



Phila teacher helps students reach for the stars

By Jon Baker
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NEW PHILADELPHIA — Debbie French, a physics and engineering teacher at New Philadelphia High School, likes to involve her students in authentic research experiences to enhance their learning.

Two of her students will have that opportunity this year as they join her in a nationwide project to look for stars in dense dust clouds known as nebulae, which are light years from Earth.

French said many students across the country are involved in projects where they use scientific data to reach a previously known conclusion. "But this is different in that we're doing new research. That is the pretty exciting part about it."

The students have yet to be chosen, with selections to be made in March or April through an application process. Back in September, French applied to be a part of the NASA/IPAC Teacher Archive Research Program, which gets teachers involved in authentic astronomical research.

Small groups of educators are partnered with a mentor professional astronomer for an original research project.

Entry into the program is highly competitive. French said only one-fourth of those who applied were accepted for the 2012 class.

In January, she attended the American Astronomical Society meeting in Austin, Texas, where she met with the other members of her team and the leader of the group, Dr. Luisa Rebull of the Spitzer Science Center at the California Institute of Technology in Pasadena.

In July, French will be traveling to Pasadena with her two students, where they will spend a week learning data-reduction software and begin their analysis. The project will be completed by December. Next January, she and her students will make a presentation at the American Astronomical Society meeting in Long Beach, Calif.

"It's quite an opportunity for the students," French said.

All of the costs for French and the students will be covered by a grant from the National Science Foundation.

They will be using archived data from the Spitzer Space Telescope to identify stars which are very dim in visible light but glow brightly in the infrared.

"We know stars are formed in dense dust clouds called nebulae," she said. "So we're looking at stars that are not yet hot enough to give off visible light. We can only see them in the infrared."

The dust clouds are 600 parsecs away from Earth. (One parsec is 19 trillion miles.) "It's still fairly close in astronomical terms," French said.

"The overall goal is to look at how stars are formed and what type of dust clouds produce what type of stars," she said.

French, who is in her fifth year of teaching at New Philadelphia, is a Uhrichville native who graduated from Claymont High School. She received her bachelor's degree from Denison University in Granville, Ohio, and her master's degree from Miami University in Oxford, Ohio.

This is her third project with her students. Her physics students have done a research project with Purdue University on nylon guitar strings, and another student is working with Cornell University on radio astronomy.

"Science is about making memories," French said. "They're going to remember the fun stuff and the projects. We do sneak a lot of science into those projects."

Her efforts are paying off. In her first year as a teacher, she had 14 students in her physics class. She now has 58 students.

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