In Vermont, science proficiency is based on the Next Generation Science Standards. Students develop their science skills, demonstrate understanding in the disciplinary core ideas and crosscutting concepts (CCC).

Earth science course at U-32 public high school. A total of 53 students across 3 sections.

CCC explicitly taught through activities based on the proficiency scale
- Defining each CCC
- Writing arguments to support why a given CCC applies to a given scenario
- Make a claim about the CCC in given scenario and support with evidence
- CCC Proficiency scale referenced by teacher and students throughout treatment period

Mastery of CCC
- CCC Pre scores based on CCC pre mastery test
- CCC Post scores based on CCC post mastery test
- If score = 0, than score based on the two formative assessments that assessed skill level at Beginning and Developing on the proficiency scale.

Mastery of Content
- Unit summative assessments at the end of each unit
- Likert style questions in a pre and post survey determined student confidence with CCC

The data suggests that
- There was no significant difference between the CCC pre and post scores.
- There was no significant difference between the unit summative assessments before treatment and post treatment.
- No conclusion can be made that the proficiency scale contributes to student mastery
- There was an association between direct teaching of the CCC and student understanding of the DCI. Magnitude and direction of the association was not determined.

Students confidence with the CCC improved over the treatment period.