Cal State Channel Islands
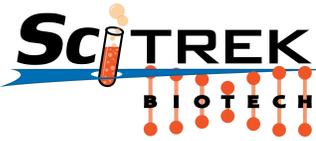
24-25 Second Grade Report and Third Grade *Attitudes & Draw a Scientist Task*

Report completed May, 2025 by Undergraduate Researcher, Tate Universe

Data Collection and Data Management

Assessments were handled by the SciTrek Biotech UC Santa Barbara Assessment Coordinator, Tate Universe. Tate was responsible for the proctoring of assessments used to collect data, as well as coding and grading, and uploading them into a secure SciTrek Biotech database.

The graph below represents SciTrek Biotech's involvement in the classroom, split between the weekly SciTrek Biotech learning interventions and the starting/ending assessments.

ID	SciTrek Biotech Intervention	2024 Sep	Oct	Nov	Dec	2025 Jan	Feb	Mar	Apr	May
1	Pre-Module Assessment	███	███							
2	Module Intervention		███	███						
3	Pre-Module Assessment							███		
4	Module Intervention							███	███	
5	Post-Module Assessment									███

One second grade class joined after module 1, and the third grade class only participated in a Spring semester module (resulting in two assessments collected instead of three, and no initial *Attitudes* assessment). Due to unforeseen challenges, only the data on *Attitudes* and *Draw a Scientist* were gathered from the third grade's module post assessment.

Demographics

For the 2024-2025 school year, SciTrek Biotech Channel Islands conducted SciTrek Biotech module-activity interventions in 11 classrooms; (10 second grade classrooms, and 1 third grade classroom) we collected data on 278 students total (258 second graders and 20 third grade students).

Second Grade	Pre	Mid	Post
Class 1	██	██	██
Class 2	██		██
Class 3	██		
Class 4	██		██
Class 5	██		██
Class 6		██	██
Class 7	██	██	██
Class 8	██	██	██
Class 9	██	██	██
Class 10	██	██	██
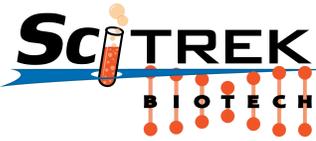
Observation Assessment

