Tulsa Community College Biotechnology

Diana Spencer, PhD
Biotechnology Coordinator

Biotechnology is a new program to TCC

- We were approved for three Biotechnology Degrees in Summer of 2006
- We moved into a new facility in February of 2007
- We have been awarded grants from the National Science Foundation and the National Institutes of Health

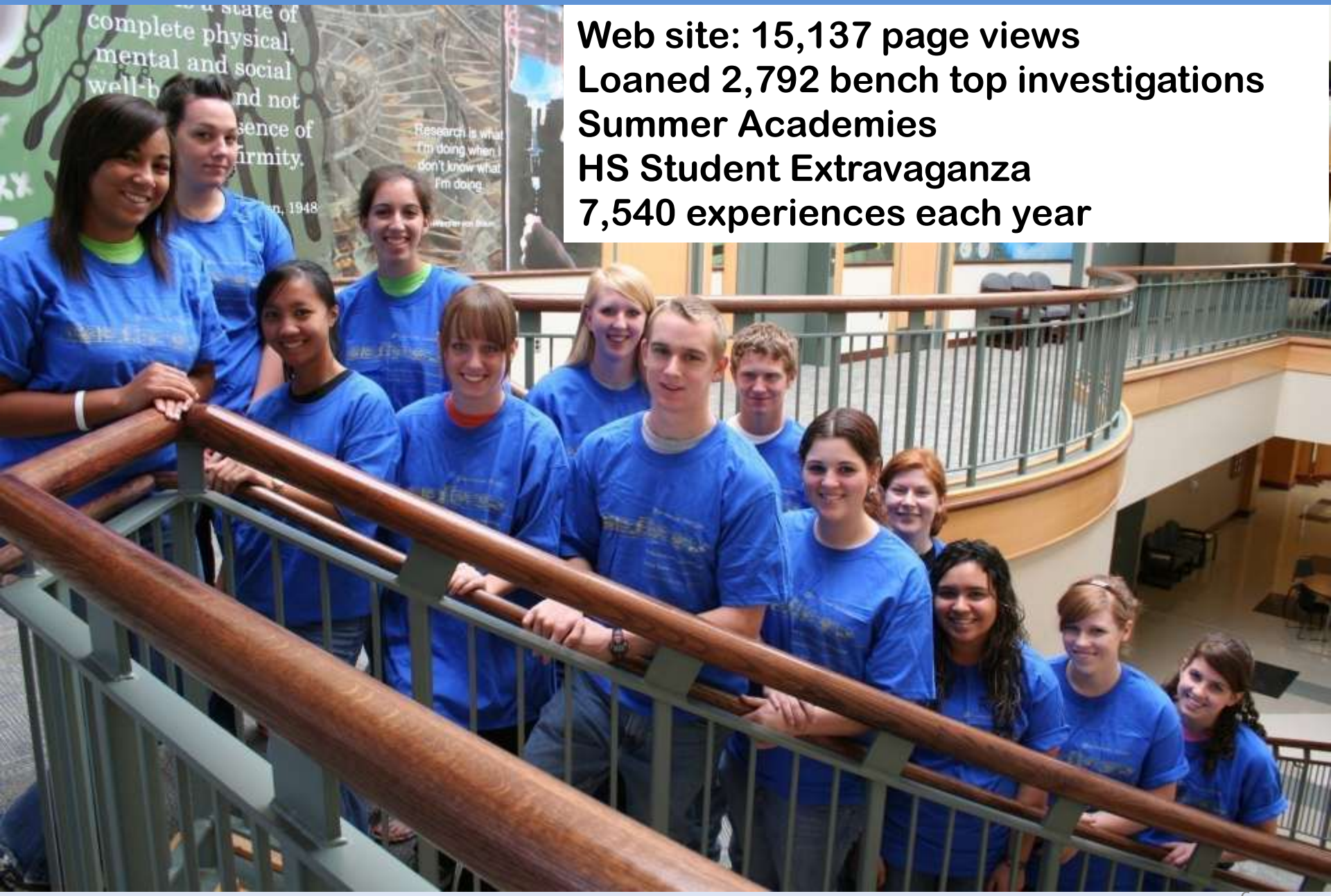
TCC Biotechnology Degrees:

- AS in Biotechnology—for the student wanting to continue a 4 year bachelor's degree
- AAS in Biotechnology—this is our workforce development degree
- Certificate in Biotechnology—for the student already holding a bachelor's degree

