Collaborative Education Grants



PURPOSE

The purpose of the Lincoln Public Schools Foundation Collaborative Enrichment Grant Program is to provide educators and schools a source of funding to assist them in planning, developing and implementing innovative programs and creative opportunities, for which funds are not available through LPS, which will result in increased student achievement. This effort will allow educators additional opportunities to help students grow and reach their potential. A team composed of teachers, administrators and community members will present awards to the projects which best meet the following major criteria:

COLLABORATIVE—SCHOOL GRANT SELECTION CRITERIA

These grants will allow an educator(s) to implement a creative or innovative program for which funds are not available through LPS.

- a. Probability of worthwhile impact on students
- b. Demonstration of innovation
- c. Project's relationship to school/district goals
- d. Demonstration of collaboration with other staff, such as library media specialists, team members, etc.

COLLABORATIVE—COMMUNITY/SCHOOL GRANT SELECTION CRITERIA

These grants will allow community organizations and schools to collaborate on projects that are creative and innovative. Both groups should be involved in all phases of planning and implementation of these projects.

- a. Probability of worthwhile impact on student-community school partnerships
- b. Project's relationship to school/district goals
- c. Demonstration of community and school collaboration in planning, implementing and evaluating

COLLABORATIVE—FAMILY/SCHOOL GRANT SELECTION CRITERIA

The Lincoln Public Schools Foundation encourages family involvement in the education of children and youth at home and at school, stressing communications and family participation.

- a. Probability of worthwhile impact on student-family-school partnerships
- b. Project's relationship to school/district goals
- c. Demonstration of family and school collaboration in planning, implementing and evaluating with the goal being to increase family involvement in the student's education

TIME LINE

The following time line will be used to review and present the awards each school year:

November 1 Deadline for receipt of applications at the LPS Foundation Early December....... Notification of grants recommended for approval

EXPECTATIONS FOR THOSE AWARDED GRANTS

- a. Planning for grant submission is a collaborative effort
- b. Attend a mandatory meeting dealing with budget, spending authority, evaluation and sharing of results, etc.
- c. Attend a recipient celebration after school in January
- d. Submit an evaluation/summary report to LPS Foundation
- e. Demonstrate a willingness to share as a resource person/team
- f. Demonstrate a willingness to allow a photographer to photograph the project "in action" and share at local/national level

INSTRUCTION TO COMPLETE APPLICATION (Important!! Please read carefully!)

- a. Proposals MUST be typed, 12-point font, with a minimum of 1-inch right and left margins. *PLEASE DO NOT* include any supplemental materials.
- b. Provide the information in the order in which it is requested and number and restate the heading. If using a computer, use the same page layout.
- c. Do not bind proposals, paper clip only.
- d. Include the names and occupations/titles of all participants or persons who were involved in planning the project.
- e. Feel free to duplicate this application.
- f. Return completed application to Lincoln Public Schools Foundation, 5901 O Street, Lincoln, Nebraska 68510 or internally to LPSDO Box 4 by November 1.

If a proposal was not funded in a previous year, we encourage you to reapply. Variety in the proposals is welcome, but different projects, even if similar, may be funded in the same period as they will affect different groups of students.

LINCOLN PUBLIC SCHOOLS FOUNDATION Collaborative Enrichment Grants GENERAL INFORMATION SHEET

1. What is the application deadline?

The deadline for submission of the grant application is November 1. If November 1 falls on a school holiday or a weekend, applications are due the following regular school day. Applications should be received by the Lincoln Public Schools Foundation, 5901 O Street, Lincoln, Nebraska 68510 or internally to LPSDO Box 4 by 4:30 p.m.

2. What are the dollar amounts available and what time frame does this cover?

There is no predetermined amount per grant. Previous proposals ranged from \$100 to \$2,500. Occasionally applicants will be asked to consider a reduced budget request. The dollars are expected to be expended prior to December 31 of the <u>next</u> year, unless an extension is granted.

