

VISION



“Building tomorrow’s mathematicians, engineers and scientists...today!”

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www.nmmesa.org

MESA Students visit NM Tech and the VLA

Shawndeana Smith
West Regional Coordinator

The top New Mexico MESA juniors and seniors from the North, North Central, and West Regions attended this year’s New Mexico Institute of Mining and Technology Field Trip Tuesday, December 2, 2015.

There were 21 students from the North Central Region, 29 students from the North Region, and 24 from the West Region.

Throughout the day, students were able to visit and meet with professors and students in the Physics, Civil Engineering, Environmental Engineering, and Electrical Engineering Departments. MESA students very much enjoyed their visit to the Physics department where they were able to experiment with the Gyroscope, Newton’s Cradle, the Electrostatic Generator, and the Nebula Plasma Ball. Indeed, MESA students gained great insights into each of the engineering departments while visiting professors and students. After students had fun visiting each department, they were given some time to visit the newly opened Mineralogical Museum located on the NM Tech Campus.

“It was a real pleasure to meet the MESA students,” noted NMT sophomore Lynn Marie Jarratt. “I remember how amazed I was when I came for a campus visit my senior year of high school, and I wanted to make sure that these students had a similar experience.”

Additionally, the admissions and recruitment staff at NM Tech were able to provide much needed information to the students during a question and answer ses-

sion. They provided a plethora of resources and some goody bags handed out to each participant.

Providing MESA students an opportunity to visit the NM Tech campus has been a priority of University President Daniel Lopez throughout his 23-year tenure at the helm of the Institute. The 70-year-old Lopez will retire June 30 and will be replaced by either Nagi G. Naganathan, a professor and the dean of engineering at the University of Toledo in Ohio or Stephen G. Wells, the president of the Desert Research Institute with the Nevada System of Higher Education. The NMT administration is confident that the new leadership, regardless of whom is chosen, will continue the tradition of hosting MESA students each year.

As a special bonus, the North Region students also visited The Very Large Array near Socorro the day before the actual NM Tech College visit. Students participated in a guided tour of the facilities and asked questions of the staff about the astronomical radio observatories.

Overall, the 80 students and 20 additional participants on this year’s MESA visit enjoyed a very meaningful and productive day at NM Tech, selected by U.S. News and World Report as the nation’s most affordable research university and the best overall research institution in the Rocky Mountain Region with a 97% success rate in job placement within six months of graduation. This annual trip proves to be very encouraging for NM MESA students, especially considering many MESA seniors choose to attend NM Tech.



Photo by Shawndeana Smith

MESA students from the West Region pose before a fiery Texas Red Oak on the New Mexico Tech Campus during a special tour for MESA Students in December. Students toured various departments on campus in addition to the new Mineralogical Museum. Students from the North Region also toured the Very Large Array on the Plains of San Augustin to accent their trip. Specially coordinated trips for MESA students to NM Tech have been a mainstay of the MESA program and NM Tech for more than two decades.



Photo by Rick Cole

NM MESA Executive Director Toney Begay smiles during a break in the action at the Alliance for Minority Participation (AMP) Conference in Las Cruces.

NM MESA Ready for a New Year of Success

Toney Begay
NM MESA Executive Director

Ya’at’eeh (Hello),

Welcome to the first 2016 edition of the New Mexico Mathematics, Engineering, Science Achievement, Inc. (MESA) e-newsletter. As the new year begins, MESA is preparing for a schedule full of events and programs throughout the state of New Mexico.

We start off strong with our signature Legislative Field Trip and MESA Day. We are very proud of these experiences our students get to have. The Legislative Field Trip allows MESA students a chance to experience our state’s capitol and learn about the interesting efforts of legislators. MESA Day allows students to engage in teamwork and friendly competition after hard work (research, experimentation) and prolific mental preparation.

MESA’s Loyalty Award students finish up their last semester of high school and prepare to continue their STEM education with our financial aid. NM MESA has a long tradition of helping young future scientists and engineers find early success and passion.

I hope you enjoy reading about the important and exciting work of the MESA staff in this newsletter. And I hope you continue to stay up to date with MESA and our valuable work and achievements throughout 2016.

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Adventure Amidst Challenge in CO Region

Rick Cole

CO Regional Coordinator

“Adventure amidst Challenge” has been the dominant theme of Central Outer regional activities this winter.

The November regional rally was quite successful, but it was certainly an adventurous challenge as some of the events were outdoors and November 7 just hap-

Indoors, the teams competed in the prosthetic arm and MESA FUNDamentals events as well as attending workshops in those same venues. Taylor Middle School dominated the MS competitions by sweeping the prosthetic arm and finishing second behind Sarracino MS in MESA FUNDamentals. Atrisco Heritage Academy HS won its first-ever rally by earning first

conducted an Arduino workshop January 13 to help students polish their coding skills in building prosthetic arms. The PowerPoint of that lecture, created by Sandia Laboratory Scientist Arne Gullerud was, in turn, shared with schools throughout the region.

