



53 30

Showers this morning, steady rain this afternoon. Details, 10A.



SPORTS
Big Maury comeback
Hornets top Greeneville, 1B

THE STANDARD BANNER

Hometown newspaper of William Chapman, New Market



FEATURES
Distribution set today
Christmas in Jefferson Co., 3A

50¢

Serving Jefferson County since 1928

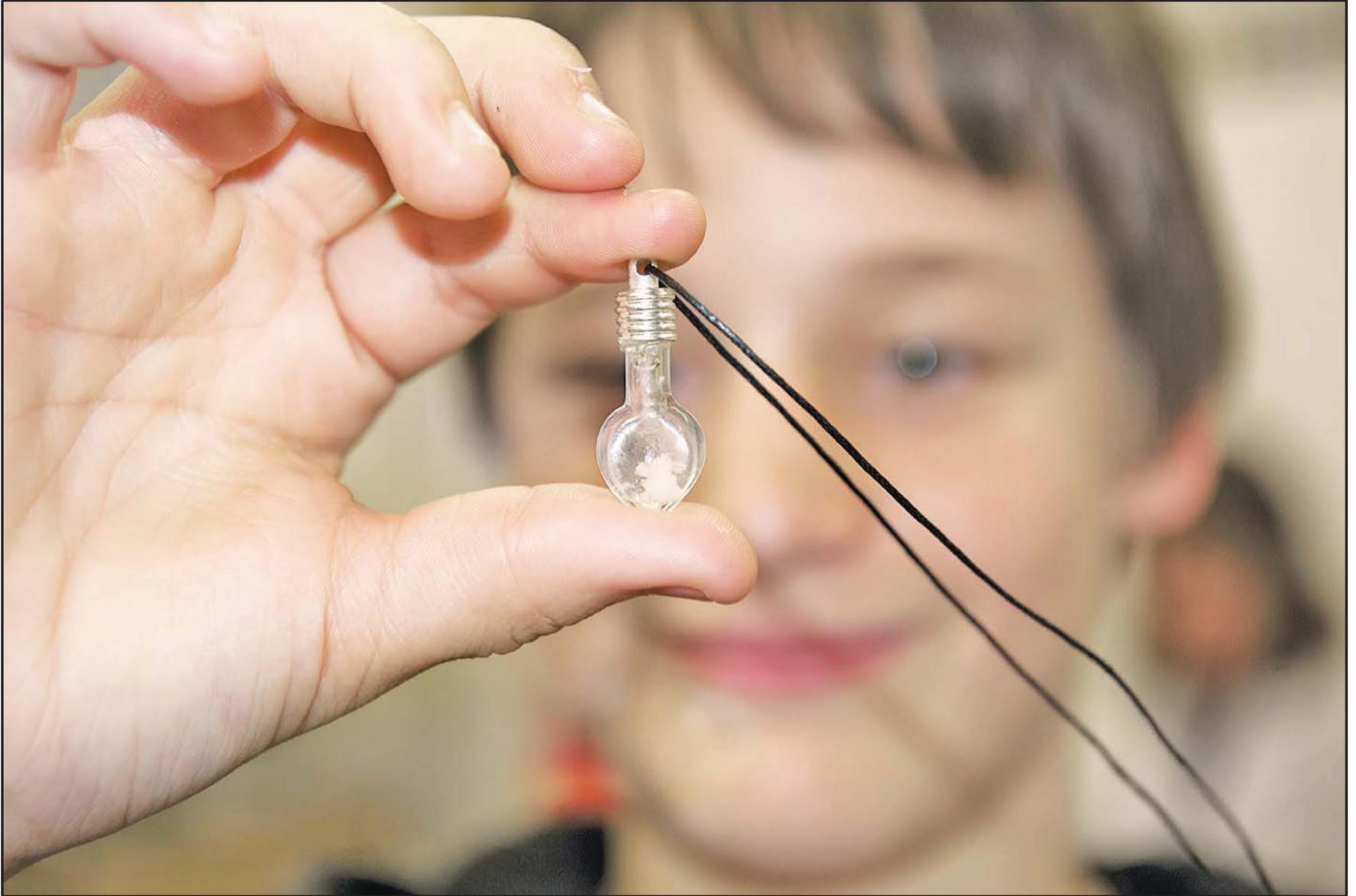
Volume 84 Number 102

Jefferson City, Tennessee

Thursday, December 20, 2012

www.standardbanner.com

SCIENCE IN THE SCHOOLS



Hunter Jarnigan holds up his DNA necklace, after successfully harvesting his own cells in an experiment designed to pique the interest of middle school students in science. (Staff photo - Ronnie Housley)

Puttin' on their genes

Jefferson Middle students extract and preserve their own DNA

BY GAYLE PAGE
Standard Banner Staff Writer

Jefferson Middle School sixth and seventh graders in Catherine Fowler's and Ava Frost's science classes captured and preserved their own DNA recently, for fun and posterity.

