

The STeLLA[®] Effect

BSCS Science Learning has developed a nationally-recognized program for teacher learning called STeLLA, Science Teachers Learning from Lesson Analysis. K-12 science teachers who want to implement research-based curriculum or improve their teaching have something to gain from this proven program. And so do their students--especially right now!

It has been difficult for teachers to engage all students amidst this pandemic. Meaningful science learning opportunities may be the key to re-engaging students now and transforming how they apply science throughout their lives.

STeLLA is based on a 17-year line of research and development. Today, we are translating research into practice by introducing broadly accessible, online versions of the program for elementary and secondary school teachers.

Interested? Learn more!



Our STeLLA Story

Nearly two decades ago, BSCS researchers and educators observed a persistent issue in science education. Students were not developing the scientific understanding they needed to make sense of our complex world. This was true even when teachers engaged students in the kinds of experiments and hands-on activities that experts recommended.

Where was the disconnect? And what needed to change?

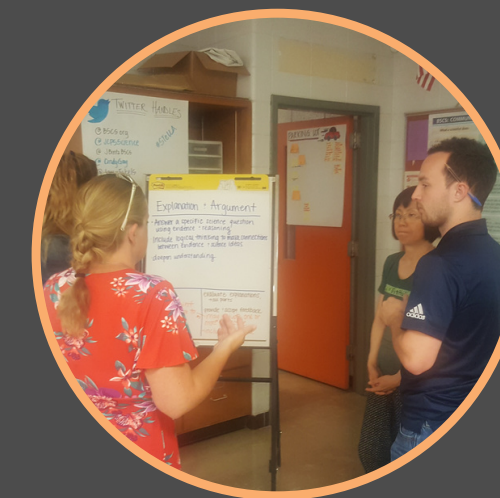
Inspired by this challenge, we set out to create a new approach for educating teachers. We believed that learning to use effective teaching strategies through video-based lesson analysis could transform science teaching and student achievement in science. The resulting STeLLA approach was promising from the start and is nationally-recognized today.

Over the last 17 years, STeLLA has demonstrated impacts on both teacher and student learning above and beyond any

impacts from a traditional science teacher professional learning program.

STeLLA produces impressive outcomes and works across contexts. It has proven effective in both preservice and inservice programs; in district-wide programs and in programs enrolling individual teachers; in programs for elementary, middle, and high school teachers; and in programs facilitated in person and online.

Today, we are doing everything we can to bring STeLLA to K-12 science educators across the country.



Why STeLLA is the Science Learning Program Needed Now

Teachers will:

- participate in a program that has shown to significantly improve science teaching and student achievement in science.
- become more effective and confident in the classroom.
- feel a sense of community through this work.
- receive a participation certificate that can be applied toward recertification credits.

Students will:

- learn more science in each unit than they do in other curriculum.
- have space and opportunities to share their voices and ideas in the classroom.
- become more engaged in science than ever before.
- discover that they can apply science throughout their careers and lives, whether as a citizen or as a scientist.

STeLLA is now available in an online format--convenient for urban and rural teachers alike!



How STeLLA Works

STeLLA helps teachers motivate students to learn science. Specifically, it supports teachers in learning to use effective teaching strategies through a powerful video-based lesson analysis approach. Strategies include engaging student thinking and organizing instruction in a way that connects science ideas. Teachers learn to use these strategies by analyzing classroom videos, and sharing their thinking in facilitated sessions with other teachers. The STeLLA program takes place in-person, online, or in a hybrid format over the course of one school year (typically 90 hours), during which teachers apply what they're learning in their own classrooms.



THE STeLLA HYPOTHESIS:

Professional development on high-leverage teaching strategies through video-based lesson analysis can transform teaching and student learning.

STeLLA:

Science Teachers Learning from Lesson Analysis



IMPLEMENTED ACROSS CONTEXTS:

Elementary and secondary schools with in-person and online delivery.