West Mesa High School continues to set the pace both regionally and statewide in community service. During the winter, the Mustang MESA students have written thank-you letters to military personnel serving our nation overseas, MESA support letters to legislators in Santa Fe, recruited volunteers for the UNM Raisin' Cane Performance, collected donations for Niños de Hospicio, fund-raising for SIFT, volunteering for the NM MESA Leadership Council at MESA Day and creating and hanging scores of signs around WMHS encouraging positive behaviors.

Meanwhile, Truman Middle School raised \$2,700 in pennies for charity and participated in a Civil Air Patrol workshop, Jimmy Carter Middle School participated in the Bosque Environmental Monitoring Project and Ernie Pyle Middle School has begun a school-wide recycling program.

Congratulations go to West Mesa High School seniors Brenda Salas, Karla Vazquez, Ariana Astorga and Gladys Robles for being selected to represent the CO Region on the NM MESA Senior Incentive Field Trip to Washington D.C. in April. All four are multi-year MESA students who

are also slated to earn Loyalty Awards later this year. Robles is also the WMHS MESA President. WMHS Advisor Luisa Castillo will also be on the trip as a teacher-chaperone.

And when it comes to Loyalty Awards, more than 20 CO students from five high schools are eligible to receive the scholarship. Students will complete applications in March and be notified of official award status in April.

CO students have been working hard for the upcoming MESA Day and will be competing against programs from all over New Mexico for state championship honors. Any and all students, parents and community members who would like to see the MESA Day competition are welcome to come to the University of New Mexico Student Union Building March 2 to see the best in prosthetic arm engineering and the exciting and entertaining closing ceremonies.

NM MESA also extends congratulations to the following MESA Advisors for achieving these noteworthy milestones: Chris Trueba, Los Lunas HS – 10 years as a MESA advisor; Diana Russell, Atrisco Heritage HS – 3 years as an advisor; Margarita Smith, Taylor MS – National Board Certified Teacher; John Davies, Los Lunas HS – a record-setting 46 years as a high school science teacher; Joey Sanchez, Valencia High School – proud papa of a baby boy.



Photo by Rick Cole

Desiree Arnett of Ernie Pyle Middle School contemplates how to plan a theme during a workshop at the Central Outer Middle School Leadership Summit.

pened to be the coldest day of the month. Thus, students arrived at the zoo in the Albuquerque BioPark early that morning as the temperature bottomed out at 18 degrees, a full 21 degrees cooler than average for that date. Indeed, the weather would not get that cold again in Albuquerque until mid-December.

Thus, students bundled up to participate in the opening and closing ceremonies held at the zoo's outdoor theatre and continued to don their jackets, gloves and hats as they participated in making toys for the zoo animals outdoors and/or toured the zoo for behind-the-scenes insights in animal husbandry.

and third in the prosthetic arm and claiming three other honors in MESA FUNDamentals to edge out runner-up Cibola HS.

Middle school students also participated in the CO Regional Middle School Leadership Summit at the UNM Valencia Campus January 29. Polk MS students taught their peers how to develop trust as a leadership attribute. Other workshops included Belen MS teaching internet safety, Truman MS developed teamwork through “Crest” design and Ernie Pyle MS made their colleagues aware of food waste and its ramification on hunger at a worldwide scale as well as locally.

Atrisco Heritage Academy HS



Photo by Rick Cole

Sixth-grader Lacey Drew of Truman Middle School evaluates workshop quality at the CO Middle School Leadership Summit at the UNM - Valencia Campus.

We Love our MESA Advisors!

Nominate an Advisor for the Guenther Advisor Achievement Award

Nicholas Kunz

NC Regional Coordinator

Dr. Arthur H. Guenther loved science... He loved education... He created New Mexico MESA in 1982. As a research professor of electrical and computer engineering, professor of physics and astronomy at UNM, and Chief Scientist at the Air Force Research Library, he was an advisor and mentor to hundreds of graduate students, and also served as the Science Advisor to three New Mexico Governors.

He wanted to influence the lives of high school students in New Mexico who were interested in a bright future in STEM careers. So he worked with university representatives and state and federal government officials to bring the MESA program to New Mexico. He subsequently spent many years working as a MESA Board Member and Board Member Emeritus.

As noted in the Penn State University Spring 2008 Alumni Newsletter, Dr.

Guenther, who earned his Ph.D. in chemistry from the university in 1957, was not only a renowned research professor at the University of New Mexico, his leadership as a chief scientist at the Los Alamos National Lab was instrumental in forming alliances with Sandia National Laboratories. He received many awards through his long career, including one from President Reagan, and wrote more than 350 publications. He was born in Hoboken, New Jersey and was the state's youngest Eagle Scout. His love of the outdoors, particularly that



Dr. Arthur Guenther

of the Land of Enchantment, continued throughout his life.

