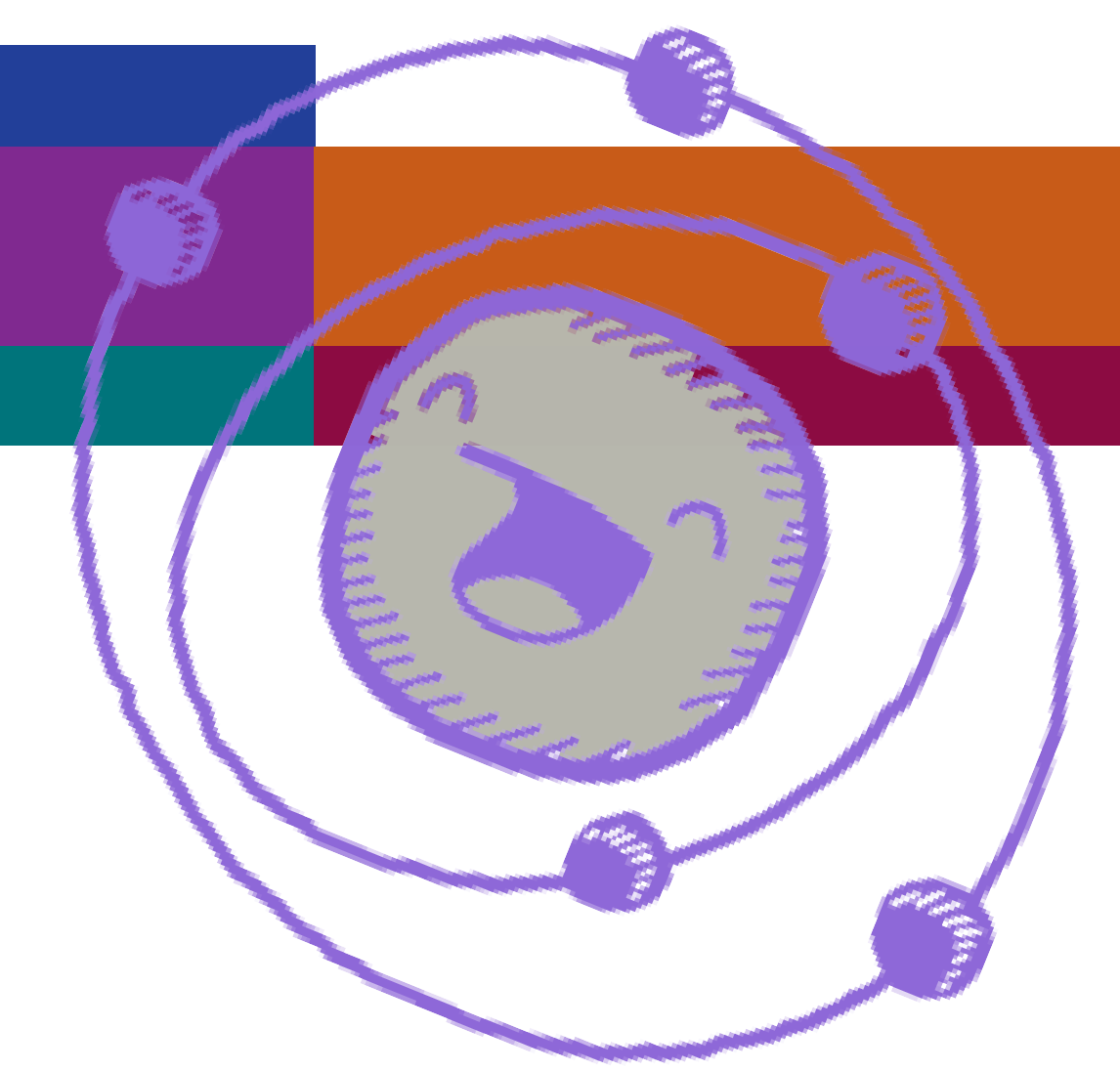


Project Objectives

- 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

These are freely available at scienceofsoil.org



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.