RESULTS:

STeLLA has demonstrated impacts on both teacher and student learning above and beyond any impacts from a traditional science professional development program.



TESTED:

10 research studies across the United States.

Learn more at
bscs.org/STeLLA

STeLLA Research Insights

STeLLA's impact on teacher and student learning is significant across contexts.

STeLLA Colorado (STeLLA CO) Research Study

144 Teachers
2,800 Students
16 Colorado Districts

➤ What We Studied

STeLLA's impact on 4th and 5th grade teachers and students

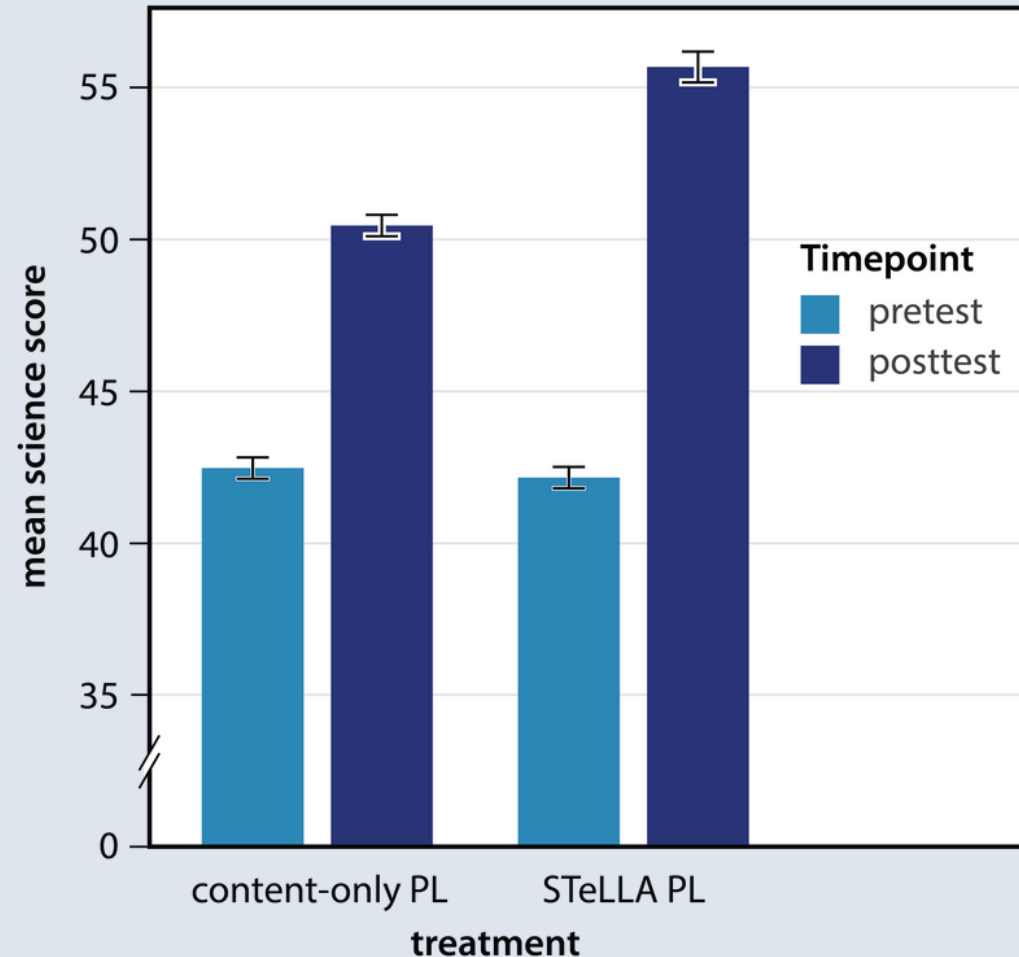
➤ Compelling Results

- Both STeLLA teachers *and* their students scored higher on tests of science content knowledge (see graph)!
- Teacher pedagogical content knowledge and classroom practice also improved significantly.

