Standing Rock Teachers learn how to incorporate STEM in the classroom

By SARA KINCAID Bismarck Tribune | Posted: Wednesday, June 15, 2011 10:01 am | (0) Comments

FORT YATES — Cooking has a lot in common with chemistry.

When milk, sugar, yeast and eggs is mixed together, then heated, it makes bread. When ammonia nitrate is heated, it creates water and nitrous oxide, also known as laughing gas.

Helping students understand the science of what they are doing in family and consumer science classes is the job of Solen teacher Lauraine Boyum-Ehly. She is at Sitting Bull College learning ways to incorporate math and science into the classroom using STEM concepts as part of a two-week-long conference for Standing Rock teachers.

STEM stands for Science, Technology, Engineering and Math. It is a hands-on, interdisciplinary approach to teach students about those subjects that is meant to encourage students to go into those fields in college.

The training institute is funded by a grant and is a partnership between Valley City State College and Sitting Bull College. This is an extension of the VCSU Great Plains STEM Education Center. The college wants to create a statewide network, with a site in standing Rock for the state’s tribes, said Don Mugan, the director of the STEM center.

“There is no connection to daily life, skills, anything,” he said, about the current educational model.

Most schools are based on rote memorization of facts and lectures. Schools sometimes fall short of trying to make connections to why the content they are learning is important in every day life. This is what STEM attempts to resolve.

“At all of these workshops, there are a lot of cultural connections,” said Linda Different Cloud, the professional development and training coordinator at Sitting Bull College. “You can think of robots in terms of community. If you take away one part, it does not function as well.”

Building robots might seem like fun to students, which is one way to engage them. Also, they can be used to show different math concepts in terms of programming them to move by radians, degrees or another form of measurement. Programming a robot to complete a task also can teach students problem solving skills and teamwork, which has more in common with today’s work environment.
The professional development institute was open to teachers in all disciplines, not just science and math teachers.

“PE and health teachers are not always included” in training workshops, said Virginia Kraft, the physical education and health teacher at Standing Rock Middle School.

For example, a unit on ratios at the institute is something she can incorporate into her lessons on nutrition. She hopes to show students how plate size affects how the eye visualizes the quantity of food.

“On a bigger plate it does not look like as much” as a smaller plate, she said.

With all teachers attending the institute, there will be opportunities for them to talk about what they learned after they are done at Sitting Bull College, she said.

Language arts teachers need to find creative ways to use what they are learning at the workshop. Solen English teacher Kari Wilson intends to use images from an electron microscope for creative writing assignments, and a 3-D modeling program on Google as a way for students to show what they think the island looks like in “Lord of the Flies.”

It was easier than some teachers thought to incorporate the STEM concepts into their classes.

“It’s amazing how easily engineering and technology team with the writing process to really give kids a unique learning experience,” English teacher Tammy Greff said. She intends to use robotics to help teach the writing process.

About 60 teachers participated in the institute, which was no charge to the teachers. It ends Friday.

(Reach reporter Sara Kincaid at 250-8251 or sara.kincaid@bismarcktribune.com.)

Posted in Local on Wednesday, June 15, 2011 10:01 am | Tags: Education, Sitting Bull College, Stem, Professional Development, Virginia Kraft, Fort Yates, Solen Teacher, Valley City State College, Vcsu Great Plains Stem Education Center, Don Mugan, Standing Rock Middle School, K Through 12, Kari Wilson, Tammy Greff