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

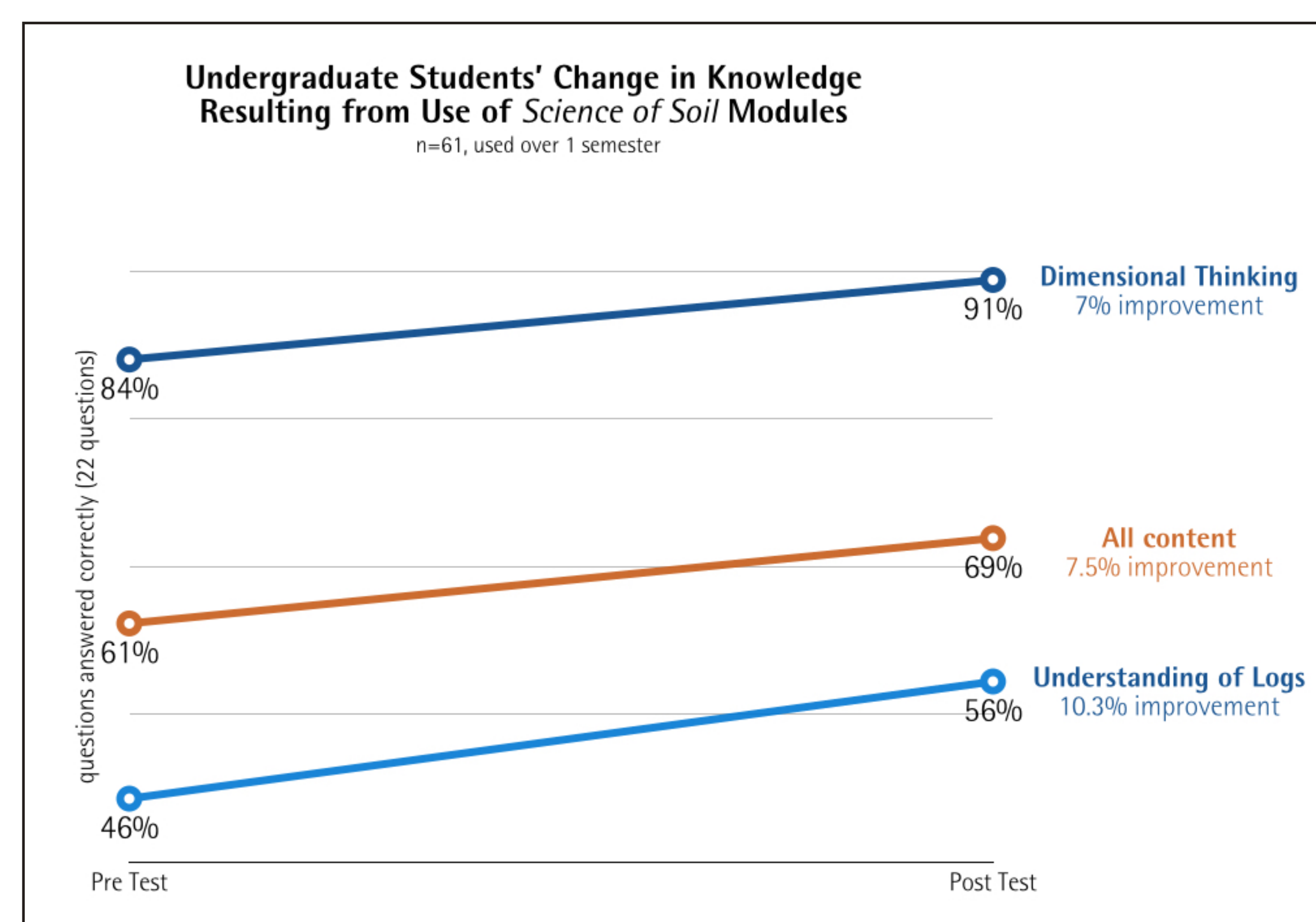
Before and after exposure to the learning modules over one semester.

Students showed greatest growth in:

- Log scales (10% increase)
- Thinking multi-dimensionally (7% increase)

Pre-test, students took longer and appeared to be more engaged.

Post-test, students were not as engaged and knew the test did not count towards their class grades but still improved.

