



October 11, 2010

Dear Dr. Pyle:

It is with great pleasure that I endorse and support the proposal that your group has made, on behalf of the JMU Center for STEM Education and Outreach, for MAESTRO (Mathematics And Earth Science Teachers' Resource Organization). Through your updates over the last few months, it is evident that this Math-Science Partnership proposal embodies several of the goals of both JMU and the STEM Education Center for both STEM teachers and precollege students in STEM classes. Furthermore, the potential for impact on STEM instruction at JMU is profound.

From the perspective of the Provost's office, it is important both that students are successful in STEM majors at JMU and that the potential student body is well-prepared to meet the challenges of a STEM career pathway. By integrating mathematics and Earth science, it is anticipated that a larger pool of students will be better prepared to pursue a STEM career, by virtue of more positive attitudes towards mathematics and science before they get to higher education. MAESTRO is innovative in that it not only integrates these disciplines, but also provides a long-term, systematic framework to sustain the implementation of the lessons of MAESTRO that will become a regular part of instructional practice well beyond the funding of the project.

One of the critical aspects of this sustaining force, and one that directly involves the Center for STEM Education and Outreach, is the design and implementation of site-based case studies, where participating teachers and their students engage in authentic research in their local school context. With multiple schools involved, it is in the interest of JMU for me to encourage STEM faculty members involved in STEM instruction to participate as counselors for the research projects. With a growing pool of STEM faculty members truly invested in the effort to improve science and math education in the pk-12 sector to draw from, there will be sufficient resources to support each participating school's needs.

MAESTRO also addresses important needs at JMU, by leveraging the capabilities of the JMU Center for Faculty Innovation in providing professional development for JMU faculty. These workshops will incorporate the lessons learned from work with participating schools, drawing from STEM faculty most directly involved in the content preparation of middle and secondary STEM teachers. The faculty workshop feature of MAESTRO will not only provide needed curricular and pedagogical focus for participating faculty, but also strengthen the relationships between these faculty and participating MAESTRO teachers, a clear "win-win." Through this collaboration it is anticipated that MAESTRO-based interactions will strengthen overall the STEM offerings of the entire general education program.

On the whole, MAESTRO is precisely the type of project that the Center for STEM Education and Outreach was designed to support – interdisciplinary, spanning department and college boundaries, all in the service of a broader and deeper sense of STEM, both within and outside of JMU. Please keep me advised as the proposal works its way through the review process, and let me know what I can do to help push this effort forward.

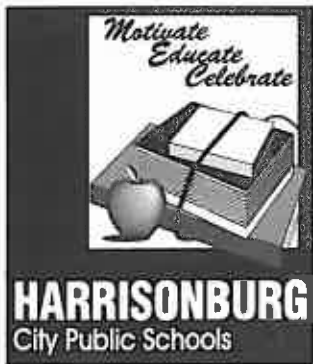
Sincerely,

A. Jerry Benson, Ph.D.  
Interim Provost and Senior Vice President

AJB/lw

PROVOST and  
VICE PRESIDENT FOR  
ACADEMIC AFFAIRS

MSC 7607  
Alumnae Hall, Room 101  
Harrisonburg, VA 22807  
540.568.6616 Phone  
540.568.7800Fax



**Scott R. Kizner, Ph.D.**  
**Division Superintendent**

Department of Instructional Services  
101 North Main Street, 4<sup>th</sup> Floor  
Harrisonburg, Virginia 22802  
540-434-5730 • Fax 540-437-3333

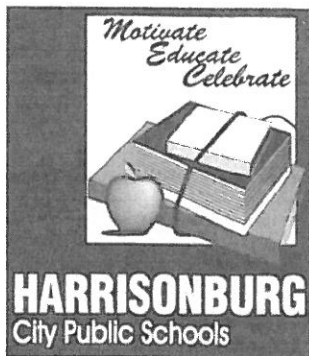
To Whom It May Concern:

Andrew Jackson is the Science Coordinator for Harrisonburg City Public Schools. It is in this position that he is serving as Co-PI of the MAESTRO grant. Mr. Jackson is not receiving salary as Co-PI nor is any portion of his contract being bought out using funds that may be received for the MAESTRO grant. Working with James Madison University, the PI and other Co-PI in this grant is considered a portion of his duties as Science Coordinator for HCPS as it is expected this grant will have direct and indirect benefits to the science instruction of the children in the Harrisonburg school system.