A Career in Research

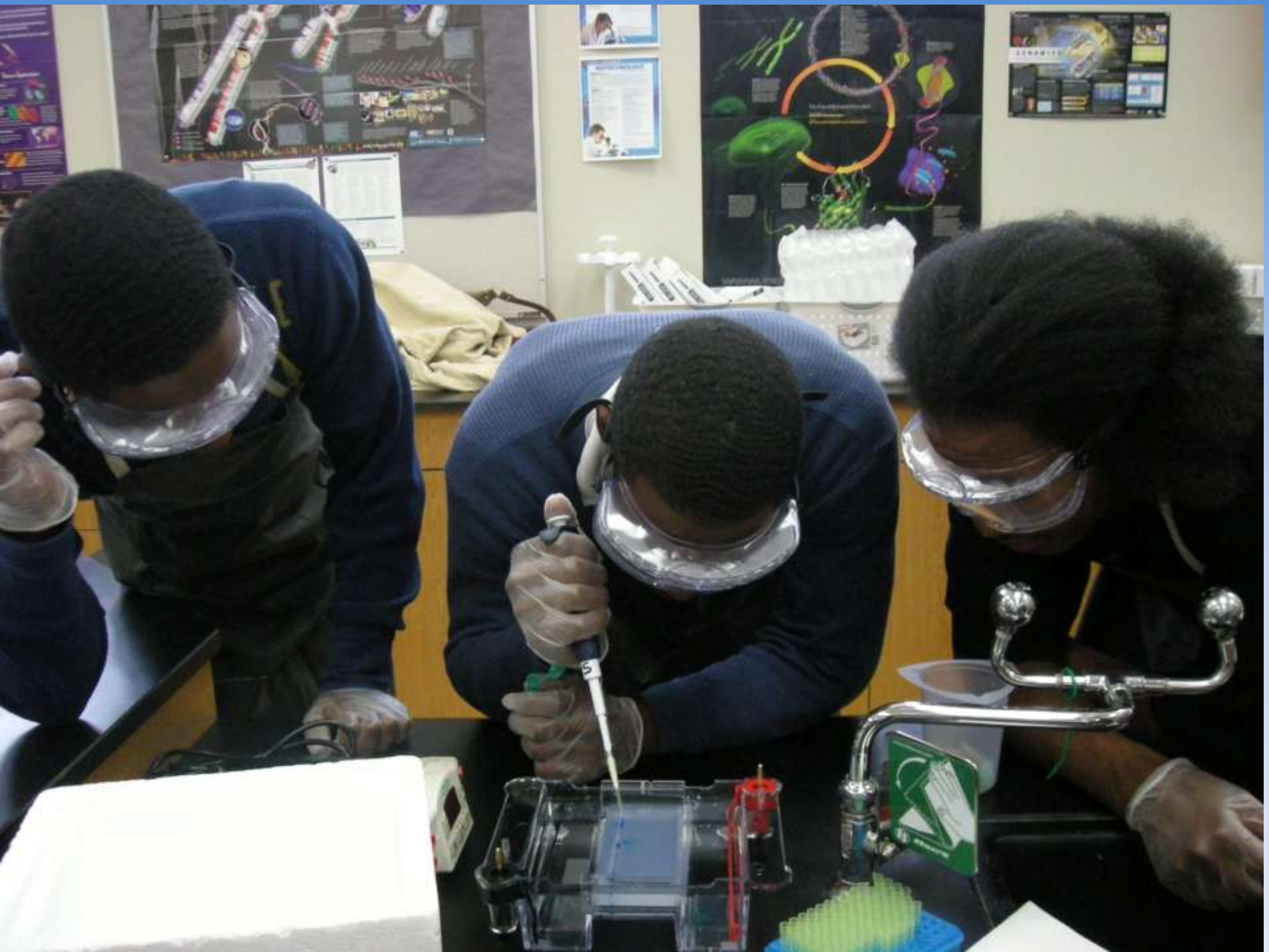
- In the spring of 2009, we had our first AS graduate in Biotechnology.
- Our students have earned many scholarships at TCC and at their four year schools after attending TCC.
- We emphasize the necessity of student internships (INBRE, TABERC, OSU/CHS)

TCC Biotechnology was awarded a $385,581 grant from the National Science Foundation to assist High School Teachers and students and Middle School Teachers incorporate biotechnology activities.



