

Mobile Lab Brings Hands On Science

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A 53-foot trailer with 20 lab stations, microscopes, and all the necessary tools for seventh graders in Fred Yerzy's and Linda Metcalf's science classes to do a DNA extraction showed up recently on the Oakdale Junior High School campus.

That's right, DNA extraction.

The Ag in Motion mobile lab, a mobile science classroom offered by the National Ag Science Center, made its first visit to OJHS due to the efforts of Principal John Simons. Seventh grade science students had been studying cell biology and what's in the nucleus of cells – DNA – in their classes. The timing was perfect for the mobile lab to show up, Yerzy said. In the lab, the students went through a step-by-step process to extract DNA from strawberries.

“After 30 years of teaching this genetic material to students, I finally get to see first-hand DNA being extracted from a strawberry,” Yerzy said, adding that it was a “cool science day.”

He reported that a California seventh grade life science standard is for students to learn that “DNA is the genetic material of living things” and he wanted his students to learn in the cell biology unit that DNA really existed and that DNA is located in most eukaryotic cells in the nucleus, where chromosomes are located, which are made up of DNA and proteins.

Yerzy said that the Ag in Motion lab made this standard on DNA come to life for both his and Metcalf's science classes.

“Students were able to see up close strands of DNA from a strawberry cell,” he said. “They first mashed a strawberry, added some soap, filtered the mix and added a drop of ethanol to help separate the DNA from the mix, and like magic the DNA appeared on a stick. Pretty amazing.”

He noted that the strands of DNA clung together on the probe stick the students used and that the material was very slimy. After collecting it on the stick, the students put it under the microscope and were able to see the DNA strands. Yerzy described it as looking sort of like transparent fiber

optic tubes, cylinder-shaped strands. He said that they couldn't see the helix or the rungs that make up the helix because a more powerful microscope is required for that but the lab exercise was very useful.

"It has really helped my lessons. Now every time I refer to DNA, it's not abstract. They actually saw it... normally you can't see it," Yerzy said.

The students recorded their experiment findings in small laboratory research notebooks where they described the procedure, offered a hypothesis about what the DNA would look like, and drew a picture of their extraction set-up. They also described what the DNA actually did look like, and drew and labeled where it formed in their test tube. Through each of the four steps of the process, they described what the effect was on the strawberry cells. Then they summarized about why scientists would want to study the DNA of strawberries, if the DNA was pure or if there might be something attached to it, and answered other questions.

Yerzy said that he learned something in the mobile lab that day as well and said he would be able to duplicate the experiment in the classroom. It's something he'd definitely like to add to his cell biology unit each year. However, he said that the mobile lab has the feel of a real research lab – it's all white, with nice counters, and it's easy to manage. He said it's a very different atmosphere than in the classroom and he hopes to have the mobile lab return. He also said all the students were very attentive, engaged and receptive through the whole process.

The Ag in Motion mobile lab was provided free of charge and visits middle schools throughout the Central Valley. For more information go to www.agsciencecenter.org.

The Modesto Bee

modbee.com

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Ag in Motion's arrival gets students at Prescott thinking

By John Holland jholland@modbee.com

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Flies and mosquitoes magnified 400 times did not faze Modesto seventh-grader Joyclen Hernandez.

"It's making me think I want to be a scientist one day," she said while visiting a mobile classroom to learn about entomology Wednesday. "It's really cool."

The classroom, dubbed Ag in Motion, aims to get students interested in science careers related to food production.

The Modesto-based vehicle was completed in June and made its first campus visit this week, to Prescott Senior Elementary School on Rumble Road.

The 20 laboratory stations give students a 45-minute opportunity to learn about one of the subject areas, which include insects, DNA, seeds and photosynthesis. There is no cost to the schools.

"This is absolutely amazing, to be able to take this technology and these lessons to all these students," said Tamara Convertino, a science teacher at Prescott who helped create the lesson plan on seeds.

The vehicle was created by the people behind the Ag Science Center, an interactive museum planned for the Modesto Junior College West Campus.

More than \$250,000 in donations has gone into the project, which involved converting a 53-foot moving van into a classroom on wheels.