There were two main measures for the Observation Assessment, those being definition of an Observation (A description using your five senses), and student ability to evaluate statements as observation or not an observation. Below are graphics representing student accuracy cumulatively and by class, on both of these measures:
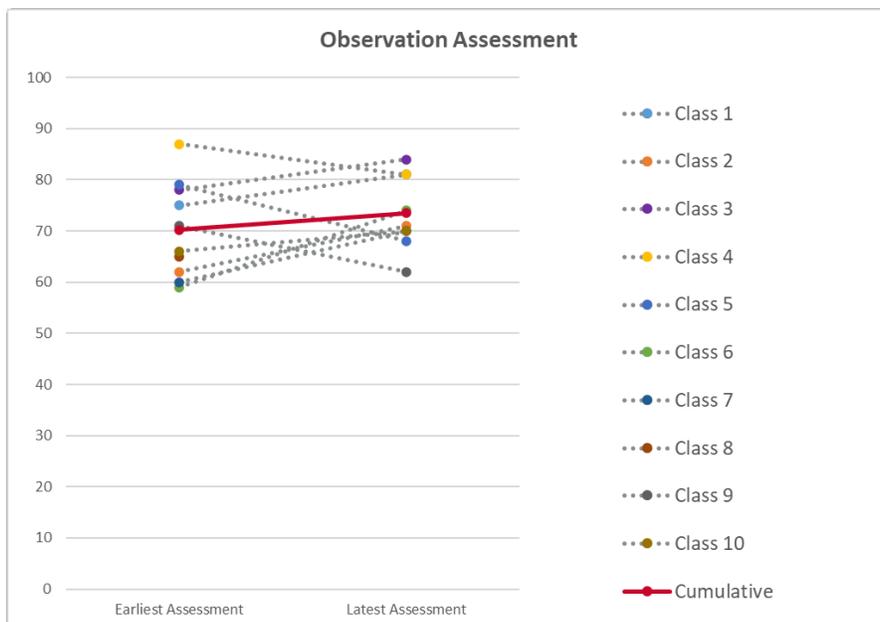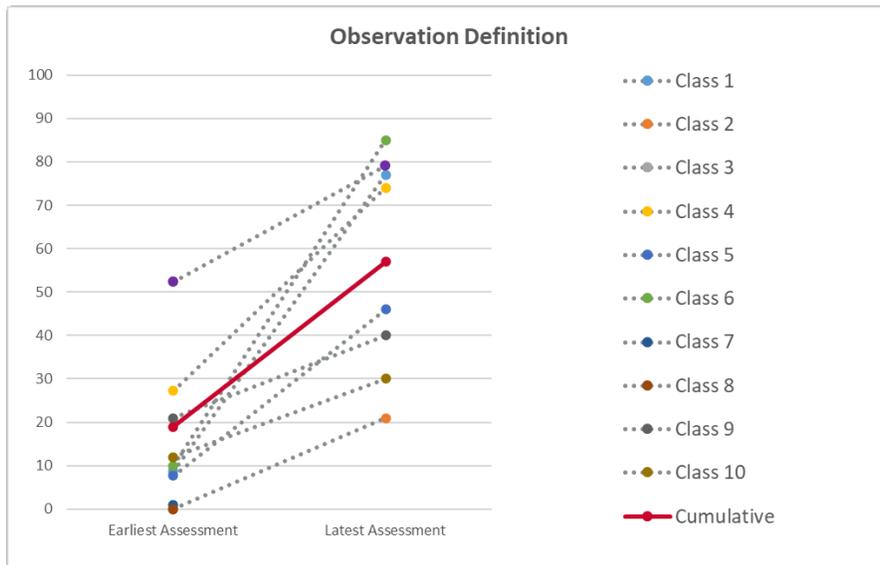
Attitudes: Pre to Post

As part of the SciTrek Biotech Assessments, we also conduct a battery of relevant attitude related questions before and after the module. Of those, we selected a few to offer insight. These measures are represented below by violin plots and bar plots.

Science Identity Measure and Liking Science as a Subject

This next section contains violin plots about the student's own overlap with a scientist, as well as how much they like science as a school subject. Both figures comprise a cumulative representation of all nine classes. (n = 216)

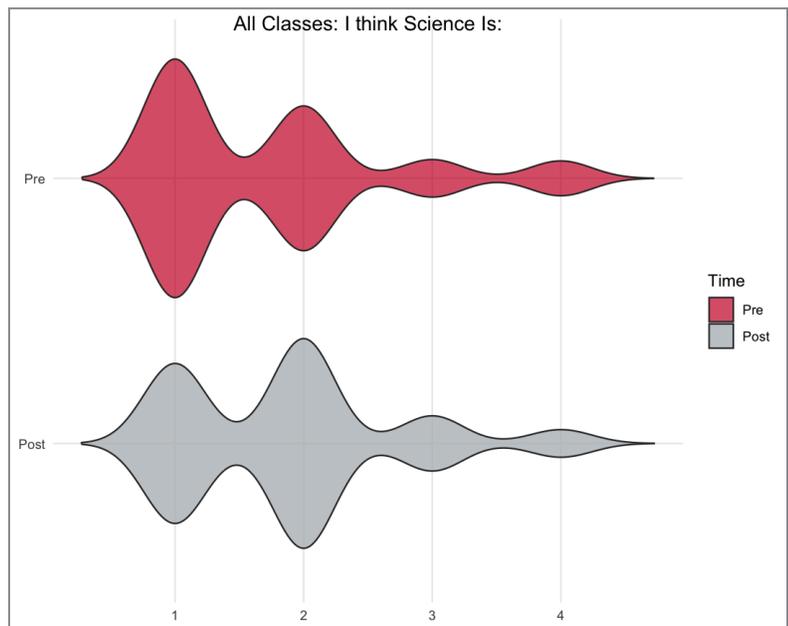**14. Which picture best represents you (circle one)?**
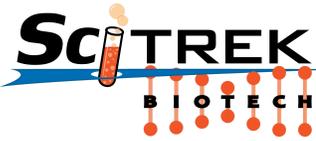