Web site: 15,137 page views
Loaned 2,792 bench top investigations
Summer Academies
HS Student Extravaganza
7,540 experiences each year


BIO-RAD



The NIH ARRA Supplement: MEDBED Grant Moved 1000's of dollars of science equipment into area high school science classrooms


MEDBEd Workshop II
Precut Lambda DNA and
Supporting Activities
March 26, 2010


SEEDBEd/MEDBEd
Workshops I & II
June 15-17, 2010


MEDBEd Workshop IV
PV 92 PCR
Loading Thermalcycler Tray
April 1, 2011

Workshop II Equipment: Total $308,245

TULSA WORLD March 24, 2011

IN THE NEWS

Lottery

Powerball	Hot Lotto	Cash5	Pick 3
5 15 26 28 32 9 (x2)	6 15 21 35 38 18	10 15 23 27 31	5 0 3

Vol. 106 No. 193

Equipment brings biology to life

• TCC funds allow area high school students to go beyond the basics.

BY KIM ARCHER
World Staff Writer

Biology isn't just dissecting frogs anymore.

Now students are learning real-world applications in area high-school biology labs, like differentiating the genetic codes of influenza viruses or isolating their mitochondrial DNA to determine what continent their ancestors came from.

"Before, the students could only see in textbooks a photograph of a virus," said Owasso Mid-High biology teacher Peggy Alexander. "Now they can actually do it themselves."

Tulsa Community College has provided teachers from eight school districts — including Owasso — an allotment of $8,000 worth of specialized lab equipment that enables biology to be taught with a more hands-on approach.

"We teach the basics still, but what we're doing today gives them a reason to listen. It's not just from a textbook," she said.

Alexander said it's not about making lessons harder.

"It's about making them more engaging and challenging," she said. "That's what students love about having real-world activities with which to develop their critical thinking skills."

TCC's funding came from the remainder of a four-year $384,000 National Science Foundation grant for the college to train high school biology teachers in specialized biotechnical methods.

"You know, we're 49th in education funding," said Diana Spencer, coordinator of TCC's biotechnology program. "I actually had a teacher tear up when she found out we were donating the lab equipment."

Occasionally, teachers can borrow the lab equipment, but it rarely works out on their own teaching schedule and they may only have it for a short time.

"I really have a passion for getting these science tools in the hands of students so they can do real science and stimulate their curiosity," said Spencer, who taught high school biology, physiology and anatomy at Jenks High School for 22 years before stepping into higher education.

The eight teachers chosen to receive the equipment have been heavily involved in the workshops and additional professional development, she said.

"Because they were so stellar, we wanted to make a lasting donation," Spencer said. "We knew these teachers would use this equipment."

Many of these lab techniques were just being developed in research labs when she began teaching.

"Students have said, 'My parents never learned this when they were in school,' I tell them, 'It wasn't even in existence then,'" Spencer said.

In what state Superintendent of Public Instruction Janet Barresi calls a state "crisis in education," she notes that Oklahoma students are falling behind in math and science proficiency. Students need to be prepared for a global workplace, she said.

Relationships between secondary and upper education, such as the one between TCC and area high schools, are essential to the remedy, Spencer said.

Teachers from more than 70 Oklahoma school districts attend the science workshops, which means hundreds, even thousands, of students are exposed to the biotechnology sciences firsthand.

"You're kind of lucky if you remember dissecting a frog in class because at least you got to touch something," Spencer said. "It's sad when I hear people whose memory of biology is filling out worksheets. It's so much deeper than that.