Thus, in honor of this remarkable scientist and educator, NM MESA has recently established the Dr. Arthur H. Guenther Advisor Achievement Award with the expressed goal of honoring the legacy of Dr. Guenther, while simultaneously recognizing the wonderful and important work done by MESA advisors who perpetuate Dr. Guenther's vision each year.

Selection of award recipients is based on performance and is designed to reward excellence and leadership. Selection will be-

gin with the review of a nominating form, and will culminate with the award being made to the two highest scoring nominees, as calculated by evaluation of specific selection criteria. The selected advisors and their schools will be recognized formally and publically by NM MESA as recipients of the award. Advisors will also receive a cash award from NM MESA.

Calling all students, parents, teachers, community members – It's time to start thinking of those great MESA advisors who continuously give of their time, passion and expertise to ensure that students receive a world class experience while in MESA! Advisors can be nominated by anyone who has seen their great work in action. The nomination form and all official information and guidelines will be released on the NM MESA website on Friday, March 4, 2016. The nomination deadline is April 1, 2016. Award winners will be named shortly thereafter.

Learning Fun Headlines West Region Activities

Shawndeana Smith
West Regional Coordinator

It has been a busy year for the West Region and the future definitely looks to be busier as well. The West Region held various events and activities in the Fall and all sights are on the upcoming MESA Day competition.

The West Region held a HS Leadership Event October 14, 2015 at the NMSU Grants Campus. Throughout the day, students attended workshops and various hands-on activities. The workshops focused on preparing the students for the MESA Day events which include the Prosthetic Arm 2.0 Challenge and the MESA

FUNDamentals Challenge. Students enjoyed a great day of interactive activities.

Also in October, Dine College in Tsaile, Arizona hosted a STEAM Day for middle school and high school students. Tohatchi Middle School, JFK Middle School, Crownpoint Middle School and Thoreau High School attended this event. Each school participated in various STEAM activities including air balloon building, Hogan building, Math fun, Scope building and much more. Students enjoyed a day of practical but fun learning while at the College.

The West Region also held its first Regional Rally on December 4th at the UNM Gallup Branch. Tohatchi High School, Gallup High School and JFK Middle students participated. The first half of the day, Professor Wahid from the Arts and Sciences department spent time going over some possible Engineering careers with the students. They also were able to build bridges

in teams. Each team was able to take home a miniature bridge at the end of the workshop. In the afternoon, students took part in a mini-prosthetic hand challenge competition where they used various tools as their prosthetic hand. Students were enthusiastic about the upcoming MESA Day event after the mini-competition.

Overall, it's been a great year so far for West Region students. The West is conducting three winter Rallies before MESA Day. The Rallies are due to take place at Navajo Technical University, NMSU Grants, and San Juan College. Students will continue to prepare for MESA Day, MESA USA and a regional mini-competition which will be held in conjunction with an Explora visit in April. Some of our students are also gearing up to attend the Senior Incentive Field Trip in April to Washington, DC. The West is looking forward to all these fun activities and more because that is how we do it in the West - we make learning fun!



Photo by Shawndeana Smith

Arianna LeBeau, back center, prepares to assemble a balloon canopy with a pair of teammates at the STEAM Day at Dine College.



Photo by Shawndeana Smith

Students assemble devices from wood strips and polyurethane plastic as one of a series of projects at the Dine College STEAM Day.

CC Snell MS Sets the Pace with Four Legs in LIMBS Campaign

Terry Ramirez
SW Regional Coordinator

MESA students across the nation are joining together so that amputees around the world can walk again! #SoAmputees-Can. New Mexico MESA, along with all the other MESA USA states, are excited to be partnering with LIMBS International

to bring students the opportunity to make a positive change through our Engineering Revolution Initiative.

Interested stakeholders can find more information by clicking on this website <https://limbsinternational.org/schools/18938/MESA-USA-Schools>. There it will tell of many ways to create a LIMBS campaign and increase awareness of the plight of the disabled in school. This is a great way to become leaders at school and help change somebody's life around the world! Just last month CC Snell Middle School of Bayard, New Mexico in the Southwest Region recently had several fundraisers for a pair of legs. They ex-

ceeded their goal and fundraised for a total of four legs! One of their campaigns was to have 'Electronics Day' at school. Normally, the school does not allow electronics, but the MESA students presented their proposal to the CC Snell Principal and before you knew it they had one leg. Shortly after that they had a dodgeball game where students had to tie one arm and immobilize it; this was to show how important those prosthetic arms that we're building for MESA Day can truly be! Then they raised money through their science classrooms to make it possible to fund a total of four legs to help change the lives of people around the world.

Many other schools in our state are doing their share to help this cause. And yet we could do more. Before testing and other spring activities fill the schedule, students are encouraged to talk to advisors, collaborate with regional coordinators and get the word out on how to become part of the Engineering Revolution.

