The MAST E-Rapper

Summer/Early Fall 2008 Volume 1 No. 2

Editor's Note

The start of the 2008-09 school year is upon us. The beginning of a new school year is an exciting time that I always anticipate with great energy. I love the feeling of a fresh start and a chance to do better what I've done before. The fresh and eager faces of the students and the teachers are always a welcome site. And, I have to admit, I LOVE the smell of new school supplies.

It is also an exciting time for the Maryland Association of Science Teachers, and I am glad that you are a part of the readership for this second edition of the MAST E-Rapper. There are exciting things going on in the world of science education in Maryland, and I am pleased we have a chance to share some of them here.

In this issue of the E-Rapper, you'll find MAST news that includes a report on our evening at the Goddard Space Flight Center in April. With assistance from ***John Leck***, Educational Specialist at GSFC, science educators from around the state gathered for an opportunity to learn about several NASA projects including the Lunar Reconnaissance Observatory. We also sampled a number of resources such as the Science on a Sphere exhibit and the NASA Distance Learning Network.

While at Goddard, we had the opportunity to honor the ***2007-08 Presidential Awards for Excellence in Science and Mathematics Teaching (PAEMST)*** finalists in Maryland. Also, two ***MAST mini-grants*** were awarded. Be sure to read about each of these events and more in the MAST News section of the E-Rapper.

It is also exciting to welcome a new ***executive board*** and slate of ***officers*** to MAST. The 24 member board met for the first time in May at ***Faulkner Ridge in Howard County*** and has been working hard over the summer to plan for the 2008-09 school year. See a full listing of the Executive Board along with committee assignments. Please feel free to contact any executive board member to communicate your ideas, needs, and interests to the board.

In this issue, we present our first Guest Editorial from ***Anita O'Neill, Montgomery County***, who shares her ideas about test preparation in science. Also, best Practices in Science Teaching are again included. You will find an article by ***Dawn Getzendanner, Frederick County,*** on powerful use of VSC indicators in the elementary science classroom. ***Linda Maguire, Carroll County***, describes the use of the

MSDE on-line course for Biology in high school.

A special section for new teachers is included in this issue. Second year teacher ***Noah Scholl, Carroll County,*** offers advice for teachers who are brand new to the profession. ***Erin Thomas, Carroll County,*** offers insight after her return to the classroom following a several year hiatus. I think you will find these articles provide perspective for those joining us in teaching children about science for the first time and as a reality check for those of us who have been doing it for a while.

So, welcome to the 2008-09 school year! I hope you will find it to be a rewarding year where you and all of your students fulfill the many goals you set out to achieve. As the year progresses, MAST will be there to provide professional development and networking opportunities for science educators from throughout the state. Please contact a member of the Executive Board with ideas or concerns.

The next E-Rapper will publish in December with a theme of technology in science education. Please, share your innovative applications with others. Contact me for information on submitting an article at mcwelle@k12.carr.org.

Regards,

Mary

Mary Weller, Editor

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President's Message

With hopes that your summer has been full of relaxation and renewal, MAST is also getting ready for another school year. Whether you've been at it for decades or are just beginning, I believe we all get that excited, ambitious, spirited feeling inside as we go back to our classrooms/buildings at the end of our summer.

This year MAST plans to offer our science education community new resources, new faces, and opportunities to become even better science educators. We are working on updating our website and creating a variety of resources for you as a science teacher. Continue to check throughout the fall semester to see how we are progressing at www.emast.org. In cooperation with MSDE and the Maryland Science Supervisors Association (MSSA) we are planning a conference for emerging leaders in science education to be held at Ocean City in October. We'll also continue our speaker series at science facilities throughout the state.

This year please consider applying for our $500 Mini-Grants for your classroom or nominate someone for our Science Education Excellence Awards! Contact your supervisor or an executive board member if you need more info.

Enjoy these last few weeks of summer before we get back into the swing of things. Go to a museum, recycle, take a walk on a trail, listen to the birds, watch the clouds, read a good book, use reusable shopping bags, monitor your own health and fitness- and bring it all back with you to your students in the Fall. We are lucky that we are science teachers!

MAST wishes for you to have an enthusiastic, productive year of guiding the minds of our future 21st century citizens! Enjoy the articles in this edition of the E-Rapper and look for our next edition in late fall. Have a great 2008-09 school year!

All my best,

Beth McCook
MAST President

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MAST NEWS

An Evening at Goddard Space Flight Center

By: Mary Weller, Carroll County

On April 10, 2008, MAST sponsored its second in a series of Evening Meetings. Approximately 50 science educators from around the state converged on the Goddard Space Flight Center Visitor's Center to honor exemplary teachers, receive briefings on current NASA projects, and gather information on available NASA resources.

The evening started with a catered dinner in the Visitor Center where attendees seized the opportunity to meet and network with one another. Many also visited the Teacher Resource Center to pick up specially prepared materials and to browse through the vast collection of free posters and other items available for teachers.

Following opening remarks, Mary Thurlow, State Science Supervisor, presented the three finalists in the 2007 Presidential Award for Excellence in Science Teaching. **Linn Griffiths, C, Milton Wright High School in Harford County, Elizabeth McCook, Urbana High School in Frederick County, and Kathleen Damonte, Julius West Middle School in Montgomery County,** were honored. Congratulations to Linn Griffiths who represented Maryland as the state PAEMST winner in secondary science. (For more information, see http://recognition.paemst.org/media_room/finalist_profiles/linn-lee-griffiths.)

State Science Supervisor, Mary Thurlow, recognizes PAEMST finalist Kathleen Damonte, of Montgomery County, at the Goddard Space Flight Center.

The evening's keynote address featured David Everett, a lead scientist on NASA's Lunar Reconnaissance Orbiter (LRO) planned for launch in the fall of 2008. The LRO will be the first return to the moon for the United States since the 1972 Apollo 17 flight. Its

mission goals include surveying the moon's surface with 1 meter resolution to assist in planning for man's eventual return to the moon in search for opportunities to expand the economic sphere of the earth. It is planned as a 14 month NASA mission with particular emphasis on reconnaissance of the polar regions. (For additional information on the LRO, see http://lunar.gsfc.nasa.gov/.)

Dr. David Everett, an investigator on NASA's Lunar Reconnaissance Orbiter, discusses the mission with conference attendees. The LRO is scheduled for launch in late 2008.

