

**AN EVALUATION  
OF THE MATHEMATICS AND SCIENCE  
PARTNERSHIP GRANT  
TO THE DARLINGTON COUNTY SC  
SCHOOL DISTRICT**

**Teachers Embracing Math and Science  
(TEMS) for STEM**

**September 1, 2015-August 31, 2016**

**PREPARED FOR DARLINGTON COUNTY SCHOOL DISTRICT**

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## **EXECUTIVE SUMMARY**

Darlington County (SC) School District (DCSD) received a three-year Mathematics and Science Partnership (MSP) Grant from the SC Department of Education which began September 1, 2015. The grant funded project, called Teachers Embracing Math and Science (TEMS) for STEM includes as partners Florence School District 4 (FD4), Florence-Darlington Technical College, Francis Marion University, SC S<sup>2</sup>TEM and BMW Manufacturing. The goal of the project is to improve student performance in math and science by enhancing teacher content knowledge and instruction in mathematics and science content for teachers by integrating STEM learning experiences. The project addresses the STEM professional development needs of approximately 92 teachers in the two school districts.

The purpose of the evaluation is to provide information which will assist the project staff in meeting the goals of the Teachers Embracing Math and Science (TEMS) for STEM and help assure the continuing improvement of the project. The evaluation includes a process evaluation, outcome evaluation, and measurement of the federal GPRA. In addition, the final evaluation will include a summative evaluation utilizing a quasi-experimental design.

During the 2015-2016 grant year, which includes the 2015-2016 school year and the summer of 2016, 80 teachers and staff participated in professional development offered by the project. Of the 68 teachers from Darlington County School District (DCSD), 33 (48.5%) teach students in grades kindergarten through fifth (elementary), 22 (32.4%) teach students in grades sixth through eighth (middle), 11 (16.2%) teach students in grades ninth through twelfth (high), and two (2.9%) teach students in an alternative school (middle and high school grades). Of the 68 DCSD teachers who participated during the 2015-2016 grant year, 14 (20.6%) teach only math, 15 (22.1%) teach only science, and 39 (57.4%) teach both math and science. Of the 12 FSD4 teachers who participated during the 2015-2016 grant year, two (16.7%) teach only math, two (16.7%) teach only science, and eight (66.7%) teach both math and science.

The 80 teachers who received professional development from the TEMS grant took part in eight Summer Institute offerings, 18 district professional developments and two conferences. They received a total of 2,542 hours of professional development, an average of 31.78 hours each.

The project was implemented quite effectively. The project management team was flexible in adjusting specifics to achieve the planned activities of the project, but generally was able to carry out the year's activities as planned. All of the activities were achieved at or above the degree planned. It can fairly be concluded that the project has made remarkable progress towards meeting the objectives of the grant and therefore made great progress toward achieving the goals of the grant.

The evaluation makes three recommendations. These are: the project staff continue the flexibility exhibited in the implementation of the project; efforts be made to increase the number of teachers taking the pre-post knowledge test; and that the TEMS staff and SWS staff meet to discuss the findings and determine methods based on the evaluation for making the project as effective as possible.

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# INTRODUCTION

## The Purposes and Goal of the Project

Darlington County (SC) School District (DCSD) received a three-year Mathematics and Science Partnership (MSP) Grant from the SC Department of Education which began September 1, 2015. The grant funded project, called Teachers Embracing Math and Science (TEMS) for STEM includes as partners Florence School District 4 (FD4), Academy, Converse College, Florence-Darlington Technical College, Francis Marion University, SC S<sup>2</sup>STEM and BMW Manufacturing. The goal of the project is to improve student performance in math and science by enhancing teacher content knowledge and instruction in mathematics and science content for teachers by integrating STEM learning experiences. The project will refine and display that knowledge through effective teaching of college and career ready STEM learning strategies that will strengthen the district performance in math and science.

The project addresses the STEM professional development needs of approximately 92 teachers in the two school districts.

## Planned Project Activities

The following are the activities planned for the first year of the project.

All participating teachers will take a pre assessment for grade level content and a STEM learning theory assessment. Upon completion of all of the TEMS for STEM activities and professional development, the teachers will be post tested to show gains in STEM content.

Selected teachers of all partnering districts and schools will take a graduate course that is standards based for mathematics. The course is a self-paced course that utilizes online learning through Teacher Step at Converse College. These teachers will support vertical teams being established across feeder systems with a focus on whole school mathematics and science instruction. Each zoned area of Darlington County school district will have their respective vertical team meeting among the grades and across the grades. High school teachers will support middle school teachers and middle level teachers will support elementary teachers on content standards and instructional strategies that are new to their grade level. This will be done using live streaming for the sessions to make all teachers connect for support needed.

STEM professional development in mathematics and science content will be made available to all participating teachers. These sessions will occur during the school day and on some afternoons to ensure 100% participation. In addition, TEMS for STEM will bring Numeracy Leaders training to give all K-5 elementary schools great pedagogy on standards based intervention strategies that help teachers diagnose students to see where they are in their mathematical ability and thinking. This training will supplement the active participants for TEMS by being offered to 50 K-5 teachers in the district and our partners. The science teachers will have additional professional development using FOSS representatives to conduct new kits that foster the engineering practices

and scientific practices of the new science standards. The science teachers will also have state led professional development from SCDE.

DCSD, FD4, and THA partner with Florence Darlington Technical College's and Francis Marion University's math, engineering and science departments to provide ongoing professional development sessions to demonstrate content-rich effective teaching strategies. Sessions and tours of the industry side of manufacturing and robotics will be made available through these partnerships. TEMS for STEM also will partner with SC S<sup>2</sup>TEM center to bring more STEM instructional focus and STEM mindedness to the participating teachers.

There will be STEM field studies using the resources locally available to inspire teachers to think outside the box. This partnership will enable teachers to interact with engineers and technicians for STEM awareness and usefulness in classroom instruction. The field studies will include a tour of Honda manufacturing, Florence Darlington Technical College Southeastern Institute of Technology (SIMT), and BMW Manufacturing.

During the summer of year one, TEMS for STEM will offer authentic training in real world problem solving through Project Lead the Way for elementary, middle school and high school. During the months of June–August teachers inclusive of all partnering districts from each elementary, middle school and high school will receive authentic STEM training at the University of South Carolina (USC) on how to successfully integrate Project Lead the Way (PLTW). The goal is for teachers to be genuinely STEM trained in infused math, science and engineering.

Activities will be provided for instructional strategies to close the achievement gaps in African Americans. Integrating STEM to minority groups will help teachers understand that making their culture connect to real world problems solving is essential for increasing student growth.

Developing a digital STEM curriculum across the disciplines will include meetings that foster vertical teaming for whole school and across feeder systems in order to build a cohesive curriculum. Creation of the STEM curriculum is to be led by our current district I-STEM team, (I-integrating STEM) in collaboration with Darlington County Institute of Technology (DCIT).

## **Objectives and Performance Measures of the Project**

There are three objectives for the project. Each is an outcome objective. The objectives and measurements for the objectives are:

**Objective 1:** Increase Teachers STEM content knowledge through connecting math and science.

By June 2018, 90% of the teachers will use at least two STEM instructional strategies during documented classroom observations.

By June 2018, 95% of the participating teachers will show increased STEM content knowledge via (2) pre and post assessments as related to STEM learning theory and grade level content.

By June 2018, 75% of the teachers will participate and complete surveys on two field studies that validates the STEM connection to practical classroom use.

**Objective 2:** Increase student growth and performance on state assessments and district assessments.

By end of 4th quarter of each year, students will improve their scores on Map assessments by 2%

By end of 4th quarter of third year of grant, teachers' math and science pass rates on district benchmarks will increase by 25%.

By August of each grant year, student current (SC PASS and ACT Aspire) state assessments scores will increase by 2 points in math and science Algebra I and Biology EOCEP pass rates will increase by 5%.

By August of each year of the grant school value added reports from Education Value-Added Assessment System (EVAAS) will show improvement in student growth by 2 points.

**Objective 3:** Provide instructional strategies to close the achievement gaps in subgroups.

By June 2018, 50% of the participating teachers will learn and use culture teaching tactics that cater to African Americans to improve student math and science performance.

## **GPRA**

In addition, the project seeks to meet the Government Performance and Results Act (GPRA) measures established by the federal government for MSP grants. These are:

1. GPRA Measure 1: The percentage of teachers who significantly increase their content knowledge in mathematics and science, as reflected in project-level pre-and post-assessments.
2. GPRA Measure 2: The percentage of students in classrooms of MSP teachers who score at the basic level or above in state assessments of mathematics or science.
3. GPRA Measure 3: The percentage of students in classrooms of MSP teachers who score at the proficient level or above in state assessments of mathematics or science.
4. GPRA Measure 4: The percentage of MSP projects that report using experimental or quasi-experimental design for their evaluations.
5. GPRA Measure 5: The percentage of MSP projects that use experimental or quasi-experimental design for their evaluations that are conducted successfully and that yield scientifically valid results.

## **Purpose and Contents of the Evaluation**

The purpose of the evaluation is to provide information which will assist the project staff in meeting the goals of the Teachers Embracing Math and Science (TEMS) for STEM and help assure the continuing improvement of the project. The evaluation includes a process evaluation, outcome evaluation, and measurement of the federal GPRA.

# **METHODOLOGY**

## **Evaluation Design**

The evaluation will determine if the project is impacting teacher pedagogy and if those changes lead to changes in student academic achievement. Using an action research approach, the evaluation is a continuous process with the evaluators providing information to the program, the administrators of the grant, and key staff. The information is used to improve the project and is intended to help assure success. SWS is conducting both a formative and summative evaluation. The formative evaluation assesses the process of the implementation of the project and the summative evaluation measures the outcomes of the project.

The process evaluation is a descriptive-exploratory design. It consists of five steps: the implementation was divided into its constituent tasks and subtasks; each task and subtask was assigned measurements; quantitative data was entered directly into the MSP GEMS® information system described below, and the necessary data elements were included in the system; qualitative data was gathered through surveys, interviews of project staff, teachers and instructors, and direct observation of summer professional development.

The final step was to answer the following questions: 1) How do the activities conducted compare to the activities proposed? 2) How well does the actual timeline match the proposed timeline? 3) What impact did any changes to the plan have on the project's ability to achieve the objectives? This is an ongoing process with continuous communication of findings to the grant team. The communications are through scheduled face-to-face meetings, telephone calls, emails, and other direct contacts as necessary.

In each year of the grant, an outcome evaluation will measure progress toward achieving the objectives to determine the overall impact of the project. The effect of interventions will be examined by comparing changes in teacher content knowledge, teacher instructional practices, and student academic achievement.

In the final year of the grant, a summative evaluation will be conducted using a quasi-experimental matched-pair design. The experimental group will be the teachers receiving the TEMS and associated services in Darlington County School District. The comparison group will be matched teachers from Florence District 1 (FD1). FD1 is similar to Darlington School District in terms of size of the student population, student demographics, teacher characteristics, and student achievement within the targeted subgroups. The appropriateness of using Florence District 1 as a comparison will be examined in the findings by evaluating differences in number of professional development days, number of teachers with advanced degrees, and other staff characteristics.

If the comparison group teachers move out of the district, they will be replaced by another randomly selected teacher. Attrition rates will be monitored to ensure that at least 70% of the original sample is included in the analysis. If the attrition rate exceeds 15 points, the difference will be accounted for in the statistical analysis. Baseline equivalence of each group will be

measured to determine if significant differences in teacher credentials or demographics exist and any differences will be accounted for in the analysis.

In the final year of the grant, differences between achievement rates of experimental group students and comparison group students will be analyzed to determine if differences in achievement are greater than what would normally be expected. Regression statistics will be used to account for differences in student demographics and teacher credentials and to measure the significance of the relationship. Differences in number of professional development days, number of teachers with advanced degrees, and other staff characteristics will also be accounted for in the analysis.

In the final year, the effect of each type of professional development activity offered (TEMS provided professional development during the school year, field studies, summer professional development and, graduate courses) will be examined by comparing changes in teacher content knowledge, teacher instructional practices, and student academic achievement among each group of teachers. Regression statistics will be used to account for differences in student demographics and teacher credentials and to measure the significance of the relationship. Differences between achievement rates of Darlington School District and Florence District 1 students will be analyzed to determine if differences in achievement are greater than what would normally be expected of students. Analysis of the impact of each type of activity will help the program determine which activities are most effective and to plan for sustainability.