Photos by Terry Ramirez

Left - CC Snell Middle School Students gather in front of the University of Texas at El Paso (UTEP) College of Engineering during a recent field trip in conjunction with delivering a check to Trevor Bergman, right, Executive Director of LIMBS International, to pay for four prosthetic legs for those who need them.



'La Familia' is Linda Andrews' Legacy

NM MESA Deputy Director Promotes "Family" Cooperation Among Staff, Teachers and Students

Rick Cole

CO Regional Coordinator

New Mexico MESA is an organization composed of 12 full-time employees who serve more than 4,000 students and advisors every year. Working with so many people can be challenging, but NM MESA Deputy Director Linda Andrews says the organization is like a family.

"The relationships we have in MESA are very important to me," explains Andrews, who celebrates 10 years with the organization this year. "We learn to work together through thick and thin. We laugh together, cry together, sometimes argue and tease, but we help each other from early morning to late at night. We work like a family. And MESA is my family – 'La Familia.'"

Ms. Andrews truly sets the tone for "family" relationships in NM MESA with her "down-home Texas, roll-up-the-shirt-sleeves-and-get-it-done-side-by-side" disposition. After all, Linda is Texas-born, bred and raised and takes tremendous pride in her Lone Star State roots as well as her deep and meaningful connections to her biological family.

Houston is the home town for Linda, who is the daughter of a World-War-II-veteran dad and nurse mom, who met and married shortly after the war ended. Her dad, being a Texas A&M University graduate, at one time settled the family in Bryan, Texas, the site of TAMU - America's most famous "Aggie" college. To this day, Bryan touts itself as a family-friendly community with the slogan - "The Good Life, Texas Style."

The good life continued when dad moved the family, now grown to include Linda and a younger brother and sister, to the west side of Houston. This good life included day-to-day loving stability, many family celebrations, vacations to visit grandparents and cousins on the Baker/Higgins side of the family in West Texas, lots and lots of good Texas barbecue (Linda is particular to a perfectly grilled Texas steak to this day!), learning to play tennis and outdoor jaunts that included picking pecans while exploring nature in the Spring Branch community. Throughout school, she also developed a love of learning, but became especially fond of chemistry due to the influence of a high school chemistry teacher.

"I chose to major in chemistry in college because of my high school chemistry teacher," Andrews recalled. "She made learning straightforward yet interesting and I like things black and white. I even worked as her lab assistant."

But before Linda went to college, tragedy struck as her mother died unexpectedly while using an experimental drug for a kidney condition. Linda, only 18, learned that the love and joy which make family so special also make the hurts that much deeper. It was a life-changing experience that forever changed her perspective on commitment to family.

She thought much of this commitment as she left Texas to study chemistry at Oklahoma State University in Stillwater, 536 miles north of Houston. Influenced in part by a cousin who was also going to school there and the overall atmosphere of the col-

lege she experienced during a visit, Linda chose to become an OSU "Aggie" instead of a Texas "Aggie" like her father. This became a source of continual family teasing but was not a decision she regretted.

There were no regrets about majoring in chemistry either, although Linda did realize that she did not want to work in a lab all the time. Thus, she parlayed her chemistry studies and love of learning into a science education teaching certificate so that

Memorial High School was instrumental in Linda's life-long passion for both education and people. But 10 years into Linda's teaching career, she gave birth to a son of her own, Daniel, and the classroom was put on hold for the next 14 years.

Life revolved around family as Linda poured herself into raising her son in Houston, Memphis and then Atlanta as her husband changed jobs. And when Daniel began school, Linda began to do more volunteer

work in New York City.

"When Daniel moved away from Atlanta in 2006, I had no reason to stay there," mused Linda. "I remembered my grandfather and trips we had taken to New Mexico when I was a kid and when my brother married a woman from Taos. I really started thinking about moving west when I saw an ad for a job with New Mexico MESA. I sent my stuff in, had a telephone interview with Toney (Begay – NM Executive Director) and got hired to be the North Central Regional Coordinator.

"But coming to New Mexico all by myself was scary," added Linda. "I was moving by myself to a job and locale – sight unseen. And there was so much snow in New Mexico that first year. I was in awe of the beauty of the snow but driving in it was treacherous!"

For two years, Linda served as the North Central RC and then was promoted to Deputy Director, a position she has held ever since. But regardless of job or location, her sense of "family" has accompanied her and infuses her philosophy of MESA.

"We've built on good working relationships to create La Familia," Linda explained. "We even build bonds with the employees' families. Everybody respects everybody, even when there is so much pressure to do all that we do. It may be tough, but when an event is done, we are all the better for it because we get out there and go beyond the norm, building character along the way."

Linda sees her biggest challenge in MESA as that of managing people because "everybody is so different. We have to adjust to each employee. And we work with all kinds of teachers and all kinds of students that require many different strategies to successfully work with them.

"I try to make MESA more efficient so that the RC jobs are easier to do. The website and MIMS have become so much better and have helped us communicate and document what we do. We need to be cutting edge in efficiency because we are STEM."

