



# PERKINS INNOVATION COMPETITIVE GRANTS

**YEAR THREE WINNERS**

Nebraska Department of Education  
Nebraska Career Education  
301 Centennial Mall South  
PO Box 94987  
Lincoln, NE 68509-4987

The Federal Carl D. Perkins Career and Technical Education Act of 2006 provides the authority to the Nebraska Department of Education to distribute federal funds to eligible schools and community colleges through a competitive grant process to assist in building capacity to implement the Nebraska Career Education (NCE) Model and improve career technical education as a part of their career education programs.

### ***Grants awarded:***

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Papillion-LaVista Public Schools	\$97,360.00
Educational Service Unit 4	\$47,287.00
Grand Island Public Schools	\$79,951.00

## **2011 PERKINS INNOVATION GRANTS**

### ***Funded under the auspices of the Carl D. Perkins Career and Technical Education Act of 2006***

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The purpose of the Perkins Innovation Grant Award Program is to assist local educational agencies (LEAs) in building their capacity to implement the Nebraska Career Education (NCE) Model and improve career technical education as a part of their career education programs.

- Eligible recipients include the following:
- Public school districts that offer approved CTE programs of study as a part of their career education programs and that participate in the Federal Perkins Grant program
- Community colleges that offer career technical education programs and that participate in the Federal Perkins Grant program
- Educational Service Units that manage a Perkins consortium
- Consortia of public school districts, Educational Service Units and/or community colleges meeting the above mentioned criteria

Eligible recipients must meet one of the three criteria as required by federal law listed below:

- *Serving Rural Area:* For purposes of this RFP, “Rural” is defined as those eligible recipients located outside of the Omaha and Lincoln Metropolitan areas
- *Serving a high percentage of NCE students:* For purposes of this RFP, “high percentage of NCE students” is defined as more than 50% of the student population non-duplicated count, (if a secondary school, grades 9-12 only) enrolled in one or more NCE courses per year.
- *Serving a high number of NCE students:* For purposes of this RFP, “high number of NCE Students” is defined as 300 or more students non-duplicated count, enrolled in one or more NCE courses per year

## ABSTRACTS OF PROJECTS PROPOSED FOR FUNDING

### *Papillion-La Vista Public Schools*      *Amount: \$97,360.00*

There is growing concern that the United States is not preparing a sufficient number of students, teachers, and practitioners in the areas of science, technology, engineering, and mathematics (STEM). A large majority of high school students fail to reach proficiency in math and science, and many are taught by teachers lacking adequate subject matter knowledge.

During the next decade, U.S. demand for scientists and engineers is expected to increase at four times the rate for all other occupations. Today's high school students overall are not performing well in math and science, and fewer of them are pursuing degrees in technical fields. The U.S. Census Bureau reports that 39% of the population under 18 is a racial or ethnic minority. Yet, in 2000, only 4.4 percent of the science and engineering jobs were held by African Americans and only 3.4 percent by Hispanics. Gender differences in STEM education are also of major concern and the subject of numerous studies. According to the ACT Educational Planning & Assessment System, students most likely to major in STEM fields in college are those who develop interest in STEM careers through early career planning and take challenging classes that prepare them for college-level science and math coursework. (Nebraska K-12 STEM Report Card, 2008)

Closer to home in the state of Nebraska, an assessment of Nebraska's competitive STEM advantage was conducted by the Nebraska Department of Economic Development and Nebraska Department of Labor and Battelle Technology Partnership Practice. According to the study-- what is needed in Nebraska is not just new economic development tools to raise value added, but a concerted effort to deepen the level of connections between industry, higher education and talent in the state.

In February of 2010, a study called Examining the Perceptions of Career and Technical Education in Nebraska was conducted by the Battelle Technology Partnership Practice for the University of Nebraska Public Policy Center. The results show that Nebraska Educators are positive about the current state of CTE in Nebraska. It also shows that CTE teachers and administrators are more positive about CTE, while math/science teachers and counselors are more ambivalent.

In June of 2010, PLSD conducted a 2-day 2020 Visioning event which opened the door for key stakeholders to collaborate on the development of our district's 21st Century Skills for Success. We also conducted a STEM Visioning (January 2011) event that gave these same stakeholders an opportunity to share concerns, ideas, suggestions about the future of STEM education in Nebraska and the Papillion-La Vista community. One of the jewels that evolved from this process was a high level of buy-in and collaboration from all stakeholders. In order to expand the opportunities for more students, stakeholders were especially excited about the integration of the arts to STEM to become STEaM. This collaborative effort has now pointed ALL of us in a unified direction.