3. Will applicants who received grants during prior years be eligible to apply for additional grants? *Applicants may apply as often as they choose. Selection is not based on the applicant.*

4. How is the committee attempting to be as neutral as possible?

The committee is aware that this is always a concern. The desire to make the applications as uniform in length as possible is one attempt at equitable consideration. In addition, the Awards and Grants Committee is composed of teachers, administrators and community volunteers who are seeking the best possible programs to fund.

5. Is help provided if we have questions?

Contact the LPS Foundation Office, LPSDO, 436-1612.

6. How extensive must our evaluation be?

While it is expected that a solid evaluation will be undertaken to assess the results of grants, this should not be envisioned as a major research project; the evaluation should be considered a sincere effort to objectively assess the results as they relate to stated objectives.

7. Why are we limited to only three pages on which to submit our application?

The committee expects a large number of applications each year. We have learned from prior experience that the committee needs adequate time to read all materials. It is also hoped that the requirement for conciseness will help in your planning process. It is not uncommon in the grant-making "business" to make this stipulation.

LINCOLN PUBLIC SCHOOLS FOUNDATION'S POLICIES FOR GRANTING FUNDS

The Lincoln Public Schools Foundation secures resources to support quality education through innovative programs, creative opportunities and imaginative approaches that will enrich the curriculum, inspire students and staff and expand the community's involvement.

Priority consideration will be given to project proposals which:

- 1. further the LPS Foundation's overall mission as stated above, i.e., enrich, inspire, expand
- 2. are innovative and provide a learning experience which would not otherwise be available
- 3. enhance and complement the mission of the Lincoln Public Schools
- 4. focus on improving the quality of teaching and learning
- 5. involve creativity in approach, originality of presentation and/or non-traditional views of a program within accepted parameters
- 6. focus on students as directly as possible

Consideration <u>will not</u> normally be given to projects which:

- 1. are or should be provided through Lincoln Public Schools funding
- 2. include primary expenditures for travel, equipment or a salaried position (this does not include substitutes) unless those expenditures are just one component of a broader project which meets funding criteria
- 3. are not academically related; i.e., clothing for performing groups, athletic equipment, extra-curricular organizations
- 4. have PTA/PTO's as the only community connection (this relates only to the Community/School grants)

Lincoln Public Schools will retain ownership of non-consumable materials. All purchases must meet Lincoln Public Schools criteria. No funds can be used to serve any political purpose.

LINCOLN PUBLIC SCHOOLS FOUNDATION

Collaborative Grants Program Application

Type of Applicat	ion 🗖	Collaborative/Schoo	ol 🛛 Schoo	ol/Community	□ Family/School
Title of Project CHEMISTRY ST	LHS/UNL TUDENTS	COLLABORATIVE	RESEARCH	EXPERIENCE	FOR ADVANCED

Amount requested (from page 2) \$1000.00						
Name(s) and Position(s)	of Grant Applicants					
Mr. Sean M. Putnam	Chemistry Instructor	Lincoln High School				
Name	Occupation/Title	School/Agency				
<u>Dr. David W. Stanley</u> Name	Professor of Entomology/Biochemistry Occupation/Title	<u>University of NE. Lincoln</u> School/Agency				
Name	Occupation/Title	School/Agency				
Name	Occupation/Title	School/Agency				
Name	Occupation/Title	School/Agency				
CONTACT PERSON	Mr. Sean M. Putnam Name	436-1301 ext. 373 Phone				
I give the Lincoln Public project to inform other unused funds received b	c Schools Foundation the right to use this propose educators and for public information purposes. I by me shall be returned to the Lincoln Public Sch	al and the results of this [further agree that any ools Foundation.				
Applicant Signature						
Community Signature _						

Principal's Signature

Deadline: November 1

Return completed application to: Lincoln Public Schools Foundation, 5901 O Street, Lincoln, NE 68510 or internally to LPSDO Box 4.