➤ What This Means

Students with teachers in STeLLA were over a year ahead in science, compared with students of teachers in the comparison program. In other words, STeLLA both improved and accelerated student learning! There's a huge opportunity to expand STeLLA's impact at the elementary level. Now we can--with STeLLA Online!

Student Science Scores by Treatment Group



error bars +/- 1 SE

WWC Effect Size was 0.68 and the p value was <0.001.

STeLLA Research Insights

STeLLA's impact on teacher and student learning is significant across contexts.

STeLLA for *A Medical Mystery* Research Study

30 Teachers
3,244 Students
144 Classrooms
(Online - Nationwide)

➤ What We Studied

STeLLA's impact on middle school science teachers and students nationwide.

➤ Compelling Results

- STeLLA significantly impacted students' 3D learning.
- STeLLA teachers had significant gains in their teacher content knowledge and classroom practice.

➤ What This Means

STeLLA supported teachers in effectively implementing an NGSS-aligned unit and engaging students in 3D learning called for by the new standards. There's a huge opportunity to expand the impact of STeLLA for *A Medical Mystery* now that the program is broadly available.



This fully online STeLLA program successfully supported teachers in implementing our new NGSS-aligned body systems unit, *A Medical Mystery*. [Watch this video](#) to learn more about the unit and research findings.

STeLLA Programs Available Now

STeLLA for *A Medical Mystery*

- For middle school science teachers
- Supports the implementation of an NGSS-aligned body systems unit
- Fully online (Summer 2021 – Fall 2021)



Learn
more!



STeLLA Online

- For elementary school science teachers
- Supports the implementation of Water Cycle and Earth's Changing Surface units
- Fully online (Summer 2021 – Spring 2022)



Learn
more!



Register for *A Medical Mystery*

This unit is brilliant--I love how the learning is layered. It is especially helpful for students who sometimes struggle or think of themselves as lesser learners. Ana, for example, panicked when she read the first focus question. Her instinct was to google the answer, because she didn't want to be wrong. But by the end of the lesson, when we returned to the original focus question, she realized that she had learned the answer, and so much more, along the way.

Judy Barrere, middle school teacher
near Seattle, Washington

This STeLLA program guides teachers through our new NGSS-aligned body systems curriculum unit: *A Medical Mystery*. The unit immerses students in an online environment that challenges them to use scientific reasoning skills and argumentation to solve, "What's Wrong with M'Kenna?"

STeLLA for *A Medical Mystery* is now available for middle school teachers in a convenient, accessible, and effective online format.



SUMMER 2021

- Develop Understanding of *A Medical Mystery*
- Learn STeLLA Strategies
- Analyze Classroom Videos of Units in Action

STeLLA for *A Medical Mystery* At-A-Glance

11 weeks of high
quality professional
learning

FALL 2021

- Implement *A Medical Mystery* using STeLLA Strategies
- Film Video of You Teaching the Unit
- Share and Analyze Videos with Peers

Register by May 7!

Interested? Secure your spot for Part 1 (Summer 2021)
at bscs.org/stellaforamedicalmystery

Questions? Contact Amy Belcastro at abelcastro@bscs.org.

Register for STeLLA Online

STeLLA Online has been a game changer. I have realized that I was a teacher who mainly focused on the correct response instead of understanding how students thought about ideas and how they connected the ideas to the main learning goal. I have a new perspective and I know that I can create a classroom environment of life-long scientists

Eula Kador, elementary school teacher in
Baton Rouge, Louisiana

Register by April 30!

Interested? Secure your spot
at bscs.org/stellaonline

Questions? Contact Amy Belcastro at abelcastro@bscs.org.

The STeLLA CO study was a resounding success. Both teacher and student learning improved significantly. Since then, we've designed and tested a fully online version of that program.

STeLLA is now available for elementary teachers in this convenient, accessible, and effective online format.