There is no overlap between you and scientists

There is lots of overlap between you and scientists

All Classes: Scientist Identity
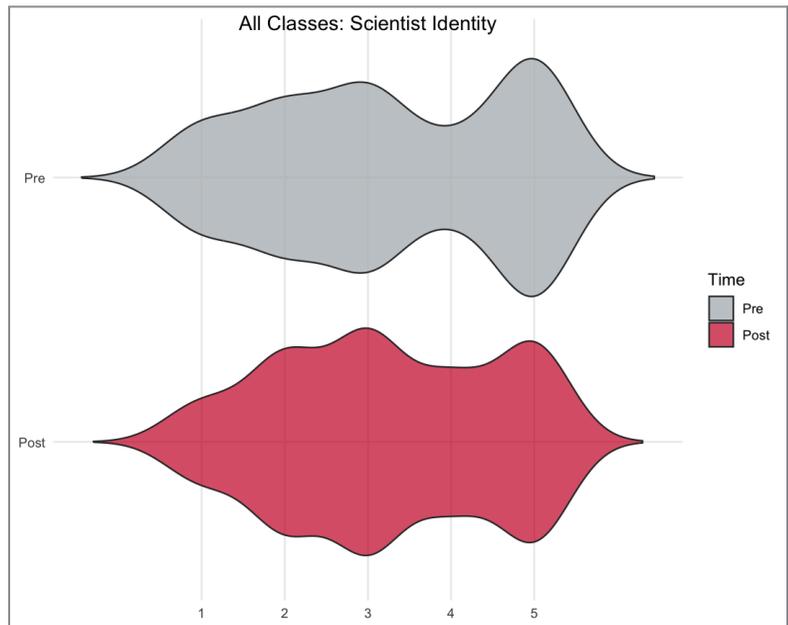
15. I think Science is (circle one):

Very Interesting   Interesting   Not Interesting   Boring



All Classes: I think Science Is:

Attitudes Towards Science

We asked several questions at the end of the final assessment, concerning students' individual feelings about SciTrek Biotech and science:

Attitudes Toward Science after Scitrek Biotech: All Classes

I Would Like To Be a Scientist: All Classes
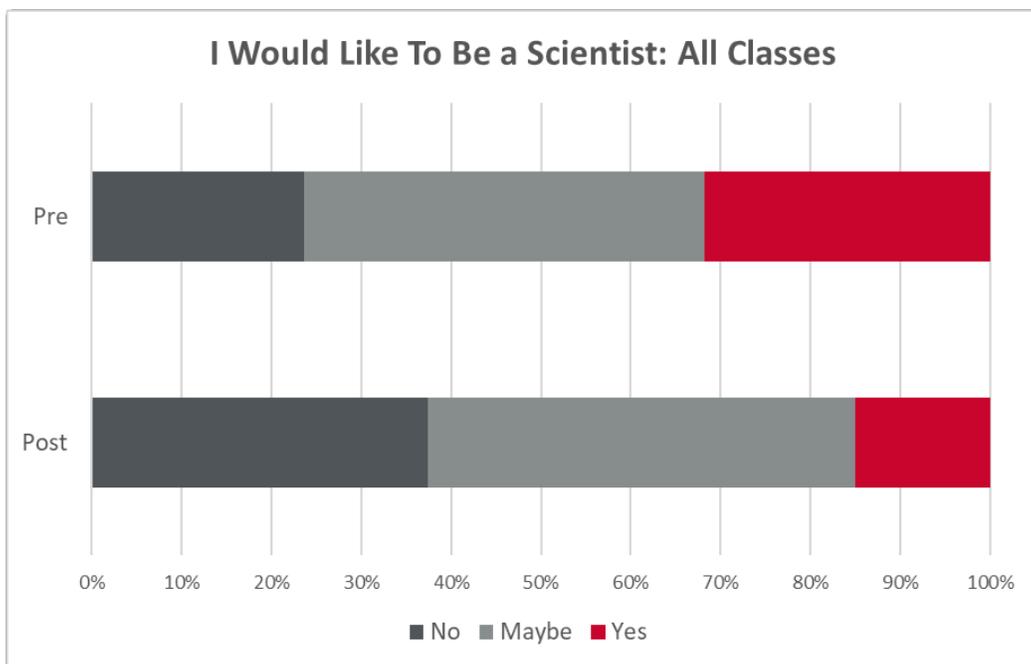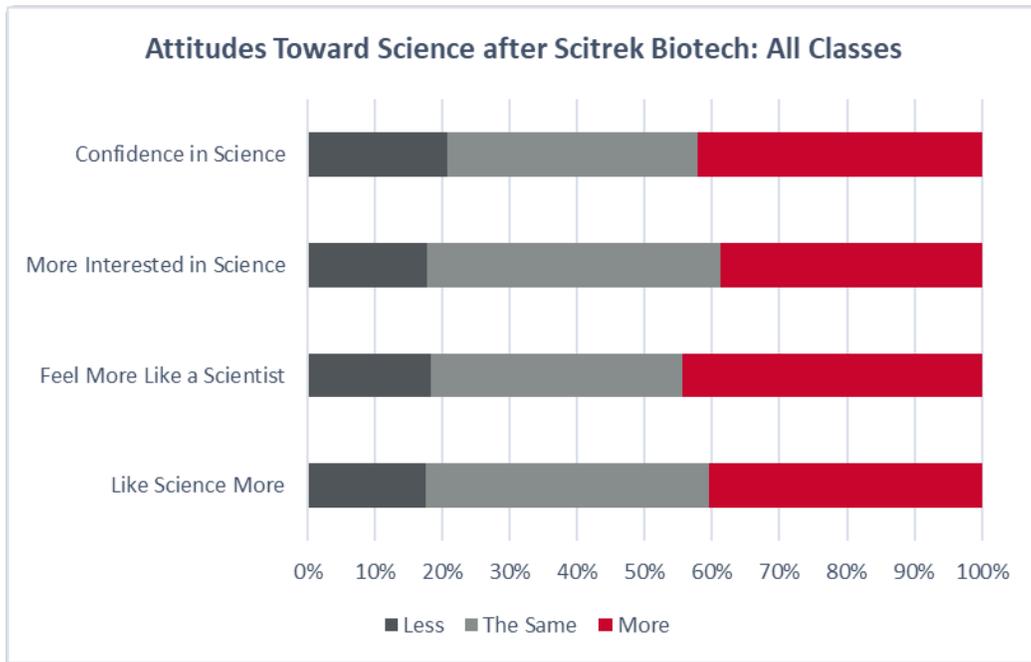
Draw a Scientist Reflections

SciTrek Biotech uses the Draw a Scientist measure and has found the content of students' creative outlets gives insight into children's ideas about science. The *Draw a Scientist Task* asks students to draw whatever type of scientist they can think of under a timed response window (four minutes), and we evaluate elements of the content including who or what type of person was drawn.