Regards,

A handwritten signature in black ink, reading "Michael C. Loso". The signature is written in a cursive, flowing style.

Michael C. Loso, Ed.D.  
Assistant Superintendent  
Harrisonburg City Schools  
101 N. Main Street, 4th Floor  
Harrisonburg, Virginia 22802  
(540) 437-3304 - Office  
(540) 437-3333 - Fax



Donald J. Ford, Ed.D.  
Division Superintendent

Department of Instructional Services  
101 North Main Street, 4<sup>th</sup> Floor  
Harrisonburg, Virginia 22802  
540-434-5730 • Fax 540-437-3333

Dear Dr. Pyle,

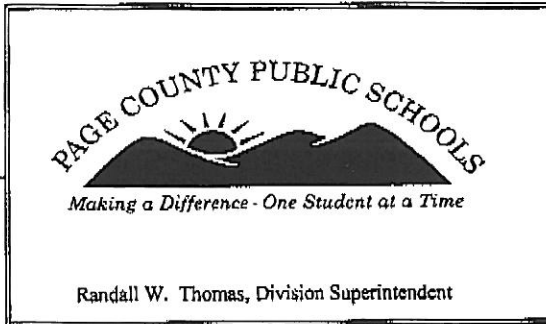
Please accept this letter as a statement of understanding and commitment to the MAESTRO (Mathematics And Earth Science Teachers Resource Organization) project, which has been submitted to the National Science Foundation as a Targeted Math-Science Partnership project. It has been a pleasure working with James Madison University's STEM-Education and Outreach Center as it has developed, and it is clear that MAESTRO is a natural extension of the Center's mission. That we have been included in partnership in the development of MAESTRO is reflective of the interactive relationship that has been established by the Center.

We are committed to working as a partner in MAESTRO, identifying at least two middle grades and two high school teacher candidates in our division. These teachers will be mathematics and science teachers that can both benefit from participation in MAESTRO as well as carry the model forward in our schools. It is our understanding that this will require a variety of supporting measures, including working towards joint planning time for participating teachers and appropriate substitute teacher scheduling. These steps will ensure that MAESTRO will accomplish what it has set out to do. We will also ensure that a member of our school division administration will participate in the internal advisory board for the periodic meetings. We feel that through this mechanism, our needs and successes will be conveyed.

MAESTRO will serve as another component as we seek to improve our students' performance in mathematics and science learning and our teachers' capacity to drive that learning. With HCPS' large population of ESL students and students without parents who have attended college, we realize this as an opportunity to strengthen these students' skills and aptitudes towards math and science. It is a unique program, and we appreciate the opportunity this partnership provides for our teachers and students, and fully anticipate that our mathematics and science instruction will be enhanced by this program. Please keep us advised as the MAESTRO proposal works its way through the review process, and advise us of any questions that may arise.

Sincerely,

Michael C. Loso, Ed.D.  
Assistant Superintendent  
Harrisonburg City Schools  
Harrisonburg, Virginia 22801  
(540) 437-3304 - Office  
(540) 437-3333 - Fax



735 West Main Street • Luray, Virginia 22835  
 phone: (540) 743-6533 • fax: (540) 743-7784  
 e-mail: [pageco@shentel.net](mailto:pageco@shentel.net)

Randy J. Bailey, Chairman, District 1  
 Melissa S. Deibert, Vice Chairman, District 2 C.L. "Chuck" Tomney, District 5  
 Sharon K. Lucas, District 3 Larry Foltz, District 4

October 6, 2010

Dear Dr. Pyle,

Please accept this letter as a statement of understanding and commitment to the MAESTRO (Mathematics And Earth Science Teachers Resource Organization) project, which has been submitted to the National Science Foundation as a Targeted Math-Science Partnership project. Page County Public Schools feels fortunate to be included in the conversations regarding math and science instruction that have been promoted by James Madison University's STEM Center. The goals of MAESTRO are clearly aligned with the Center's mission. We are pleased to be included in partnership for the development of MAESTRO, and see clear benefits for our division's teachers and their students. They include:

