



Holdenville Education Foundation, Inc.  
PO Box 641 • Holdenville, OK 74848  
info@hef4ourkids.com

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HEF Staff Only

## Grants to Teachers Application

### Cover Page

*Please use a typewriter or word processor to complete this application.  
Submit in the format listed below.*

Date: 2/7/04

Grant Title: Electrophoresis Separation Technology

Grant Applicant: John W. Doe

School: High School

Grade Level: 10-12

Content Area: Chemistry / Biology

Total Dollar Amount Requested: \$1,464.50

SAMPLE  
GRANT  
REQUEST  
APPLICATION



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## Grants to Teachers Application Form

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### ONE PARAGRAPH SUMMARY DESCRIPTION

**Providing relevant educational experiences that parallel occupational activities allows students to gain knowledge.**

**Students shall development an understanding through concurrent applications of classroom material with hands-on laboratory activities. Students shall also be introduced to basic microbiological techniques, proper cultivation methods, and an exposure to career awareness possibilities.**

SAMPLE  
GRANT  
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\_\_\_\_\_  
Signature of Grant Applicant

\_\_\_\_\_  
Signature of Building Principal

Please mail applications to: Holdenville Education Foundation  
PO Box 641  
Holdenville, OK 74848  
Attn: Teacher Grants Committee

If you have any questions or need further assistance, please contact Shellie Gammil at Thomas School.

## 1. – WHAT IS THE MAJOR NEED THIS PROJECT ADDRESSES?

Successful learning should be inclusive of recent advances both in the classroom and in the laboratory. Exposure to scientific methods and investigating new technological applications provides a student with an opportunity to succeed in scientific endeavors. This proposal targets the development and incorporation of microbial techniques utilizing electrophoretic systems to demonstrate separation of molecules.

Specifically, this project focuses on the concurrent use of classroom discussion with relevant laboratory activities. Currently, the curriculum does not offer these experiences, either with resource materials or laboratory experiences. A secondary facet of this proposal would provide students with a foundational background and exposure to possible career opportunities. Also, minimal costs will be incurred as an agreement is underway with members of the OSU Dept. of Microbiology to provide assistance during portions of this project.

## 2. – DESCRIBE YOUR PROJECT. (Include your objectives, materials needed, methods you will use, etc.)

Learning is an endeavor that is predicated upon providing realistic situations and opportunities. Objectives of this project are to provide the students with an enhanced understanding of basic separation techniques based on electrophoretic agarose gels. Students will be exposed and experience the skills necessary to successfully develop an electrophoretic gel that demonstrates protein separation.

The students will be introduced to basic separation techniques using protein samples and agarose gels. The gels simply allow for the molecules to separate based on molecular size and polarity. The electrophoresis system is employed in virtually every diagnostic laboratory. The students will be responsible for construction, dissecting, and applying samples to the agarose gels. The gels will then be developed, demonstrating protein separation. Eventually, students shall have adequate experience to identify protein samples based on molecular size.

Listed below are the resources requested. This proposal is designed to cover costs associated with the initial purchase of resource materials and laboratory supplies. Once these materials are available this project will be incorporated annually into the curriculum. Extension activities will be developed to further enhance the curriculum. In addition, assistance has been offered by members of the OSU Department of Microbiology.

### RESOURCE MATERIALS REQUESTED

Introduction to Electrophoresis Lab System 46162      5@ \$99.00 each = \$495.00

Nine volt batteries (5 per lab system necessary)      40@ \$0.75 each = \$30.00

DNA Fragment Analysis & Plasmid DNA  
Structure Study Kit (64881-00)      4@ \$99.00 each = \$396.00

DNA Sample Set (64881-01)      3@ \$69.00 each = \$207.00

Gel Casting Trays (46161-01)      10@ \$3.00 each = \$30.00

Electrophoresis Agarose Gel (64885-25)      3@ \$39.50 each = \$118.50

SUBTOTAL      = \$1,276.50

S/H      = \$128.00

Speaker Presentation Costs      = \$60.00

TOTAL      = \$1,464.50

### **3. GIVE A TIME SCHEDULE OF EVENTS.**

This proposal will be utilized immediately second semester once the materials are available. Students will be given a basic introduction prior to implementing the materials in this proposal. It is estimated the duration of this proposal is roughly two weeks. The time frame incorporates dedicated class times for completing this activity both in the classroom and in the laboratory, and provides time to allow for adequate microbial growth.

### **4. APPROXIMATELY HOW MANY STUDENTS WILL BE AFFECTED BY THIS PROJECT, BOTH DIRECTLY AND INDIRECTLY?**

This project will impact students enrolled in certain biology, anatomy, and chemistry classes. The materials will also be available to students in other science courses. The current enrollment in the above mentioned classes is roughly 200 students. Additionally, there are approximately 130 students in other science courses that will have the opportunity to utilize the materials of this proposal.

### **5. HOW WILL YOU DETERMINE WHETHER YOUR OBJECTIVES HAVE BEEN ACHIEVED AND WHETHER YOUR PROJECT IS SUCCESSFUL?**

This proposal allows for assessments of a student's base knowledge and applicable knowledge transferred to the laboratory activities. Basically the students will be assessed in traditional classroom methods and in the preparation and completion of each laboratory stage. Their level of competency developed will be reflected as they complete the assigned tasks. The sequential laboratory activities designed with specific learner outcomes will truly indicate a student's mastery of the material. Ultimately, success will be demonstrated by the students producing electrophoretic gels showing distinct genetic or cellular bands.

SAMPLE  
GRANT

# REQUEST APPLICATION