Following the keynote address, attendees selected from several remaining programs. Steele Hill provided an overview of NASA's research on the earth's sun. Numerous resources were provided for classroom use. Also, NASA's Digital Learning Network (DLN) was previewed as attendees conducted a synchronous video conference with NASA scientist, Dr. Marci Delaney. The DLN is a free educational resource that allows schools to communicate with NASA personnel, view streamed videos, and participate in NASA special events (more information at: http://dln.nasa.gov/dln/.)

The Science on a Sphere exhibit brings data to life with 4 data projectors and 5 computers that work in synch to project animated data on a 6 feet diameter screen suspended in the center of the theatre.

One of the highlights of the evening was the Science on a Sphere (SOS) exhibit. In the SOS theatre, video projectors and 5 computers are used to project planetary data on a 6 foot diameter sphere suspended in the center. Animated imagery derived from satellite data including storm formation and progress or climate factors are brought to life to illustrate complicated earth systems. (For more information, see http://sos.noaa.gov/.)

The evening proved to be one of excitement and renewal for all those in attendance. Special thanks to **John Leck, NASA Education Specialist**, for his assistance in coordinating this most memorable event.

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MAST Welcomes New Executive Board

By: Mary Weller, Carroll County

On May 10, the new Executive Board for the Maryland Association of Science Teachers convened for the first time at the Faulkner Ridge Center in Howard County. A new slate of officers and a substantial board with representatives from around the state assumed office. In convening the new board, President Beth McCook extended invitations to numerous educators who were recommended by science supervisors and fellow teachers. Twenty-one accepted the invitation and the hard work required. Below, you will find a list of the board members along with their committee assignments and regional representation. Please feel free to contact any board member to share your thoughts and ideas on MAST. Your participation is always welcome.

MAST Executive Board 2008-2009

Officers

President	Elizabeth McCook	Frederick County
President-Elect	Mary Weller	Carroll County
Past-President	Bonnie Nagel	Baltimore County
Secretary	Mona Becker	Carroll County
Treasurer	Martin Schmidt	Private Schools

Board Members

Janice Blitz	Montgomery County	New Teachers/Events
Kim Cherry	Prince Georges County	Membership/New teachers

Suzanne Dashiell	Frederick County	Awards
Keri Dill	Washington County	Events/Membership
Jacquelyn Geer	Montgomery County	Membership/Central Region Representative
Rich Gottfried	Frederick Community College	Higher Education
Nusret Hisim	Frederick County	Website/Awards
Katie James	Allegheny County	New Teachers
David Lillard	Frederick County	Events
Meegan Marino	Montgomery County	Awards
Donna Motsay	Harford County	Membership
EllaJay Parfitt	Baltimore City	New Teachers
Dale Peters	Frederick County	Events
Jason Redmond	Harford County	North Region Representative
Charlotte Trout	Washington County	Website
Lloyd Shockley	Montgomery County	Membership/New Teachers
Bill Lutz	Vendor Liaison, Fisher-Scientific	
Gary Hedges	MSDE Liaison	
Anita O'Neill	MSSA Liaison	
John Quinn	MSSA Liaison	
Mary Thurlow	MSDE Science Coordinator	
Joyce Tragesar	Maryland Science Center Liaison	
Christine Oberdorf	MCTM Liaison	

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MAST Mini-Grants Awarded

By: Beth McCook, Frederick County

The Maryland Association of Science Teachers is excited to announce the recipients of the 2008 MAST Mini-Grants. The first $500 was awarded to Matt Isleib, MAST member and middle school science teacher, and Ellen Georgi, a middle school social studies teacher, both of Urbana Middle School located in Ijamsville, MD. This team of teachers, along with other colleagues, will conduct a project to determine if the planting of native trees will be able to take over the non-native invasive bush varieties located in their schoolyard.

After receiving the grant during the MAST event at Goddard, the team purchased trees through the Maryland Department of Natural Resources. At last report, the trees, along with some donated soil amendments were planted one rainy Saturday morning in May. The students of Urbana Middle School will collect data and monitor the non-native bush growth and the corresponding available sunlight. This experiment is being repeated around the world. It is planned that data will be shared and regularly updated on their school website. The experiment will continue through the next school year and beyond.

The second grant was awarded to Middletown High School Teacher, Sharon Steger to further her students' exploration and inquiry into Alternative Energy Vehicles. Mrs. Steger, a MAST member from Frederick County, Maryland is using her mini-grant to purchase replacement solar panels for the Pitso Ray C Deluxe Pack Car Kit, which she has used with her environmental science students in the past. She will also purchase 1 additional hydrogen fuel cell car science kit from Horizon fuel Cell to complement the 2 fuel cell car kits she received from the NEED Project.

The students will be given the opportunity to try out various investigations to further understand the scientific processes behind solar powered vehicles as well as Hydrogen Fuel Cell vehicles. The intent is that their experimentation will provide a deeper understanding of energy resources, their uses, and their effects on the environment along with the possibilities of these vehicles becoming more popular in the next few years.

The mini-grant has allowed for the purchase of this equipment to be used in Mrs. Steger's Environmental Science classes during the 2008-09 school year and beyond. These students will construct and enter a competition with their alternatively fueled cars. Mrs. Steger is eager to include this in her instruction since it is an effective way to include STEM (Science Technology, engineering and math) materials to introduce her students to the technology and thinking skills of the 21st century learner.

Congratulations to these teachers for their innovative thinking! If you are interested in submitting an application for a MAST Mini-grant for up to $500 visit our website to

download the application today! The deadline is in March 2009 for Mini-grants to be awarded next spring.

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Progress Report on 2007 Mini-Grant

By: Peg Denton, Mt. Saint Mary's College

Science teachers are always looking for hands-on, motivating lessons to get our students engaged in learning. Thanks to MAST we were able to purchase a science kit to do just that. The $500. mini-grant awarded in 2007, along with a matching grant from Mt. St. Mary's University, allowed us to purchase a Motion and Design Kit developed by the National Science Resources Center, The National Academies, and Smithsonian Institution. The kit is sold by Carolina Biological Supply. It is being used in Frederick County Public Schools in the fourth grade curriculum, but can be used in third and fifth grades, too.

The exciting part is that students build a vehicle from building pieces provided in the kit. Children are natural designers and builders. My college juniors, prospective teachers all, were as energized as they knew their future students would be to work with the kit. They had to race their vehicles in the hallway with great enthusiasm.