With the information from the Visioning events, the Battelle study, the Nebraska CTE Perception study, the PLSD Math Academic Attainment data, and the NDE's Career Readiness Standards fresh in our minds, PLSD now has all the information necessary to begin development of a 9-12 STEM

academy that will encompass all of the components that were identified by the community stakeholders.

Upon further development, PLSD also feels strongly that the model we want to create will also serve school districts across the state of Nebraska. PLSD's goal of being an educational leader in our state will be exercised by sharing this model and the necessary processes for development with other schools across the state regardless of size. In essence, the hard work of aligning 9-12 math/science core curriculum standards and assessments to STEaM programs (specifically PLTW) would be complete.

When Nebraska Commissioner of Education Dr. Roger Breed spoke at the Nebraska Council of School Administrators in late July, 2010, he challenged Nebraska school districts to be leaders in the development of innovative practices that will better prepare students for tomorrow's changing world. It is our belief that our rigorous, engaging, career-focused STEM model can serve as a landmark step to reduce the "siloeing" and increase the transparency of CTE and core curriculum in the state of Nebraska.

To complete this model, PLSD will:

1. Align STEM (PLTW) curriculum and assessments with state math/science standards that are taught in 9th-12th grade core math/sciences courses through PLSD Curriculum Toolbox process.
2. Develop support for innovative instructional strategies through teacher training events.
3. Provide learning experiences that will strengthen teacher content knowledge in math, science, and STEM by enrolling teachers in STEM related courses and professional development opportunities.

#### ***Educational Service Unit 4***

***Amount: \$47,287.00***

The mission statement of Educational Service Unit 4 (hereafter ESU 4) existing Career Academy, established in 2009, is: To provide opportunities for high school students to explore career fields, gain career readiness, and earn college credit. In support of expansion of this program, an Energy Career Academy has been developed and will be implemented in fall of 2011. A pocket model Career Academy format that allows local high school teachers to provide the Energy Exploration course will be utilized. The academy has been strategically designed to provide opportunities for all students, including special populations, to experience various hands-on career explorations within the walls of their schools, communities, and surrounding areas. The Energy Career Academy will be aligned with post-secondary programs and regional economical needs. Our suggested program of study:

1. 'Energy Exploration' - Innovative, secondary education course focused on energy fundamentals and career exploration
2. Advanced Algebra and/or Applied Physics

### 3. Introduction to Energy Operations (Southeast Community College)

“With an aging workforce and industry-wide shortage of qualified workers, it’s crucial that NPPD promote itself as an employer of choice among Nebraska students in the fields of science, technology, engineering and math.” Kim Liebig, Outreach Programs specialist, NPPD (Energy Insight - Sept/Oct. 2010)

The creation and implementation of an Energy Career Academy was chosen to address global environmental concerns that will generate a demand for high skill, high wage occupations in the field of current and emerging energy professions.

Current data provide a strong rationale for a focus on energy. The Nebraska Department of Labor shows that almost one fifth of Nebraska’s wages were paid to Trade, Transportation, and Utilities industries in 2008. Data from the Economic Modeling Specialist Rank Career Clusters Report for the Educational Service Unit 4 five-county area (2008) were examined.

The highest-ranking cluster by growth was Agriculture, Food, and Natural Resources. Measurable outcomes of this project that will meet the goal of implementing and sustaining an Energy Career Academy:

**Energy Curriculum Development and Implementation:** Write, revisit and revise energy curriculum for the Energy Exploration course. This curriculum will enable innovative learning methods that integrate the use of supportive technologies, inquiry and problem-based approaches and higher order thinking skills. Energy partners from OPPD and NPPD will continue to provide valuable input in this process.

**On-going Professional Development:** On-going training of instructors to provide rigorous energy career instruction using the developed curriculum, with the use of state-of-the-art, up to date technology tools provided by existing funds from the 2010 Innovation Grant. Training in the use of these tools to balance direct instruction with project-oriented teaching methods, will enhance productivity and instruction. In addition, training opportunities will assist instructors by providing technology tips, industry resources, and networking sessions, to help them reach all students and seize opportunities to integrate 21st century skills into their classroom practices.

