

FISHING FOR ANSWERS



COLLECTING DATA ON her ecocolumn during AP Environmental Science Sept. 11, Junior **NISHAT MANMOON** observes the new changes in her project. "I took [AP Environmental Science] because I was interested in the environment and I was thinking about going into environmental engineering so I wanted to learn more about it," Manmoon said. **PHOTO BY CELIA HARRIS**

far right: PUTTING TOGETHER THREE liter coke bottles Sept. 11, senior Beth Shniderson and junior **OLIVIA SHIN** work on their ecocolumn project. "It was probably the most fun project I've done at school," Shin said. **PHOTO BY CELIA HARRIS**

right: WHILE MEASURING THE bottle for his aquatic chamber Sept. 11, senior **CONNOR SIMEON** is getting ready to put fish in it. "This is probably something I'll do in college, being a [Biology] major which has to do with the classes that I have been taking; so it's good for me to get a head start," Simeon said. **PHOTO BY CELIA HARRIS**



AP ENVIRONMENTAL SCIENCE CLASS PARTICIPATES IN NEW PROJECT TO GIVE STUDENTS HANDS-ON LEARNING EXPERIENCES WHILE OBSERVING THE CYCLES OF AN ECOSYSTEM

At the beginning of class, AP Environmental Science students measured the vegetation, pH level and mass of the fish living in their ecocolumns. They recorded the nitrate, nitrogen and dissolved oxygen in their collection of weekly data. The ecocolumns modeled a real-life ecosystem and worked to function as one on a smaller scale. AP Environmental Science, also known as APES, teacher **MICHAELYN PODANY** said she discovered the ecocolumn project through her colleague at Blue Valley Southwest High School and implemented it due to changes in the College Board

standards. "They [The College Board] want to take more of a data collecting and data interpretation approach than we have in the past," Podany said. "That's what led me to want to do ecocolumns." To start the project, students received recycled plastic soda bottles to build three layers in their ecocolumns. On the bottom layer, students built an aquatic chamber to house fish, a middle layer filled with sand and a top layer including soil and seeds for various plants. The last layer also housed insects like earthworms and roly pollys.

Senior **CONNOR SIMEON** said the project provided a good learning opportunity to visually see plant growth and interaction between different organisms.

"It's a good example of how nature is interconnected, and all of the environment depends on other parts of the environment," Simeon said.

Podany said the activity allowed students to study the different cycles of an ecosystem seen in environmental science. Podany said students also took an interest in their ecocolumns and seemed to enjoy the project.

"They talk about their plants that are growing, I know I have one girl who named the worm, and the pill bugs that went in, and I am curious to see if they all name their fish," Podany said. "I really like it because I think it has been really engaging for my students."

Junior **OLIVIA SHIN** said she learned a lot more through this project, rather than answering questions on a worksheet.

"It's more hands on and I am a

hands-on learner so it is a lot easier for me to learn information," Shin said.

Shin said during the two-to-three-month project students worked to keep their fish and plants alive. In addition to this, senior **WILLIAM SOPER** said students learned about the carbon cycle, nitrogen cycle, soil's effect on water quality and how living species impact each other.

"It's fun to learn to take care of animals and make sure they're getting the stuff they need," Soper said. "Just putting it together has been fun."

Podany evaluated the project based on a series of questions that go along with the ecocolumns, overall questions of how their ecocolumns fit into environmental science terms and the analysis of graphs students make based off of the data they collect.

Podany said she wanted to have more similarity between the student's projects the first time through, but if she were to do this project again in the coming years she would allow students to add more variety to their ecocolumns.

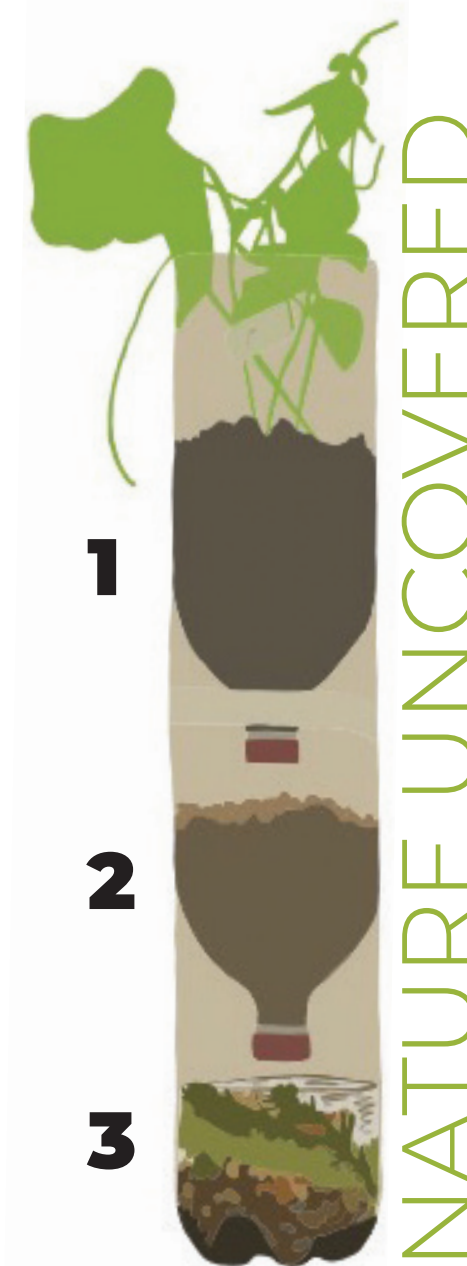
"I think if I do this again in the future, that I would allow a little bit more leeway of the project. I know that the teacher at Southwest is having students bring in their own plants and they can select what organisms they wanted to put in the aquatic chamber. You could bring a snail, you could bring a fish, you could potentially bring a tiny frog," Podany said.

Shin said she would recommend this class to other students.

"It's not like your normal AP class," Shin said. "It is a lot more hands on and it's not just worksheet after worksheet, you're actually doing things and it's pretty fun actually for an AP class."

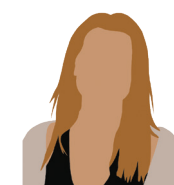
STORY BY SARAH BRUCE

DESIGN BY ALLISON DRAGOO



ILLUSTRATIONS OF STUDENT'S ECOCOLUMNS REVEAL WHAT IS IN EACH LAYER

- 1 SOIL LAYER:** The soil layer rested at the top of the ecocolumn, including insects such as pill bugs and vegetation such as cucumbers.
- 2 SAND LAYER:** The sand layer filters the water out of the soil to give to the fish in the bottom layer.
- 3 WATER LAYER:** A layer of water surrounded a living fish at the bottom of the ecocolumn.



WHO KNEW?

"I lived in Kentucky for five years."
LAUREN HOLTHAUS, 10