(TRACY BARBUTES/tbarbutes@modbee.com) Prescott seventh grade student, Harvey Hundal, looks in the microscope in the Ag Mobile Classroom. The mobile classroom was at the Prescott Senior Elementary School in Modesto, Calif., on August 31, 2011. - Modesto Bee - Tracy Barbutes

The organizers hope to reach all 7,000 or so seventh-graders in Stanislaus County this year, then expand to other areas, perhaps with more vehicles.

The lessons are tied to state science standards. Wednesday, that meant using microscopes to look at the mouths of flies, mosquitoes, butterflies and bees and learning how they are used for feeding and other functions.

"The fly's mouth is really hairy," student Alexa Lomeli said.

"It's pretty cool how you can see the insect parts," classmate Harvey Hundal said. "In my life science class I'm learning about it."

Ag in Motion coordinator Jenny Stolle, who teaches the sessions, said she tries to convey that some insects are pests but others are helpful to farmers.

The students also drew pictures of insect mouths and watched a video about careers in the field.

The vehicle will visit four other schools this month — La Loma in Modesto, Dutcher in Turlock, Cardozo in Riverbank and Chavez in Ceres.

More information about Ag in Motion is at (209) 521-2902 or www.agsciencecenter.org.



Mobile science lab makes first trip to Turlock

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Ag in Motion, a 53-foot state-of-the-art mobile trailer classroom, visited seventh grade students at Dutcher Middle School in Turlock this week. The mobile classroom was unveiled in late June of this year by the National Ag Science Center in Modesto.

The free mobile classroom experience features 20 laboratory stations, complete with microscopes and lesson plans designed around the seventh grade science curriculum for California schools. The lab can hold up to 36 students and one teacher.

For students at Dutcher the experience in the ag trailer was a break from the classroom environment.

“We are bringing the field trip to the students. So far we’ve received phenomenal feedback — schools want us to comeback because for the kids this is an awesome experience,” said Michele Laverty, director of the National Ag Science Center.

The goal of AIM is to introduce agriculture into what seventh graders are learning in their curriculum and to display the many ag-related career opportunities in the Central Valley.

There are five labs held inside AIM and labs are selected by a classroom’s teacher or school. Labs are taught by a certified seventh grade science teacher and the curriculum includes bug anatomy, light with chromatography, seed dispersal, a DNA extraction from a strawberry and plant identification. Following a lab lesson, which is held in the same amount of time as a regular class period, students watch a short video about ag-related career opportunities.

Dutcher math and science teacher Eli Ruiz praised the AIM program.

“It is nice to give the kids a new perspective and to have this resource available to supplement what we teach out of the book. The kids love it and this is like a field trip for them,” he said.

In the coming months AIM will visit Turlock Junior High and Turlock Christian. Lavery said she is working with Turlock High School to have FFA students visit the trailer with seventh graders.

In the past year the project raised nearly \$250,000 to make the trailer a reality. The majority of the money has come from private and corporate donations. Some of the largest donations came from Wal-Mart and Rabobank, which together donated nearly \$97,000 for the trailer.

“Ag In Motion is a remarkable offering for schools and students throughout the Central Valley, particularly in this tough economy,” said Wal-Mart Senior Vice President of the Pacific Division Kimberly Sentovich.

For more information, visit the National Ag Science Center website at:
<http://agsciencecenter.org/>



A Dutcher Middle School seventh grader looks through a yellow light filter while learning about the effects of the light spectrum and the scientific process.



Ag in Motion, a new agriculture mobile classroom, visited Turlock for the first time ever this week at Dutcher Middle School. The trailer was designed by the National Ag Science Center in Modesto to introduce Central Valley seventh graders to ag-related careers in science.

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The Modesto Bee

modbee.com

Posted on Wed, Jun. 22, 2011

Ag Science in Motion: Moving van now a classroom lab

By John Holland

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last updated: June 22, 2011 11:38:39 PM

Seventh-graders soon will step inside a converted moving van so they can mash strawberries in plastic bags.

This will be part of a lesson on DNA extraction aboard Ag in Motion, a mobile classroom that will teach the science behind food production.

The Modesto-based vehicle made its debut Wednesday morning at a gathering attended by many of the donors and volunteers who made it possible.

Inside are 20 laboratory stations where Central Valley middle-schoolers will learn about seeds, genetics, photosynthesis and other topics starting in August. The visits will cost the schools nothing.