- The overarching goal of MAESTRO (more students learning mathematics through the concrete domain of Earth science) is consistent with the vision we have for quality instruction for our school division's students.
- Grade 6 mathematics and science teachers often have common planning time, and the MAESTRO framework focuses their work around strong instructional goals.
- Quantification of Earth science instruction may serve to bridge more students into chemistry, and support them in being more successful as they move through that curriculum.
- Teachers in Page County are fairly isolated and would benefit from exposure to innovative models of instruction.
- The integration of science and mathematics instruction shows promise in addressing achievement gaps that exist across socioeconomic groups.

We are committed to working as a partner in MAESTRO, identifying at least two middle grades and two high school teacher candidates in our division. These teachers will be mathematics and science teachers that can both benefit from participation in MAESTRO as well as carry the model forward in our schools. It is our understanding that this will require a variety of supporting measures, including working towards joint planning time for participating teachers and appropriate substitute teacher scheduling. We will also ensure that a member of our school division administration will participate in the internal advisory board for the periodic meetings. We feel that through this mechanism, our needs and successes will be conveyed.

Through MAESTRO, we anticipate being able to work "outside of the box" as we seek to improve our students' performance in mathematics and science learning and our teachers' capacity to drive that learning. It is a unique program, and we appreciate the opportunity this partnership provides for our teachers and students, and fully anticipate that our basic approach to mathematics and science instruction will be impacted. Please keep us advised as the MAESTRO proposal works its way through the review process, and advise us of any questions that may arise.

Sincerely,

Donna Whitley-Smith  
 Assistant Superintendent for Instruction

**An Equal Opportunity Employer**

The Page County School Board does not discriminate on the basis of race, color, national origin, age, religion, marital status, disability or sex in its education programs or employment.



600 North Main Street, Suite 200

Woodstock, VA 22664

540-459-6222

Fax: 540-459-6707

October 6, 2010

To Whom It May Concern:

Shenandoah County Public Schools is excited to participate in the Mathematics and Earth Science Teachers Resource Organization's STEM project. We see this opportunity as a means by which our math and science teachers can gain exceptional professional development which will enhance their skills for years to come. This project is a way to bridge science and math together in a relevant way. This will provide us an additional means to assist teachers with injecting rigor and relevance into their daily instruction.

The quality learning opportunities that MAESTRO will afford our teachers and students are very difficult to provide. Economic conditions at this time make professional development difficult to offer. MAESTRO will provide the opportunity from a financial standpoint to enable our teachers to improve their skill sets as well as offer our students an amazing educational experience. Also small school divisions such as ours rarely are able to partner with a university on such an intense project as this. We feel very fortunate to have the opportunity to work with and learn from experts at James Madison University.

Currently professional development for our teachers varies from school to school and teacher to teacher. Most teachers well exceed the required 180 professional development hours necessary for state recertification. However, we see this type of professional development to have great benefit. Sustained, job embedded professional development such as this has a much greater impact on teacher development than a one or two day workshop or an after school in-service.

If SCPS is offered the opportunity to participate we will provide support for our teachers through their daily schedule, work to assist them with lesson study and if necessary help with the development of a teaching portfolio. We will work toward the identification of 2 middle school and 2 high school science teachers as well as 2 middle school and 2 high school math teachers. All of the participating teachers will be fully endorsed in their subject area.

Again we are excited about the possibility to offer our students a meaningful and motivational way to connect math and science. MAESTRO has the potential to offer the kinds of higher level thinking and learning opportunities we so desire for our students. Thank you for the opportunity and we look forward to hearing the outcome of this exciting project.

Regards,

A handwritten signature in cursive script that reads "Evelyn K. Linaburg".