## Objectives and Performance Measures

	Measurement	Method for Measurement	Notes
<b>Objective 1: Increase Teachers STEM content knowledge through connecting math and science.</b>	By June 2018, 90% of the teachers will use at least two STEM instructional strategies during documented classroom observations.	SWS classroom observation instrument	SWS will modify the current observation form owned by SWS to include instructional strategies with instructions by November 10, 2015 to be reviewed. Observations will be done as soon as practical to serve as baseline. Will be repeated in April/May, 2016 as post test for first year and pre-test for second year. After that, will be done each April/May as post test for that year and pre test for following year. Observations will be done online in GEMS system.
	By June 2018, 95% of the participating teachers will show	S <sup>2</sup> TEM Centers SC STEM Self Assessment for	Self Assessment Pre-test already completed for 2015-2016. Will serve as baseline.

	increased STEM content knowledge via (2) pre and post assessments as related to STEM learning theory and grade level content.	beliefs about STEM assessment in school <a href="http://www.s2temsc.org/assessment1.html">http://www.s2temsc.org/assessment1.html</a>  Knowledge test developed by SWS using the Tests for Higher Standards Item Banks	Post test to be completed at end of each school year. Export in Excel by teacher for upload to GEMS. New teachers participating will do pre-test at beginning of school year Knowledge test pre-test in December 2015 an post tests in September 2016
	By June 2018, 75% of the teachers will participate and complete surveys on two field studies that validates the STEM connection to practical classroom use.	Surveys completed at time of field study	Instrument to be developed by SWS by Nov 16, 2015  First field study will be on November 24, 2015 at Southeastern Institute of Manufacturing and Technology in Florence SC
<b>Objective Two: Increase student growth and performance on state assessments and district assessments.</b>	By end of 4 <sup>th</sup> quarter of each year, students will improve their scores on Map assessments by 2%	MAP scores, 1 <sup>st</sup> and last quarters	Scores to be exported to SWS in Excel for upload to GEMS in April/May each year
	By end of 4 <sup>th</sup> quarter of third year of grant, teachers' math and science pass rates on district benchmarks will increase by 25%.	CASE21 used to determine district benchmarks	Average by grade to be sent to SWS annually when completed
	By August of each grant year, student current (SC Science PASS and SC READY) assessments scores will increase by 2 points in math and science Algebra I and Biology EOCEP pass rates will increase by 5 %	2014-2015 as baseline	Data will be sent to SWS in Excel for uploading as soon as available each year
	By August of each year of the grant school value added reports from	Individual assessments by teacher	Report sent to SWS for uploading as soon as available each year

	Education Value-Added Assessment System (EVAAS) will show improvement in student growth by 2 points.		
<b>Objective 3: Provide instructional strategies to close the achievement gaps in subgroups.</b>	By June 2018, 50% of the participating teachers will learn and use culture teaching tactics that cater to African Americans to improve student math and science performance.	Observation instrument	SWS will modify the current observation form owned by SWS to include question(s) on culture teaching tactics with instructions by November 10, 2015 to be reviewed. Observations will be done as soon as practical to serve as baseline. Will be repeated in April/May, 2016 as post test for first year and pre-test for second year. After that, will be done each April/May as post test for that year and pre test for following year. Observations will be done online in GEMS system.
	By end of 4 <sup>th</sup> quarter of each year classroom observations will be conducted to see focused STEM instructional strategies that motivate African Americans.	Count of observations	
	By end of 4 <sup>th</sup> quarter of each year, MAP assessment scores will increase by 2% for African American students	Analysis of African American student scores as part of analysis of MAP scores	
	By end of 4 <sup>th</sup> quarter of 2018 benchmark assessments pass rates will increase by 50% in African American students.	Analysis of African American student scores as part of analysis of benchmark assessments.	
	By August of each year, student current SC state assessments in math and science will show a decrease in the gap between scaled scores and the Annual Measurable Objective (AMO) by 5 points.	SCDE report	Provided by Darlington to SWS
<b>Comparison</b>	Designed to compare	PASS science, SC	Data from Darlington and

<b>Study</b>	the teachers in Darlington who participate with a matched group of teachers in Florence each of the three tiers of training as well as their students.	READY math and biology and algebra EOC scores from the teachers who participated in the Darlington program and a matched group of teachers from Florence District 1.	Florence districts. Will be released in report according to SCDE instructions
	Teacher Qualifications	Form to be completed by teachers at events	Form will be designed by SWS by November 16, 2015 Form to be filled out once each year by each participating teacher
<b>Process Evaluation</b>		<ol style="list-style-type: none"> <li>1. Professional development provided</li> <li>2. Measurement of other activities mentioned in proposal</li> <li>3. Observation and interviews with teachers at PD event(s)</li> <li>4. Interviews of project administrators.</li> </ol>	PD from GEMS Interviews with teachers Interviews with administrator of grant

The annual summative evaluation report will include a description of the project and its implementation; findings of the analysis described in charts, tables, and a written form; and written conclusions and recommendations drawn from the findings. The evaluation will be presented to project team members and recommendations will be used to improve the project. SWS will assist in completing the interim, six-month report required by the SCDE and the LEA portions of the Annual Performance Review (APR) to the US Department of Education by providing the information from its evaluation work and from the MSP GEMS®.

## **GPRA Measures**

The federal Government Performance and Results Act (GPRA) measures are reported on as they are stated in the Federal reporting system.

## **Information System**

The project uses the MSP GEMS® online data system as the central point for data gathering, storage, initial statistical manipulation and routine reporting. The MSP GEMS® was modified as needed following a meeting among SWS and the district staff to determine changes necessitated by the new project. The process plan, database, surveys, protocols, reports, and other necessary information as identified are available through the system. Data was entered by project staff and SWS staff. Student demographic and available academic achievement data was provided by the school districts and imported into the MSP GEMS® for analysis purposes. Classroom observation data were collected and entered directly into the MSP GEMS®, using an instrument developed for the project (See Appendix 1).

## **Phases of the Evaluation**

### **Phase 1 – Preparation for Data Gathering**

In this phase, the grant application was reviewed, with a particular emphasis on the goals, objectives, outcomes and activities of the project. The evaluation design of the project was reviewed and questions prepared regarding availability of data, key informants and access to qualitative information.

The GEMS® online information system was modified to collect all the necessary information that could be captured in this manner. The evaluators worked with the District to assure appropriate pre and post test instruments, identification of the comparison group members, site visit dates and other technical details. On site interview schedules were prepared. Forms of pre and post tests were developed. In addition, a classroom observation instrument was designed. (Copies of instruments may be found in Appendix One)

Individuals who enter data into the GEMS® were provided with user id's, passwords and training on using the system. Users only have access to their own data, or, in the case of administrators of the project, to the project's data.

### **Phase 2 – Gathering and Reviewing Information**

Information gathering occurred in five stages. The first stage was to hold a series of meetings and conversations with the project manager and other project personnel. In these meetings, the data and other information needs of the project and of the evaluation were addressed and solutions assured.

The second stage was to test the instruments and the GEMS® system, then to train personnel who would use the GEMS®. Continuing technical assistance was also arranged.

The third stage was to monitor the data being entered into the system, make adjustments as necessary and to provide special reports or feedback to the project. Two site visits were also made to the project during the September 2015 - August 2016 period. These were followed up with telephone interviews and email communications with the project manager.

The fourth stage was to access the standardized test score data for Darlington County School District, Florence County School District 4, and Florence County School District 1 for the period under study. Standardized test score data (Science PASS, SC READY math and EOCEP) for the project districts and school and the comparison district were scheduled to be provided by the districts. Since the SC READY is in its first year of use, it is not possible to make comparisons to past scores for the evaluation.

The fifth stage was a series of interviews with the participants in the summer professional development and observation of the summer professional development activities during the last week of June.

### **Phase 3 –Preparation of the Information and Data**

The qualitative information gathered was placed in a single qualitative database for analysis. The quantitative data was exported from GEMS® into the Statistical Packages for the Social Sciences (SPSS) for analysis. Tables and Graphs describing the outcomes were developed in Microsoft Excel and exported to Microsoft Word.

### **Phase 4 – Analysis of Information and Data and Development of the Report**

In developing the report, the following steps were conducted.

1. The evaluation team achieved consensus on:
  - a. *What Happened?* (Findings of the Study) What activities and actions took place during the grant period?
  - b. *So What?* (Conclusions of the Study) What meanings do the activities and the actions have in terms of the goal and objectives of the project and the expressed desires of the participants? To what extent have the aims of the project been achieved? Which activities were most successful? Which could be improved upon?
  - c. *Now What?* (Recommendations of the Study) What changes and additions does the evaluation team believe might be useful in advancing the goals of the project?
2. The sections of the report were assigned to different team members for drafting and all team members edited the report.
3. The final report includes a description of the grant and its goals, strategies, objectives, and activities; process findings; findings of progress toward the project goals and objectives; the conclusions; and the recommendations. This results in a detailed written documentation of the progress of the project.

# FINDINGS PART I: PROCESS EVALUATION

## Introduction

The process evaluation reports first on the numbers and makeup, to the extent possible, of the teachers and students served by the grant. It then reports on the progress made toward carrying out the activities included in the grant proposal.

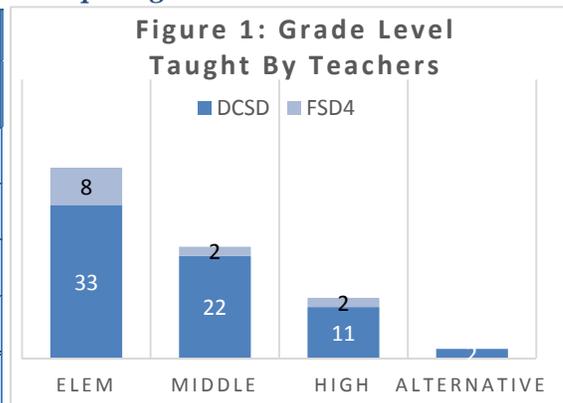
## Teachers Served

During the 2015-2016 grant year, which includes the 2015-2016 school year and the summer of 2016, 80 teachers and staff participated in professional development offered by the project. Of the 68 teachers from Darlington County School District (DCSD), 33 (48.5%) teach students in grades kindergarten through fifth (elementary), 22 (32.4%) teach students in grades sixth through eighth (middle), 11 (16.2%) teach students in grades ninth through twelfth (high), and two (2.9%) teach students in an alternative school (middle and high school grades).

Of the 12 teachers from Florence County School District 4 (FSD4), eight (66.7%) teach students in grades kindergarten through fifth (elementary), two (16.7%) teach students in grades sixth through eighth (middle), and two (16.7%) teach students in grades ninth through twelfth (high). (See Table 1 and Figure 1.)

*Table 1: Grade Level Taught by Participating Teachers*

	2015-2016			
	DCSD		FSD4	
	#	%	#	%
Elementary Grades	33	48.5%	8	66.7%
Middle School Grades	22	32.4%	2	16.7%
High School Grades	11	16.2%	2	16.7%
Alternative School	2	2.9%	0	0.0%
<b>Total</b>	<b>68</b>	<b>100%</b>	<b>12</b>	<b>100%</b>

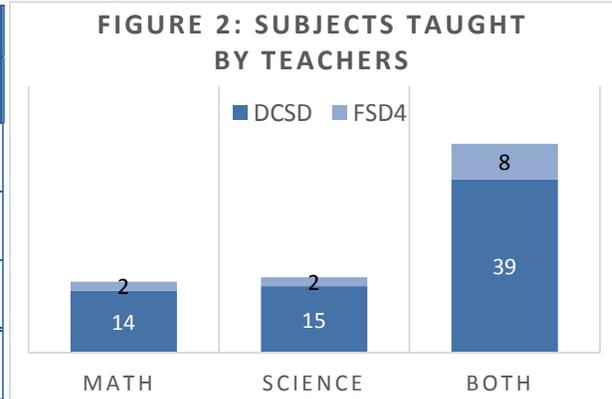


Of the 68 DCSD teachers who participated during the 2015-2016 grant year, 14 (20.6%) teach only math, 15 (22.1%) teach only science, and 39 (57.4%) teach both math and science.

Of the 12 FSD4 teachers who participated during the 2015-2016 grant year, two (16.7%) teach only math, two (16.7%) teach only science, and eight (66.7%) teach both math and science. (See Table 2 and Figure 2.)

*Table 2: Subjects Taught by Participating Teachers*

	2015-2016			
	DCSD		FSD4	
	#	%	#	%
Mathematics Only	14	20.6%	2	16.7%
Science Only	15	22.1%	2	16.7%
Math and Science	39	57.4%	8	66.7%
<b>Total</b>	<b>68</b>	<b>100%</b>	<b>12</b>	<b>100%</b>



## Characteristics of Students in the District

Darlington County School District has one early childhood education center, 11 elementary schools (grades PK-5), one elementary/middle school (grades PK-8), three middle schools (grades 6-8), three high schools (grades 9-12), and two magnet schools (one which serves elementary school students and one which serves high school students). The program serves teachers at 17 of the 21 schools in Darlington County School District plus students from the Alternative School. The alternative school serves students in grades 6 through 12. These students are counted as being enrolled in their home school. The four district schools that were not served by the program were three of the elementary schools and the early childhood education center. In 2015-2016, there were approximately 8,659 students enrolled in the 17 schools served.<sup>1</sup> More than half of the students in these schools (53.5%) are African American, 40.4% are White, 3% are Hispanic, 0.2% are Native American, 0.5% are Asian, Hawaiian, or Pacific Islander, and 2.3% are two or more races. The district-wide e-rate for 2014-2015<sup>2</sup> was (83.8%). Data on attendance rates, disabilities, and annual dropout and graduation rates was not published by SCDE in time for inclusion in this report.

Florence County School District 4 has one elementary school (grades PK-5), one middle school (grades 6-8), and one high school (grades 9-12). The program serves teachers from all three schools. In 2015-2016, there were approximately 720 students enrolled in the three schools served. The majority of students in these schools (80.8%) are African American, 9.6% are White, 7.4% are Hispanic, 0.3% are Native American, 0.2% are Asian, Hawaiian, or Pacific Islander, and 1.7% are two or more races. The district-wide e-rate for 2014-2015 was (83.8%). Data on attendance rates, disabilities, and annual dropout and graduation rates was not published by SCDE in time for inclusion in this report.

<sup>1</sup> Source: 180th Day Extraction, June, 2016 (QDC4). Available at: <http://ed.sc.gov/data/other/>

<sup>2</sup> The e-rate refers to the number of students who qualify for free or reduced price meals through Community Eligibility Provisions (CEP) and through other certification methods divided by total enrollment. The data is published by the South Carolina Department of Education and is available at <http://ed.sc.gov/data/other/>. 2014-2015 is the most recent year for which this data has been published.

## Description of Implementation of the Project

The TEMS project is designed to improve student performance in math and science by enhancing teacher content knowledge and instruction in mathematics and science content for teachers by integrating STEM learning experiences. The target population is teachers at all levels who teach math and science. The project proposed to implement this design by carrying out six activities. All of the activities were conducted. These activities and a brief description of their implementation is as follows.

1. Beginning as soon as the project is funded partners will meet to begin activities. A professional development plan and activities plan will be developed and arrangements made for provision of the professional development.

