

## Lessons flow from the Platte

Written by Elizabeth Barrett

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### **Calculus students have outdoor laboratory.**

Gothenburg High School students found themselves more than knee deep in water earlier this month when they traveled to the Platte River for a class.

On May 5, after six students had taken a four-hour advanced placement calculus test, math teacher Sharise Scherer took all 10 of the AP calculus students to the river to calculate flow rates.

There, they met Central Nebraska Public Power & Irrigation District biologist Mark Peyton who took students to a channel of the Platte they could safely cross.

“We were excited to see how high the river was because we knew a storm had gone through Colorado a couple weeks before and all the extra water was to reach the Gothenburg area,” Scherer said. “We definitely saw an increase in the water’s height from previous years of doing this lab.”

Scherer said they took measurements across the channel and obtained various depths up to a meter deep.

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They then put the data in a graphics calculator and generated a curve that modeled the base of the riverbed.



From there, she said they integrated the curve which gave students the area of the space under the curve which was an irregular cross sectional area of the river.

After measuring a 10-meter length down the river, students floated a cork the distance three times to get an average flow rate.

Following more calculations, the class determined there were about 150 cubic feet per second flowing down the Platte at that particular place.

“That’s lots of water,” Scherer said.

Peyton talked to students about flow rates and reasons for them as well as water rights in Nebraska and Kansas.

They also discussed uses of flow rate to generate electrical power.

In addition to the river project, calculus students also participated in a measurement lab at Wild Horse Golf Club and during the Dudley Elementary track meet.

Students who participated in the river project were Vanessa Linegar, Stephanie Rubenthaler, Mark Hilderbrand, Chris Hyde, Michelle Jack, Patrick Reeves, Tanner Schwanz, Jeron Siemer, Tyler Sheets and Scott Speck.