The concepts taught were that changes in the motion of objects are determined by the mass of the object and the amount of the force applied to it. They tested the motion of vehicles carrying a load, and the effects of rubber band energy. The effects of air resistance on a vehicle's motion were tested when sails and propellers were added.

Skills and processes developed in the unit are: investigate and describe how a model works after changes are made. Analyze models such as tables and graphs to summarize and interpret data, and use measurement and keep accurate records to compare data gathered. Many others, too numerous to mention, are covered in an engaging way.

Applying for the MAST grant was easy and the rewards for my students are inestimable. I am proud to be a MAST member and would encourage other MAST members to apply for a mini-grant this year.

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MAST Excellence Awards in Science Teaching Announced

The Maryland Association of Science Teachers is proud to announce their selection of four teachers in Maryland to receive the MAST Excellence Award for Science Education. They are Johanna Mullendore, an elementary science teacher, Dr. Mona Becker, a middle school teacher, Connie Lenhart, a High School Earth and Environmental Science Teacher and Chris Horne, a science education specialist from Mt. Saint Mary's University. These folks completed their applications this spring.

Johanna Mullendore is a first grade teacher at Funkstown School for Early Childhood Education in Funkstown, Maryland, located in Washington County. She has been teaching for two years and has inspired many small children to love learning about science. She has her Masters Degree in Reading with a minor in Music and loves to sing with her students about everything "under the sun". She feels lucky to work with an amazing team of teachers at her school and is involved with a variety of planning sessions for her science units. She enjoys the challenges of introducing science topics to young children through her music and literature. She also enjoys using drama in their science block to make the science more understandable as they move like a viscous liquid or change their voices to sound like different rocks might sound or even flutter like a butterfly. She also tries to weave science into other content areas and is proud that her students enjoy reading non-fiction text which often brings in a variety of science topics. Lucky that young children love science, she finds it truly rewarding to see the kids get so excited about learning!

From Sykesville Elementary School in Carroll County, **Dr. Mona Becker** teaches 8th Grade Earth Science. Dr. Becker has been teaching middle school for the past three years. Prior to that she was a visiting scholar at the University of Tennessee's Department of Earth and Planetary Sciences, Adjunct Faculty members at Towson University, Montgomery College and the University of Maryland along with two years of Research at the University of Oxford in the United Kingdom. Currently a curriculum developer for Carroll County, Dr. Becker is a Team Leader for approximately 100 students and three teachers. She enjoys incorporating technology, hands-on exploration, and experimentation along with real time data into her daily lessons. Dr. Becker is also involved with the STEM initiatives in her county. Dr. Becker brings tremendous expertise in the Earth Sciences into her classroom daily.

Connie Lenhart has been awarded the High School level Award for Excellence in Science Education this year. She is currently teaching AP Environmental Science, Earth Science and Chemistry at North Hagerstown High School in Hagerstown, Maryland. She is the science department chair. She engages her students in laboratory, inquiry and hands-on activities regularly. She also coaches the Ocean Bowl and Envirothon Academic Teams and has received several Chesapeake Bay Grants. In 2000, Connie was

a finalist for the Washington County Teacher of the Year. Connie is also active in presenting professional development workshops for colleagues. She has participated with the American Meteorological Society's Datastreme Project for Teacher Preparation in the atmospheric and oceanographic sciences for the past 10 years. Connie is very dedicated to the enriching children of all ages in the sciences.

Our College Level awardee this year is **Chris Horne** of Mount Saint Mary's University located in Emmitsburg, Maryland. Since 1998, Mr. Horne has been an adjunct professor for the Education Department. He has been a Teacher Specialist for Elementary Science and/or Math in Frederick County Public Schools since 1993. Prior to 1993 he was a classroom teacher for Frederick County and the Mount Airy Christian School. He is an avid presenter at State and National Conferences over that the past 15 years and coached the National Award winning Team for the Space Day Challenge in 2006. He is involved with MSA preparation and science collaboration groups throughout Frederick County. Many young teachers in Frederick County attribute the success to the lessons learned from Mr. Horne through his instruction. He has not only impressed upon students, but has impressed upon teachers of these students the value of science exploration, sharing your passions and having fun while learning science. His endless dedication to curriculum development and teacher development in Frederick County's elementary science program is evident.

The Maryland Association of Science Teachers is excited to present these award recipients with a one-year membership to MAST along with a monetary gift and plaque. Applications for next years awards are available from our website www.emast.org and are also included in this edition of the E-Rapper.

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MAST Represented at National Congress on Science Ed.

In July, the Maryland Association of Science Teachers funded the participation of their current President, Elizabeth McCook, at the National Congress for Science Education (NCSE) in Indianapolis, Indiana. This provided Mrs. McCook with an opportunity to be an integral part of a compelling national conversation on science education with a collection of science education leaders from all across the United States. The NCSE is held yearly, sponsored by the National Science Teachers Association and is intended to gather leaders from all Chapters, Alliances, and Associated Groups (CAAGS) interested in influencing advancements for science education.

The Congress Planning Committee identified 6 Focus Groups for participants to discuss and declare resolutions upon. They included Elementary Science in the K-12 System, 21st Century Skills, Teaching Science to Students of Poverty, Transforming Science Teacher Practice through Professional Learning Communities, STEM- Critical to America's

Prosperity, and Bridging the Gap from Research to Practice and from Practice to Research. Mrs. McCook participated in the STEM (Science, Technology, Engineering and Mathematics) Focus Group. Upon the advance review of background materials, these focus groups met for 5-6 hours in order to discuss their topic. The groups were then challenged to write resolutions for NSTA and CAAGS to promote their viewpoint on the focus of the groups. The NSTA Council and Board of Directors met and discussed the resolutions and determined if they were able to accept the resolution and what actions may be necessary. For a list of the resolutions visit www.nsta.org and select Chapters and Associated Groups. When available for public review they will be provided to the Chapters as well as posted on the website.

The attendees were also provided with opportunities to participate in Leadership Workshops such as Fund Raising for Your Chapter, Parliamentary Procedure, Chapter Budgeting and Financial Advice, Marketing Your Chapter for Success, Enhancing Your Membership, Strategic Planning and Math Science Partnerships.

"Participating in this event provided me with a newfound understanding of the connection between the National Congress and the National Science Teachers Association. It provided me with insight into many of the current issues in science education nationally. I was able to meet and talk with leaders from State Chapters throughout the United States and to learn how they were successful in their own organizations. I particularly benefited from the Leadership Sessions involving the maintenance and direction of our own Chapter of MAST. It was an honor to discuss our direction with our local District 3 NSTA Representative, Laura Rutledge, who was also on the planning committee for the Congress."

