



Frontiers in Physiology

Integrating Inquiry, Equity, and the Internet

Request for Continuing Funding for Existing Local Outreach Teams

Proposal Deadlines:

Proposals may be submitted at any time.

Allow 6-9 weeks for proposal review.

Please notify the APS Education Office of your intent to submit a proposal via email (education@the-aps.org), fax (301-634-7098), or phone (301-634-7132).



The American Physiological Society
Education Office
9650 Rockville Pike
Bethesda, MD 20814-3991
(301) 634-7132
www.the-aps.org

Local Outreach Teams – Information Update

As in previous years...

The Local Outreach Team program provides professional development workshops for middle and high school life science teachers. Each LOT includes both biomedical researchers and teachers and is headed by an APS member. LOTs receive some funding from the APS and usually provide some in-kind services and resources.

What's New?

In 2000, the APS was awarded NIH funds to continue the Frontiers in Physiology LOT program for three years. The new awards allow us to expand and improve upon the existing program in response to your feedback and the project evaluation. Please note the following important changes in the LOT program.

Continuation Funding: Funding is available to existing Frontiers LOTs for a **second year** of workshops to field test new LOT units. This funding will be made available through submission of a competing renewal proposal. Forms for submitting a competing renewal are included in this packet.

New Workshop Units: New LOT workshop units are currently under development and some are ready for field-testing by existing LOTs. New units include middle school units on exercise physiology, cell structure and function, eye structure and function and high school units on levers in the human body, kidney structure and function, and the gastrointestinal system.

On-Site Training: In the past, LOT teams selected two representatives to travel to the APS Outreach Institute to learn how to use the workshop materials and resources. Those two representatives had to pass on what they learned at the Outreach Institute to the other members of their team. In the current and future years, however, **we will be providing on-site training for the entire LOT team (Team Training Session)**. Experienced LOT team members are available to travel to your site to provide training on two of the new LOT units.

Web Component: Each LOT workshop **must** include a component on integrating technology into the science classroom. One way to do this is to include a component where teachers explore some of the best resources for science teaching on the Web. The APS Education Office will provide models that pull these resources together and guide the teacher through an exploration of the types of resources currently available.

Emphasis on Inquiry, Equity, and the Internet: The new proposal emphasizes the integration of inquiry-based learning, equity strategies, and the use of technology in science education. The APS Education Office will provide resources on these topics (**web pages and PowerPoint presentations**) but it is critical that LOT teams allow time in the workshop schedule to address these issues.

We are excited to see the Frontiers in Physiology Local Outreach Team program evolve and expand in response to your feedback and the program evaluation. As always, we welcome your input into the program and look forward to working with you in the coming years.

General Program Information Update

Frontiers in Physiology is a program of the American Physiological Society (APS). The Local Outreach Team Program is sponsored by the APS and the National Center for Research Resources (NCRR) Science Education Partnership Awards (SEPA) (award # R25 RR15251) at the National Institutes of Health.

The goal of the 2002-2003 continuation funding program for existing LOTs is to field-test and evaluate two of the new LOT units: (See table on page 5 for complete description of each LOT unit)

- **Physiology of Exercise (middle school)**
- **Cell-ebration: Cell Structure and Function (middle school)**

Proposals for continuation funding should focus on conducting workshops using at least one of these units.

What is *Frontiers in Physiology*?

Frontiers in Physiology has four major goals:

- Develop, evaluate, refine, and disseminate a model and materials for integrating inquiry, equity, and technology into the middle/high school science classroom and into professional development programs;
- Build ongoing working relationships between research scientists and middle/high school teachers through research and in-service experiences and online communications;
- Promote the adoption of national standards for K-12 content and pedagogy -- especially inquiry, equity, and technology use -- by middle and high school science teachers through ongoing in-service activities developed collaboratively by teachers and researchers; and
- Increase teachers' skills in developing, assessing, and utilizing web-based curricular materials and resources, especially in integrating online resources into inquiry-based teaching.

What are the responsibilities of the LOT Team Leader?

The LOT leader must be a member-in-good-standing of the APS. The LOT leader is responsible for:

- Recruiting members for the LOT team. Each LOT must include both biomedical researchers and local science teachers (middle and/or high school).
- Securing suitable facilities for a Team Training Session and LOT workshop(s).
- Ensuring that all activities of the LOT team, as listed below and in a signed letter of agreement, are completed.
- Ensuring that APS receives all requested information and materials for program

evaluation and for financial reimbursement to the LOT by the specified deadlines. The APS will supply appropriate forms.

What are the responsibilities of a LOT Team?