A. NEED: What classroom/school needs, problem or opportunity does the proposed project address?

To achieve the best potentials in their curriculum, high school students enrolled in Advanced Chemistry need the opportunity to experience the instrumentation and techniques in modern research. The Advanced Chemistry class at Lincoln High offers students an introduction to Organic Chemistry and Biochemistry. This collaborative project between Sean Putnam at Lincoln High and Professor David Stanley at UNL will meet student needs in instrumentation experience in modern research by providing students an opportunity to work in a research laboratory. Students will participate in a research project under the guidance of three individuals, their teacher, a Ph.D. student and a UNL professor. This experience will provide a platform for Inquiry-Based Learning, meant to reinforce their ability to learn science and to apply scientific principles (a central point in National Science Education Standards, A-F, and the Nebraska Science Education Standard, 12.2). More important, direct experience with very modern instrumentation, such as gas chromatography-mass spectrometry, will demystify the methods and instrumentation of modern chemistry.

B. OBJECTIVES: What are your objectives? Please include specific desired outcomes.

The second semester of Advanced Chemistry specifically addresses the concepts and principles of Biochemistry. The major topics include; Amino Acids/Proteins, Enzymes/ Vitamins/Chemical messengers, Carbohydrates, Lipids, and Nucleic Acids/Protein Synthesis. This project is designed to incorporate these topics into an inquiry-based activity where the students will connect and integrate their learning to an experimental setting utilizing state-of-the-art equipment. The students will be expected to utilize their conceptual knowledge of biochemistry and scientific method by aiding in the development and design of an experiment. They will be expected to generate authentic questions from their experience and discuss the potential relevance of other pertinent research. Finally, they will be expected to evaluate their experience by developing and posting a World-Wide Web page, as part of the Lincoln High Chemistry Page (http://lhs.lps.org/staff/sputnam/default.htm), which explains their significant involvement in this research process. This project is also intended to be an initial step in developing on-going inquiry experiences for LHS students, as well as other Lincoln students, by developing a protocol for obtaining state and federal granting funds for the support of these activities.

C. DESCRIPTION: Very concisely, describe your project.

This project will introduce students to the techniques and equipment used in biochemical research. A great deal of biochemical research is conducted on insects because insects are inexpensive to maintain for research purposes. In this project, students will use an insect tissue preparation to study the biosynthesis of certain fatty acids which are of importance to human medicine and to insect biology. The students will gain experience in preparing enzyme sources, determining protein concentrations, and measuring the activity of the enzymes involved in biosynthesis of the fatty acids. The fatty acids will be purified by high-performance liquid chromatography and analyzed on gas chromatography-mass spectrometry. The students will collect and analyze data at each step of the procedure. They will assess the results of their research by outlining the scope of the project and publishing their findings on the World-Wide Web, hosted as part of the on-going documentation of Chemistry activities at Lincoln High School.

D. POPULATION: Describe the target population(s) and how they will be directly impacted. (Please estimate numbers.)

We envision this project as a model project that will demonstrate the educational utility of high schooluniversity collaborations for Advanced Chemistry classes throughout the LPS system and Nebraska. The first project will directly involve nine Lincoln High Advanced Chemistry students as researchers and webpage publishers. The experience and information from this project will be presented to other Lincoln and Nebraska high schools. The main goal of the project is to demonstrate the possibility that successful collaborations between high schools and universities can open new resources for teaching chemistry at the high school level.

E. APPLICANTS: Who has been involved in planning this grant project? (For example, how many are teachers, parents, community participants?)

Sean M. Putnam, LHS Chemistry Instructor David W. Stanley, Professor in Entomology and the Center for Biological Chemistry Hasan Tunaz, Ph.D. student, UNL.

Dr. Stanley has welcomed high school students and university undergraduates into his research program. So far, two high school students have been co-authors on research articles published from his lab.