But at the same time, MESA is so rewarding.

"As a RC, working with students and teachers to see what they could do and create was so gratifying. And as Deputy Director, I get to see our staff work with the kids, talk with them about how to make things better and it is so worthwhile."

Linda's ability to reflect has been instrumental in her ability to successfully raise a family – which now includes a daughter-in-law and granddaughter. This reflective nature is also evident in every MESA activity as Linda emphasizes the importance of understanding relationships to make them work.

"New Mexico MESA is La Familia because we make it that way," said Andrews. "MESA has such a learning curve, but we support one another and avoid the tunnel vision that our only focus is STEM. We concentrate on building effective and meaningful working relationships."

Thus, NM MESA is "La Familia" because Andrews has fostered a culture of family in all the organization does.



she could inspire students to pursue their dreams just as she had been inspired. Besides influential teachers, this inspiration was due, in part, to her paternal grandfather, who taught students of the Mississippi Choctaw tribe in Indian Territory (Oklahoma before statehood).

"He (grandfather) was quite a story teller," recalled Linda. "We could just listen to him for hours. He even wrote an essay about his life and put me in it. He noted that I taught chemistry and was passionate about teaching the native students. That made me want to teach even more."

Linda did become a teacher but not in Oklahoma like her grandfather. Instead, she met her husband at OSU, they got married and moved to Houston, where she taught in the very high school from which she graduated – Memorial High in the Spring Branch Independent District.

"I taught chemistry and aviation. I even became the (science) department chair and very much enjoyed my job. I liked working with the kids, my colleagues and had an absolutely wonderful principal," explained Linda. "At the time (early '70's), school was a focal point of the community. Parents' nights would be packed because the school was so well supported by the students' families."

This "family-friendly" environment of

work while also playing lots of tennis. She helped raise hundreds of thousands of dollars for various causes in Memphis and Atlanta and her on-going knack for fundraising has been a reliable source of help for MESA staff and advisors.

When Daniel entered high school in 1996 and in conjunction with a divorce, Linda officially went back to work, this time as a principal of a distance-education high school, a new phenomenon in education at that time. She took the school through the accreditation process, arranged for staff to design curriculum, coordinated the instructional staff and built the school to an enrollment of more than 50,000 – one of the nation's premiere distance education institutions.

"Being a principal kept me busy, but it did not interfere with my ability to be Daniel's mother," Linda noted. "I supported him as needed, but Daniel was a wonderful child; he excelled at all he did and was athletic. We had a lot of fun together during his high school years.

"We took a lot of college trips and he ended up going to the University of Virginia. He pledged (to a fraternity) and told me, 'Mom, now I have brothers!'"

Daniel graduated with a degree in commerce and worked as an investment banker in Atlanta, then Washington D.C. and even-





Photo by Betty Chancey

Students from Carlsbad Intermediate School and Carlsbad 6th-Grade Academy celebrate winning numerous awards at the NM Electric Car Challenge.

SE Region is Active and Winning!

Betty Chancey

SE Regional Coordinator

The NM MESA Southeast Region schools had very busy Fall and Winter seasons. Schools participated in the NM Middle School Electric Car Challenge, Best Robotics, our SE Rally Competition and the Legislative Fieldtrip in addition to continued work and research for our State-wide MESA Day event.

In the NM Electric Car competition, SE MESA students from Carlsbad Intermediate School (formerly PR Leyva MS) and Carlsbad 6th Grade Academy (formerly Alta Vista MS) built battery-powered cars and competed in three events. The three events included an oral presentation about the major challenges facing battery-powered electric vehicles, a design challenge about the overall design of the team's car, and a timed race. Between the two schools, the Carlsbad teams came home with 9 awards. Carlsbad Intermediate School won the Spirit Award, 3rd place in the design challenge, 1st and 2nd place in the race, and 1st and 3rd place overall. Carlsbad 6th Grade Academy won 1st in the design challenge, 3rd place in the race, and 2nd place overall. The overall places come with a monetary prize for the MESA coaches to continue to build the MESA program at

each school.

The Southeast Rally was held on the ENMU-Roswell campus on Friday, January 22, 2016 with 218 students (55 teams) competing. This year's Prosthetic Arm Event has been one of the most challenging competitions NM MESA has ever offered to our schools. Scoring is not complete at this time. However, I am very proud of the prosthetic arms the teams created and brought to this competition. We are looking forward to competing at the Southeast and Southwest State MESA Day Competition February 22!

The Southeast, Southwest and North Region schools participated in the Legislative Fieldtrip on January 25, 2016. The 67 Students delivered letters to Legislators, watched Legislators at work in the House and Senate and received encouraging talks from various legislators, university Officials, Congressman Ben Ray Lujan's Assistant and Dr. Hanna Skandera, Secretary of NM PED.