Employ a Coordinator to act as liaison between rural schools, energy industries and post-secondary institutions. With financial constraints on many school programs, this position will be vital to the success of the Energy Career Academy and implementation of the Energy Exploration course. The Career Academy Coordinator will be responsible for organizing, planning and overseeing the day-to-day operations of the Academy, by creating learning practices, human support and physical environments that support hands-on learning and workplace education.

These goals are innovative, realistic and attainable. They directly support the framework for Carl D. Perkins initiatives described in this project.

## ***Grand Island Public Schools***

***Amount: \$79,951.00***

The project proposes funding curriculum alignment and development and professional development in 2011-12 for a Grand Island Public Schools (GIPS) Career and Technical Education Center (CTEC) that will open in 2012-13 in a former manufacturing plant that GIPS bought in 2009 for \$650,000. The site is comprised of five buildings located on 8 acres with \$1.46 million assessed value. The CTEC will be located in the main building comprised of the former manufacturing area and office. The site also has three metal warehouses and an open storage shed. The CTEC's mission is to ensure that learners are career-ready for high-skill, high-wage, high-demand jobs and further education through learner engagement and community partnership.

A Design Team is meeting regularly this year with Dr. George Copa to create a CTEC learning plan, with his work funded by a 2010 Innovation Grant. He helps groups create learning plans, directs New Designs for Learning at Oregon State University, and completed a national project, 'New Designs for Career and Technical Education at the Secondary and Post Secondary Levels.' The Design Team is comprised of 50 people including students, school board members, school administrators and counselors, teachers, business leaders, postsecondary education staff, and representatives of groups such as the Chamber of Commerce; meets monthly from November 2010 through April 2011; and has not finalized which career pathways will be offered at the CTEC. Possible career pathways from the state Career Education Model include health sciences, architecture/construction, manufacturing, transportation/distribution, and STEM. At the May 2011 GIPS Board of Education meeting, Copa will present the final learning plan that includes the components of learning context, audience, signature, expectations, process, organization, partnerships, staffing, environment, accountability, and celebration.

*The needs addressed in the project are:*

- 1) High school students need an improved CTE program so they are career-ready and prepared for postsecondary education;
- 2) Area businesses need more career-ready workers;
- 3) The area needs more high-skill, high-wage, high-demand jobs to enhance economic development;
- 4) High schools need to improve graduation rates and scores on Career Education Performance measures;
- 5) Transition and course articulation plans involving middle schools, high schools, and postsecondary education need to be improved;
- 6) Current high school CTE career pathways need to align with the state Career Education Model and include innovative instructional practices;
- 7) Secondary staff need professional development to learn about innovative instructional practices, CTE content, and career exploration.

*The solutions are:*

- 1) Plans will be completed to open the CTEC for the 2012-13 school year;
- 2) CTEC staff will meet with business staff and involve them in curriculum development and plans for externships;
- 3) Career pathways to offer at CTEC that lead to high-skill, high-wage, high-demand jobs will be prioritized;
- 4) A program will be created to develop a personal learning plan for each student beginning in seventh grade concerning graduating and improving CEP measures;
- 5) Transition and articulation plans for CTEC concerning students in seventh grade through postsecondary education will be developed;
- 6) High school and postsecondary career pathways will be aligned with the state Career Education Model and include innovative instructional practices;
- 7) Professional development will be provided for secondary staff concerning innovative instructional practices, CTE content, and career exploration.

*The rationale for funding this project includes:*

- 1) This project supports creation of a CTEC that could be replicated elsewhere;
- 2) This project will increase opportunities for students to pursue career pathways;
- 3) The CTEC will produce more career-ready workers;
- 4) The CTEC will enhance economic development by providing training for high-skill, high-wage, high-demand jobs;
- 5) CTEC students who graduate and improve their scores on CEP measures will be more career-ready for employment and further education;
- 6) Improvement of transition and articulation plans will result in more students enrolling in postsecondary education;
- 7) CTEC career pathways will be aligned with the state Career Education Model and include innovative instructional practices; and
- 8) Secondary staff will improve their knowledge of innovative instructional practices, CTE content, and career exploration.

Discussion of the need for a CTEC has occurred in the last four years and involves staff from GIPS, Central Community College (CCC), major manufacturers and employers, Grand Island Area Chamber of Commerce, and Grand Island Area Economic Development Corp. In 2009, the Chamber president attended a workforce conference in Arizona, and a 19-member group toured East Valley Institute of Technology and Western Maricopa Education Center.