Evelyn K. Linaburg  
Division Assistant Superintendent

# Augusta County Schools

6 John Lewis Road  
Fishersville, Virginia 22939

Chuck Bishop  
*Superintendent*

Phone: (540) 245-5117  
(540) 949-6134  
FAX: (540) 245-5118

September 20, 2010

Dear Dr. Pyle,

Please accept this letter as a statement of understanding and commitment to the MAESTRO (Mathematics And Earth Science Teachers Resource Organization) project, which has been submitted to the National Science Foundation as a Targeted Math-Science Partnership project. It has been a pleasure working with James Madison University's STEM-Education and Outreach Center as it has developed, and it is clear that MAESTRO is a natural extension of the Center's mission. That we have been included in partnership in the development of MAESTRO is reflective of the interactive relationship that has been established by the Center.

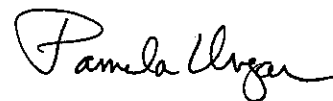
As a part of the conversations that have gone on between our office and yourself, it is clear that the overarching goal of MAESTRO, to have more students learning more mathematics through the concrete domain of Earth science so that they might have more opportunities in STEM, is consistent with the vision we have for our school division's students. We are particularly interested in the MAESTRO program because we believe:

- Quantification of Earth science instruction may reduce the "mathematics shock" experienced by many students upon entering chemistry, or that otherwise prevents them from taking chemistry;
- Organized Lesson Study (professional learning communities) among participating teachers, centered on this project, would be of overall benefit to both these teachers and their students.
- Schools in our division typically have low numbers of teachers that are teaching out of field, but generally benefit from innovative models of instruction; and
- Schools in our division often show high pass rates on SOL tests in mathematics and Earth science, but there remains an achievement gap across ethnicities and socioeconomic status.

We are committed to working as a partner in MAESTRO, identifying at least two middle grades and two high school teacher candidates in our division. These teachers will be mathematics and science teachers that can both benefit from participation in MAESTRO as well as carry the model forward in our schools. It is our understanding that this will require a variety of supporting measures, including working towards joint planning time for participating teachers and appropriate substitute teacher scheduling. These steps will ensure that MAESTRO will accomplish what it has set out to do. We will also ensure that a member of our school division administration will participate in the internal advisory board for the periodic meetings. We feel that through this mechanism, our needs and successes will be conveyed.

Through MAESTRO, we anticipate being able to work "outside of the box" as we seek to improve our students' performance in mathematics and science learning and our teachers' capacity to drive that learning. It is a unique program, and we appreciate the opportunity this partnership provides for our teachers and students, and fully anticipate that our basic approach to mathematics and science instruction will be impacted. Please keep us advised as the MAESTRO proposal works its way through the review process, and advise us of any questions that may arise.

Sincerely,



Dr. Pamela Ungar



# Staunton City Schools

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P.O. Box 900 • 116 West Beverley Street, Staunton, VA 24402-0900  
Phone 540-332-3920 • Fax 540-332-3924  
[www.staunton.k12.va.us](http://www.staunton.k12.va.us)

September 27, 2010

Dear Dr. Pyle,

Please accept this letter as a statement of understanding and commitment to the MAESTRO (Mathematics and Earth Science Teachers Research Organization) project which has been submitted to the National Science Foundation as a Targeted Math-Science Partnership project. In our continued work with James Madison University's STEM-Education and Outreach Center, we are excited about the prospect of bringing middle and high school teachers together to foster integrated science and mathematics instruction.

As a small school division, it is difficult for us to provide and foster learning for our middle and high school science and mathematics teachers. We believe the MAESTRO Project targets the need in our school division to improve the overall performance of specific subgroups within our population and to foster teacher development in the integration of mathematics and science instruction. Specifically, we feel MAESTRO will provide the following benefits:

- Closely link the learning of mathematics concepts to real-world context and application in the science field.
- Expand student understanding in both fields by adding quantitative and mathematical modeling to science instruction.
- Provide teachers with best-practice knowledge and a network of colleagues through the utilization of a lesson study approach and the development of professional portfolios.
- Utilize the local environment to foster student understanding of mathematics and science.

We are committed to working as a partner in MAESTRO. To that end, we will identify at least two middle and two high school science and mathematics teachers from our division who will benefit from participation in MAESTRO as well as help to carry the model within Staunton City Schools and the grant network. In addition, we will provide an administrator to participate in the internal advisory board for the project, allow teachers professional development time for learning to occur, and encourage their efforts as they work on the project.