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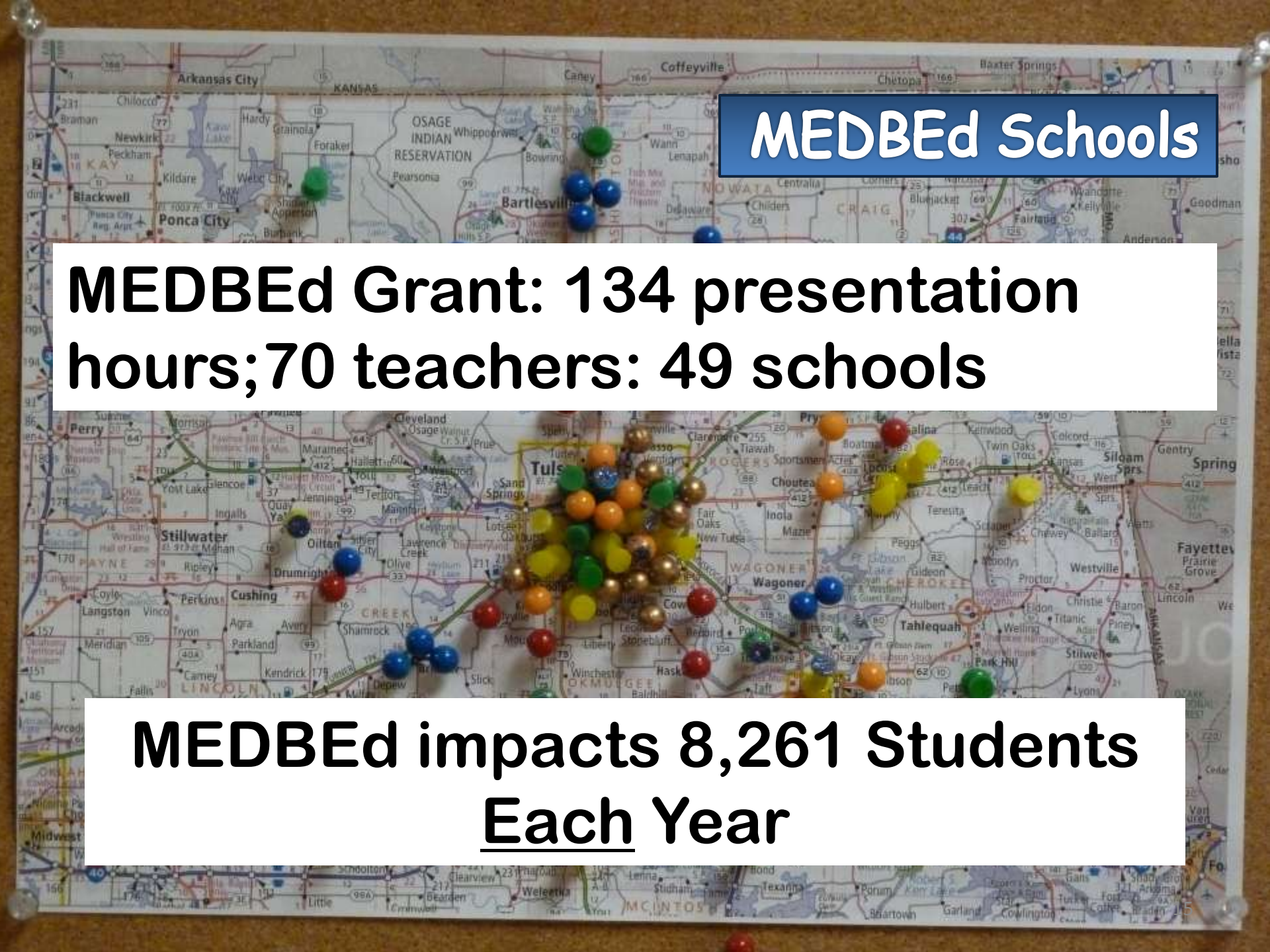
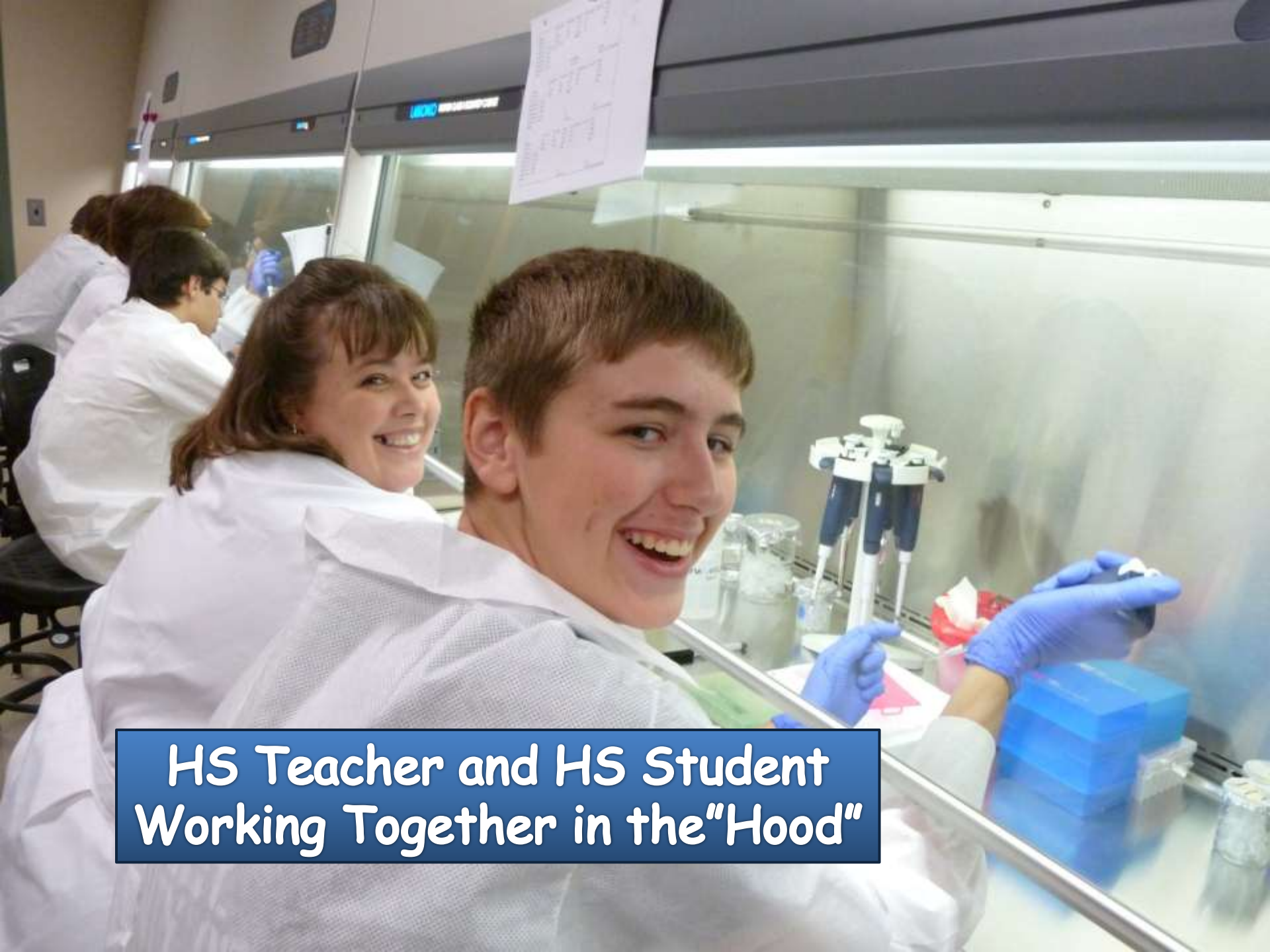
Sophomore Cassie Ward works in the lab during pre-Advanced Placement biology class at the Owasso Mid-High School. Photos by MIKE SIMONS/Tulsa World