F. TIME LINE: Time frame/sequence of events.

This project will require three class periods and 2 full days of research experimentation during the spring of 2002. The students will meet Dr. Stanley and Mr. Tunaz, along with Mr. Putnam, to tour the Insect Biochemistry and Physiology lab and discuss the scope of the experimental process. They will be assigned to review two research articles that discuss the role and biosynthesis of fatty acids specific to this project. As a class, we will discuss the nature of the research and the biochemical relevance of these compounds. The actual experimental phase will require two days involvement at the lab where the students will physically collect data and analyze results. Upon completion of the experiment, the students will discuss the experience and generate a web page outlining their involvement and results.

G. EVALUATION: Describe the evaluation plan for this project to determine where it has successfully met your objectives.

The students will have successfully demonstrated the techniques and practices of current biochemical research when we have analyzed the spectra from the GC/MS and correctly identified common Prostaglandins (PGA₂, PGD₂, PGE₂ & PGF₂ α), collectively identified as PGs. These metabolites are the result of specific fatty acid biosynthesis. The students will then design a World-Wide Web page to describe their experience and results. This page will become part of the Lincoln High Chemistry Page and used in future Chemistry classes to present the nature of science research.

The participants have initiated this program to improve inquiry-based activities for LHS students by providing an opportunity for research experience. As a consequence of this project, the participants will seek state and federal funds to continue this opportunity by involving more collaborators and research projects.

H. HISTORY: If you have implemented other projects to address this need, describe them, the funding and your evaluations of the results. Are you aware of similar projects which have been undertaken? If so, where and when?

This project provides an opportunity for Lincoln High School students to actively collaborate with a graduate student researcher in a facility that is appropriate for current biochemical research. Previous Advanced Chemistry classes had opportunities to visit and participate in certain research techniques within the Organic and Biochemistry Departments at UNL. These students were able to witness the instrumentation and practices associated with current research methods at the invitation of the professors in these departments. The outcome of these tours improved the student's comprehension and appreciation for scientific research. This project will provide greater student participation in the research process and meet curriculum objectives for developing and reinforcing science inquiry.

I. BUDGET REQUEST: Detail your budget request. Organize the budget items according to the project activities. Include information such as kinds of materials and equipment needed, sources of supply and cost. Be specific. Payment for services of LPS employees is prohibited. However, costs of substitutes may be considered.

	Item	Budget Amount	Purpose
1.	Purchase and rear insects	\$100.00	Source of enzyme preparations
2.	Chemicals and reagents	\$400.00	Solvents/Solutions used during
	buffer & protein assay reagents		the project
	extraction/analysis solvents, chemical		
3.	Supplies: Consumable	\$500.00	Materials used during the project
	disposable gloves, goggles & coats		
	centrifuge tubes& pipettes/pipette tips	5	
	silica gel for column chromatography		
	thin-layer chromatography plates		

TOTAL BUDGET REQUEST \$ 1000.00

(This amount goes on page one.)

If you will be using additional materials, labor, or dollars for this project (i.e., donations, volunteer labor, school funds), please describe.

Students will work in a well-equipped biochemistry laboratory equipped with all of the usual small items that support general biochemical research. In addition to these general tools, students will gain experience with state-of-the-art analytical equipment, including: high performance liquid chromatograph, microtitre plate reader, Bioscan reader, ultracentrifuge, & gas-chromatograph/mass spectrometer

The purchase cost of this equipment exceeds \$150,000. Moreover, the cost of operating and maintaining all laboratory equipment will be covered by UNL. We estimate the in-kind contribution of operating and maintaining the equipment for this project at \$2,000. The UNL participants will donate the time required to set up and conduct the research experience outlined in this project. We estimate the in-kind contribution of professional time at \$800.00.

TOTAL OTHER CONTRIBUTIONS \$ 2800.00