*The meetings did occur and activities were established, conducted and coordinated.*

2. The Project Director will work with the evaluator to develop measurement instruments and a database for the project.

*Pre and post knowledge instruments, an observation form, field study forms, and a teacher information form were developed and utilized. The GEMS<sup>®</sup> database was modified to meet the needs of the project.*

3. A calendar of course offerings will be published by mid-September and courses will begin in October.

*The course offerings were published and the first course held beginning September 17, 2015. Courses were offered throughout the school year and the summer. The specific professional development offered may be found in Appendix Two.*

4. During the month of October materials which support improving teaching of African-American students will be identified and distributed to teachers. During scheduled collaborative meetings teachers will to discuss the best ways to implement the suggested strategies in the materials in their classrooms

*Two books were chosen for distribution and study. These are Alex Kajitoni's (rapping mathematician) book *Owning It* and Marcella Runell's *Hip Hop Education Guidebook*. A District Professional Development book study of six hours on 10/16/2015 was provided.*

5. The project will design and conduct three field studies during 2015-16.

*There were four field studies conducted.*

6. The project will develop and conduct a summer institute.

*The summer institute was developed and occurred between June 20, 2016 and July 31, 2016. The Summer Institute is described below under Summer Institute..*

## Description of Implementation of Professional Development

There are three levels of professional development offered by the project in addition to field studies. Field studies will be described in this section of the evaluation. In this section of the evaluation, each of the types of professional development is described. A complete listing of professional development activities with descriptions may be found in Appendix Two.

The 80 teachers who received professional development from the TEMS grant took part in eight Summer Institute offerings, 18 district professional developments and two conferences. They received a total of 2,542 hours of professional development, an average of 31.78 hours each.

*Table 3: Professional Development by Type 2015-2016*

Training Type	Total for All Trainings		
	# Trainings	# Staff	# Hours
Summer Institute	8	50	438
District Professional Development	18	61	1,845
Conference	2	16	259
<b>Total</b>	<b>28</b>	<b>80</b>	<b>2,542</b>

### Summer Institute

The most intensive professional development is provided in the annual Summer Institute. The Institute is designed to provide STEM teachers with a rigorous summer experience that will motivate innovation. There were nine offerings at the summer institute. These were:

- a. University of SC-Stem Education, Grade K-2 Elementary Mathematics with STEM Application, a 24 hour course held on 6/20/2016 through 6/23/2016.
- b. University of SC-Stem Education, Grade 3-5 Elementary Mathematics with STEM Application, a 24 hour course held on 7/11/2016 through 7/14/2016.
- c. The TEMS Summer Institute, STEM with Johnannah Maynor, on developing STEM related lesson plans for middle school math teachers, a 15 hour course held on 6/28/2016 through 6/30/2016
- d. The TEMS Summer Institute, Pearson Science Textbook Training, a five hour course held on 6/29/2016
- e. The TEMS Summer Institute, Science with Edith Hough, going through a science lesson plan, a five hour course held on 6/30/2016
- f. Elementary School Level Project Lead the Way Training, a five hour course held on 7/1/2016 through 7/31/2016
- g. Middle School Level Project Lead the Way Training, a five hour course held on 7/1/2016 through 7/31/2016
- h. High School Level Project Lead the Way Training, a five hour course held on 7/1/2016 through 7/31/2016
- i. SC STEM Center SE&P, a ten hour course held on 7/25/2016 through 7/26/2016

SWS staff observed the TEMS Summer Institute on June 29, 2016. Two courses were being conducted that day. These were; the second day of *STEM with Johnannah Maynor*, on developing STEM related lesson plans for middle school math teachers; and *Pearson Science Textbook Training*.

The first training was being conducted by Johnannah Maynor from Durham NC. She has worked intensively since the fall of 2015 with the same group of middle school teachers on incorporating STEM content and cross-disciplinary methods into math lessons (for example, reading, writing, calculus). She said most teachers have had little experience writing their own lessons and curriculum, and they were initially reluctant, but many are starting to do so. Today's assignment was demonstration of their individually-developed lessons to the class. Johnannah acted as an instructional coach and mentor.

The instructors for the second training were Mina Brooks, Mary Beth Leggett and Ellen Mintz. All are teachers or recently retired teachers. They work in the summer for Carolina Curriculum, teaching about classroom material kits for elementary as part of STC (Science and Technology Concepts) curriculum. Their job is to orient teachers on how to use the teacher guide, lesson plans and materials in the kit. This was their first time working with teachers in the Darlington grant.

There were three concurrent sessions during the day of observation. These were: K-2 teachers, and upper elementary teachers (both learning about curriculum kits and materials); and middle school math teachers (*STEM with Johnannah Maynor*).

### **Observation of K-2 Teachers**

Six teachers were seated in two tables of three each. Half taught first grade and half taught second grade. The primary instructor, Ellen Mintz, led a walk-through of the STC kit for grades K-2, including the teacher guide and several sets of materials. All of these lessons conform to the standards and there was a lot of explanation about different and changing sets of standards. The curriculum for Grade 1 focused on Light and Sound. The curriculum for Grade 2 was called Push, Pull, Go (forces, including magnetism). Material for each grade level comes in a color-coded box.

The instructor emphasized the importance of how you pose each statement or question to simulate student thinking. She talked about when to front load the activity and when to back load. She emphasized how to introduce new science vocabulary words. She talked about using science notebooks as an assessment tool for the teacher.

Participating teachers had an opportunity to use a few of the manipulatives from the kits, such as the pinhole light box, but did not do a lot of problem-solving or interaction with one another around the activities.

### **Observation of Middle School Math Teachers**

Participating teachers were observed as they presented lesson plans that they had developed the day before. The emphasis was on integration of each math lesson with other science subjects

(extension) and also included literacy skills. Each lesson had real-world connections. One lesson asked how many bass per year can you take out of the lake before you have to re-stock. Another lesson called Take Flight focused on the Wright Brothers first airplane and calculating how long it would take at that rate of speed to go around the world, then researching airplane types and design before staging a paper airplane competition (engineering, measurement, physics). Another lesson design posed a problem about an ice cream cone fundraiser and calculating all the factors (portion size, costs) in order to make a profit. Another lesson used videos and graphing of what was observed.

Throughout the presentations, the instructor encouraged participants to take things deeper, to another level. The participating teachers all appeared to know one another and interacted comfortably.

### **Teachers Impressions**

Teachers taking part in the Summer Institute were interviewed to ascertain their impressions of the professional development provided by the TEMS summer institute. The following are their responses to questions. It should be noted that these teachers are not representative of all of the teachers taking part in TEMS for STEM.

1. What has been the most helpful part of this summer learning experience?  
Developing lessons plans.
2. What do you see as the value of the culture teaching tactics on how you teach STEM subjects to African American students to close the achievement gap?  
Teachers seemed unfamiliar with the terminology “culture teaching tactics.” Only one teacher had attended such training at a conference in Savannah regarding how to reach what she called “at risk students.”
3. How will your participation in the TEMS STEM project change the way you prepare to teach science and math during the coming year?  
They talked about approaches used in their demonstration lessons from earlier that day, using more hands-on methods and integrated lessons.
4. How easy or difficult has it been so far to incorporate “at least two STEM instructional strategies” into your classroom routine (for observation)?  
Only one teacher reported having been observed (by her principal). She did know whether that was connected to the MSP grant.
5. How will this PD change the way you work with other teachers and District staff?  
Teachers reported going back to their schools and sharing what they learned with fellow teachers. All said that when they attend a conference or PD they were expected to give a presentation to other teachers in their school.
6. How will this change the way you work with teachers from other grade levels?

Teachers mentioned attending a PD class in Aiken where they addressed vertical integration of STEM content. A couple said it helped them prepare students for the next grade. They do not have vertical teams.

## **District Professional Development**

There were 16 district professional developments offered as part of the project. The most comprehensive professional development was the I-STEM training provided by the S<sup>2</sup>STEM Center. This professional development is an instructional leadership experience for integrating science, technology, engineering, mathematics and the arts. There were 60 hours of instruction over the school year. The S<sup>2</sup>STEM Center also provided two full day professional developments to increase teacher STEM content knowledge through connecting math and science. One session was for middle and high school teachers and the other for K-5 teachers. Math and science teachers learned to connect all aspect of curriculum and instructional practices to STEM innovation.

Other professional development provided included: using FOSS kits; connecting science and math content; developing lesson plans; and problem solving strategies with technology that makes math and data useful.

## **Conferences**

Two conferences were attended by teachers. Both conferences supported closing the achievement gap. The first conference, STEM Superhero Conference, addressed how to increase student performance on state assessments and district assessments; increase teacher STEM content knowledge through connecting math and science; and closing the achievement gap in subgroups.

The second conference, the National At Risk Youth Conference was designed to help the teachers gain insight and classroom strategies that improve learning for African American youth in an effort to close the achievement gap.

## **Field Studies**

There were four field studies conducted. The first was a one day trip to the Darlington County Institute of Technology (DCIT). This field study was attended by K-12 teachers. There was a tour of the Southeastern Institute of Manufacturing and Technology building and the robotics facility. This gave the teachers an opportunity to connect their subjects to real world experiences.

This initial field study was followed by a tour of the facility where potential GE employees are trained. This allowed the teachers to see real STEM jobs that call for STEM content.

The third study was also of the DCIT and was intended to support vertical teaming through STEM curriculum collaborative planning with CATE instructors as well as the DCIT tour.

The fourth study was a tour of BMW Manufacturing. Teachers were able to see actual world manufacturing and the relationship of STEM applications revealed in a real situation. Teachers were able to network with engineers.

## FINDINGS PART II: OUTCOME EVALUATION

### Objective 1: Increase Teachers STEM content knowledge through connecting math and science.

#### PERFORMANCE MEASURE

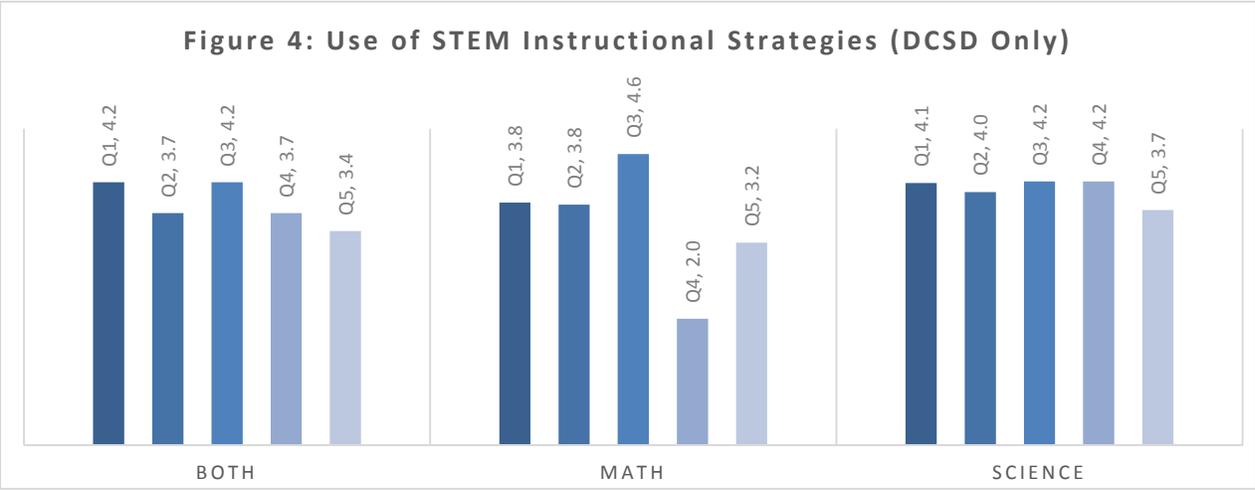
By June 2018, 90% of the teachers will use at least two STEM instructional strategies during documented classroom observations.

Of the 80 teachers who participated, observations during the 2015-2016 grant year were completed on 28. These observations will serve as a baseline for future analysis. The observation instrument contains five questions regarding this measure. Scores are on a scale of one to five. A one represents not at all and a five at all times. These 28 teachers were able to keep students on task and involved often (mean=4.07, sd=0.54), foster deep conceptual understanding between sometimes and often (mean=3.81, sd=0.63), present content accurately and fluidly often (mean=4.23, sd=0.59), make connections to the “real world” sometimes (mean=3.44, sd=1.08), and encourage students to exhibit collaboration and communication sometimes (mean=3.48, sd=0.94). (See Table 4 and Figure 4.)

Of the 28 teachers, 27 (96%) exhibited two or more of these strategies at least sometimes. **Therefore, the project met this performance measure.** The percentage of teachers who exhibit two or more strategies at all times is much lower (21%). Although the project has met the objective in the first year, the project will continue to work toward improving the proficiency and frequency with which teachers exhibit these strategies.

*Table 4: Use of STEM Instructional Strategies by Participating Teachers in 2015-2016*

Subject Taught by Teacher	DCSD			FSD4			Total all teachers
	Both	Math	Science	Both	Math	Science	
Number of Teachers	39	14	15	8	2	2	80
Teachers with Observations	13	6	7	1	0	1	28
Q1. The students were on task and involved	4.15	3.83	4.14	4.00	-	4.00	4.07
Q2. The teacher fostered deep conceptual understanding	3.67	3.80	4.00	4.00	-	4.00	3.81
Q3. Content was presented accurately and fluidly	4.15	4.60	4.17	4.00	-	4.00	4.23
Q4. Connections were made to the "real world"	3.67	2.00	4.17	3.00	-	4.00	3.44
Q5. The students exhibited collaboration and communication	3.38	3.20	3.71	4.00	-	4.00	3.48
<i>Percent of Teachers Exhibiting 2 or more Strategies Sometimes or More</i>	<i>100%</i>	<i>83%</i>	<i>100%</i>	<i>100%</i>	<i>-</i>	<i>100%</i>	<i>96%</i>
<i>Percent of Teachers Exhibiting 2 or more Strategies at all Times</i>	<i>23%</i>	<i>17%</i>	<i>29%</i>	<i>0%</i>	<i>-</i>	<i>0%</i>	<i>21%</i>



**PERFORMANCE MEASURE**

By June 2018, 95% of the participating teachers will show increased STEM content knowledge via (2) pre and post assessments as related to STEM learning theory and grade level content

Pre-assessments to measure change in content knowledge were administered in December 2015 and January 2016. Post-assessments were administered in late September and October of 2016. Thirty four teachers completed the math pre-assessment and 31 teachers completed the math post-assessment; however, only 17 teachers completed both. Thirty eight teachers completed the science pre-assessment and 30 teachers completed the science post-assessment; however, only 19 teachers completed both.

