

Science Teachers Learning through Lesson Analysis (STeLLA®)

Intervention Snapshot | Primary Science Topic Area

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WHAT WORKS CLEARINGHOUSE™

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Large numbers of U.S. students lack proficiency in science, and students from different racial/ethnic and socioeconomic groups show disparities in science achievement. Science knowledge and skills are important for both academic and workplace success, and a variety of interventions have been developed to improve student achievement in science. These interventions include professional development programs for teachers that are designed to change teachers' content knowledge or classroom instruction in science. *Science Teachers Learning through Lesson Analysis (STeLLA®)* is a professional development program, developed by BSCS Science Learning, that aims to improve students' science achievement by improving teachers' science content knowledge and their abilities to (a) explain science concepts to students, (b) clearly identify to students the science concepts used in student learning activities, and (c) engage students in thinking about science.

Participating teachers learn from postsecondary science faculty to improve their knowledge of the science content areas they will teach during the school year; become familiar with *STeLLA®* lesson plans and instructional strategies; work in study groups led by *STeLLA®* professional development leaders to analyze videorecorded examples of experienced teachers implementing

STeLLA® lesson plans and strategies; and videorecord their own classroom instruction and meet with their study group to analyze one another's videorecorded lessons.

This What Works Clearinghouse (WWC) intervention report, part of the WWC's Primary Science topic area, explores the effects of *STeLLA®* on science achievement. The WWC identified three studies of *STeLLA®*. One of these studies meets WWC standards. The evidence presented in this report is from one study of the effects of *STeLLA®* on students—including 59% White, 4% Black, 2% Asian, and 28% Hispanic students—in grades 4 and 5 in urban, suburban, and rural schools in Colorado.

Findings on *STeLLA®* from one study that meets WWC standards are shown below. The table reports an effectiveness rating, the improvement index, and the number of studies and students that contributed to the findings. The effectiveness rating is based on the quality of the designs used in studies, whether the findings are favorable or unfavorable for the intervention, and the number of studies that tested the intervention. The improvement index is a measure of the intervention's effect on an outcome. A positive improvement index does not necessarily mean the estimated effect is statistically significant.

What Happens When Students Participate in *STeLLA®*?

	Effectiveness rating	Study Findings	Evidence meeting WWC standards (version 4.0)	
		Improvement index (percentile points)	Number of studies	Number of students
The WWC found that implementing <i>STeLLA®</i> :				
May increase science achievement	Potentially positive effects	+25	1	2,823

FINDINGS ARE BASED ON:

1 study with 2,823 students in Colorado covering grades 4 and 5



STUDENT CHARACTERISTICS:

Free & reduced-price lunch: 43%	Gender: 48% female	Race: 41% minority	Ethnicity: 28% Hispanic
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What Does *STeLLA®* Cost?

STeLLA® costs approximately \$1,750 per teacher for the yearlong program. This amount includes all materials, such as a *STeLLA®* strategy guide, lesson plans, analysis protocols, and other resources. *STeLLA®* professional development

leaders support participating teachers during the 2-week summer institute and study group sessions throughout the following school year. School districts or schools usually purchase *STeLLA®* for their teachers.

LEARN MORE



Read more about the *STeLLA®* intervention and the study that is summarized in this snapshot in the [Intervention Report](#). Contact [BSCS Science Learning](#) for additional information on implementing *STeLLA®*.