The Congress ended with closing remarks from the current NSTA President, Page Keeley. She shared her excitement about the new National Center for Science Education that is currently under construction and will house the NSTA Headquarters near Washington D.C. She introduced the new NSTA Executive Director, Dr. Francis Eberle. Her focus for this year will involve "Transitions to Transformations" a way to go from being Highly Qualified Science Educators to Highly Effective Science Educators. She will push towards getting NCLB to include the scores for the science exam with AYP, the identification of Science Anchors, a recognition of the value of science content related Professional Learning Communities on the school level, and finally, an attempt to bridge the gap between researchers and practitioners of science education and the transformation of up front resources for assessment. The Congress closed with participants heading back to their home states transformed through their experiences and excited to share what they learned with their own associations.

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Guest Editorial

Test Prep: An Instructional Approach

By: Anita O'Neill, Montgomery County

How do we best prepare students for the Science MSA? I hear this question all of the time from teachers and administrators. This question intrigues me because it seems to imply that instruction is divorced from assessment, that what happens daily in classrooms has no bearing on assessment and that there is some magic bullet that will "get kids ready" for a state assessment.

My philosophy behind test prep is simple. Engage students in quality science instruction that supports their understanding of concepts and processes. Provide them opportunities to *really* "do" science. Provide students with opportunities to unpack their thinking through meaningful discourse and purposeful reading and writing. Help students make connections between classroom science and their world.

There are many test prep resources at our disposal: booklets, public release items, etc. Use these materials responsibly and in an *instructional* setting. Expose students to the structure of questions they may see on an assessment through warm-ups, formative and summative assessments throughout instruction. Don't, however, copy test prep packets and have students complete them out of the context of good instruction. Completion of a packet does not reflect thinking and learning.

Searching for the magic bullet and taking time away from instruction to do test prep is counter-productive. I contend that if we are doing a good job in engaging our students in quality science instruction, performance on assessments will fall into place.

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Science Best Practices

Make it Messy: A Hands-on, Minds-on Approach to Connecting the Language of Maryland's VSC to Daily Classroom Activity

By: Dawn Getzandanner, Frederick County

When one first looks at Maryland's Voluntary State Curriculum (VSC) for Science, it is daunting. Many teachers, especially at the elementary school level, are often overwhelmed with how to even start making sense of some of the number of indictors and specialized language used in the document. At the same time, many are being encouraged by their administration to post indicators/objectives in their classroom. This just creates more confusion and teachers are left asking, "Just what should I write on the board? Do I change the words to make it kid-friendly? Now I have less board space for what really matters."

As a teacher specialist for elementary science, I get into many classrooms, and I like to take pictures. One day as I happened to be in one of my schools, I started taking pictures of the objectives that teachers had written on their chalk boards.

Classroom A
Language Arts: Word Sort Activity, Read Everybody Needs a Rock
Math: Division and Multiplication Activity Sheet
Science: Beetle Mania Activity

Classroom B
Language Arts: Use context clues to determine meaning on unknown words.
Math: Compare whole numbers using <,> or =.
Science: Describe organisms and how they meet their needs for survival.

In thinking about these two samples, it is clear that Classroom A is really not addressing any curriculum standards or indicators, but rather just listing the activities to be completed. At the end of the day, students may have learned something, but it may not be clear what they were supposed to learn and how it addresses the curriculum. Classroom B does indeed come closer to the target and does incorporate more objective type language. However both still have one fatal flaw. The "objectives" were written on the chalk board.

At the end of the day, the teacher will erase them: out of sight out of mind. The next day the teacher will again have to fill up her board space with the objectives.

So first and foremost I would like to pose the following question:

> **If you take the time out of your busy day to write an objective, why are you erasing it at the end of the day?**

With that in mind, the first step to making an objective useful and purposeful in the classroom is pretty simple. Just write it on something permanent. Chart paper works great. If you have a document camera a simple sheet of paper will do. You can even project the objective straight from a laptop. But whatever method you choose, one very important idea is that EVERY child should be able to see the objective from EVERY position in the classroom. Bigger is better is truly the name of this game.

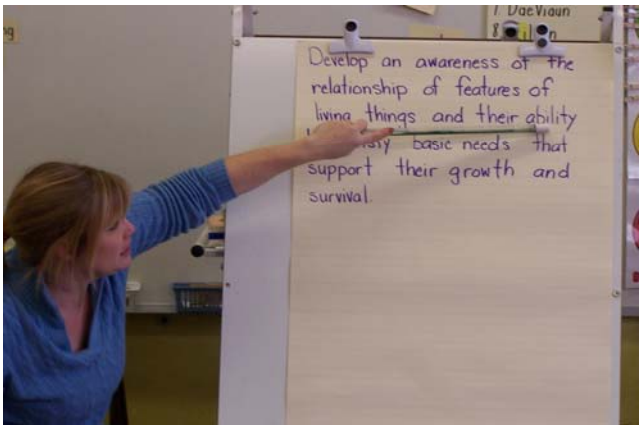
So by now you are feeling pretty good. You realize the valuable time you waste writing and erasing your objectives and have decided that you will make them permanent. But, you're not finished…

> **Students need to connect to the objective and take ownership of the objective. The teacher needs to explicitly teach and show the connection between the hands-on activity and the vocabulary of the objective.**

It's not as hard as it sounds. First of all, the objectives need to be shown exactly as written from the VSC. No watering down or making it kid-friendly. The students are assessed on the language as is, so give it to them that way. For example an indicator from the VSC says "Develop an awareness of the relationship of features of living things and their ability to satisfy basic needs that support their growth and survival." A teacher might want to alter the language to make it more kid-friendly into something like this, "Look at living things and tell how they grow and live." By changing the language the students miss out on an important aspect of the indicator, the relationship between the features and how the organism relies on them to meet its basic needs. The vocabulary terms such as features, growth, survival and basic needs can all go unaddressed if the teacher makes the indicator kid-friendly. It is also important to post the "real words" when considering English language learners and special education students. "Successful English development for children and youth whose native language is not English rests in systematic and relentless vocabulary development, properly organized and taught, engaged by learners, and worked in thoughtful writing context" (August, Carlo, Dressler and Snow, 2005).