We selected a few students' drawings that may offer unique insights. Things we look for in the drawings include: (1) whether or not the student drew the assessment coordinator, (2) whether the student drew any family, famous, mythical, or other subject, (3) whether the student drew a female scientist, (4) whether the student drew someone with a positive affect, and
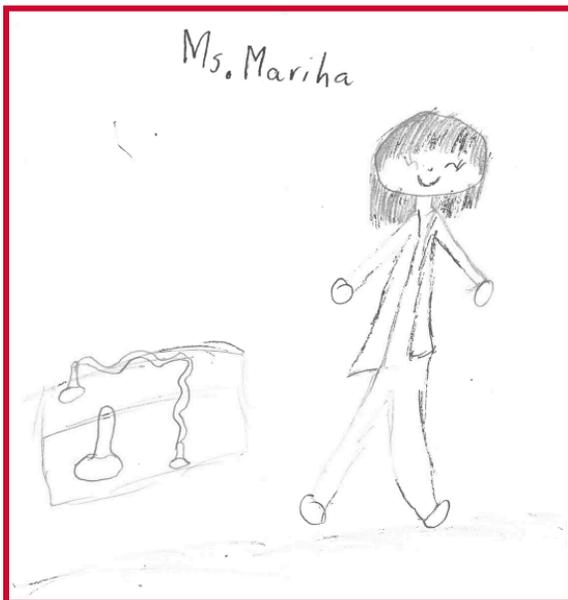