"It's cool," said Matthew Laverty of Modesto, one of the few young people on hand, after studying mosquito life stages through a microscope. "There's a lot of different things you can do. You can look at bugs and seeds and stuff."

The vehicle was created by the group planning the Ag Science Center, an interactive museum at the Modesto Junior College West Campus. That building is some years off, but the planners are using other ways to get students thinking about careers in food production.

The \$116,000 project got gifts of \$50,000 from Rabobank, \$46,932 from the Wal-Mart Foundation and smaller amounts from other donors.



(JOAN BARNETT LEE / jlee@modbee.com) - Twelve year old Matthew Laverty looks at slides that tell about a mosquito's life cycle on Wednesday morning (06-22-11) in the new Mobile Classroom "Ag In Motion" that was unveiled today at the Stanislaus County Agricultural Center in Modesto. - -

Modesto Transfer & Storage donated the trailer, which was outfitted at Performance Trailers in Madera. Rocha Antique Trucks of Oakdale donated the 1979 Kenworth that will pull the classroom up and down the valley.

Donations still are being sought for operating costs.

Project chairman Tom Norquist said only 2 percent of U.S. residents live on farms, so children need to learn about food sources.

"We're pushing ag," he said. "We're pushing science. We're hoping to grow kids' minds."

Prescott Senior Elementary School in Modesto will get the first visit, said Michele Lavery, director of the Ag Science Center and mother of Matthew. La Loma Junior High School in Modesto and Dutcher Middle School in Turlock will follow.

Each student will spend one class period in the mobile classroom, working on one of the lesson areas and watching a video about food-related careers.

The lessons are designed to fit with state standards for science instruction in the seventh grade.

The one on extracting DNA, the molecular building blocks of living things, no doubt appeals to the 12-year-old in everyone.

"Grind up the strawberries using your fists and fingers for 1 minute," the instructions read. After that, you use a salt-soap solution, ethanol and a filter to complete the process.

Emily Covolo of Modesto, another of the young people at the unveiling, looked over a lesson kit on seeds that included a microscope, a pine cone and store-bought jars of sesame and celery seeds.

"I've never seen anything like it," she said.

More information on Ag in Motion is at www.agsciencecenter.org.

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The Modesto Bee

modbee.com

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Rabobank boosts ag fund for schools

Bee Staff Reports

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Rabobank has donated \$50,000 to help create a mobile classroom that will teach children about farming in the Central Valley.

The donation to the Modesto-based project brings the planners close to their \$250,000 fund-raising goal.

The classroom, called Ag in Motion, is scheduled to make its debut June 22. It will have 20 laboratory stations that teach seventh-graders about the science behind food production. The vehicle, a converted moving van, will visit schools around the valley.

"We were really impressed by the local agricultural leaders who stepped up with this remarkable solution when they saw that it was the students who were suffering the most from the ongoing budget cuts," Rabobank Regional President Ed Rocha said in a news release.

"As a community bank with a strong agricultural focus, Rabobank is happy to help keep Ag in Motion on the road throughout the school year to visit the most students possible."

The vehicle is a step toward the eventual construction of the National Ag Science Center, an interactive museum at Modesto Junior College.

California Farmer

PACIFIC RURAL PRESS - CALIFORNIA CULTIVATOR

Ag Science Center Gets Financial Boost

Rabobank Contributes \$50,000 to Ag Science Center's Mobile Classroom "Ag In Motion."

Compiled by staff

Published: Jun 8, 2011

As Ag In Motion, a state-of-the-art mobile classroom, receives its finishing touches in preparation for its public unveiling next month, Rabobank announced that it is donating \$50,000 to the National Ag Science Center to help fund the effort.

Ag In Motion is a fifty-three-foot trailer featuring 20 laboratories complete with microscopes, lesson plans and the latest technology to deliver a unique educational experience to area seventh graders. The board of directors of the National Ag Science Center decided about a year ago to create a mobile classroom to tour middle schools and provide students with an educational experience designed to excite their minds and encourage future careers in agriculture.



From left: Presenting check is Greg Reis, Rabobank; Tom Norquist, National Ag Science Center; Ed Rocha, Rabobank Regional President to the National Ag Science Center's John Schubert, and Michele Laverty, National Ag Science Center.