Biology teacher Peggy Alexander goes over an assignment with students Rylee Kimball and Brian Neldon during pre-Advanced Placement biology class at Owasso Mid-High School. Tulsa Community College has provided teachers from eight area school districts $8,000 worth of specialized lab equipment.

Teachers receiving specialized lab equipment

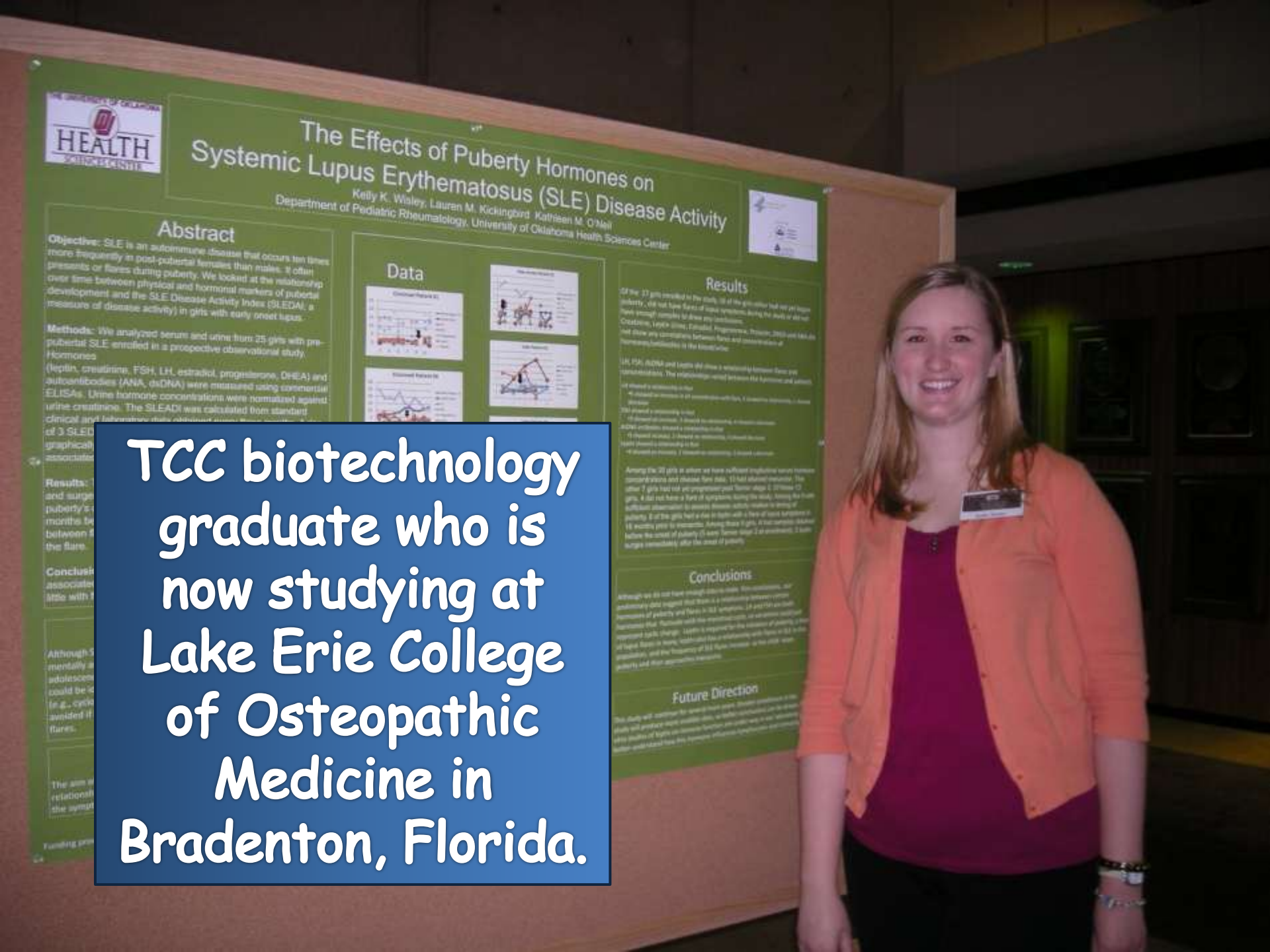
- Kathy Pursley, Bixby High School
- Karen Green and Sheila Nelson, Broken Arrow South Intermediate High School
- Terry Hipsher, Cascia Hall Preparatory School
- Maria Fernandez, Jenks High School
- Perri Blake, Metro Christian Academy
- Peggy Alexander, Owasso Mid-High School
- Heather Florer, Sapulpa High School
- Rebecca Block, Tulsa School of Arts and Science


MEDBEd Schools
MEDBEd Grant: 134 presentation hours;70 teachers: 49 schools
MEDBEd impacts 8,261 Students Each Year


HS Teacher and HS Student
Working Together in the"Hood"

Forensics Evening Guest Speakers


1st TCC Biotechnology Graduate
Earned a BS from OSU
Working on a master's degree
in forensics at OSU-CHS.
14 graduates


HEALTH
The Effects of Puberty Hormones on Systemic Lupus Erythematosus (SLE) Disease Activity
Kelly K. Wisley, Lauren M. Kickingbird, Kathleen M. O'Neil
Department of Pediatric Rheumatology, University of Oklahoma Health Sciences Center
Abstract
Data
Results
Conclusions
Future Direction
TCC biotechnology graduate who is now studying at Lake Erie College of Osteopathic Medicine in Bradenton, Florida.


TCC Biotechnology Graduate
Full-time employee at
Oklahoma Medical Research
Foundation (OMRF)


TCC Biotechnology Graduate
Earned OSU NSF STEM
Scholarship
Employed in the biotechnology field
and working on a BS at OSU.

Tulsa Community College

- Skilled Biotechnicians
  - 50 Techniques (Brochure Available)
- Secondary Outreach Experts
- Excellent facilities
  - List available
- Interested in Increased Enrollment and Research Opportunities
- Need Biomedical Career Counselor
- Interested in Innovative Faculty Development
- Industry and Academic Partnerships
  - Articulations with Universities
  - Internships in Variety of Labs
  - Global or Real World Experiences

Thank you for your interest!