The average score on all math pre-assessments is 82.3 (sd=13.2) and the average score on all math post-assessments is 83.3 (sd=13.3). The average change for teachers who completed both the pre and the post assessment is an increase of 3.6 points (sd=13.1). The difference is not statistically significant ( $t=1.12$ ,  $df=16$ ,  $p=0.279$ ). Therefore, it cannot be determined whether the project has had a significant impact on teacher knowledge of mathematical concepts. Teachers with an improvement of six points or more from the pre-test to the post-test were considered to have made a significant improvement ( $W=1.47$ ,  $p=0.07$ ). Of these 17, six (35.3%) achieved significant gains in math content knowledge from the pre-test to the post-test. **The project did not meet this performance measure.**

The average score on all science pre-assessments is 81.7 (sd=11.9) and the average score on all science post-assessments is 77.2 (sd=10.6). The average change for teachers who completed both the pre and the post assessment is a decrease of 0.9 points (sd=9.1). The difference is not statistically significant ( $t=-0.41$ ,  $df=18$ ,  $p=0.685$ ). Therefore, the perceived decrease in teacher knowledge of science concepts is likely due to chance. None of these teachers are considered to have made a significant improvement ( $W=-0.73$ ,  $p=0.77$ ). **The project did not meet this performance measure.**

*Table 5: Change in Content Knowledge for Participating Teachers in 2015-2016*

	Average of All Pre-tests	Average of All Post-Tests	Average of Matched Change
<b>Math</b>	<b>82.3</b>	<b>83.3</b>	<b>3.6</b>
Math Alternative	92.7	100.0	7.3
Math Elementary	85.4	85.0	2.5
Math Middle	66.4	82.0	9.5
Math High	85.5	74.3	-12.0
<b>Science</b>	<b>81.7</b>	<b>77.2</b>	<b>-0.9</b>
Science Alternative	76.4	89.1	12.7
Science Elementary	84.1	78.6	-4.3
Science Middle	82.7	75.7	-2.1
Science High	70.0	71.5	6.5
<b>Grand Total</b>	<b>82.0</b>	<b>80.3</b>	<b>1.2</b>

**PERFORMANCE MEASURE**

By June 2018, 75% of the teachers will participate and complete surveys on two field studies that validates the STEM connection to practical classroom use.

During the grant year, the project held four field studies. Of the 80 teachers served by the project, 45 (56.3%) participated in one or more field study. All of these teachers completed a survey. Thirty teachers participated in a three hour field study to Southeastern Institute of Manufacturing and Technology (SiMT); 18 teachers participated in a six hour field study to the BMW Manufacturing Facility; 27 teachers participated in a three hour field study to General Electric (GE); and nine teachers participated in a six hour field study to the Darlington County Institute of Technology (DCIT). Other teachers in the district were also invited to attend and complete the survey. .

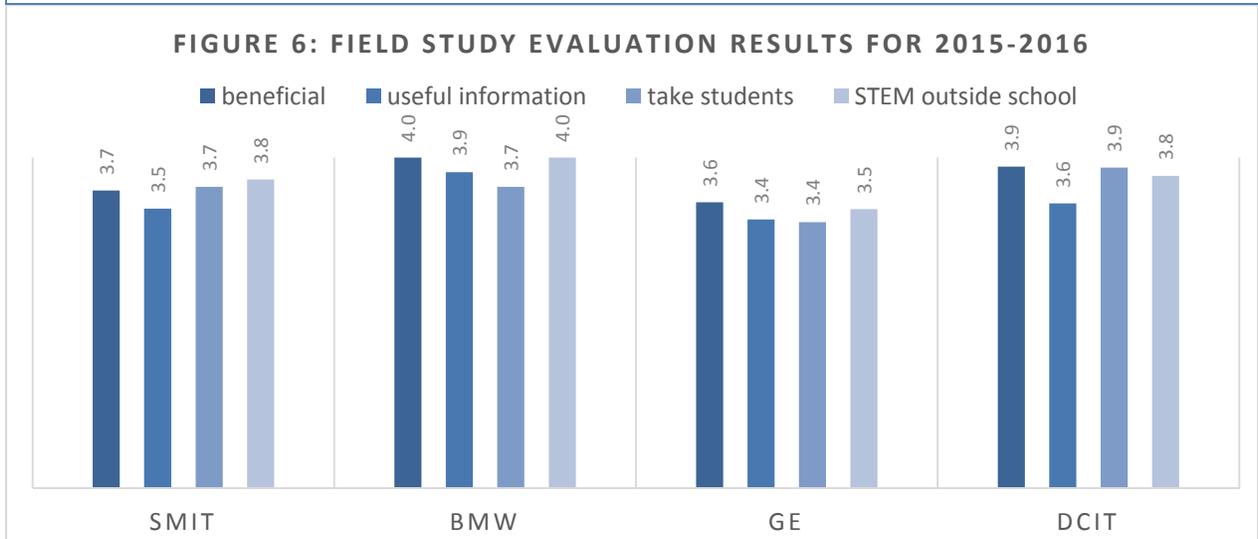
Course evaluations for each trip were administered to all teachers who participated in the field study. Course evaluations were anonymous. The surveys asked four questions about the field study with a range of responses from 5 (strongly agree) to 1 (not sure) All of the field studies were rated favorably by teachers. The 16 teachers who completed a survey on the field study to BMW rated the trip the highest of the four trips in terms of being beneficial (mean=4.0, sd=0), providing useful information (mean=3.9, sd=0.4), and showing them how STEM is being used outside of a school environment (mean=4.0, sd=0). The 13 teachers who completed a survey on the field study to DCIT rated the trip the highest of the four trips in terms of being able to take their students on a similar trip (mean=3.9, sd=0.3). Teachers commented that the trip to DCIT in particular helped them to understand the types of skills and content they needed to be incorporating in the classroom to help students prepare for high school.

The trip to GE was rated the least favorable, but still good, with an overall rating of 14.1 (sd=1.92). The comments indicate that while they found it interesting, the trip did not provide teachers with much information that they could use in the classroom and may be more appropriate for high school students, rather than elementary or even middle school students. (See Table 6 and Figure 6.)

**This performance measure was met.**

*Table 6: Evaluation of Field Trips in 2015-2016*

	SiMT	BMW	GE	DCIT
Number of Teachers Participating in the Project	31	18	32	13
Number of Surveys	30	16	27	9
1. The field trip was beneficial.	3.7	4.0	3.6	3.9
2. The field trip provided me with information to use during instruction.	3.5	3.9	3.4	3.6
3. I feel like I can take my students on a field trip similar to this one.	3.7	3.7	3.4	3.9
4. The field trip showed me how STEM is being used outside of a school environment.	3.8	4.0	3.5	3.8
<b>Total Score</b>	<b>14.9</b>	<b>15.6</b>	<b>14.1</b>	<b>15.5</b>



**Objective 2: Increase student growth and performance on state assessments and district assessments.**

**PERFORMANCE MEASURE**

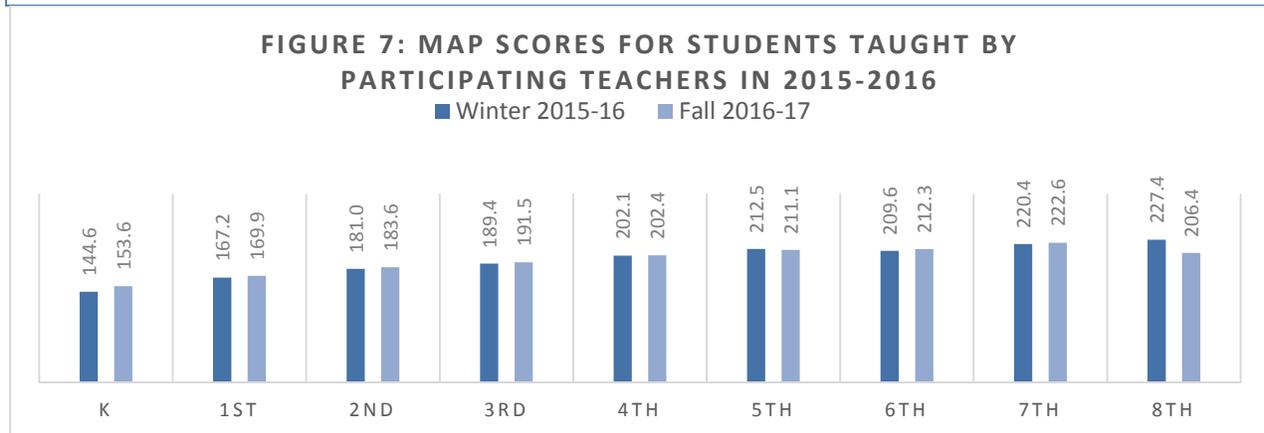
By end of 4<sup>th</sup> quarter of each year, students will improve their scores on Map assessments by 2%

MAP scores were obtained for students of participating and non-participating teachers for Winter of 2015-2016 and Fall of 2016-2017. Participating teachers taught 1,272 students who had scores available for both assessments. Non-participating teachers taught 1,848 students who had scores available for both assessments.

In Winter of 2015-16, 1,272 students taught by participating teachers scored an average of 204.7 (sd=21.05) on the Math MAP Assessment. In Fall 2016-17, these same students scored an average of 206.2 (sd=21.92). The 1.5 point (0.7%) increase is statistically significant ( $t=5.35$ ,  $df=1271$ ,  $p<0.001$ ). Students of non-participating teachers in the same schools scored an average of 199.7 (sd=21.2) on the Winter Math MAP Assessment and 201.6 (sd=20.96) on the following Fall Math MAP Assessment. The difference between the change in scores for students of participating and non-participating teachers is not statistically significant ( $t=-1.1$ ,  $df=3118$ ,  $p=0.273$ ). Therefore, the change in scores cannot be attributed to the project. (See Table 7 and Figure 7.) **The project has progressed toward, but not met this performance measure.**

*Table 7: MAP Scores for Students Taught by Participating and non-Participating Teachers*

	Participating Teachers				Non-Participating Teachers			
	Winter 2015-16	Fall 2016-17	Diff	% Change	Winter 2015-16	Fall 2016-17	Diff	% Change
Grade 00	144.6	153.6	9.0	6.2%	145.0	161.1	16.1	11.1%
Grade 01	167.2	169.9	2.6	1.6%	165.3	170.0	4.7	2.8%
Grade 02	181.0	183.6	2.6	1.4%	181.4	184.6	3.2	1.7%
Grade 03	189.4	191.5	2.1	1.1%	189.9	193.7	3.8	2.0%
Grade 04	202.1	202.4	0.3	0.2%	202.3	203.9	1.5	0.8%
Grade 05	212.5	211.1	-1.4	-0.7%	208.9	208.2	-0.6	-0.3%
Grade 06	209.6	212.3	2.7	1.3%	214.5	215.6	1.0	0.5%
Grade 07	220.4	222.6	2.2	1.0%	211.8	213.3	1.5	0.7%
Grade 08	227.4	206.4	-21.0	-9.2%	229.7	196.3	-33.3	-14.5%
<b>Total</b>	<b>204.7</b>	<b>206.2</b>	<b>1.5</b>	<b>0.7%</b>	<b>199.7</b>	<b>201.6</b>	<b>1.9</b>	<b>0.9%</b>



## PERFORMANCE MEASURE

By end of 4<sup>th</sup> quarter of third year of grant, teachers' math and science pass rates on district benchmarks will increase by 25%.

Benchmark assessments are administered to students throughout the school year. Assessments are graded and passage rates are recorded for the year. Students who did not complete any assessments are excluded from the analysis. Florence District 4 provided data for both a first and second administration; however, only the data for the first administration is presented. The data presented below will serve as a baseline for future years.

In 2015-2016, participating teachers administered between 40 to 56 math assessments to 2,457 elementary, middle and high school students, who passed 19.7% of the assessments. Teachers administered between 30 to 60 science assessments to 2,037 elementary, middle and high school students, who passed 29.1% of the assessments. (See Table 8.) To meet this objective, students of participating teachers for the 2016-2017 school year will need to pass 24.6% of their math assessments, on average, and 36.3% of their science assessments, on average. Therefore, **the project is progressing toward this performance measure.**

*Table 8: Benchmark Passage Rates for Students Taught by Participating Teachers*

	Math			Science		
	# Assessments	Average Passage Rate	# Students	# Assessments	Average Passage Rate	# Students
<b>Darlington County School District</b>						
2 <sup>nd</sup> grade	40	25.3	147	30	24.2	74
3 <sup>rd</sup> grade	50	21.9	126	40	21.8	124
4 <sup>th</sup> grade	56	14.3	487	45	23.4	334
5 <sup>th</sup> grade	56	29.0	177	50	27.4	191
6 <sup>th</sup> grade	51	21.3	190	55	32.3	226
7 <sup>th</sup> grade	50	20.6	417	55	26.1	197
8 <sup>th</sup> grade	51	17.4	175	60	37.2	378
High School	50	16.9	658	60	26.8	389
<b>Florence County School District 4</b>						
1 <sup>st</sup> grade		49.4	17			
4 <sup>th</sup> grade		34.0	44			
5 <sup>th</sup> grade		36.8	19			
6 <sup>th</sup> grade					35.8	39
7 <sup>th</sup> grade					37.8	34
8 <sup>th</sup> grade					41.1	51
<b>Total</b>		<b>19.7</b>	<b>2,457</b>		<b>29.1</b>	<b>2,037</b>

## PERFORMANCE MEASURE

By August of each grant year, student current (SC Science PASS and SC READY) assessment scores will increase by 2 points in math and science. Algebra I and Biology EOCEP pass rates will increase by 5%.

SC Math READY, SC Science PASS, and EOCEP scores were provided by Darlington County School District for the 2015-2016 school year. This data serves as a baseline for future changes in scores.

Of the 1,320 students taught by 27 participating math teachers, 376 (28.5%) scored a three or higher on the SC READY Math assessment. To meet this performance measure, the percentage of students who score a three or higher will need to be 30% or higher in the 2016-2017 school year.

Of the 1,359 students taught by 25 participating science teachers, 873 (64.2%) scored a two or higher on the SC PASS Science assessment. To meet this performance measure, the percentage of students who score a two or higher will need to be 67.5% or higher in the 2016-2017 school year.

