~ PCCC- STEM Newsletter Fall 2010 ~

S.T.E.M. Update

Science * Technology * Engineering * Mathematics

***What is STEM*?** STEM refers to a variety of initiatives being developed that support the **science, technology, engineering and mathematics students.** Projects are broad-ranging, including course and program development, as well as increasing and improving direct support services for students. PCCC's **STEM initiatives are supported by a Department of Education Grant for Hispanic Serving Institutions.**

More New Science Equipment

As a result of STEM funds, we have again been able to purchase some new state-of-the-art science equipment this year.

For **Engineering Labs**, we have acquired a 3D printer and oscilloscopes.

For **Biology labs**, we are acquiring two digital microscopes capable of displaying images on Smart Boards and photographing both internal and external cellular structures.

STEM LAB = A Place TO BE

Our new STEM lab is busy with many activities these days. More students are finding the lab as a place to come to for help and support. Some come to hang out and watch activities. A quick glance tells a lot. The lab now holds wheeled shelves and tables filled with equipment and ongoing projects.

Tutoring is provided and when classes are not being held, tables are often filled with student groups studying or being tutored. Ismail Imam, one of our popular student tutors, can often be seen with students huddled around him, explaining the latest troublesome topic.

STEM OFFICE 973-684-4856

STEM Supports Improving Biology Labs

Biology I and II curriculum development for lab sessions is focused on student "engaging" in finding answers to investigative activities.

A goal is to design more lab experiences that are inquiry based, thus encouraging our students to design experiments that answer real scientific questions. These changes are expected to increase understanding of the scientific method.

STEM Dual Enrollment

The local Paterson and Passaic High School districts have continued dual enrollment projects with PCCC as a result of PCCC STEM. About 125 high school students are now taking some STEM courses and obtain both high school and college credit for these classes. Dr. Kate Joyce, who has worked closely with the various high schools, anticipates a few more course offerings in the Spring. The Department of Education strongly encourages such initiatives as it saves students both time and money while beginning a college education.

STEM Tutoring Services Expanded

--to The Wanaque Campus

--to the Passaic Campus

--more hours on the Main Campus.

Schedules are posted on the labs.

League of Innovation = STEM

Exciting new ideas in science education at a recent League of Innovation Conference had an underlying theme: *LEARNING BY DOING!*

The conference was attended by STEM Lab Coordinator Thom Van Aken and Professor Ida Greidanus. Both were overwhelmed by the amount of information and presentations of best practices in STEM education.

Suggestions related to STEM developmental education: Such courses should be "applied." so students can see the connections. Reading should include "technical" and science topics.

AFTER SCHOOL PROGRAMS: A BIG HIT

"Arthropods: Masters of Survival" and "How much Energy is in a Peanut" are just two of the hands on after school workshops for 10th graders designed by our full time faculty. All the bugs became a big hit in the lab with everyone else wandering by as well.

The word is out that these are great workshops and we now have to turn down applicants. As a result we are planning to increase the number of workshops next spring and summer.

The idea is to increase student interest in and success in the sciences at the secondary level, with the hope that more students will enter STEM fields.

Chemistry I Dual Enrollment begins at Kennedy High

A new course has been added this fall to the dual enrollment efforts of the Science Department. CH111: Chem I, taught by one of our veteran adjuncts, Ed Lesser, has started at Kennedy High School.

~LEGO Robotics~

LEGO Robots have arrived at PCCC. Spring and Summer Workshops were designed and implemented for 10th grade after school groups. For this fall a teacher workshop was help on two Saturdays conducted by Professor Brian Holton. An advanced workshope will be held in the spring.

LEGO Robots are used by the US ARMY, Navy along with many colleges and universities to teach basic physics, engineering and programming concepts. Middle schools and high schools also use robotics kits to build robots. Competitions are held statewide.

It is a goal of STEM to eventually hold a LEGO competition for local schools and to support local schools in entering regional and state competitions. Professor Brian Holton has been the person who has been key to helping us get the LEGO projects up and running and will help us continue to further develop these projects.

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