As we continually seek ways to improve our students' performance in mathematics and science learning and our teachers' capacity to drive that learning, we are excited about the unique opportunity the MAESTRO Project will provide. We expect this program to have a profound impact on our teachers and our students, and are fully supportive and appreciative of this partnership opportunity. Please keep us advised on the status of the MAESTRO proposal and inform us of any questions that may arise.

Sincerely,



Lori B. Walk  
Assistant Superintendent



100 Mount Clinton Pike • Harrisonburg, VA 22802-2507  
540-564-3200 • 540-564-3241 (fax)  
[www.rockingham.k12.va.us](http://www.rockingham.k12.va.us)

September 27, 2010

National Science Foundation  
4201 Wilson Boulevard  
Arlington, VA 22230

Dear Sirs and Ladies,

The Rockingham County Public Schools Division enthusiastically endorses the MAESTRO Project, as proposed by James Madison University. It is our intention that this project will increase the number of students who pursue viable STEM careers. MAESTRO will invigorate and support our instructors by providing them with integrated lessons, the development of site-based case studies, and exciting learning activities.

Our division is especially interested and committed to enhancing environmental awareness and stewardship, sustaining healthy ecological practices, and protecting our eco-system. The development of values and student knowledge in planet care and preservation is crucial to this commitment, as is the development of teacher expertise in these areas. MAESTRO will provide a critical boost in the accomplishment of these learning goals. Further, the talents and skills of our teachers can be utilized to assist other school divisions in accomplishing their educational objectives.

The relative size of our division has recently limited our ability to extensively fund professional development for teachers. This project will provide needed funded experiences to improve our instructional programs. Our administrators and teachers further anticipate the instructional and learning benefits to be gained through lesson study, teaching portfolios, and learning in local on-site environments. We have repeatedly been told and shown by students that their learning is much more meaningful and lasting, when it occurs in real-life settings. The study of local water, soil, rock, and air will increase the students' quantitative Earth Science skills.

Rockingham County Public Schools will allow scheduling options for participating teachers which will facilitate lesson study, portfolio development, team activities, site-based case study, and virtual meetings. We will award at least two middle school and

two high school science teachers with this opportunity. The Science Supervisor is also prepared to participate on the internal advisory board for the project.

In conclusion, Rockingham County Public Schools is a committed, supportive partner of James Madison University's Science Department, and is pleased to join them in the vibrant MAESTRO Project.

Sincerely,

Frederic Babbitt  
Supervisor of Science Programs  
Rockingham County Public Schools



# Waynesboro Public Schools

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301 Pine Avenue  
Waynesboro, Virginia 22980

Phone (540) 946-4600  
Fax (540) 946-4608

October 7, 2010

Dear Mr. Pyle,

Waynesboro School Division is very excited about the prospect a participating in the MAESTRO project. The goals of this program align well with existing professional development needs within our division. Currently, we are struggling in the area of secondary math and this program could greatly benefit our teachers and students in this area. The plan to merge science and math together in this initiative makes instructional sense and will help bring both relevancy and real world applications to our math instruction.

Waynesboro Public Schools is a relatively small division, our teachers have had limited opportunities for the type of professional development that MAESTRO can provide. We believe that the focus on lesson study, teaching portfolios, and collaborating with neighboring divisions will be extremely meaningful for our teachers, and thus our students.

In addition to the support that MAESTRO provides to participating teachers, Waynesboro Public Schools is also committed to working with participating teachers to create scheduling options that will allow for valuable time and effort to be put into the implementation of the program, including but not limited to, lesson study and teaching portfolio development. Our school division will identify at least four teachers at Kate Collins Middle School and two teachers at Waynesboro High School to participate in the MAESTRO program. We plan to target teachers who are able to model math and science skills both within our division and within the MAESTRO network.

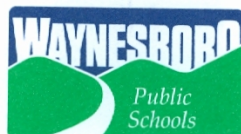
As the Coordinator of Secondary Education and Testing for Waynesboro Public Schools, I would like to participate in the internal advisory board for the MAESTRO project.

Sincerely,



India Harris

Waynesboro Public Schools



*Our Children...Our Future...Our Responsibility*