Of the 345 students taught by six participating math teachers, 274 (79.4%) scored 70 or higher on the EOCEP Algebra assessment. To meet this performance measure, the percentage of students who score a 70 or higher will need to be 83.4% or higher in the 2016-2017 school year.

Of the 57 students taught by one participating science teacher, 41 (71.9%) scored 70 or higher on the EOCEP Biology assessment. To meet this performance measure, the percentage of students who score a 70 or higher will need to be 75.5% or higher in the 2016-2017 school year.

**The project is progressing toward this performance measure.**

*Table 9: Standardized Test Scores for Students Taught by Participating Teachers*

	Math				Science			
	Teachers	Students	Avg	%Met	Teachers	Students	Avg	%Met
3 <sup>rd</sup> grade	4	103	1342.3	35%				
4 <sup>th</sup> grade	10	295	1444.3	33%	9	284	617.7	60%
5 <sup>th</sup> grade	7	207	1545.4	37%	7	268	612.5	55%
6 <sup>th</sup> grade	3	189	1639.0	21%	3	218	623.4	67%
7 <sup>th</sup> grade	4	337	1743.1	32%	3	194	614.6	57%
8 <sup>th</sup> grade	3	189	1833.8	10%	5	395	641.2	75%
High School	6	345	80.3	79%	1	57	79.3	72%

## PERFORMANCE MEASURE

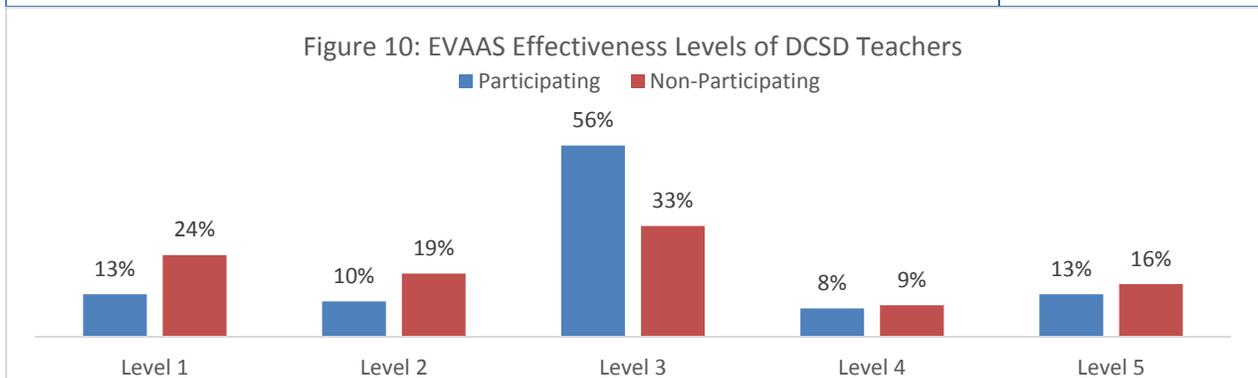
By August of each year of the grant school value added reports from Education Value-Added Assessment System (EVAAS) will show improvement in student growth by 2 points.

Of the 68 teachers who participated from Darlington County School District, EVAAS levels were available for 48. EVAAS data was also provided for 129 teachers who did not participate in the project. This data will serve as a baseline by which to measure change in value-added from the project.

Of the 48 teachers who participated, 13% achieved significantly below average progress, 10% achieved below average progress, 56% achieved typical progress, 8% achieved above average progress, and 13% achieved exceptional progress. Of the 129 teachers who did not participate, 24% achieved significantly below average progress, 19% achieved below average progress, 33% achieved typical progress, 9% achieved above average progress, and 16% achieved exceptional progress. **A comparison on this measure cannot as yet be made.** (See Table 10 and Figure 10.)

*Table 10: EVAAS Effectiveness Levels of Participating and Non-Participating Teachers*

		Participating		Non-Participating	
		#	%	#	%
<b>Level 1</b>	Achieving Significantly below average progress	6	13%	31	24%
<b>Level 2</b>	Achieving Below average progress	5	10%	24	19%
<b>Level 3</b>	Achieving typical progress	27	56%	42	33%
<b>Level 4</b>	Achieving above average progress	4	8%	12	9%
<b>Level 5</b>	Achieving exceptional progress	6	13%	20	16%
<b>Total</b>		<b>48</b>	<b>100%</b>	<b>129</b>	<b>100%</b>



**Objective 3: Provide instructional strategies to close the achievement gaps in subgroups.**

**PERFORMANCE MEASURE**

By June 2018, 50% of the participating teachers will learn and use culture teaching tactics that cater to African Americans to improve student math and science performance.

The project conducted three trainings on culture teaching tactics that cater to African Americans. In October 2015, the project trained 59 staff in its “Closing the Achievement Gap” training. In March of 2016, the project supported teachers to attend the National At-Risk Youth Conference (seven teachers) and the STEM Superhero Conference (nine teachers). These trainings are discussed in more detail in the process evaluation section of this report. A total of 60 teachers (75%) participated in one or more of the cultural trainings. **The project met this performance measure.**

**PERFORMANCE MEASURE**

By end of 4<sup>th</sup> quarter of each year classroom observations will be conducted to see focused STEM instructional strategies that motivate African Americans.

Of the 60 teachers who participated in culturally appropriate training, 49 teach in DCSD and 21 of those have a completed pre-observation. These 49 teachers were rated as sometimes using strategies that are culturally relevant for African American students (mean=3.3, sd=0.93). In comparison, teachers who did not participate in culturally relevant training were rated as occasionally using strategies that are culturally relevant for African American students (mean=2.6, sd=1.14). Of the 11 FSD4 teachers who participated in the trainings, two have a completed pre-observation. These two teachers were rated as sometimes using strategies that are culturally relevant for African American students (mean=3.5, sd=0.71). (See Table 11.) **The project has met this performance measure.**

District	Participated in Cultural Training			Did Not Participate in Cultural Training		
	Teach	Obs	Avg Q6	Teachers	Obs	Avg Q6
<b>DARLINGTON COUNTY SCHOOL DISTRICT</b>	49	21	3.3	19	5	2.6
<b>FLORENCE COUNTY SCHOOL DISTRICT 04</b>	11	2	3.5	1	0	0

**PERFORMANCE MEASURE**

By end of 4<sup>th</sup> quarter of each year, MAP assessment scores will increase by 2% for African American students

The project has collected MAP score data for students in the participating districts; however, this data did not include the students' race. The program is working to provide MAP score data which includes the students' race so that this objective can be measured.

**PERFORMANCE MEASURE**

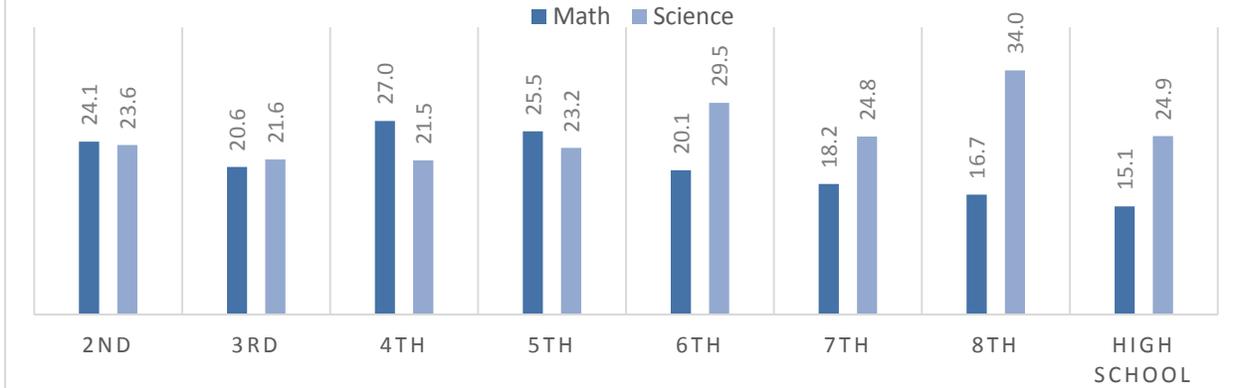
By June 2018 benchmark assessments pass rates will increase by 50% in African American students

In 2015-2016, participating teachers administered between 40 to 56 math assessments to 962 elementary, middle and high school African American students, who passed 20.4% of the assessments on average. Teachers administered between 30 to 60 science assessments to 1,018 elementary, middle and high school African American students, who passed 26.2% of the assessments, on average. (See Table 12) To meet this objective, African American students of participating teachers for the 2016-2017 school year will need to pass 25.5% of their math assessments, on average, and 32.8% of their science assessments, on average. Therefore, **the project is progressing toward this performance measure.**

*Table 12: Benchmark Passage Rates for African American Students Taught by Participating DCSD Teachers in 2015-2016*

	Math			Science		
	# Assessments	Average Passage Rate	# Students	# Assessments	Average Passage Rate	# Students
2 <sup>nd</sup> grade	40	24.1	86	30	23.6	48
3 <sup>rd</sup> grade	50	20.6	82	40	21.6	74
4 <sup>th</sup> grade	56	27.0	134	45	21.5	186
5 <sup>th</sup> grade	56	25.5	93	50	23.2	80
6 <sup>th</sup> grade	51	20.1	103	55	29.5	106
7 <sup>th</sup> grade	50	18.2	189	55	24.8	127
8 <sup>th</sup> grade	51	16.7	117	60	34.0	216
High School	50	15.1	158	60	24.9	181
<b>Total</b>		<b>20.4</b>	<b>962</b>		<b>26.2</b>	<b>1,018</b>

**TABLE 12: BENCHMARK PASSAGE RATES FOR AFRICAN AMERICAN STUDENTS TAUGHT BY PARTICIPATING DCSD TEACHERS**



**PERFORMANCE MEASURE**

By August of each year, student current SC state assessments in math and science will show a decrease in the gap between scaled scores and the Annual Measurable Objective (AMO) by 5 points

The Annual Measurement Objective (AMO) is established by the South Carolina Department of Education under the Elementary and Secondary Education Act (ESEA) accountability system. The AMO is the target average score for all students in the district, divided by grade level, and increases at a steady rate each year. The districts’ progress toward narrowing the achievement gap of students with special needs is measured by determining the distance of the average scores for students with special needs from the AMO in each year, and then calculating the difference. As of the date of this report, the state has not published the AMO’s for 2016.

## **FINDINGS PART III: GOVERNMENT PERFORMANCE AND RESULTS ACT (GPRA)**

This section reports on the federal Government Performance and Results Act (GPRA) measures established for this grant. The results of measurements are reported and variances discussed.

### **GPRA Measure 1: Teacher Content Knowledge**

The specific GPRA measure is “the percentage of teachers who significantly increase their content knowledge in mathematics and science, as reflected in project-level pre- and post-assessments.”

Pre-assessments to measure change in content knowledge were administered in December 2015 and January 2016. Post-assessments were administered in late September and October of 2016. Thirty four teachers completed the math pre-assessment and 31 teachers completed the math post-assessment; however, only 17 teachers completed both. Thirty eight teachers completed the science pre-assessment and 30 teachers completed the science post-assessment; however, only 19 teachers completed both.

The average score on all math pre-assessments is 82.3 (sd=13.2) and the average score on all math post-assessments is 83.3 (sd=13.3). The average change for teachers who completed both the pre and the post assessment is an increase of 3.6 points (sd=13.1). The difference is not statistically significant ( $t=1.12$ ,  $df=16$ ,  $p=0.279$ ). Therefore, it cannot be determined whether the project has had a significant impact on teacher knowledge of mathematical concepts. Teachers with an improvement of six points or more from the pre-test to the post-test were considered to have made a significant improvement ( $W=1.47$ ,  $p=0.07$ ). Of these 17, six (35.3%) achieved significant gains in math content knowledge from the pre-test to the post-test.

The average score on all science pre-assessments is 81.7 (sd=11.9) and the average score on all science post-assessments is 77.2 (sd=10.6). The average change for teachers who completed both the pre and the post assessment is a decrease of 0.9 points (sd=9.1). The difference is not statistically significant ( $t=-0.41$ ,  $df=18$ ,  $p=0.685$ ). Therefore, the perceived decrease in teacher knowledge of science concepts is likely due to chance. None of these teachers are considered to have made a significant improvement ( $W=-0.73$ ,  $p=0.77$ ).

### **GPRA Measure 2: Students at the Basic Level or Below in State Assessments of Mathematics or Science**

The specific GPRA measure is “The percentage of students in classrooms of MSP teachers who score at the basic level or below in State assessments of mathematics or science.”

Of the 1,320 students taught by 27 participating math teachers, 944 (71.5%) scored a two or lower on the SC READY Math assessment. Of the 1,359 students taught by 25 participating science teachers, 487 (35.8%) scored a one or lower on the SC PASS Science assessment. Of the 345 students taught by six participating math teachers, (20.6%) scored 70 or lower on the EOCEP

Algebra assessment. Of the 57 students taught by one participating science teacher, 16 (28.1%) scored 70 or lower on the EOCEP Biology assessment.

### **GPR Measure 3: Students at the Proficient Level or Above in State Assessments of Mathematics or Science**

The specific GPR measure is “The percentage of students in classrooms of MSP teachers who score at the proficient level or above in State assessments of mathematics or science.”

Of the 1,320 students taught by 27 participating math teachers, 376 (28.5%) scored a three or higher on the SC READY Math assessment. Of the 1,359 students taught by 25 participating science teachers, 873 (64.2%) scored a two or higher on the SC PASS Science assessment. Of the 345 students taught by six participating math teachers, 274 (79.4%) scored 70 or higher on the EOCEP Algebra assessment. Of the 57 students taught by one participating science teacher, 41 (71.9%) scored 70 or higher on the EOCEP Biology assessment.

### **GPR Measure 4: Experimental or Quasi-Experimental Evaluation Design**

The specific GPR measure is “The percentage of MSP projects that report using experimental or quasi-experimental design for their evaluations.”