(5) whether the student drew themselves. The next figure represents these frequencies compared pre to post for all classes. We also look for times when students draw SciTrek Biotech volunteers or module leads (example pictured left)
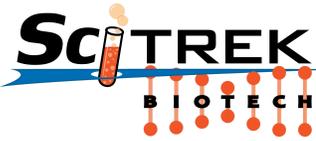
Draw a Scientist

Pre vs. Post DAST, by Focus (Second Grade)
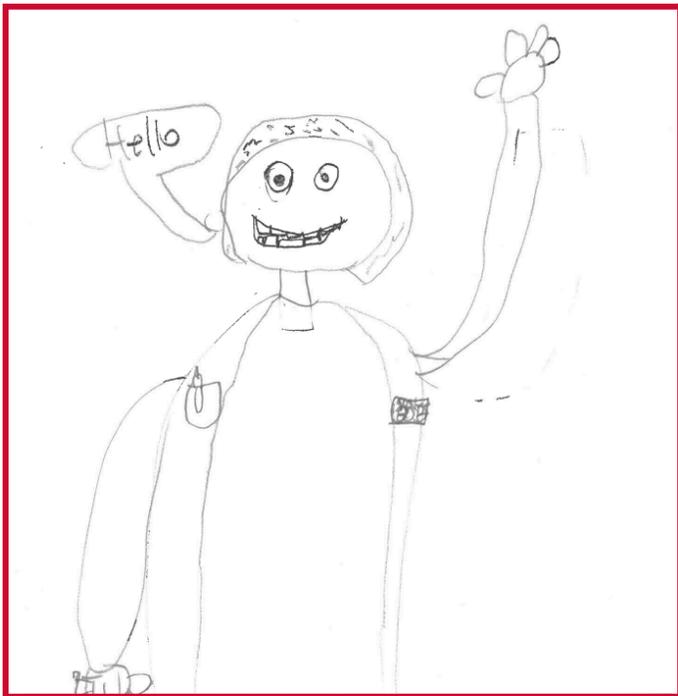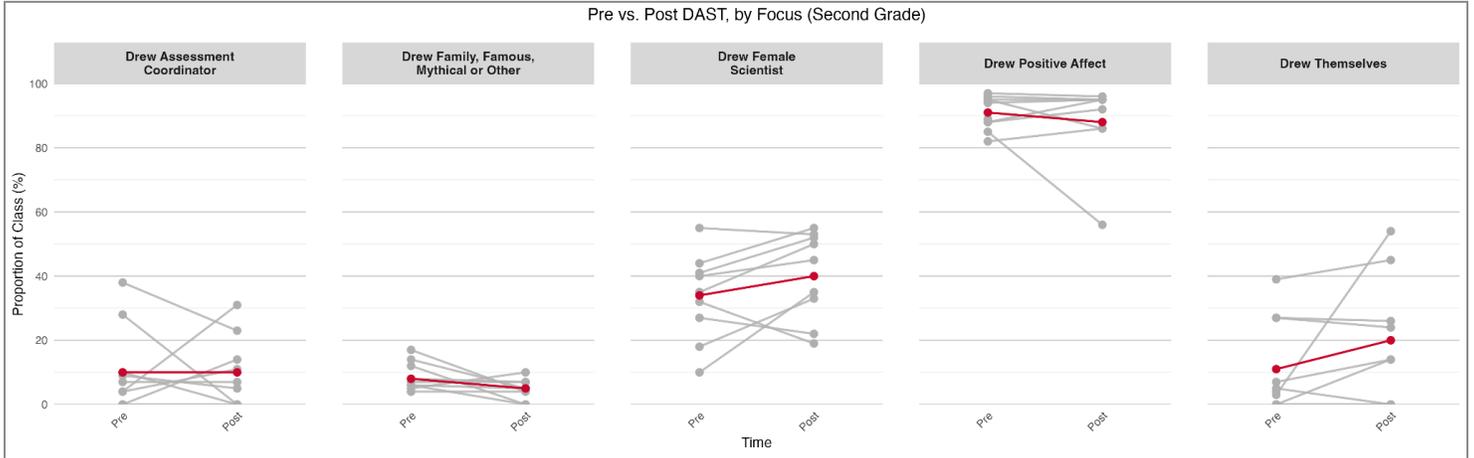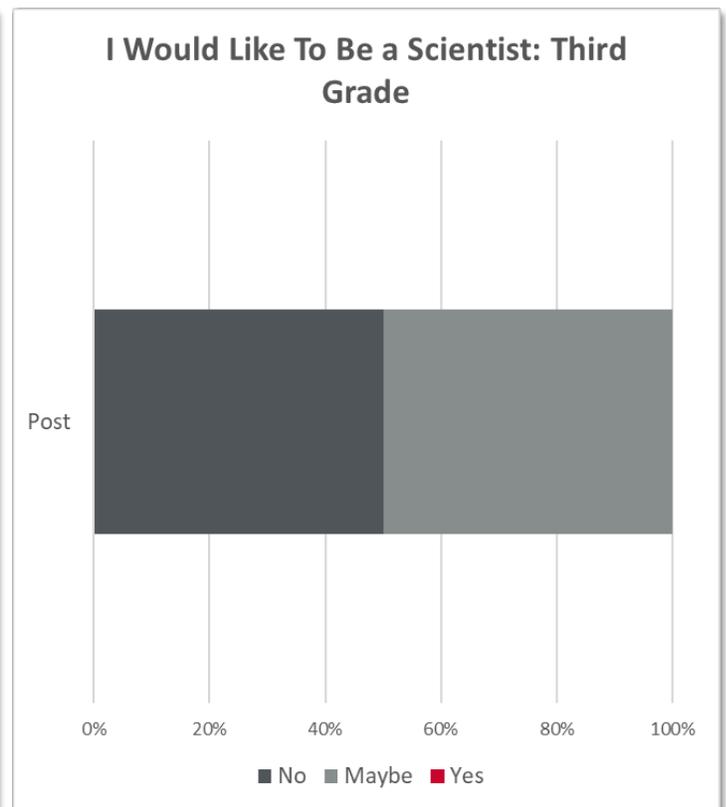