The letter-writing efforts were supplemented by students from many schools in the West, Central Inner, Central Outer and North Central Regions. All in all, more than 250 letters were delivered to legislators encouraging them to support bills sponsoring NM MESA.

Photo by Betty Chancey

Students and staff from Alamogordo's Holloman Middle School pose with New Mexico District 32 Senator Cliff Pirtle during the January Legislative Field Trip.



Central Inner Winter Highlights Include Reflection on Individual Learning Styles

Kimi Allen-Scheerer

CI Regional Coordinator

The Central Inner Region of NM MESA includes 15 schools: nine high schools and six middle schools. We will be sending 38 teams to the MESA Day competition at UNM in March. As the Regional Coordinator, I can see that although our schools are quite different, all of our teams are on track to academic competition success!

Our winter story started with a Regional Advisory Meeting (RAM) at Lucky 66 Bowling in December. Teachers had the opportunity to have some fun and see teamwork in action. We also got to chat with APS Water and Energy Conservation Education Specialist Robert Lazar and the Environmental Education Association of New Mexico Executive Director Barbara Garrity before our behind the scenes bowling tour! This RAM was a great sharing and networking event to learn more about education opportunities and resources in the area.

The Central Inner Region also had several student leadership workshops as we moved through the snowy season. Students from Albuquerque High School, Cleveland Middle School and NexGen Academy worked in teams to create catapults, share what makes them confident and participate in activities that help them to find their voices. Student workshops started with three basic questions about science, technology, engineering, art and math

view-points in Questions in- of STEAM is to you? Brief- think that is. the best? Or, style do you portant/neces- What helps about your-

Finally, a you to the Valley High gent effort of student letters ture in support would also like Wilson Bef- Mountain High

Senator Beffort has historically been a strong supporter of NM MESA and sponsored both Senate Memorial 29 (NM MESA Day, Jan 25, 2016) and Senate Bill 143 (appropriating funding for NM MESA educational programming)!

Central Inner High Schools include: Albuquerque, Amy Biehl, Del Norte, East Mountain, Highland, Manzano, NexGen Academy, South Valley Academy and Valley High School

Central Inner Middle School include: Cleveland, Garfield, Jefferson, Kennedy, Taft and Van Buren



Photo by Kimi Allen-Scheerer

Cleveland Middle School students have fun with the trial and error process of engineering during their MESA day preparations!

and explored different formulating answers. cluded: 1) What part the most interesting ly explain why you 2) How do you learn what type of learning recognize as fun/im- sary for you? and 3) you feel confident selves?

big regional thank leadership council at School for their dili- creating and sending to the NM legisla- of NM MESA. We to thank Senator Sue fort who has East School in her district.

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North Region Students Developing Leadership

Alejandra Carmona-Cruz

North Regional Coordinator

The NM MESA North Region had a very busy, challenging and exciting Fall Semester. From doing rallies and inspections, the North Region Coordinator has witnessed some amazing work from teachers and students. The numerous snow storms that hit NM were definitely not an obstacle as students worked on their prosthetic arm designs, volunteered in their communities and visited colleges.

This year, regional rallies were held individually and organized by school districts. For the North Region, individualized rallies tended to be a great success; this format allows students to have more one-on-one time with their peers, teachers and Regional Coordinator. Students are able to ask more questions, learn to work and best prepare their teams for MESA Day. There are many leaders in the North, but these three middle schools have truly shown leadership and grit: Mora Middle School, Anton Chico Middle School, and Santa Rosa Middle School. The students and the Advisors from these schools have achieved so much in such a short amount of time. They went from not being familiar with Arduino programming, to building prosthetic arms that run on Arduino programming. Now, they are perfecting their arms to be ready for MESA Day competition.

The High Schools do not fall short when it comes to leadership. The North Region was able to qualify eight students for the NM MESA SIFT (Senior Incentive Field Trip) and one teacher. North Region is

proud that it has the most students in the state qualified for SIFT and the subsequent opportunity to visit Washington, DC. Due to their high academic and overall MESA standing, these students will have a once in a lifetime experience.

Throughout the Fall Semester, West Las Vegas High School (WLVHS) MESA students were busy with service learning in their community. Students volunteer their time with the Elks 408 Lodge Drug free program. With this program they promote "Being drug free" to younger students by participating in the various events and item collection events held for the Drug Free Program. It is evident this is an important program for WLVHS MESA students since they have been active for four years now!

NM MESA provides so many great experiences for students. This year, Robertson HS, West Las Vegas HS and Springer HS had the chance to travel to Socorro, NM to visit the Very Large Array (VLA) and New Mexico Tech for workshops and to receive college information. For students interested in pursuing a career in astronomy or related fields, they learned that the VLA offers its facility to anyone to conduct research and participate in internships. Both the North Regional Coordinator and the MESA Statewide Coordinator traveled with the students in the same bus. Needless to say it was a great bonding experience for everyone.