In the final year of the grant, a summative evaluation will be conducted using a quasi-experimental matched-pair design. The experimental group will be the teachers receiving the TEMS and associated services in Darlington County School District. The comparison group will be matched teachers from Florence District 1 (FD1). FD1 is similar to Darlington School District in terms of size of the student population, student demographics, teacher characteristics, and student achievement within the targeted subgroups. The appropriateness of using Florence District 1 as a comparison will be examined in the findings by evaluating differences in number of professional development days, number of teachers with advanced degrees, and other staff characteristics.

If the comparison group teachers move out of the district, they will be replaced by another randomly selected teacher. Attrition rates will be monitored to ensure that at least 70% of the original sample is included in the analysis. If the attrition rate exceeds 15 points, the difference will be accounted for in the statistical analysis. Baseline equivalence of each group will be measured to determine if significant differences in teacher credentials or demographics exist and any differences will be accounted for in the analysis.

In the final year of the grant, differences between achievement rates of experimental group students and comparison group students will be analyzed to determine if differences in achievement are greater than what would normally be expected. Regression statistics will be used to account for differences in student demographics and teacher credentials and to measure the significance of the relationship. Differences in number of professional development days,

number of teachers with advanced degrees, and other staff characteristics will also be accounted for in the analysis.

In the final year, the effect of each type of professional development activity offered (TEMS provided professional development during the school year, field studies, summer professional development and, graduate courses) will be examined by comparing changes in teacher content knowledge, teacher instructional practices, and student academic achievement among each group of teachers. Regression statistics will be used to account for differences in student demographics and teacher credentials and to measure the significance of the relationship. Differences between achievement rates of Darlington School District and Florence District 1 students will be analyzed to determine if differences in achievement are greater than what would normally be expected of students. Analysis of the impact of each type of activity will help the program determine which activities are most effective and to plan for sustainability.

## **GPRA Measure 5: Scientifically Valid Evaluation Results**

The specific GPRA measure is “The percentage of MSP projects that use experimental or quasi experimental design for their evaluations that are conducted successfully and that yield scientifically valid results.”

The evaluation conducted for the 2015-2016 grant year is the first year evaluation of a thirty month grant. The evaluation has set up the study to measure the impact of the project in a scientifically valid manner, and the impact will be measured in this way in the final year of the grant. The evaluation for 2015-2016, therefore, does not meet the federal definition of having a successful experimental or quasi- experimental design that yields scientifically valid results. Nevertheless, efforts are being made to collect data in such a way that it may be used in the final year for conducting an evaluation with a quasi-experimental design that yields scientifically valid results.

## CONCLUSIONS

1. The project was implemented quite effectively. The project management team was flexible in adjusting specifics to achieve the planned activities of the project, but generally was able to carry out the year's activities as planned. All of the activities were achieved at or above the degree planned.
2. On Objective One of the grant (Increase Teachers STEM content knowledge through connecting math and science), two of the performance measures were met and two were not met.
3. On Objective Two of the grant (Increase student growth and performance on state assessments and district assessments) one performance measure was not met, it is too early in the grant to measure one other measure and progress is being made towards meeting two other measures.
4. On Objective Three of the grant, two performance measures were met, progress is being made towards meeting one measure and it is too early to measure two other measures.
5. It can fairly be concluded that the project has made remarkable progress towards meeting the objectives of the grant and therefore made great progress toward achieving the goals of the grant.

## **RECOMMENDATIONS**

It is recommended that:

1. The project staff continue the flexibility exhibited in the implementation of the project.
2. Efforts be made to increase the number of teachers taking the pre-post knowledge test.
3. The TEMS staff and SWS staff meet to discuss the findings and determine methods based on the evaluation for making the project as effective as possible.

**APPENDIX ONE:  
INSTRUMENTS**

# Classroom Observation Surveys

The purpose of this survey is to learn the attitudes and behavior of teachers in the classroom by observing both the teacher and the students. For each item in the survey, select the response that most accurately reflects your observations. A one represents not at all and a five at all times. If you did not observe the teacher's classroom or are otherwise not able to complete the observation, check the box under "Not Applicable".

## Definitions:

“The students were on task and involved” A student is task-involved when he or she is interested in the task for its own qualities. Task-involved students are willing to risk failure in order to learn.

“The teacher fostered deep conceptual understanding” “Understanding” means being able to justify procedures used or state why a process works.

“Content was presented accurately and fluidly” Information presented is factually accurate and with little conscious attention to the mechanics of speaking or reading.

“Connections were made to the "real world" The work underway is connected to the world outside the classroom through example and content.

“The students exhibited collaboration and communication” The students support individual learning and contribute to the learning of others to produce original works or solve problem by communicating information and ideas effectively.

“Is the teacher using strategies specific to African-American learning and motivation” Is the teacher using strategies such as those in *Hip-Hop Math* and strategies that are culturally relevant for African-American students.

Teacher Name \_\_\_\_\_

School \_\_\_\_\_

—

	1	2	3	4	5
1. The students were on task and involved.....	<input type="checkbox"/>				
2. The teacher fostered deep conceptual understanding...	<input type="checkbox"/>				
3. Content was presented accurately and fluidly.....	<input type="checkbox"/>				

4. Connections were made to the “real world”.....
5. The students exhibited collaboration and communication
6. Is the teacher using strategies specific to African-  
American learning and motivation.....

## **DARLINGTON TEMS STEM GRANT SITE VISIT**

SWS Staff: \_\_\_\_\_ Date: \_\_\_\_\_

Interview Jerry Rivers

Ask about funding options for Year 2 and 3

When will he expect SWS final report for current year?

Obtain Training schedule

Interview other partners or instructors re: their role; how did they decide on specifics for this PD? What changes were required?

### **1. Activity Observation**

Document observation of activities that occur at the site. Note demographics of teacher present and reactions to the content/activities.

## SITE VISIT FORMS

### Staff Group Interview

Demographics	Part. 1	Part. 2	Part. 3	Part. 4	Part. 5	Part. 6	Part. 7	Part. 8
Gender								
Race								
Yrs. teaching experience								

1. How did you determine who would take what role in the summer PD?
  
  
  
  
  
  
  
  
  
  
2. What aspects of the project are going as planned? Where have you made adjustments and why?
  
  
  
  
  
  
  
  
  
  
3. What are the most successful aspects so far? The least successful?
  
  
  
  
  
  
  
  
  
  
4. How have the culture teaching tactics instruction (Teaching STEM to African American students) gone compared to your expectations?

### COMMENTS

**Teacher Group Interview**

Group #1

Demographics	Part. 1	Part. 2	Part. 3	Part. 4	Part. 5	Part. 6	Part. 7	Part. 8	Part.9	Part. 10
Gender										
Race										
Yrs. teaching experience										

1. What has been the most helpful part of this summer learning experience?
  
  
  
  
  
  
  
  
  
  
2. What do you see as the most important contributions of the field surveys?
  
  
  
  
  
  
  
  
  
  
3. What do you see as the value of the culture teaching tactics on how you teach STEM subjects to African American students to close the achievement gap?
  
  
  
  
  
  
  
  
  
  
4. How will your participation in the TEMS STEM project change the way you prepare to teach science and math during the coming year?
  
  
  
  
  
  
  
  
  
  
5. How easy or difficult has it been so far to incorporate “at least two STEM instructional strategies” into your classroom routine?

Darlington TEMS STEM project

6. How will this PD change the way you work with other teachers and District staff?  
.
7. How will this change the way you use technology in your teaching?
8. How will this change the way you work with teachers from other grade levels?
9. If you could change one thing to make things better or more effective during this summer PD, what would it be?
10. What do you think was the most useful aspect of the summer PD?

**DESCRIPTION OF THE SUMMARY OF THE PROGRAM'S ACTIVITIES**

1. **The classes and activities were similar to what was proposed in the following ways:**
  
2. **The classes and activities were different from what was proposed in the following ways:**

## Darlington TEMS STEM project

Summary:

Evaluator observation:

# TEACHERS EMBRACING MATH AND SCIENCE (TEMS) FOR STEM FIELD STUDY SURVEY

Please fill in the following information:

Place of field study \_\_\_\_\_

Date of field study \_\_\_\_\_

Subject taught) \_\_\_\_\_

School /district teach in \_\_\_\_\_

Please answer each of the following questions regarding your opinions of the field study by filling in the appropriate circle.

1. The field trip was beneficial.

Strongly Agree     Agree     Disagree     Strongly Disagree     Not Sure

2. The field trip provided me with information to use during instruction.

Strongly Agree     Agree     Disagree     Strongly Disagree     Not Sure

3. I feel like I can take my students on a field trip similar to this one.

Strongly Agree     Agree     Disagree     Strongly Disagree     Not Sure

4. The field trip showed me how STEM is being used outside of a school environment.

Strongly Agree     Agree     Disagree     Strongly Disagree     Not Sure

5. Comments (Add any comments you would like to make)

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(Continue on back if necessary)

# **INFORMATION SHEET FOR TEACHERS PARTICIPATING IN THE TEACHERS EMBRACING MATH AND SCIENCE (TEMS) FOR STEM PROGRAM**

Teacher Name \_\_\_\_\_

School Assigned To \_\_\_\_\_

School District \_\_\_\_\_

Certification (Please check one)

- Full Certification
- PACE
- ABCTE
- Other

Academic Area Add On Certifications (Please check all that apply)

- Mathematics
- Sciences
- Science
- Middle Level Mathematics
- Middle Level Science
- Other

Degrees Held (Please check all that apply)

- Bachelor's Degree
- Master's Degree
- Ed.D or PhD

Grade Level Taught (Please check all that apply)

- Early Childhood
- Elementary Grades

- Middle School Grades
- High School Grades
- Special Ed/ESOL
- Instructional Coach
- Administrative

Courses taught (please check all that apply)

- Mathematics
- Science
- Mathematics and science
- Technology related course
- Media specialist
- Other
- Do not teach

Year of Teaching Experience (please check one)

- Less than one
- One through three
- Four through six
- Seven through nine
- Ten through thirteen
- Thirteen through fifteen
- Sixteen plus

**System Wide Solutions, Inc.**

**APPENDIX TWO:  
PROFESSIONAL DEVELOPMENT ACTIVITIES**

**Grantee: Darlington School District**  
**Grant: MSP (Math and Science Partnership Grant - 2015 - ID#10)**  
**All Trainings**

**Report on Trainings Provided - Grant Year: 2016**

**Updated as of 10/28/2016**

**I-STEM**

**Training Type:** District Professional Development

**Number of Contact Hours:** 60

**Training Dates:** 9/17/2015 - 6/16/2016

(k-12) I-STEM training is an instructional leadership experience for integrating science, technology, engineering, mathematics (STEM) and the arts. Educators interested in understanding and implementing the mathematical process standards and the science and engineering practices as identified in national and state standards documents should attend.

<b>Content Delivery:</b>	Mini-Course
<b>Math Topics Covered</b>	<ul style="list-style-type: none"> <li>• Algebra</li> <li>• Geometry</li> <li>• Measurement</li> <li>• Probability &amp; Statistics</li> <li>• Problem Solving</li> <li>• Reasoning &amp; Proof</li> <li>• Technology</li> <li>• Other: Mathematical Process Standards</li> </ul>
<b>Science Topics Covered</b>	<ul style="list-style-type: none"> <li>• Scientific Inquiry</li> <li>• Physical Science</li> <li>• Physics</li> <li>• Chemistry</li> <li>• Life Science</li> <li>• Biology</li> <li>• Earth Science</li> <li>• Technology</li> <li>• Other: Science and Engineering Practices</li> </ul>
<b>Support Provided by Partners</b>	<p><b>Partner:</b> S<sup>2</sup>TEM Center SC</p> <ul style="list-style-type: none"> <li>• Served as the Service Site</li> </ul>

- Provided Supplies, Materials or Meals

## Closing the Achievement Gap

**Training Type:** District Professional Development

**Number of Contact Hours:** 6

**Training Dates:** 10/16/2015 - 10/16/2015

(k-12) Alex Kajitani workshop book study-Owning it and Hip Hop Education Guidebook. This session deals with closing the achievement gap for African Americans by providing instructional strategies.

<b>Content Delivery:</b>	Direct Instruction
<b>Math Topics Covered</b>	<ul style="list-style-type: none"> <li>• Other: Hip Hop Education</li> </ul>
<b>Science Topics Covered</b>	<ul style="list-style-type: none"> <li>• Other: Hip Hop Education</li> </ul>
<b>Support Provided by Partners</b>	

## Math and Science Integration

**Training Type:** District Professional Development

**Number of Contact Hours:** 12

**Training Dates:** 10/20/2015 - 2/9/2016

(k-12) Full day session of STEM learning Theory. Math and science teachers will learn to connect all aspect of curriculum and instructional practices to STEM innovation.This will increase teacher STEM content knowledge through connecting math an

### Math and Science Integration

<b>Number of Contact Hours:</b> 6		<b>Training Dates:</b> 10/20/2015 - 10/20/2015	
<b>Course Description:</b>	To increase teacher STEM content knowledge through connecting math and science with (6-12) Secondary Full day session of STEM learning Theory. Math and science teachers will learn to connect all aspect of curriculum and instructional practices to STEM innovation.		
<b>Content Delivery:</b>	Direct Instruction		
<b>Math Topics Covered</b>	<ul style="list-style-type: none"> <li>• Algebra</li> <li>• Geometry</li> </ul>		

	<ul style="list-style-type: none"> <li>• Measurement</li> <li>• Probability &amp; Statistics</li> <li>• Problem Solving</li> <li>• Reasoning &amp; Proof</li> <li>• Calculus</li> <li>• Technology</li> <li>• Other: Mathematical Process Standards</li> </ul>
<b>Science Topics Covered</b>	<ul style="list-style-type: none"> <li>• Scientific Inquiry</li> <li>• Physical Science</li> <li>• Physics</li> <li>• Chemistry</li> <li>• Life Science</li> <li>• Biology</li> <li>• Earth Science</li> <li>• Technology</li> <li>• Other: Science and Engineering Practices</li> </ul>
<b>Support Provided by Partners</b>	<p><b>Partner: S<sup>2</sup>TEM Center SC</b></p> <ul style="list-style-type: none"> <li>• Provided Supplies, Materials or Meals</li> </ul>