This fascinating pursuit was the consequence of an innovative pilot program launched by Bio-Rad, a California-based manufacturer and distributor of products and technologies related to life science exploration and education. In an effort to encourage scientists to try and spark interest among young people in the field of science, Bio-Rad created a program called "Science Ambassadors".

This concept was inspired by the words of President Barack Obama, who said: "Scientists should be not only pioneers in their fields, but ambassadors to the next generation."

Luckily, the local community claims a dedicated scientist whose main objective is to educate and direct the paths of other future scientists.

Dr. Lisa Eccles, Associate Professor of Biology and Genetics at Walters State Community College, immediately responded to the generous offer by Bio-Rad to provide the tools necessary that match scientists with school teachers in order to stimulate the interest of students in a specific activity. It also happens that Eccles has two daughters attending Jefferson Middle School – Lauren, a sixth grader, and Rachel, a seventh grader – so she has added incentive and a vested interest in sharing her scientific knowledge.

The activity introduced by Bio-Rad – along with some costly test equipment – was called "Genes in a Bottle." It's a complete DNA extraction kit that allows students to explore biotechnology. DNA is deoxyribonucleic acid, the hereditary material contained in the nuclei of cells in all humans, and almost all other organisms. The objective of the program was to extract and save students' individual hereditary material, as well as piquing their interest in molecular biology.

Each of the students was given a kit containing a 15 milliliter conical tube containing three milliliters of water. Before they began, each wrote his or her initials on the tube. Then they took the water into their mouths without swallowing it, and swished it around while chewing on the insides of their cheeks. This loosened cells in their mouths and mixed them with the water. After 30 seconds or so, they expelled the water mixed with cell material into a cup, ultimately pouring the contents back into the tube.

Then they added a protease/salt/lysis buffer, and observed as the protease enzyme began breaking open their cheek cells. They capped the

tube and gently blended the mixture, then incubated it in their hands for five minutes while the breakdown completed.

Finally, they added a designated amount of alcohol and watched as the mixture bubbled and began forming strands resembling gossamer (filmy cobwebs) that separated and floated to the bottom of the tube. This was their DNA.

"It was great to hear their gasps of surprise when they saw their own DNA. The students couldn't wait to show the necklaces containing their DNA to their parents, and many wore them to school the following day," said teacher Ava Frost.



Learning about DNA

Dr. Lisa Eccles shows a DNA necklace to Divanni Hernandez, Jodie Rosenbaum, Jessica Gilliam and Skyler Hempel during a recent innovative science experiment at Jefferson Middle School. (Staff photo - Ronnie Housley)

WHAT STUDENTS SAID ABOUT DNA EXPERIMENT...

Student quotes from thank-you notes written to Bio-Rad and Dr. Eccles:

John: "That lab inspires me to be a doctor."

Harry: "I now have a deeper understanding of DNA and a deeper love of science."

Ryan: "The best part of the experiment was the end product, where you could see your own DNA"

Mark: "To me, it was a great learning opportunity."

Lidia: "We all loved the process and just being able to be a part of such a wonderful and exciting project."

"As a science teacher, it was fun to see them do such a complex lab within a class period. There were several skills the students mastered in order to complete the lab: measuring with a pipette, adding solutions to a vial, using a water bath, and extracting their DNA using a pipette. I'm very proud of my students for their enthusiasm of science," agreed teacher Catherine Fowler.

Fowler also called Eccles a gift to Jefferson Middle School. Eccles too, was thrilled with the students' eager responses – especially the curiosity and awareness they demonstrated.

"I think this is a great science program to get our school children excited about science and learning," said Eccles.

The DNA necklaces are a permanent keepsake for students to show off, as well as giving them a reminder of their interaction with a volunteer scientist. Eccles has two other daughters who attend JCHS – Katrina a freshman and Bree a sophomore. Odds are at least one or two of them will inherit the scientific gene from their mother. It's in their DNA.



INSIDE

Birthdays4B
Calendar4A
Church page3B
Classified7-10B

Crossword6B
Family Matters4B
Farm & Home5B
Fine Print4A
Neighbors4B
Obituaries7A

People6A
Public Notices6-7B
Sports1-2B
Weather10A
Weddings4B

Think Outside the Box.
Save 43% off the newstand price
with home delivery!
Call us at (865) 475-2081



Printed on recycled paper.