The outlook for the North Region this spring is like the flowers that will inevitably follow the heavy snows we have received this winter: there should be a blossoming of talent and abilities in many activities.

The Beauty of Winter – NM MESA Style



Photos and Reflection by

Alejandra Carmona-Cruz

North Regional Coordinator

Everyone loves winter, even for a few seconds. Usually, winter brings snow and this year in some parts of Northern NM it blessed us with close to 3 feet of snow.

During our winter break I spent endless hours looking out the window as well as shoveling our driveway. I looked out and admired the way the snow danced from the sky, covering the ground, transforming the landscape into a white winter wonderland. I am not concerned about the cold when it looks this beautiful.

Although, I think people do change their minds once the snow begins to melt away, leaving nothing but a muddy mess.



HAVING FUN WHILE LEARNING – MESA FUNdamentals IS COMING TO A MESA DAY NEAR YOU

Nicholas Kunz
NC Regional Coordinator
and
Kimi Allen-Scheerer
CI Regional Coordinator

American philosopher John Dewey often spoke of the importance of the holistic learning process. “Give the pupils something to do, not something to learn; and the doing is of such a nature as to demand thinking; learning naturally results.”

In this year’s MESA Day competition, students will experience a world of fun. This year’s onsite event, MESA FUNdamentals has been designed to perpetuate learning beyond competition and the school year to become a life-long process.

What will happen at the event? It’s a SURPRISE! So how can we prepare? It’s very important to thoroughly read the MESA Day Handbook and see the resources on the FUNdamentals page on our website. The onsite event will include three stations: Syntax Charades, Environmental Career Exploration, and Sustainability Supermarket.

For Syntax Charades, students want to be confident with the language of Arduino programming. If they’ve worked on coding their prosthetic arm, they should be on their way. But why not create some fun games? Ever played charades in MESA? Can a student create a line of code with the correct syntax to make a teammate perform a specific action? It’s time for kids to be-

come actors...and human computers.

When preparing for Environmental Career Exploration, we want students to learn about the world of possibilities that exists when considering a career in Environmental Sciences and the many engineering/scientific applications that occur in vocations that interact with nature. Student teams will work together to solve related real world problems. Guest speakers, field trips, online research, in-class projects, going outside to identify signs of wildlife- these are all examples of the endless options for ongoing learning that go beyond the competition. After MESA Day, each MESA program should continue these kinds of explorations.

Sustainability Supermarket skills can

also carry on throughout the whole year and help with student preparation for independence. Students can study labels from different products and discuss various product footprints- where packaging and ingredients came from and where they’ll end up. Students can learn about materials science, and even analyze campus trash. Ultimately, they should learn to be wise when evaluating different social, economic and environmental costs while shopping for products.

A great summary of preparation activities can be found on the website’s FUNdamentals page in a document titled Resource Page of Rally Ideas and Teacher Preparation Ideas.



Photos by Rick Cole

From left to right are photos from the Central Outer Rally: *Environmental Careers* - Forest Ranger Ali San Gil demonstrates the many careers associated with the United States Forest Service; *Syntax Charades* - Students from Taylor Middle School act out a charade in response to a “code” written by their teammates; *Supermarket Sustainability* - Belen Middle School students evaluate the merits of product content and packaging in determining best choices for consumer purchases.,

MESA Day Is Fast Approaching – Get Ready!

Anita Gonzales
Statewide Events Coordinator

It’s that time of year when over 1,300 students and advisors will be participating in our upcoming MESA Day competitions.

This year we will have three regional events throughout the state: North Area-Las Vegas, NM at New Mexico Highlands University on February 18, 2016; South Area-Las Cruces, NM at New Mexico State University on February 22, 2016; and Central Area-Albuquerque, NM at University of New Mexico on March 2, 2016.

Attending students will be competing in

two events and will have qualified to compete in the competition. One of our events, Prosthetic Arm 2.0, is a portion of our related MESA USA National Engineering Design Competition where students will have to build a prosthetic arm and maneuver the arm to do tasks using Arduino Computer Programming. The tasks the students will have to complete are placing items in and out a designated area, tossing bean bags into a target area, and high school students will need to place and secure nuts on a bolt. The second event, MESA FUNdamentals is a STEM adventure where students will complete hands-on tasks in the areas of

computer syntax, environmental careers, and consumer product sustainability.

In addition to the academic competition, students will have an opportunity to visit with some of our community partners in a Discovery Fair. Volunteer opportunities are available and needed to either help with our competitions or display at our Discovery Fair.

Those students/teams wishing to qualify for the MESA USA state qualifying event will not only compete with their prosthetic arm but present a proposal that will be evaluated in conjunction with arm performance. The proposal includes an itemized

budget sheet, the team’s experimental log book, a typed overview of the design process that includes 10 components and an interview in which each member of the team must answer at least one open-ended question about the design and coding process used to create their prosthetic arm. This is practice for college projects.