"We were really impressed by the local agricultural leaders who stepped up with this remarkable solution when they saw that it was the students who were suffering the most from the ongoing budget cuts," says Rabobank Regional President, Ed Rocha, in presenting the check to the Ag Science Center. He adds, "As a community bank with a strong agricultural focus, Rabobank is happy to help keep Ag In Motion on the road throughout the school year to visit the most students possible."

Funded with contributions from private donors, Ag In Motion and its educational offerings will be provided free of charge to all middle schools in the Central Valley. Lesson plans will be taught each visit which meet California's educational standards. They were developed and tested by area teachers who volunteered their time and expertise.

"The response from the education community has been overwhelming which makes this donation so special," says Michele Laverty, director of the National Ag Science Center. She adds, "Every day we are being contacted by teachers throughout the San Joaquin Valley asking about Ag In Motion and wanting to schedule it to visit their school. We welcome these contributions which will help keep Ag In Motion on the road throughout the year and enable us to meet the hundreds of requests we have already received."

Ag In Motion will be unveiled to the public on Wednesday, June 22nd. For more information, visit: <http://agsciencecenter.org/>.



Rabobank gives \$50,000 to Ag Science Center's Mobile Classroom

Staff Reports TURLOCK JOURNAL
POSTED May 27, 2011 8:06 p.m.

As Ag in Motion, a state-of-the-art mobile classroom, receives its finishing touches in preparation for its public unveiling next month, Rabobank announced Friday that it is donating \$50,000 to the National Ag Science Center to help fund the effort.

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Ag in Motion will be unveiled to the public on June 22. For more information, visit the National Ag Science Center website at <http://agsciencecenter.org/>



Ag In Motion has Landed

Just one year ago the board of directors of the National Ag Science Center began discussing how to bring agricultural science to the classroom, while addressing the resource challenges facing today's students and schools. It is from this discussion that Ag In Motion was born.

It really took a village to bring this together so quickly. Teachers were asked to write lessons and students were invited to help test-drive what was written. Graphic artists created a vision for the exterior while engineers developed the design for the laboratory stations. In March, the transformation began in Madera and a vision became reality.





New Mobile Classroom Teaches Kids About Ag, Science



[Ag In Motion is a Star!](#)

Wednesday , June 22, Ag In Motion made its formal debut and the doors were open for donors, friends and the regional media. Your Produce Man, Michael Marks showed his trademark enthusiasm to the Good Day Sacramento audience as he broadcast live from AIM. The reviews from all who toured the newly completed classroom were great! Next stop, the Grow California conference at UC Davis where AIM has been named one of the top 25 Ag Innovation Game Changers of the Year!

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May 27, 2011 - Turlock Journal

[Watch the video from KCRA](#)



Truck Takes Science To Schools

New Mobile Classroom Unveiled In Stanislaus County

POSTED: 8:31 am PDT June 22, 2011

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MODESTO, Calif. -- Starting this fall, microscopes and laboratory specimens will travel from school to school in a 53-foot truck that will serve as a mobile classroom for seventh-graders in Stanislaus County.

The truck is the basis of a new program called "Ag In Motion," which aims to connect the kids of the county, known for its farmland, to the science behind growing food. It was unveiled in Modesto Wednesday.

"I think there's a great deal of kids who don't understand where their food comes from really," said Michele Laverty, who helped launch the project. "We're so far detached from the farms these days and they don't really understand the complex science that goes into making the food."

Laverty is the director of the National Ag Science Center in Modesto, which collected donations to design and build the lab inside the truck. The truck was donated by Ed Rocha of Rocha Trucking Company. Laverty said the lab construction cost \$100,000 and it will cost \$150,000 per year to take the truck to schools. Organizers are still collecting donations to ensure the truck can travel for years to come and to try to outfit more trucks like it.

The truck will start visiting schools in August, when school teachers will teach their students inside. The program is being offered free of charge to schools, but teachers are encouraged to contact the Ag Science Center quickly, since it has already received requests to have the trailer on campuses.

The idea came about when the board of directors of the Ag Science Center became frustrated over the impact that budget cuts were having on schools, organizers said. Rather than move forward with existing plans to build an agriculture museum, they decided to create a mobile classroom.