Now that you have determined to save the indicators from day to day and retain the original language from the VSC, the next step is pretty simple. **Share read the objective** with the students. Share reading provides support for students because the teacher's voice is present to help out. Also because everyone is reading at the same time, a less proficient

student can go silent on a word they don't know, but read all the words they do know. By the time you have read this 2 or 3 times in a row, more students will be joining along.



Once you have read the objective several times you still need to continue working with the objective. The dialogue with the students may sound something like this:

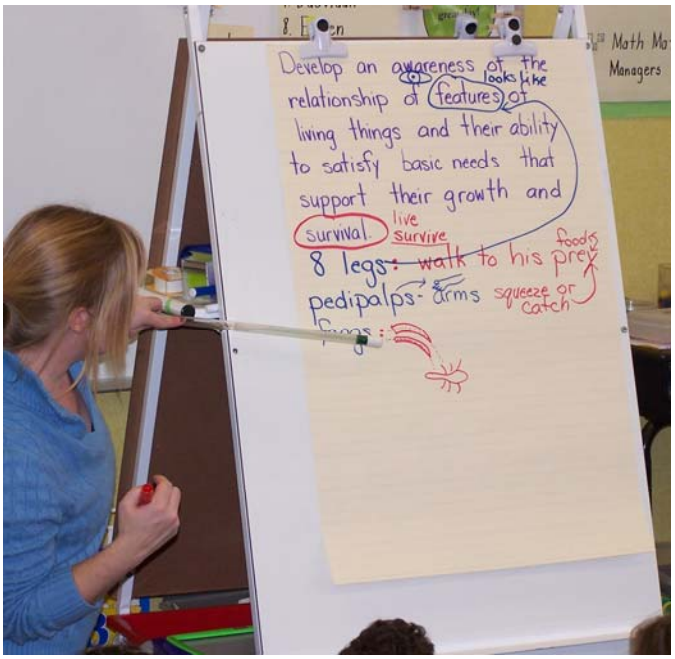
> You have done a great job using your fluency skills to help us read this objective. But now comes the tricky part. You need to use your good reader strategies to help us figure out the really important science words. Good readers have to think about which words are more important than others when they are reading. As a scientist you have to sometimes read a lot of hard text. You can make your job easier by finding those words that are going to be really important and paying the most attention to them.

As the students select the words, highlight or circle the words chosen. As each is selected take a minute to discuss the selection and add notes, pictures or comments to the objective.

It is important that when you are discussing the selected vocabulary with students that you make a concentrated effort to say and touch the words as many times as possible. "So a feature of a spider is that it has 8 legs. That is a feature or what the spider looks like." Each time I say a word on my chart, I touch it with my pointer, that way I can reinforce the visual with the oral. "Vocabulary knowledge is among the best predictors of reading achievement" (Daneman, 1991). And as Beck, McKeown and Kucan say, "The school curriculum is filled with challenging new words. Novels, social studies texts, and science experiments all have vocabulary that needs to be mastered before students can comprehend and learn. Direct instruction in word meanings is effective, can make a significant difference in a student's overall vocabulary, and is critical for those students who do not read extensively" (Beck, McKeown, & Kucan, 2002).

Once you are comfortable with the words selected, and the discussion is recorded on the objective chart, students can then complete the hands-on science activity. Note: If sharing the objective prior to the hands-on activity will impede on a "discovery" or constructivist approach, the objective can be shared in the middle or at the end of the lesson. However,

at some point, the objective should be shared and students should be asked to relate their hands-on experience to the objective.



In this case, after students selected "features," we added "looks like" and I drew an eye to help students with low reading abilities connect to features. We then listed 3 features of spiders. Students were then to observe spiders and look carefully for the features we named as well as any others they noticed.

In the picture shown above, I chose to select the word *survival* after the lesson. I simply asked the children what they observed the spiders using their features for and why this was important. As the picture shows I learned so much about the students. They used the word "prey" and then told me that prey was food.

I have this great objective chart that is written all over and shows great discussion. The students have taken ownership of the chart and it holds meaning for them. "For some words, such as those that are crucial for understanding a literature selection or a content area concept, most students need to have intentional and explicit instruction" (Lehr, 2002). By placing it in the room where students can access it, I am encouraging the use of it as a resource. A week from now, I can pull it back to the front of the room and say, "Remember when we talked about this? We looked at some of the important words, but not all of them. Today we're going to talk about the idea of basic needs…"

I can come back to the students' ideas and discussion at any point during the school year and add, modify, or delete any ideas that have now changed based o their experiences and learning.

"It's the exposure to infrequently used or rare words that students need if they are to acquire the vocabulary that will enable them to comprehend their increasingly complex school texts and content." (Lehr, 2002) After all isn't good instruction all about writing the objectives and using them as a tool in your instructional bag of tricks and creating an **explicit link between the VSC and the lessons** occurring in your classroom on a daily basis.

Make it Messy Reminders

1. Retain the exact language of the VSC when sharing with students.
2. Keep indicator statements available for future use.
3. Allow students to interact with the indicator statement so they take ownership.
4. Use VSC language in conjunction with daily instruction and assessment.

August, D., Carlo, M., Dressler, C., and Snow, C. (2005). *The Critical Role of Vocabulary Development for English Language Learners*. Learning Disabilities Research and Practice, 20 (1), 50-57.

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Lehr, F. (2002). *A Focus on Vocabulary. Research – Based Practices in Early Reading Series*. Honolulu, HI: Pacific Resources for Education and Learning.

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Navigating MSDE's Online Course for the Biology HSA

By: Linda Maguire, Carroll County

The class of 2009 is like no other. This technology savvy group of teenagers can video their friends doing skate board tricks on their camera phones and upload the video and post it on YouTube.com for the world to view as effortlessly as you and I can pour a cup of coffee. They thrive in their world of technology, instant communication, and high speed internet access. Besides mastering society's new advances in technology, these students must meet new academic demands. Teachers are ever conscious of the expectations being placed on these young people. Maryland science teachers are well aware that the class of 2009 must earn high scores on the many high school assessments, including biology, in order to earn a diploma.

The Maryland State Department of Education launched an exciting new resource for high school biology teachers across the state. MSDE now offers an online biology course for teacher use. This FREE online course will allow teachers to direct instruction via the internet to these teenage technology gurus. Many adults enroll in online college classes because of convenience. Our high school students may flourish in this techno-educational environment. This new tool in our educational arsenal may give the edge some students need to succeed.