For more information, please visit <http://www.nmmesa.org/event/mesa-day-2016/> or contact Anita Gonzales at anita@nmmesa.org. This event is open to the public. Our MESA students have worked extremely hard on their projects and this should be a fun and rewarding event.

New Mexico Highlands University



New Mexico State University



The University of New Mexico



Congratulations to the 2016 SIFT Qualifiers: Washington D.C. Bound!

Anita Gonzales

Statewide Program Coordinator

Our Senior Incentive Fieldtrip is almost here. On April 25-28, 31 NM MESA Students and 5 NM MESA Advisors will be headed to Washington, D.C.!

Selected students had to apply and were selected based upon their participation in the MESA program through the first half of their senior year, STEM classes taken, cumulative GPA and submitted essays.

While in our Nation's Capital, students will get to experience the history of our nation as well as participate in unique STEM experiences. Some highlights include programs at the National Building Museum, The Smithsonian Air and Space Museum, the Kennedy Center, Capitol Hill, the White House, the National Museum of Health and Medicine, and other National Monuments and Museums. This will be a once-in-a-lifetime and well-deserved experience for our attendees. Congratulations to our selected students and advisors listed in the adjacent column.

NM MESA has sponsored a SIFT for decades as a reward for students who stay committed to participate in the MESA program. In past years, students have traveled to Florida, New York, Texas and California, among other locations.

Students and advisors pay just a small portion of the trip cost as NM MESA pays 75% - 85% of the expenses. Conversely, the memories and relationships created during these adventures are priceless and often prompt students to expand their horizons for the rest of their lives.

Indeed, the SIFT often is the first airplane ride for many participants. For some, it is their first venture outside New Mexico.

No other co-curricular program provides a travel opportunity equivalent to SIFT, a component of the MESA program that the staff is committed to perpetuating.

Underclassmen are thus encouraged to continue to make the most of their involvement in MESA activities while also maintaining their grades in a college preparatory curriculum to maximize their chances of participating in future SIFT adventures.

Region	First Name	Last Name	School
Central Outer	Ariana	Astorga	West Mesa High School
North	Justice	Atkins	West Las Vegas High School
West	Jefferson	Bahe	Gallup High School
Southeast	Nicholas	Baker	Alamogordo High School
Southeast	Angel	Baray	Alamogordo High School
West	Nixolas	Bedonie	Navajo Preparatory School
Advisor	Michael	Boyle	Robertson High School
Advisor	Luisa B.	Castillo	West Mesa High School
West	Chandler	Charles	Miyamura High School
North	Raquela	Crespin	West Las Vegas High School
West	Delvena	Dale	Miyamura High School
North	Marina	Duran	West Las Vegas High School
Southeast	Merrick	Faudree	Alamogordo High School
Advisor	Serri	Grube	Valley High School
Southwest	Sergio	Juarez	Alta Vista High School
North Central	Maria	Juarez-Parra	Espanola Valley High School
Southeast	Brittani	Kelley	Ruidoso High School
West	Kaila	Lee	Crownpoint High School
North	Ambrozia	Medina	Mora High School
Advisor	Rebecca	Merrill	Gallup High School
West	Wayde	Morgan	Crownpoint High School
Southwest	Jonah	Ng	Las Cruces High School
North	Brianna	Pacheco	Mora High School
North	Carmelita	Padilla	Mora High School
Southeast	Colton	Robertson	Ruidoso High School
Central Outer	Gladys	Robles	West Mesa High School
North	Destiny	Romero	Mora High School
Central Outer	Brenda	Salas	West Mesa High School
North Central	Shania	Salipan	Espanola Valley High School
West	Sheyenne	Sangster	Gallup High School
Advisor	Kala	Scarafiotti	Ruidoso High School
Southwest	Alan	Tirado	Ocate High School
Central Outer	Karla	Vazquez	West Mesa High School
Central Inner	Diana	Vega-Neri	Valley High School
North	Ashlyn	Wagoner	West Las Vegas High School
Central Inner	Cherrlynn	Zarate	Valley High School

MESA Advisors to Be Recognized for Milestone Years of Service at MESA Day

Each of these 12 teachers earned an A+ for working with NM MESA students for a combined 87 years. **Thank you** for your service!

Bernadette Galvez 20 years
Mesa Vista High School

Veronica Esquibel
15 years
West Las Vegas
Middle School

Christina Trueba
10 years
Los Lunas
High School

Patti Gronewald
10 years

Aleli Colon
5 years

Donna Fernandez
5 years

Rina Viramontes 5 years
Chaparral Middle School
(Gadsden)

Van Buren Middle School

Navajo Preparatory High School

Katie Bachicha-Sanchez
5 years
Anton Chico Middle School

Larry Krzebiot
5 years
Berrendo Middle School

Arlyn Elorde
5 years
Crownpoint High School

Diane Russell
3 years
Atrisco Heritage Academy
High School

Maviz Yazzie
3 years
Navajo Preparatory High School

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