### Math and Science Integration

<b>Number of Contact Hours:</b> 6		<b>Training Dates:</b> 10/29/2015 - 10/29/2015	
<b>Course Description:</b>	To increase teacher STEM content knowledge through connecting math and science with (k-5) Full day session of STEM learning Theory. Math and science teachers will learn to connect all aspect of curriculum and instructional practices to STEM innovation		
<b>Content Delivery:</b>	Direct Instruction		
<b>Math Topics Covered</b>	<ul style="list-style-type: none"> <li>• Algebra</li> <li>• Geometry</li> <li>• Measurement</li> <li>• Probability &amp; Statistics</li> <li>• Problem Solving</li> <li>• Reasoning &amp; Proof</li> <li>• Calculus</li> <li>• Technology</li> </ul>		

<b>Science Topics Covered</b>	<ul style="list-style-type: none"> <li>• Scientific Inquiry</li> <li>• Physical Science</li> <li>• Physics</li> <li>• Chemistry</li> <li>• Life Science</li> <li>• Biology</li> <li>• Earth Science</li> <li>• Technology</li> </ul>
<b>Support Provided by Partners</b>	<p><b>Partner: S<sup>2</sup>TEM Center SC</b></p> <ul style="list-style-type: none"> <li>• Provided Supplies, Materials or Meals</li> </ul>

### Math and Science Integration

<p><b>Number of Contact Hours:</b> 6 <span style="float: right;"><b>Training Dates:</b> 1/19/2016 - 1/19/2016</span></p>	
<b>Course Description:</b>	To increase teacher STEM content knowledge through connecting math and science with k-5 Full day session of STEM learning Theory. Math and science teachers will learn to connect all aspect of curriculum and instructional practices to STEM innovation
<b>Content Delivery:</b>	Direct Instruction
<b>Math Topics Covered</b>	<ul style="list-style-type: none"> <li>• Algebra</li> <li>• Geometry</li> <li>• Measurement</li> <li>• Probability &amp; Statistics</li> <li>• Problem Solving</li> <li>• Reasoning &amp; Proof</li> <li>• Calculus</li> <li>• Technology</li> </ul>
<b>Science Topics Covered</b>	<ul style="list-style-type: none"> <li>• Scientific Inquiry</li> <li>• Physical Science</li> <li>• Physics</li> <li>• Chemistry</li> <li>• Life Science</li> <li>• Biology</li> <li>• Earth Science</li> <li>• Technology</li> </ul>

<b>Support Provided by Partners</b>	<b>Partner: S^2TEM Center SC</b> <ul style="list-style-type: none"> <li>• Provided Supplies, Materials or Meals</li> </ul>
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### Math and Science Integration

<b>Number of Contact Hours: 6</b>		<b>Training Dates: 2/9/2016 - 2/9/2016</b>	
<b>Course Description:</b>	To increase teacher STEM content knowledge through connecting math and science with (6-12) Secondary Full day session of STEM learning Theory. Math and science teachers will learn to connect all aspect of curriculum and instructional practices to STEM innovation		
<b>Content Delivery:</b>	Direct Instruction		
<b>Math Topics Covered</b>	<ul style="list-style-type: none"> <li>• Algebra</li> <li>• Geometry</li> <li>• Measurement</li> <li>• Probability &amp; Statistics</li> <li>• Problem Solving</li> <li>• Reasoning &amp; Proof</li> <li>• Calculus</li> <li>• Technology</li> </ul>		
<b>Science Topics Covered</b>	<ul style="list-style-type: none"> <li>• Scientific Inquiry</li> <li>• Physical Science</li> <li>• Physics</li> <li>• Chemistry</li> <li>• Life Science</li> <li>• Biology</li> <li>• Earth Science</li> <li>• Technology</li> </ul>		
<b>Support Provided by Partners</b>	<b>Partner: S^2TEM Center SC</b> <ul style="list-style-type: none"> <li>• Provided Supplies, Materials or Meals</li> </ul>		

### Field Studies

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Training Type: District Professional Development

Number of Contact Hours: 12

Training Dates: 11/1/2015 - 9/20/2016

Field Trips

**Darlington County Institute of Technology**

<b>Number of Contact Hours:</b> 6		<b>Training Dates:</b> 12/8/2015 - 12/8/2015	
<b>Course Description:</b>	(k-12) Vertical teaming STEM curriculum collaborative planning with CATE instructors with DCIT tour and talk (Darlington and Lamar zoned schools only) to increase teacher STEM content knowledge through connecting math and science.		
<b>Content Delivery:</b>	Field Trips		
<b>Math Topics Covered</b>	<ul style="list-style-type: none"> <li>• Algebra</li> <li>• Geometry</li> <li>• Measurement</li> <li>• Probability &amp; Statistics</li> <li>• Problem Solving</li> <li>• Reasoning &amp; Proof</li> <li>• Technology</li> </ul>		
<b>Science Topics Covered</b>	<ul style="list-style-type: none"> <li>• Scientific Inquiry</li> <li>• Physics</li> <li>• Chemistry</li> <li>• Life Science</li> <li>• Biology</li> <li>• Earth Science</li> <li>• Technology</li> </ul>		
<b>Support Provided by Partners</b>			

**BMW Manufacturing Trip**

<b>Number of Contact Hours:</b> 6		<b>Training Dates:</b> 5/17/2016 - 5/17/2016	
<b>Course Description:</b>	BMW Manufacturing Tour: Teachers will tour and see real world manufacturing and the relationship of STEM applications revealed in a real situation. Teachers will be able to network with engineers.		
<b>Content Delivery:</b>	Field Trips		

<b>Math Topics Covered</b>	<ul style="list-style-type: none"> <li>• Technology</li> </ul>
<b>Science Topics Covered</b>	<ul style="list-style-type: none"> <li>• Scientific Inquiry</li> <li>• Technology</li> </ul>
<b>Support Provided by Partners</b>	

### Field Study to SMIT

<b>Number of Contact Hours:</b> 3		<b>Training Dates:</b> 11/24/2016 - 11/24/2016	
<b>Course Description:</b>	(k-12) FDTC Tour of SIMT building and Robotics and manufacturing presentation by Florence Darlington Technical College. Tours serve as means to connect real world experiences to increase teacher STEM content knowledge through connecting math and science. GE tour was conducted following SIMT tour. Real STEM jobs that call for STEM content.		
<b>Content Delivery:</b>	Field Trips		
<b>Math Topics Covered</b>	<ul style="list-style-type: none"> <li>• Technology</li> </ul>		
<b>Science Topics Covered</b>	<ul style="list-style-type: none"> <li>• Technology</li> </ul>		
<b>Support Provided by Partners</b>			

### GE Field Study

<b>Number of Contact Hours:</b> 3		<b>Training Dates:</b> 11/24/2016 - 11/24/2016	
<b>Course Description:</b>	(k-12) FDTC Tour of SIMT building and Robotics and manufacturing presentation by Florence Darlington Technical College. Tours serve as means to connect real world experiences to increase teacher STEM content knowledge through connecting math and science. GE tour was conducted following SIMT tour. Real STEM jobs that call for STEM content.		
<b>Content Delivery:</b>	Field Trips		
<b>Math Topics Covered</b>	<ul style="list-style-type: none"> <li>• Technology</li> </ul>		

<b>Science Topics Covered</b>	<ul style="list-style-type: none"> <li>• Technology</li> </ul>
<b>Support Provided by Partners</b>	

## Science with FOSS

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**Training Type:** District Professional Development

**Number of Contact Hours:** 18

**Training Dates:** 11/4/2015 - 11/5/2015

Foss Kits professional development, Teachers will survey what kits they would like to use for instruction to embrace science and engineering practices to increase teacher STEM content knowledge through connecting math and science.

### Science with FOSS

<b>Number of Contact Hours:</b> 6		<b>Training Dates:</b> 11/4/2015 - 11/4/2015	
<b>Course Description:</b>	k-5th Grade Teachers Foss Kits professional development, Teachers will survey what kits they would like to use for instruction to embrace science and engineering practices. Objectives is to increase teacher STEM content knowledge through connecting math and science.		
<b>Content Delivery:</b>	Direct Instruction		
<b>Math Topics Covered</b>			
<b>Science Topics Covered</b>	<ul style="list-style-type: none"> <li>• Scientific Inquiry</li> <li>• Physical Science</li> <li>• Physics</li> <li>• Chemistry</li> <li>• Life Science</li> <li>• Biology</li> <li>• Earth Science</li> <li>• Technology</li> <li>• Other: Science and Engineering Practices</li> </ul>		
<b>Support Provided by Partners</b>			

### Science with FOSS

<b>Number of Contact Hours:</b> 6		<b>Training Dates:</b> 11/4/2015 - 11/4/2015	
<b>Course Description:</b>	2nd-5th Grade teachers Foss Kits professional development, Teachers will survey what kits they would like to use for instruction to embrace science and engineering practices. Objectives is to increase teacher STEM content knowledge through connecting math and science.		
<b>Content Delivery:</b>	Direct Instruction		
<b>Math Topics Covered</b>			
<b>Science Topics Covered</b>	<ul style="list-style-type: none"> <li>• Scientific Inquiry</li> <li>• Physical Science</li> <li>• Physics</li> <li>• Chemistry</li> <li>• Life Science</li> <li>• Biology</li> <li>• Earth Science</li> <li>• Technology</li> <li>• Other: Science and Engineering Practices</li> </ul>		
<b>Support Provided by Partners</b>			

### Science with FOSS

<b>Number of Contact Hours:</b> 6		<b>Training Dates:</b> 11/5/2015 - 11/5/2015	
<b>Course Description:</b>	6-8 Grade Teachers Foss Kits professional development, Teachers will survey what kits they would like to use for instruction to embrace science and engineering practices. Objectives is to increase teacher STEM content knowledge through connecting math and science.		
<b>Content Delivery:</b>	Direct Instruction		
<b>Math Topics Covered</b>			
<b>Science Topics Covered</b>	<ul style="list-style-type: none"> <li>• Scientific Inquiry</li> <li>• Physical Science</li> <li>• Physics</li> <li>• Chemistry</li> <li>• Life Science</li> <li>• Biology</li> <li>• Earth Science</li> <li>• Technology</li> <li>• Other: Science and Engineering Practices</li> </ul>		

<b>Support Provided by Partners</b>	
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## STEM with Pearson Education

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**Training Type:** District Professional Development

**Number of Contact Hours:** 6

**Training Dates:** 11/11/2015 - 11/11/2015

(K-8) Pearson connect science and math content and real world situations to simulate what Engineers face on a daily basis. In this session, participants will explore the SEPs through hands-on experiences to promote effective transfer of these practices in classrooms to support student engagement and promote scientific discourse. This session will increase teacher STEM content knowledge through connecting math and science.

<b>Content Delivery:</b>	Direct Instruction
<b>Math Topics Covered</b>	<ul style="list-style-type: none"> <li>• Problem Solving</li> <li>• Technology</li> </ul>
<b>Science Topics Covered</b>	<ul style="list-style-type: none"> <li>• Scientific Inquiry</li> <li>• Technology</li> </ul>
<b>Support Provided by Partners</b>	

## STEM with Johannah Maynor

**Training Type:** District Professional Development

**Number of Contact Hours:** 12

**Training Dates:** 12/3/2015 - 12/4/2015

STEM training with Johannah Maynor

### STEM with Johannah Maynor

<b>Number of Contact Hours:</b> 6	<b>Training Dates:</b> 12/3/2015 - 12/3/2015
<b>Course Description:</b>	STEM with Johannah Maynor at Darlington Middle School with middle school teachers.
<b>Content Delivery:</b>	Direct Instruction
<b>Math Topics Covered</b>	<ul style="list-style-type: none"> <li>• Algebra</li> </ul>

	<ul style="list-style-type: none"> <li>• Geometry</li> <li>• Measurement</li> <li>• Probability &amp; Statistics</li> <li>• Problem Solving</li> <li>• Reasoning &amp; Proof</li> <li>• Calculus</li> <li>• Technology</li> </ul>
<b>Science Topics Covered</b>	
<b>Support Provided by Partners</b>	

### STEM with Johannah Maynor

<b>Number of Contact Hours:</b> 6	<b>Training Dates:</b> 12/4/2015 - 12/4/2015
<b>Course Description:</b>	Working with High School Teachers at Darlington High
<b>Content Delivery:</b>	Direct Instruction
<b>Math Topics Covered</b>	<ul style="list-style-type: none"> <li>• Algebra</li> <li>• Geometry</li> <li>• Measurement</li> <li>• Probability &amp; Statistics</li> <li>• Problem Solving</li> <li>• Reasoning &amp; Proof</li> <li>• Calculus</li> <li>• Technology</li> </ul>
<b>Science Topics Covered</b>	
<b>Support Provided by Partners</b>	

### STEM with Francis Marion University -Dr. Bill Whitmire

**Training Type:** District Professional Development

**Number of Contact Hours:** 12

**Training Dates:** 1/20/2016 - 2/9/2016

(6-12) Secondary Full day session of STEM learning Theory. Math and science teachers will learn to connect all aspect of curriculum and instructional practices to STEM innovation. This will help increase teacher STEM content knowledge through connecting math and science.