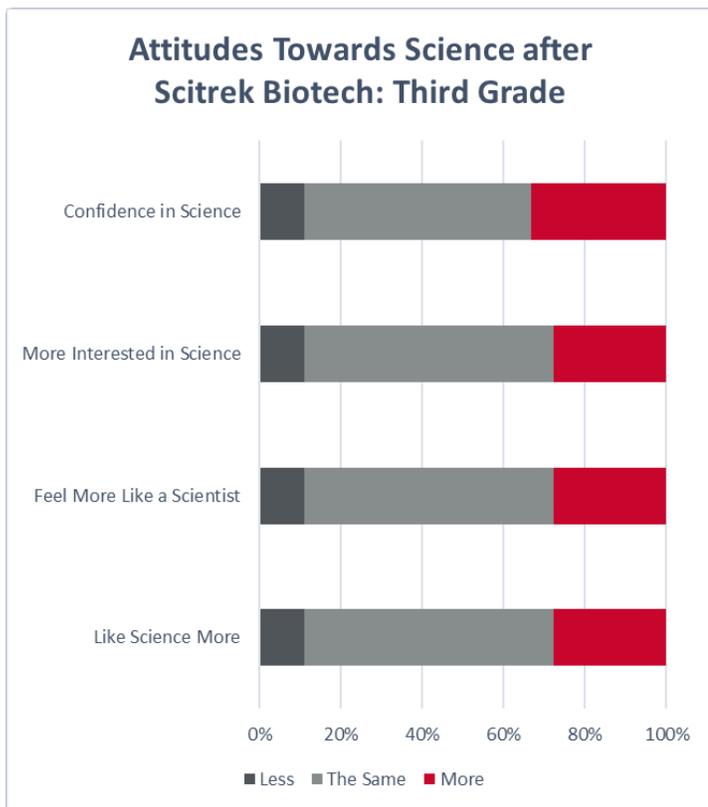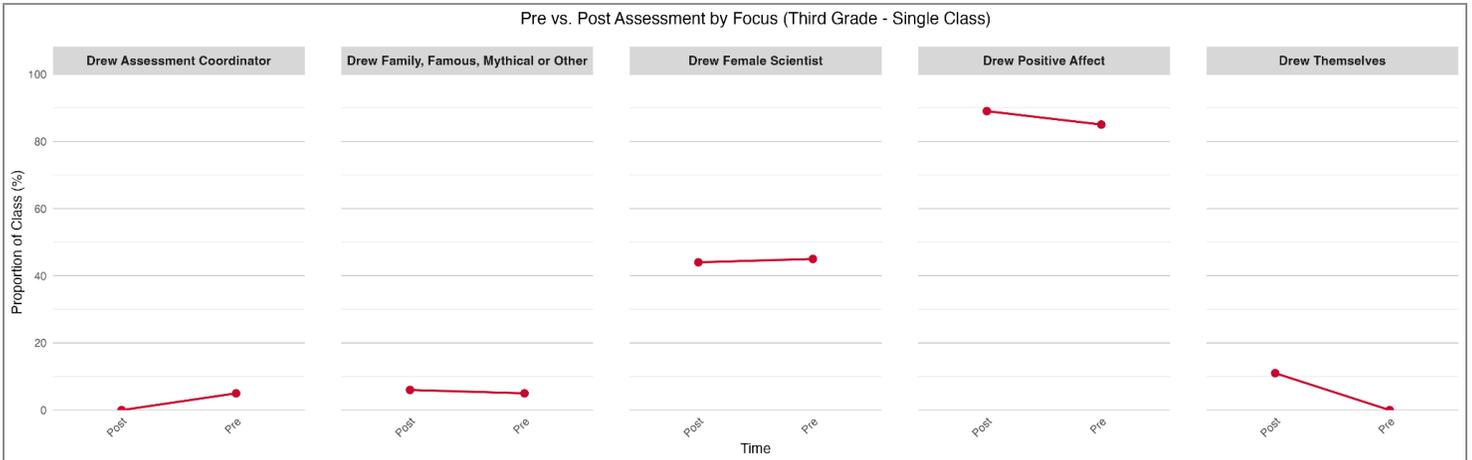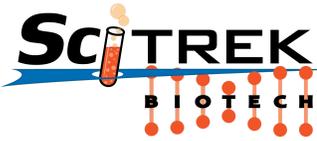This drawing includes clear indicators of positive emotion (e.g., smiling, excitement).

This drawing features a female-presenting person.

Third Grade Attitudes Toward Science and Draw a Scientist Task

Due to unforeseen data collection issues for third grade, we have data only from post-SciTrek Biotech science identity questions, and the *Draw a Scientist Task* to report on.

Pre vs. Post Assessment by Focus (Third Grade - Single Class)

Attitudes Towards Science after Scitrek Biotech: Third Grade

I Would Like To Be a Scientist: Third Grade

Conclusion

Overall, there were clear positive effects of the SciTrek Biotech program on students' scientific observation-making abilities, and SciTrek modules prove to be effective in increasing understanding of observations. Furthermore we also find that many students find themselves more confident and interested in Science, and feel more like a scientist after the SciTrek Biotech experience! Students' drawings reflect that after experiencing SciTrek Biotech modules, they are more inclined to draw themselves as scientists as well as draw female scientists.