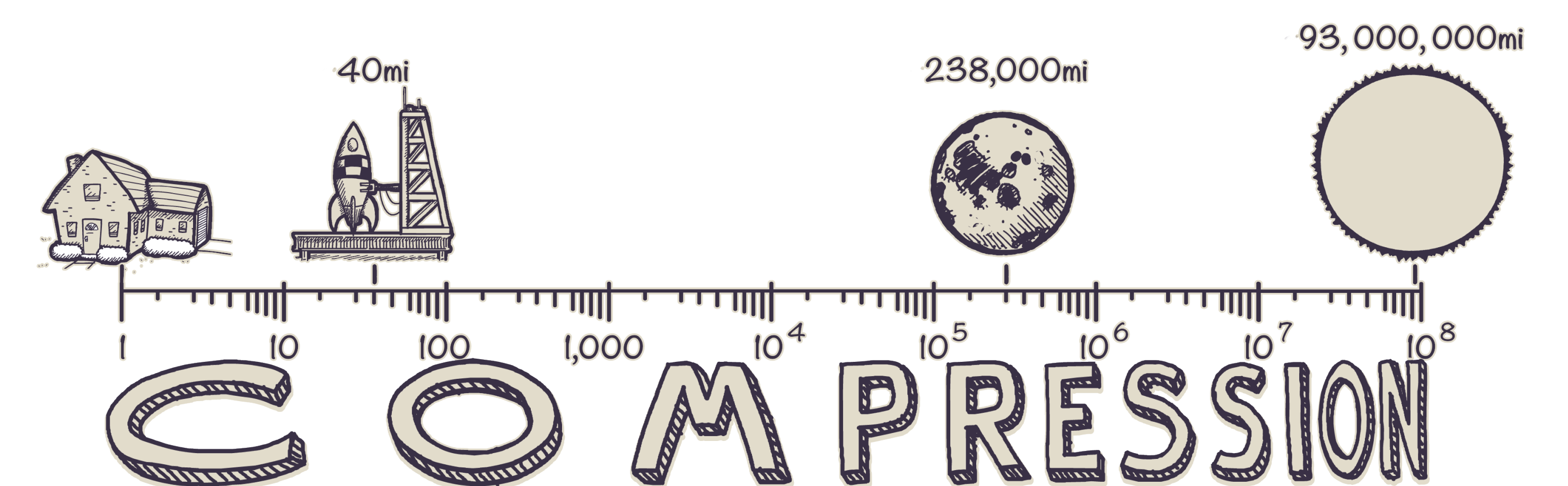
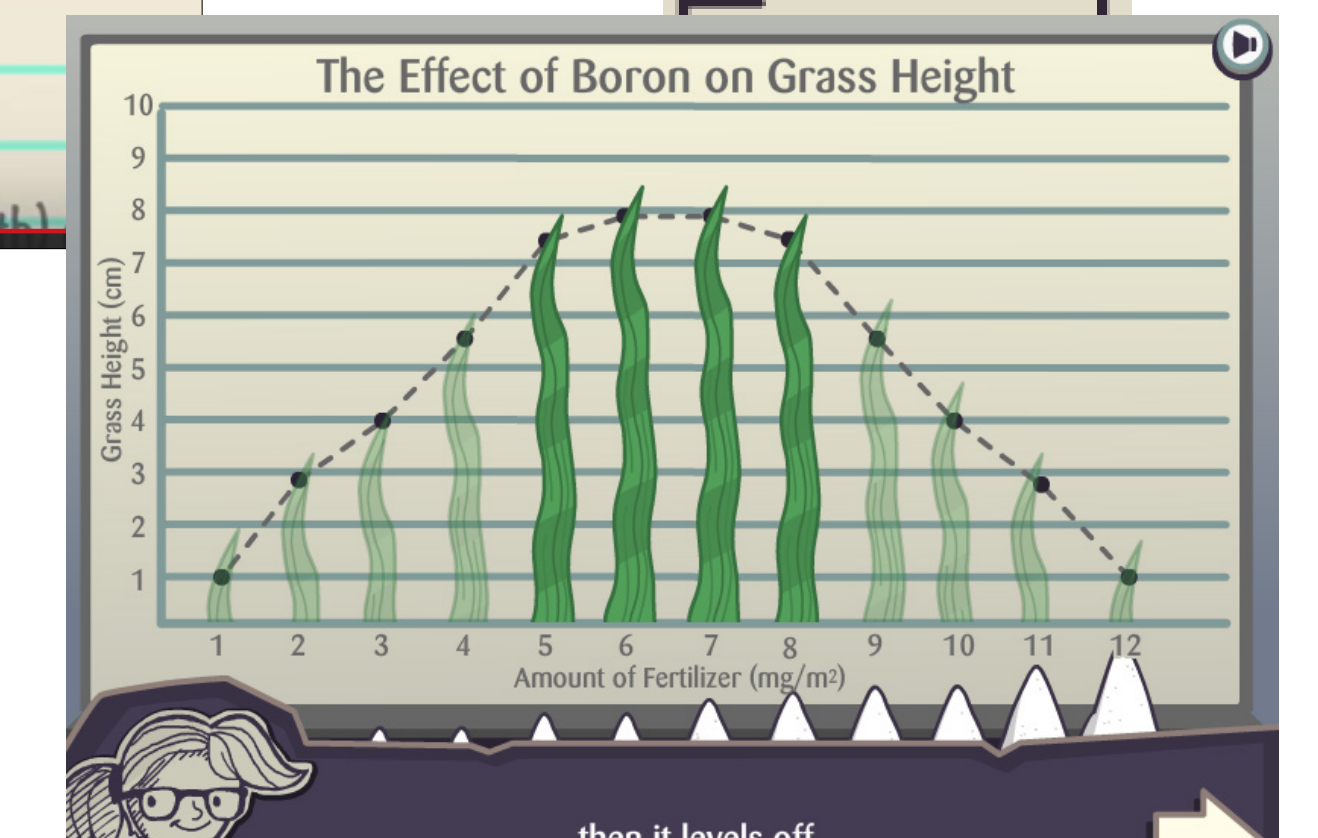
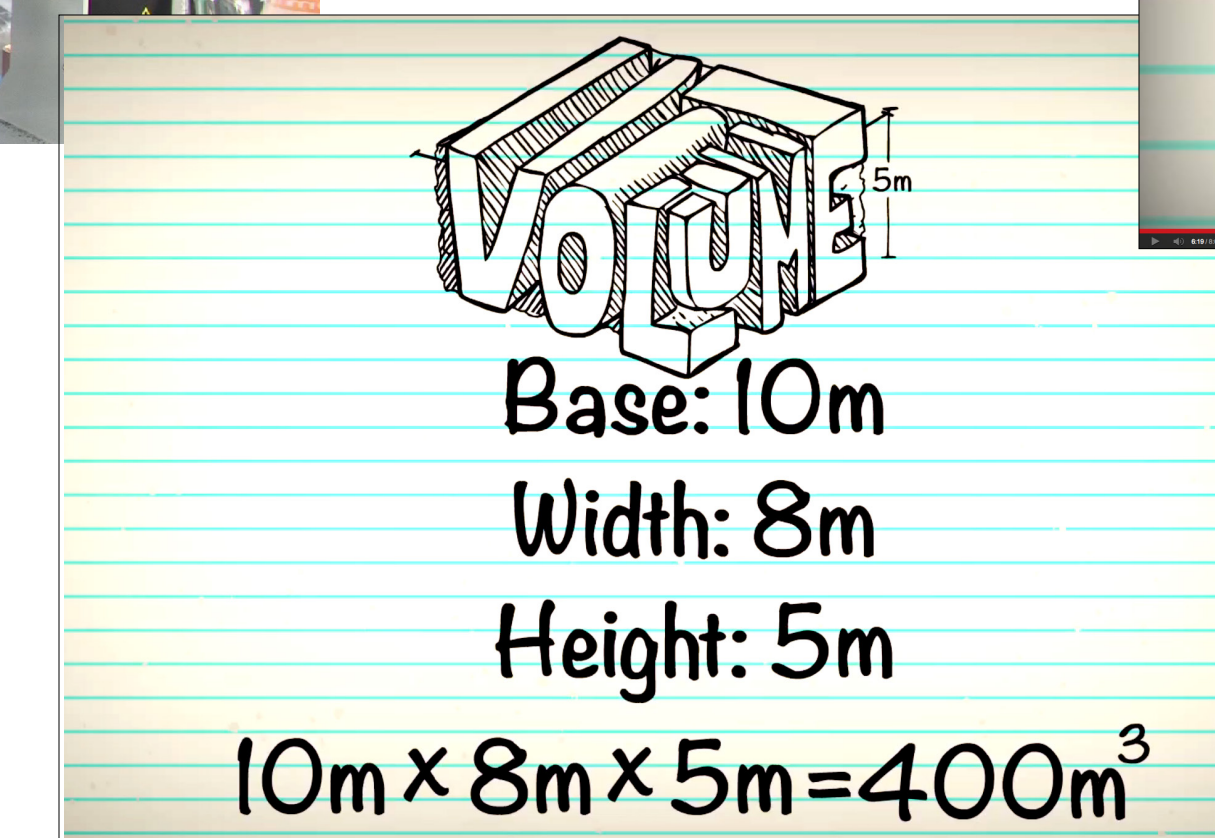