**STEM with Francis Marion -Dr. Whitmire**

<b>Number of Contact Hours:</b> 6		<b>Training Dates:</b> 1/20/2016 - 1/20/2016	
<b>Course Description:</b>	(6-8) and (9-12) Professional development using STEM to go deeper into standards to enhance math instruction. Problem solving strategies were discussed with technology that makes math and data useful.		
<b>Content Delivery:</b>	Direct Instruction		
<b>Math Topics Covered</b>	<ul style="list-style-type: none"> <li>• Algebra</li> <li>• Geometry</li> <li>• Measurement</li> <li>• Probability &amp; Statistics</li> <li>• Problem Solving</li> <li>• Reasoning &amp; Proof</li> <li>• Technology</li> </ul>		
<b>Science Topics Covered</b>			
<b>Support Provided by Partners</b>			

**STEM with Francis Marion University -Dr. Bill Whitmire**

<b>Number of Contact Hours:</b> 6		<b>Training Dates:</b> 2/15/2016 - 2/15/2016	
<b>Course Description:</b>	(6-8) and (9-12) Professional development using STEM to go deeper into standards to enhance math instruction. Problem solving strategies were discussed with technology that makes math and data useful.		
<b>Content Delivery:</b>	Direct Instruction		
<b>Math Topics Covered</b>	<ul style="list-style-type: none"> <li>• Algebra</li> <li>• Geometry</li> <li>• Measurement</li> <li>• Probability &amp; Statistics</li> <li>• Problem Solving</li> <li>• Reasoning &amp; Proof</li> <li>• Technology</li> </ul>		
<b>Science Topics Covered</b>			
<b>Support Provided by</b>			

Partners

## STEM Superhero Conference

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**Training Type:** Conference**Number of Contact Hours:** 14**Training Dates:** 3/3/2016 - 3/4/2016

STEM Superhero conference addresses the 3 objectives of the grant and teachers will attend to their respective grade level for STEM interrogation and content. The conference will address how to increase student performance on state assessments and district assessments; increase teacher STEM content knowledge through connecting math and science; and close the achievement gap in subgroups.

<b>Content Delivery:</b>	Field Trips
<b>Math Topics Covered</b>	<ul style="list-style-type: none"> <li>• Algebra</li> <li>• Geometry</li> <li>• Measurement</li> <li>• Probability &amp; Statistics</li> <li>• Problem Solving</li> <li>• Reasoning &amp; Proof</li> <li>• Calculus</li> <li>• Technology</li> <li>• Other: At risk youth</li> </ul>
<b>Science Topics Covered</b>	<ul style="list-style-type: none"> <li>• Scientific Inquiry</li> <li>• Physical Science</li> <li>• Physics</li> <li>• Chemistry</li> <li>• Life Science</li> <li>• Biology</li> <li>• Earth Science</li> <li>• Technology</li> <li>• Other: At risk youth</li> </ul>
<b>Support Provided by Partners</b>	

## National At Risk Youth Conference

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**Training Type:** Conference**Number of Contact Hours:** 19**Training Dates:** 3/6/2016 - 3/9/2016

Teachers will attend the sessions that address the 2 of the objectives of the MSP grant. Teachers will learn more content in math and science as applying STEM skills. Also the teacher will gain insight

and classroom strategies that improve learning for African American youth in an effort to close the achievement gap. The sessions will provide instructional strategies to close the achievement gaps in subgroups; increase teacher STEM content knowledge through connecting math and science.

<b>Content Delivery:</b>	Field Trips
<b>Math Topics Covered</b>	<ul style="list-style-type: none"> <li>• Algebra</li> <li>• Geometry</li> <li>• Measurement</li> <li>• Probability &amp; Statistics</li> <li>• Problem Solving</li> <li>• Reasoning &amp; Proof</li> <li>• Calculus</li> <li>• Technology</li> <li>• Other: At risk youth</li> </ul>
<b>Science Topics Covered</b>	<ul style="list-style-type: none"> <li>• Scientific Inquiry</li> <li>• Physical Science</li> <li>• Physics</li> <li>• Chemistry</li> <li>• Life Science</li> <li>• Biology</li> <li>• Earth Science</li> <li>• Technology</li> <li>• Other: At risk youth</li> </ul>
<b>Support Provided by Partners</b>	

## TEMS Objectives and Strategies-share back

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**Training Type:** District Professional Development

**Number of Contact Hours:** 3

**Training Dates:** 4/29/2016 - 4/29/2016

Session will have all conference attendees present to the entire TEMS cohort for presenting what they attended. Each teacher will prepare a 8 minute share back or presentation. All teachers in TEMS will have access to materials to use.

<b>Content Delivery:</b>	Reflection Time
<b>Math Topics Covered</b>	<ul style="list-style-type: none"> <li>• Algebra</li> <li>• Geometry</li> <li>• Measurement</li> </ul>

	<ul style="list-style-type: none"> <li>• Probability &amp; Statistics</li> <li>• Problem Solving</li> <li>• Reasoning &amp; Proof</li> <li>• Calculus</li> <li>• Technology</li> <li>• Other: At risk youth</li> </ul>
<b>Science Topics Covered</b>	<ul style="list-style-type: none"> <li>• Scientific Inquiry</li> <li>• Physical Science</li> <li>• Physics</li> <li>• Chemistry</li> <li>• Life Science</li> <li>• Biology</li> <li>• Earth Science</li> <li>• Technology</li> <li>• Other: At risk youth</li> </ul>
<b>Support Provided by Partners</b>	

## **Ruth Patrick Science Center USC-STEM Education K-12**

**Training Type:** Summer Institute

**Number of Contact Hours:** 24

**Training Dates:** 6/20/2016 - 7/28/2016

The RPSEC Summer 2016 STEM Education sessions are designed to strengthen understanding of grade-level mathematics and science content, pedagogy, and assessment strategies. Integration of mathematics and science content in teaching STEM topics emphasizes trans-disciplinary connections. Selected unifying contexts will provide links to ELA and Social Studies content while bringing relevance to science and mathematics.

### **Grade K-2 Elementary Mathematics with STEM applications**

<b>Number of Contact Hours:</b> 24		<b>Training Dates:</b> 6/20/2016 - 6/23/2016	
<b>Course Description:</b>	The RPSEC Summer 2016 STEM Education sessions are designed to strengthen understanding of grade-level mathematics and science content, pedagogy, and assessment strategies. Integration of mathematics and science content in teaching STEM topics emphasizes trans-disciplinary connections. Selected unifying contexts will provide links to ELA and Social Studies content while bringing relevance to science and mathematics.		
<b>Content Delivery:</b>	Project-Based Learning		
<b>Math Topics Covered</b>	<ul style="list-style-type: none"> <li>• Algebra</li> <li>• Geometry</li> </ul>		

	<ul style="list-style-type: none"> <li>• Measurement</li> <li>• Probability &amp; Statistics</li> <li>• Problem Solving</li> <li>• Reasoning &amp; Proof</li> <li>• Technology</li> </ul>
<b>Science Topics Covered</b>	<ul style="list-style-type: none"> <li>• Scientific Inquiry</li> <li>• Physical Science</li> <li>• Physics</li> <li>• Chemistry</li> <li>• Life Science</li> <li>• Biology</li> <li>• Earth Science</li> <li>• Technology</li> </ul>
<b>Support Provided by Partners</b>	

### Grades 3-5 Elementary Mathematics with STEM applications

<b>Number of Contact Hours: 24</b>		<b>Training Dates: 7/11/2016 - 7/14/2016</b>	
<b>Course Description:</b>			
<b>Content Delivery:</b>	Project-Based Learning		
<b>Math Topics Covered</b>	<ul style="list-style-type: none"> <li>• Algebra</li> <li>• Geometry</li> <li>• Measurement</li> <li>• Probability &amp; Statistics</li> <li>• Problem Solving</li> <li>• Reasoning &amp; Proof</li> <li>• Technology</li> </ul>		
<b>Science Topics Covered</b>	<ul style="list-style-type: none"> <li>• Scientific Inquiry</li> <li>• Physical Science</li> <li>• Physics</li> <li>• Chemistry</li> <li>• Life Science</li> <li>• Biology</li> <li>• Earth Science</li> </ul>		

	<ul style="list-style-type: none"> <li>• Technology</li> </ul>
<b>Support Provided by Partners</b>	

## TEMS Summer Institute

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**Training Type:** Summer Institute

**Number of Contact Hours:** 15

**Training Dates:** 6/28/2016 - 6/30/2016

### STEM with Johannah Maynor

<b>Number of Contact Hours:</b> 5		<b>Training Dates:</b> 6/28/2016 - 6/28/2016	
<b>Course Description:</b>	Developing STEM related lesson plans for middle school math teachers.		
<b>Content Delivery:</b>	Direct Instruction		
<b>Math Topics Covered</b>	<ul style="list-style-type: none"> <li>• Algebra</li> <li>• Measurement</li> <li>• Probability &amp; Statistics</li> <li>• Problem Solving</li> <li>• Reasoning &amp; Proof</li> <li>• Technology</li> </ul>		
<b>Science Topics Covered</b>			
<b>Support Provided by Partners</b>			

### Pearson Textbook Training (Science)

<b>Number of Contact Hours:</b> 5		<b>Training Dates:</b> 6/29/2016 - 6/29/2016	
<b>Course Description:</b>	Pearson textbook training on the new science textbook and interactive modules that can be used, plus the online resources.		
<b>Content Delivery:</b>	Direct Instruction		
<b>Math Topics Covered</b>			
<b>Science Topics Covered</b>			

	<ul style="list-style-type: none"> <li>• Scientific Inquiry</li> <li>• Physical Science</li> <li>• Life Science</li> <li>• Earth Science</li> <li>• Technology</li> </ul>
<b>Support Provided by Partners</b>	

### Science with Edit Hough

<b>Number of Contact Hours:</b> 5		<b>Training Dates:</b> 6/30/2016 - 6/30/2016	
<b>Course Description:</b>	Going trough lesson that could be taught.		
<b>Content Delivery:</b>	Direct Instruction		
<b>Math Topics Covered</b>			
<b>Science Topics Covered</b>	<ul style="list-style-type: none"> <li>• Scientific Inquiry</li> <li>• Physical Science</li> <li>• Physics</li> <li>• Life Science</li> <li>• Earth Science</li> <li>• Technology</li> </ul>		
<b>Support Provided by Partners</b>			

### Elementary Project Lead the Way (PLTW) Training

**Training Type:** Summer Institute

**Number of Contact Hours:** 0

**Training Dates:** 7/1/2016 - 7/31/2016

Elementary teachers will learn and train in the effective STEM integration of PLTW course offerings that he or she selects. From that training teachers will learn how to integrate a national STEM curriculum unit in their schools. The summer training will increase teacher STEM content knowledge through connecting math and science.

<b>Content Delivery:</b>	Project-Based Learning
<b>Math Topics Covered</b>	<ul style="list-style-type: none"> <li>• Algebra</li> <li>• Geometry</li> </ul>

	<ul style="list-style-type: none"> <li>• Measurement</li> <li>• Probability &amp; Statistics</li> <li>• Problem Solving</li> <li>• Reasoning &amp; Proof</li> <li>• Technology</li> </ul>
<b>Science Topics Covered</b>	<ul style="list-style-type: none"> <li>• Scientific Inquiry</li> <li>• Physical Science</li> <li>• Physics</li> <li>• Chemistry</li> <li>• Life Science</li> <li>• Biology</li> <li>• Earth Science</li> <li>• Technology</li> </ul>
<b>Support Provided by Partners</b>	

## High Level Project Lead the Way (PLTW) Training

**Training Type:** Summer Institute

**Number of Contact Hours:** 5

**Training Dates:** 7/1/2016 - 7/31/2016

Teachers will learn and train in the effective STEM integration of PLTW course offerings that he or she selects. From that training teachers will learn how to integrate a national STEM curriculum unit in their schools. The summer training will increase teacher STEM content knowledge through connecting math and science.

<b>Content Delivery:</b>	Direct Instruction
<b>Math Topics Covered</b>	<ul style="list-style-type: none"> <li>• Algebra</li> <li>• Geometry</li> <li>• Measurement</li> <li>• Probability &amp; Statistics</li> <li>• Problem Solving</li> <li>• Reasoning &amp; Proof</li> <li>• Calculus</li> <li>• Technology</li> </ul>
<b>Science Topics Covered</b>	<ul style="list-style-type: none"> <li>• Scientific Inquiry</li> <li>• Physical Science</li> <li>• Physics</li> <li>• Chemistry</li> </ul>

	<ul style="list-style-type: none"> <li>• Life Science</li> <li>• Biology</li> <li>• Earth Science</li> <li>• Technology</li> </ul>
<b>Support Provided by Partners</b>	

## **Middle Level Project Lead the Way (PLTW) Training**

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**Training Type:** Summer Institute

**Number of Contact Hours:** 0

**Training Dates:** 7/1/2016 - 7/31/2016

Teachers will learn and train in the effective STEM integration of PLTW course offerings that he or she selects. From that training teachers will learn how to integrate a national STEM curriculum unit in their schools. The summer training will increase teacher STEM content knowledge through connecting math and science.

<b>Content Delivery:</b>	Project-Based Learning
<b>Math Topics Covered</b>	<ul style="list-style-type: none"> <li>• Algebra</li> <li>• Geometry</li> <li>• Measurement</li> <li>• Probability &amp; Statistics</li> <li>• Problem Solving</li> <li>• Reasoning &amp; Proof</li> <li>• Calculus</li> <li>• Technology</li> </ul>
<b>Science Topics Covered</b>	<ul style="list-style-type: none"> <li>• Scientific Inquiry</li> <li>• Physical Science</li> <li>• Physics</li> <li>• Chemistry</li> <li>• Life Science</li> <li>• Biology</li> <li>• Earth Science</li> <li>• Technology</li> </ul>
<b>Support Provided by Partners</b>	

## **SC STEM Center SE&P**

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**Training Type:** Summer Institute**Number of Contact Hours:** 10**Training Dates:** 7/25/2016 - 7/26/2016

Science, Engineering and Practice by the SC STEM Center at the Darlington District Office.

**SE&P by SC STEM for K-5**

<b>Number of Contact Hours:</b> 5		<b>Training Dates:</b> 7/25/2016 - 7/25/2016	
<b>Course Description:</b>			
<b>Content Delivery:</b>	Direct Instruction		
<b>Math Topics Covered</b>			
<b>Science Topics Covered</b>	<ul style="list-style-type: none"> <li>• Scientific Inquiry</li> <li>• Life Science</li> <li>• Technology</li> </ul>		
<b>Support Provided by Partners</b>			

**SE&P by SC STEM for Middle**

<b>Number of Contact Hours:</b> 5		<b>Training Dates:</b> 7/26/2016 - 7/26/2016	
<b>Course Description:</b>			
<b>Content Delivery:</b>	Direct Instruction		
<b>Math Topics Covered</b>			
<b>Science Topics Covered</b>	<ul style="list-style-type: none"> <li>• Scientific Inquiry</li> <li>• Life Science</li> <li>• Technology</li> </ul>		
<b>Support Provided by Partners</b>			

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