The Biology HSA Online course is very versatile. Students and teachers can access the site at home or at school via the internet. Teachers can:

1. incorporate portions into regular instruction
2. supplement intervention efforts
3. complement remediation tutoring
4. extend regular instruction for students who are absent, need extra practice, or need extended learning time
5. help involve parents and other educators in HSA preparation

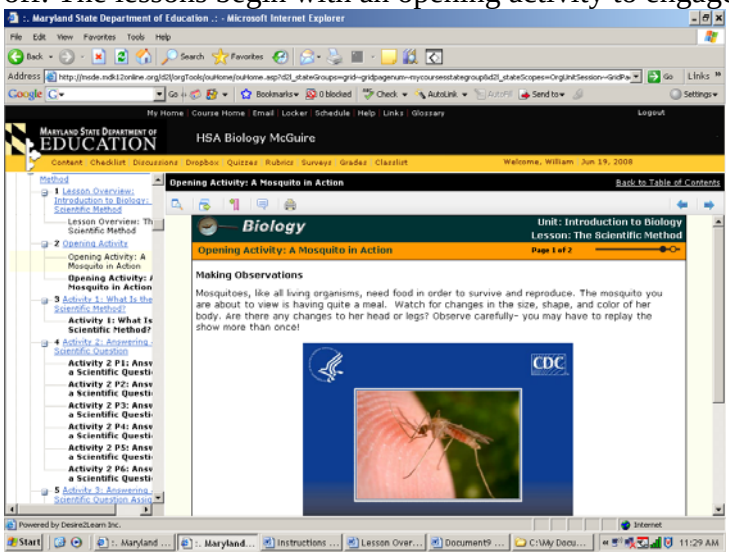
The Biology HSA Online course is written in a similar manner to online college classes. The Biology HSA Online course is written on Desired2Learn (D2L) platform. Teachers can enroll all their students in their class. Students receive an account, username, and password. Students can access the material at home or at school anytime via the internet. Students can begin an assignment at school and save it in their "digital locker" and complete the assignment from home by opening their "digital locker". Students can electronically submit assignments, any time day or night, to their teacher via "digital dropbox".

This course empowers teachers as well. Teachers can tailor the course to meet the needs of their individual students. Teachers will have access to assessments. Teachers can use instantaneous data to monitor student progress and inform instruction. The assessments are written with links to the Maryland Core Learning Goals. Teachers can instantly discover what question was missed and which core learning goal the question measured.

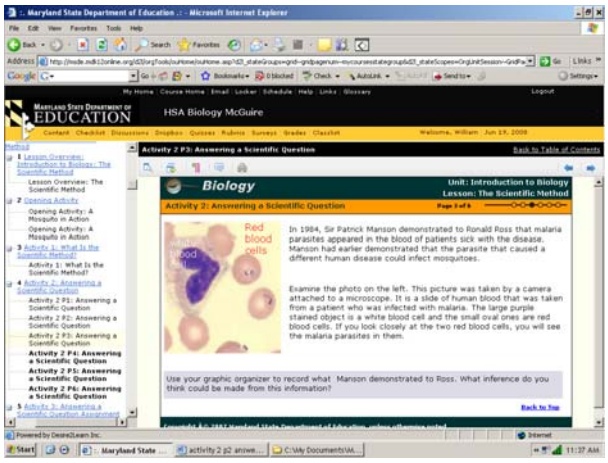
Teachers are also provided with many ways to manage their "cyber classroom". Teachers can post electronic reminders and assignment calendars. Teachers can view what time assignments were submitted and how long students worked on each assignment. Teachers can instantly send electronic comments on an assignment, email an individual student, parents, or email the entire class. Teachers can electronically post grades for assignments in the student's private folder.

In order to get started, teachers must complete the required professional development. Contact your school system's content supervisor to receive the training. Once trained, go to www.HSAexam.org and click on the link to register for the FREE online HSA course and complete the registration form. Once a teacher is registered on the HSA online course, they can request to add students to their personal on line class. Teachers should email their request to: onlinehsa@msde.state.md.us .

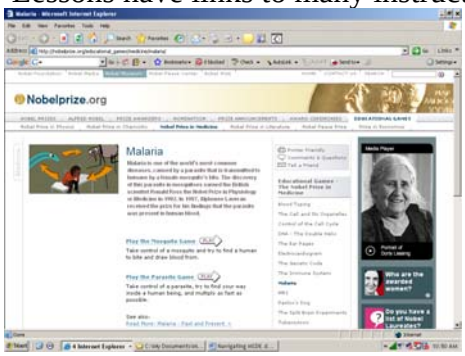
The content is written in an easy to follow format. The lessons have electronic "pages" so a student can complete part of a lesson and come back to it to finish where they left off. The lessons begin with an opening activity to engage the learner.



Lessons include short computer reading assignments employing different active reading strategies like graphic organizers and "What do you think?" questions. The computer reading assignments all have great computer graphics.



Lessons have links to many instructional tools such as video clips and internet games.



One great feature, MSDE will maintain the links and update them as needed. At the end of each lesson there is a link to an online quiz written in HSA style format.

This course offers educators a wonderful platform to supplement instruction, offer intervention for at risk students, and remediation instruction through a statewide comprehensive course. The Biology HSA Online course is user friendly and extremely adaptable. Novice and veteran teachers alike will be able to supplement their current teaching strategies in the traditional classroom and be better able to reach students in a non-traditional educational setting. This may be the perfect complement for our technology savvy class of 2009 and all of our young people to follow.

Student Sign-on to the HSA On-line Biology Course

1) Open an Internet browser and enter the following URL in the address bar: http://msde.mdk12online.org

2) At the initial login screen, you will login using the

USERNAME:
Your First name.Your Last name
PASSWORD: msde

Ex. USERNAME: Jane.Doe
PASSWORD:msde

*Please note password is case sensitive

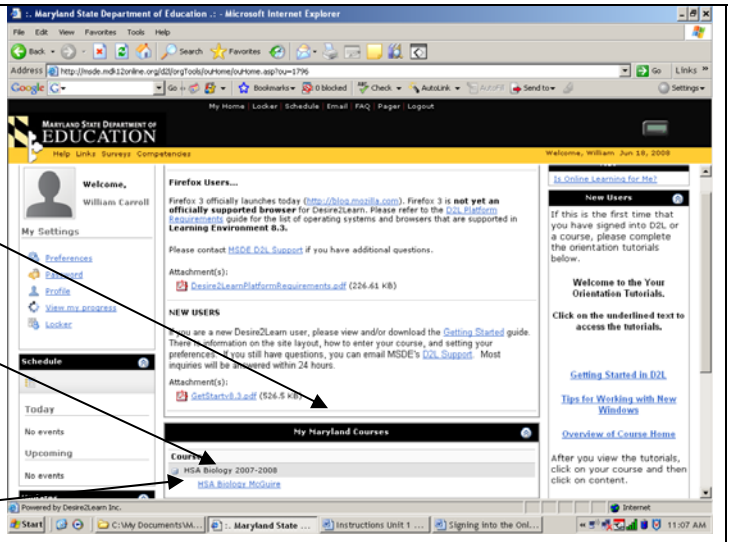
3) The program will immediately ask you to change your password. If you do please write down a copy of your password.

