



PLANTINGSCIENCE

DIGGING DEEPER TOGETHER

SUMMARY OF RESEARCH RESULTS 2015-2021

THANK YOU FOR YOUR PARTICIPATION!

The Digging Deeper Research Study was a success because of the participation of districts from across the country. We appreciate the time and effort of participating teachers and students, and the scientists who supported them.



STUDY GOALS:

Digging Deeper was a research study designed to investigate the effectiveness of a partnership program involving high school students, teachers, and scientist mentors for improving students' science learning.

KEY FEATURES:

Fully randomized control design
This research design is the gold standard for intervention research in education.

One week of in-person collaborative professional learning
Teachers and early-career scientists participated in a workshop to prepare them to co-mentor student teams through plant science investigations.

Teachers taught the PlantingScience Power of Sunlight module to students
Students took part in guided and open investigations to explore photosynthesis and cellular respiration.

Students communicated with mentor scientists online
During the Power of Sunlight module, student teams collaborated with their scientist mentor using the PlantingScience platform.

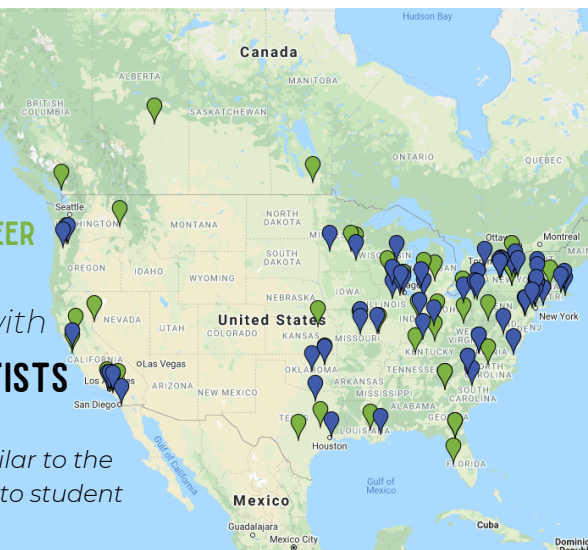
PROGRAM PARTICIPANTS INCLUDED:

66 TEACHERS
working with
~3000 STUDENTS*

43 LIAISONS (EARLY-CAREER SCIENTISTS)

working with
400+ MENTOR SCIENTISTS

**Schools in the study were very similar to the overall US population with respect to student composition.*



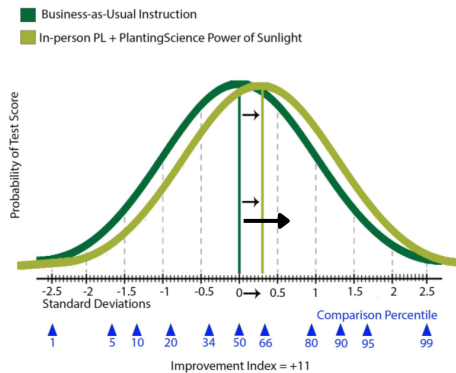
RESULTS

OF THE DIGGING DEEPER RESEARCH PROJECT



STUDENTS IN THE PLANTINGSCIENCE TREATMENT GROUP SHOWED GREATER GAINS IN CONTENT KNOWLEDGE AND ATTITUDES ABOUT SCIENTISTS THAN STUDENTS IN THE COMPARISON GROUP

WHAT WE LEARNED:



The What Works Clearinghouse Improvement Index indicates that students who participated in the PlantingScience *Power of Sunlight* program would be expected to outperform students who did not receive the intervention by **11 percentage points** on average.

FULL RESULTS OF THE STUDY

IN THE JOURNAL OF RESEARCH IN SCIENCE TEACHING

Taylor, J. A., Adams, C. T., Westbrook, A. L., Creasap Gee, J., Spybrook, J. K., Kowalski, S. M., Gardner, A. L., & Bloom, M. (2022). The effect of a student–teacher–scientist partnership program on high school students' science achievement and attitudes about scientists. *Journal of Research in Science Teaching*, 59(3): 423–457. <https://doi.org/10.1002/tea.21733>

WHAT'S NEXT?

Due to the success of Digging Deeper, the National Science Foundation has funded a continuation of the research. The new project will focus on **repeating the study, as replication studies are much needed but rarely done** in education research. The new research will also include **comparing the effectiveness of professional learning delivered in-person with an equivalent online collaborative teacher-scientist professional learning**. The next round of research will take place 2023-2024.



QUESTIONS? CONTACT:

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GET INVOLVED!

The *Power of Sunlight* module, and other PlantingScience modules are available for free for any teacher. All modules provide the opportunity for students to interact online with scientist mentors. Visit <https://plantingscience.org> to learn more.



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