



## Charlotte County Public Schools Raises Passing Rate on Florida's Grade 5 Statewide Science Assessment by 7 Percentage Points in One Year

### SUMMARY

In [Charlotte County Public Schools](#) (CCPS), 57 percent of fifth graders passed the Florida Statewide Science Assessment in 2016, up from 50 percent in 2015. What changed from one school year to the next? In 2015-16, CCPS received a [Mathematics and Science Partnership](#) (MSP) grant and provided STEM teachers in all 10 elementary schools with the [STEMscopes™](#) online, comprehensive science curriculum and in-depth professional development to enhance their content knowledge and teaching skills.

### CHALLENGES

In CCPS, all 10 elementary schools have a science, technology, engineering, and math (STEM) lab to provide K-5 students with hands-on learning opportunities, introduce them to STEM careers, and prepare them for middle school STEM. Yet, even with regular visits to the STEM lab throughout elementary school, fifth graders still struggled on the Statewide Science Assessment.

“In our district of more than 15,000 students, test scores were declining on our state assessments in science,” said Dominic Piscitelli, a professional development specialist with CCPS. “Another challenge was that our teachers didn’t have a defined STEM curriculum uniformly applied to all elementary STEM labs. We applied for the MSP grant to enhance the content knowledge and teaching skills of our STEM teachers and increase student achievement in science.”

### SOLUTIONS

- STEMscopes Florida
- STEMscopes professional development

In 2015-16, CCPS was awarded an MSP grant from the Florida Department of Education to fund its “STEM Education Enhancement (SEE) for Student Success!” project. As part of the grant project, all 10 elementary STEM lab teachers received the [STEMscopes Florida](#) preK-12 curriculum. Built from the ground up to help students meet today’s state standards and the Next Generation Science Standards (NGSS), STEMscopes provides teacher

and student digital resources, supplemental print materials, and hands-on exploration kits that build student engagement and excitement for learning science.

In addition, all 10 teachers participated in a train-the-trainer model of professional development, which consisted of nine full days of training throughout the school year provided by a STEMscopes trainer.

### ***Empowering teachers with collaborative professional development***

“One of the lessons we learned from this project is that teachers should have a say in what they need to learn and feel comfortable being part of that conversation. In each of the nine sessions, teachers discussed which science standards should be included in their next training. STEMscopes listened and delivered professional development tailored to their needs,” said Mary Leonard, director of professional development for CCPS. “Throughout the training sessions, it was amazing to watch teachers from 10 different schools develop such a strong sense of community. The level of interaction and the sharing of ideas and materials were incredible.”

“It was the perfect model of professional learning,” said Piscitelli. “I’ve never seen a professional learning community work so well. Because teachers felt empowered, they fully embraced the training, and they were excited to return to their schools and train their peers on the knowledge and skills they learned.”

### ***Developing a deeper understanding of the Florida standards***

One of the goals of the CCPS MSP grant project was to help teachers develop a deeper understanding of the Florida Next Generation Sunshine State Standards for Science (NGSSS). STEMscopes Florida is 100 percent aligned to the Florida NGSSS, which helped teachers see first-hand how to engage students in standards-based STEM learning.

“We really appreciate how each ‘scope’ or module in STEMscopes is built upon the Florida standards — unlike some products that start with what they think will be an engaging activity and then try to match it to the standards,” said Cynthia Dunham-Derheimer, K-12 science curriculum and instruction specialist for CCPS. “With STEMscopes, the standards come first.”

“The STEMscopes trainer was masterful at helping teachers visualize how to teach the standards and how to identify the most important part of each standard at each grade level,” said Piscitelli. “It helped teachers focus on what students need to know in regard to each standard, and it helped them see how those standards are interrelated and vertically aligned throughout each grade level.”

### ***Increasing content knowledge and expanding inquiry-based instructional strategies***

Throughout the training sessions, teachers explored a variety of research-based instructional strategies to promote inquiry-based, hands-on activities in STEM. Each STEMscopes unit is developed around the 5E model of instruction, with additional modules for Intervention and Acceleration to meet the needs of diverse learners. In addition, STEMscopes includes embedded support for teachers, such as professional development videos and how-to guides, to help them continuously improve their teaching.

“The first time teachers saw STEMscopes, they fell in love with it. They said it was exactly what they needed to go back and teach the standards to their students,” said Piscitelli. “And having the STEMscopes trainer model effective inquiry-based instruction helped our STEM teachers become comfortable with those strategies during each training.”

“Because STEMscopes is built upon the 5E model, it makes it easy for teachers to conduct inquiry-based learning with their students,” said Leonard. “Students like learning STEM because they’re actually doing STEM, and they

look forward to going to the STEM lab because they get to work on highly engaging, motivating activities with their teachers and STEMscopes.”

## RESULTS

With the MSP grant, CCPS has achieved its goals to enhance teachers’ content knowledge and teaching skills, and increase student achievement in science.

### ***Enhancing teachers’ content knowledge and skills***

An evaluation of the CCPS MSP project conducted by Dr. Laura Frost of Florida Gulf Coast University found that teachers felt that their knowledge and skills in STEM improved by participating in the SEE Student Success project. Results from a self-efficacy survey called the “Science Teacher Efficacy Belief Instrument (STEBI )” reflected positive changes due to the STEMscopes training.

“Teacher buy-in and excitement were evidenced in a variety of ways during and after the training — from the presentations teachers made to their colleagues at faculty meetings to their increased usage of STEMscopes,” said Leonard. “From the beginning to the end of the project, teachers improved their instructional capabilities and their confidence in STEM, which has really paid off in the classroom.”

### ***Increasing students’ academic achievement in science***

In addition, as part of the MSP grant, student achievement in science was examined based on the fifth grade results from the Florida Statewide Science Assessment, which measures student achievement of the NGSSS. In 2014-15, CCPS had a proficiency rate of 50 percent. The proficiency rate increased to 57 percent in the 2015-16 school year when the grant project was conducted. In addition, these results showed that CCPS had a higher proficiency rate than the state average.

Florida Statewide Science Assessment Proficiency Rates			
5th Grade	2015	2016	Change
Charlotte County Public Schools	50%	57%	+7%
State of Florida	53%	51%	-2%

Further, from 2015 to 2016, the CCPS state ranking for this assessment increased from 41st to 19th place.

“Thanks to the MSP grant, the STEMscopes training, and the use of STEMscopes in our schools, teachers and students excelled in science,” said Piscitelli. “For us, STEMscopes was the missing piece that helped teachers make sense of the standards and that allowed students to experience the science reflected by the standards. We give kudos to our teachers and students for embracing STEMscopes and increasing student science achievement as measured by the state assessment.”

“With STEMscopes, our STEM teachers now feel like experts in standards-based learning in science,” said Leonard. “They have a deeper knowledge of the content and the standards as well as inquiry-based instructional strategies, which will have a long-lasting impact on their effectiveness with students.”

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