4) Once you have logged in, you will be at the "**My Home**" welcome page. Look down to the bottom center of the screen and find "**My Maryland Courses**."

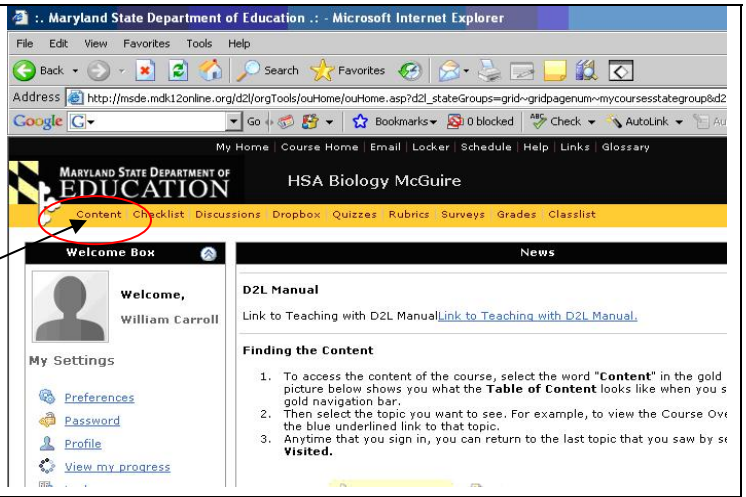
5) Under that heading, you will see "**HSA Biology 2007-2008**."

6) There is a small box with a [+]. Click the [+] sign to expand that folder. Click the blue link for your course to enter the course:

HSA Biology McGuire



7) There are two navigation bars for this course.
8) The Black bar at the top of the page navigates the main page.
9) The Gold bar a little lower down the page, navigates this course.
10) Click "**Content**" on the Gold navigation bar. This may take several minutes to load. Be patient.
11) Now you are ready to enter the course and begin our first assignment.



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New Teacher Welcome

Views from a 2nd Year Teacher

By: Noah Scholl, Carroll County

So you have finally done it! You've graduated from college and landed your first teaching job, now what? If you are anything like me you are probably nervous, anxious and eager to impress both your employer and your students. As a former first year teacher I have a handful of tips that will help you survive your first couple of weeks.

As summer draws to a close you should have thought about your classroom rules and management style. Establish three to five rules that are easy for students to remember. Keeping rules short, simple, and broad allows you to hold students accountable for a vast variety of behaviors. It has been my experience that students will only give as much respect as they receive. Take every opportunity to see your students in their extracurricular activities. A far wiser person than I once said, "Students don't care how much you know, until they know how much you care."

As a new teacher it is safe to assume you will become the local gossip of the town. Therefore having to make your first parent phone call can be a daunting task. However, by contacting parents early in the year to discuss exceptional student behaviors you have done yourself a favor. When time comes to address less than satisfactory behavior parents will be familiar with you as well as more willing to listen to your concerns. Additionally, the more frequently you call home, parents are much easier to manage come parent conference night as they have seen your concern for their student.

Like anything else you will have great lessons and some that just are not up to your expectations. Though every lesson may not be a perfect lesson, the kids will still be enthusiastic and willing to learn if you "own your lesson". Knowing your lesson plan inside and out will give you the ability to make smooth transitions as well as adapt your lessons when needed, even when the content is less than exciting.

One of the most difficult tasks every teacher will face is making their subject area come alive for students. Fortunately for us, science lends itself very well to "WOW"-ing students. Demonstrations, experiments and taking the time to answer sincere student questions is a huge part of making your content come alive. Equally as important as owning your lesson, is taking time to rest. There will be many hours of hard work, plenty of late nights and days of rethinking and reworking lessons ahead. However, if you forget to take care of yourself you will quickly burn out!

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Returning to the Classroom after a Break

By: Erin Thomas, Carroll County

When I was asked to write about my experience re-entering the classroom, I was concerned that I would not have anything meaningful to say. But as I sat at my laptop and started typing I realized that I was going to have a hard time keeping my story to 250 words.

I began my career as a science teacher right after college. I taught middle school successfully for 9 years. Then I got married, had children, and decided to make the choice to be a stay at home mom. Seven years later at age 36 I found myself going back to teaching. In the short time I was out of the classroom, I watched my children grow up and start elementary school. I've seen them learn to read, write, spell, ride a bike, swim on their own, and make friends. I have scrapbooks recording each and every milestone and while I was busy enjoying parenthood, the classroom was making history as well. At first, I felt confident that it wouldn't be much of a challenge; after all, I had been a teacher longer than I had been a mom.

My confidence quickly turned to anxiety when I realized how much classroom technology had advanced during my absence. On my first day back I was given a laptop computer! I felt very important until I was informed that I would be expected to use the laptop to create my daily lessons in PowerPoint. Daily lessons in PowerPoint? I froze. What was PowerPoint? And the list of new technology didn't stop there. My new computer had programs that take attendance, record grades, email progress reports home to parents, and a thing called Vision software that allows me to monitor the computer use of my students. I was given a flexcam, LCD projector, interwrite

board, ecologgers, and Turning Point software. I realized quickly that teaching science had changed significantly and I had a lot of catching up to do. No longer could I stand in the front of the classroom, next to the overhead, drawing diagrams on transparencies. Gone were the days of open your textbook and read pages 2-6. My spiral bound gradebook was replaced my computerized version that could even create seating charts, if I knew how to do it. Graphing was done with Microsoft Excel not markers and graph paper. Balances and thermometers are digital and even some labs have become virtual. Classroom management has changed as well. I am now competing with kids tempted to check their email when I am not looking or text messaging their friend across the room.