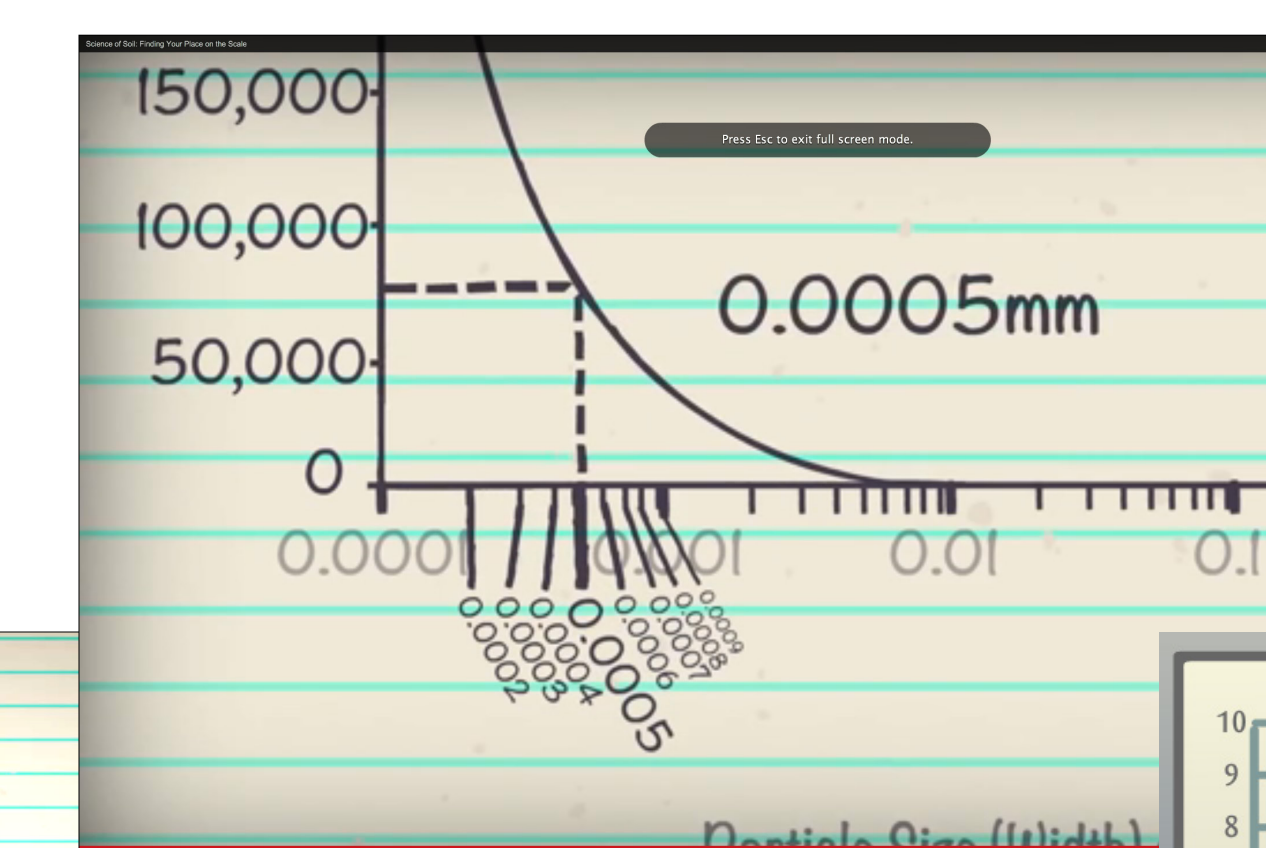


Products were shown in SOIL and HORT classes

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.



Tools being expanded for 2015 include Chemistry

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