My advice to anyone coming back is this, relax and take things one step at a time. I am happy to say that 7 months after starting all over again, the anxiety is gone and I am successfully incorporating every bit of the new technology into a classroom. My students are even learning along the way, daily lessons in PowerPoint and all.

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MEMBERSHIP FORM

Welcome to MAST! Please print, complete, and mail this form to the address below.

Type of Membership – Please check one space in each column.

___ 1 year – $15.00
___ 3 year – $40.00
___ Student – $5.00 (1 year)

___ New
___ Renewal

Member Information – Please fill this out completely!

Last Name	First Name		Level – please check all that apply: ___ Pre-K ___ Elementary ___ Student ___ Supervisory ___ Middle/Jr. High ___ High School ___ College/University ___ Organization (please specify) ___ Other (please specify)
Street Address			
City	State	Zip	
Local School System	School		
Home Phone	Work Phone	Cell Phone	
Email Address	Alternate Email Address		

I would like to donate $ _____ to support:

___ the MAST Awards for Excellence in Science Education Program
___ the MAST Mini-Grants Program

Please make your check payable to the Maryland Association of Science Teachers (MAST) and send it with this completed application to: MAST
P.O. Box 368

Finksburg, MD 21048

For Office Use: Date Received _____ Amt Paid _____ Membership to: _____

Cash _____ Check Number _____ Check date_____

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MARYLAND ASSOCIATION OF SCIENCE TEACHERS

Award for Excellence in Science Education

Candidate's Data Form 2009

Candidate's Name_____

Home Address _____

City _____ State _____ Zip _____

School/Institution _____

School Address _____

City _____ State _____ Zip_____

School Phone Number _____ Home Phone _____

Fax _____ e-mail _____

Type of Institution: Public Private

LEA/County _____

Name of Principal _____e-mail _____

Name of Local Newspaper _____

Address _____

City _____ State _____ Zip _____

_____ _____

Signature of Nominee Signature of Nominator

I. Years of Service

_____ Teaching

Area of Consideration

_____Elementary

_____Middle/Junior High

_____ Other (specify)

_____ Senior High
_____College
_____Administration/Supervision
_____Museum/Outreach

PLEASE COMPLETE THIS SECTION ON ADDITIONAL SHEETS. This section may be completed by the nominator or nominee.

I. Chronological Professional History (list most recent first)
Dates Position

II. Professional Memberships (Educational and Scientific)

III. Provide examples of your activities in science teaching/education which demonstrate excellence in science education in the following areas: (may be submitted in outline form)

A. Innovative Approaches
B. Leadership
C. Professional Activities and Growth
D. Other

IV. Attach additional information (letters, articles, etc.) to this form when you submit the packet.

Return the nomination packet by May 15th, 2009 to:
Letters and nomination packet may be sent electronically.

Meegan Marino, MAST Awards Committee Chair
C/o Germantown Elementary School
19110 Liberty Mill Rd.
Germantown, MD 20874

301-353-8050 (School phone)

Meegan_A_Marino@mcpsmd.org

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MAST ANNOUNCES ANOTHER ROUND OF INSTRUCTIONAL MINI-GRANTS

MAST will award instructional Mini-grants to MAST members for the 2009-10 school year. With the success of previous years' Instructional Mini-Grant Programs, the MAST Executive Board has decided to continue the program. Each award will be for a sum of money up to $500 to enable a teacher to purchase supplies and equipment for new and innovative projects to supplement his or her classroom instructional program with direct impact on the science education of their students.

Applicants, who must be MAST members, should submit an application via email showing a time-line, detailed budget, and plan for evaluation of the project. They should indicate how the project incorporates current science education reform movements such as the National Science Education Standards, Project 2061, Benchmarks, Maryland State Department of Education Content Standards and county outcomes among others. They should show evidence that their principal understands the scope of the project and concurs with its implementation. The merit of a proposal will be judged on the above criteria as well as the number of students that will benefit. Projects that will reach students at more than one grade level are especially encouraged. Applicants can check the MAST web site for an application form and a rubric used in evaluating proposals. The deadline for submitting a mini-grant proposal is March 6, 2009. Proposal must be submitted as a MS Word document via email to The principal's letter of support should be postmarked or emailed by March 6, 2009 to:

Meegan_A_Marino@mcpsmd.org . (contains underscores)

Meegan Marino
Chair, MAST Mini-grant Committee
c/o Germantown Elementary School
19110 Liberty Mill Road
Germantown, Maryland 20874

Mini-Grant Application for MAST Members

ALL APPLICATIONS MUST BE RECEIVED VIA EMAIL NO LATER THAN MARCH 6, 2009 . Applicants will be notified of Mini-grant awards during April.

Member's Name _____ e-mail_____

Project Title _____

School Name _____

School Address _____

Principals Name _____ e-mail _____

School Phone _____ fax _____

Focus of the Proposal _____
(National Science Education Standards, Project 2061, Benchmarks, Maryland State Department of Education Content Standards and county outcomes, other)

Grade-level/s of students affected by grant _____

Number of students affected by grant _____

Amount requested (Maximum $500) _____

Statement of the Proposal _____

Proposal Objectives/ Goals _____

On separate page/s submit a minimum of a paragraph each addressing the following points:

- The project time-line including projected date for required article for the MAST Rapper
- A plan for evaluation
- How your project incorporates the ideas of current science education reform movements
- A detailed budget for the project, including names of suppliers (not to exceed $500). (Receipts of expenditures will be required by the MAST treasurer.)

- **A principal letter that shows evidence of their understanding of the scope of the project and that they concur.**

Criteria that will be used to judge the merit of the proposal will include the above items as well as the number and grade level/s of students that will benefit. Projects that will reach students at more than one grade level and for more than one year are especially encouraged. For your information, a rubric for the evaluation of the projects is included at the end of this application.

Proposals must be sent electronically in MS Word format **The original of your principal's letter of support for the project's implementation during the 2009-10 school year should be postmarked or emailed by March 6, 2009:**

Meegan_A_Marino@mcpsmd.org . (Contains underscores)

Meegan A Marino
Chair, MAST Awards Committee
c/o Germantown Elementary School
19110 Liberty Mill Road
Germantown, MD 20874

If you are not a MAST member, please send your membership application form (on the web site or in the MAST Rapper) and dues to the membership chairman. Only Mini-Grant applications from current members will be considered.

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