LOT team members are responsible for:

- Attending a Team Training Session to be held locally, and taught by LOT Team Trainers provided by the APS. This Training Session will provide training and information on how to field test the new Workshop/Classroom materials, including web-based segments and presentations on inquiry, equity, and technology.
- Recruiting 25-30 middle or high school teachers to participate in a 1 or 1.5 day workshop using one of the new LOT Workshop/Classroom Units and other APS materials.
- Registration, including documentation of name, address, phone, fax, and email of participants.
- Review of workshop goals.
- Hands-on modeling of the LOT unit.
- Online Internet exploration, including interactive inquiry-based curricular materials (APS will provide materials and sites for this).
- Evaluation of the workshop by participants and workshop leaders.
- Conducting the 1 or 1.5 day workshop. Both researchers and teachers from the LOT should be involved in implementing the workshop.
- Hosting one follow-up "brainstorming" session with participating teachers. These sessions can focus on a variety of topics, including: how the workshop materials were used in the classroom; discussions of effective teaching strategies; demonstration of Internet resources for educators; presentations on careers in biomedical research; or opportunities for teachers at your institution.
- Participating in the evaluation component of the program by distributing and collecting completed participant surveys. The project's external evaluator will provide these.
- Taking 10 – 15 photographs of your workshop and follow-up sessions. These photographs will be used in future training of LOTs, on the APS website, and CD-ROM. A Photograph Authorization Form will be provided by the APS for participant signature.
- Consider holding future workshops for teachers in your area. The workshops organized by previous LOTs have quickly become oversubscribed. Teachers are eager for the type of information and interaction that the Frontiers workshops can provide. LOTs may want to consider continuing to provide in-service programs for local

teachers in future years. Some LOTs have received funding from local foundations and departmental budgets to do this.

What resources are available for each Local Outreach Team?

- The APS has three inquiry-based middle and high school level Learning Cycle Workshop/Classroom Units ready for field-testing by experienced LOTs:

| Unit Name | Grade Level | Summary of Learning Cycle Unit |
|--------------------------------|------------------|--|
| Cell-ebriation | MS | This unit extends the basic principles of cell structure and function to include what makes the organelle and the cell membrane only selectively permeable to molecules. Activities include an "alphabet review" of cell structure and function, exploration of a special Internet website designed specifically for this unit, and hands-on exploration of diffusion (guided inquiry), and or semi-permeable membranes (open inquiry). A companion Internet activities website is included. |
| Physiology of Exercise | MS | This unit covers aspects of cardiovascular and respiratory physiology that are important in exercise and fitness. It includes a lifestyles inventory, exploration of biological variability and experimental variation using heart and respiratory rates, a demonstration of oxygen supply and demand during rest and exercise, and inquiry-based explorations of the baroreflex and responses to exercise. |
| A Kidney Under Pressure | MS HS | This unit is designed to provide an active learning experience in problem-solving by introducing eight patients, all of whom suffer from kidney disorders, and asking students to experiment, collect data, and perform differential diagnoses to determine the source of their patient's problem. |

- With input from members of previous LOTs, the APS Staff have developed a planning workbook to assist LOTs in recruiting participants, conducting workshops, and developing follow-up brainstorming sessions.
- Stipends for LOT team teachers. Each LOT team leader will have up to \$2,000 in funds to provide stipends of up to \$100/day for teachers who work as members of the Local Outreach Team. Stipends can be provided for attending the Team Training Session; preparing for the workshop(s); and presenting the workshop.
- Funds to offset workshop materials costs: Each LOT team leader will have a \$2,500 fund to offset costs of workshop materials, breakfast or lunch (if provided), take-home materials, duplication, publicity, etc. These funds should be spent directly on benefits for participants and cannot be used for staff wages.
- APS education resources (brochures, neon rulers, CD-ROMs, etc.) for each participant, *as available*.
- APS shirts for each LOT member actively involved in the workshop presentation.

- Training and instruction on how to use the Workshop/Classroom materials provided by APS via a local Team Training Session taught by experienced APS LOT Trainers.

What resources must the LOT contribute?

- Donate faculty time/support staff time for participation. The grants supporting these activities do not provide funds to offset staff support of faculty time at the dissemination sites. These costs will not be reimbursed.
- Identify local school contacts and recruit participants. The APS staff can provide some assistance in identifying appropriate school officials but, in general, this responsibility resides with the LOT. We can, however, help each LOT team leader to identify key federally funded programs (such as State Systemic Initiatives) in his/her area and their personnel. If you would like to have this information in hand while preparing your proposal, contact the APS Education Office.
- Consider providing stipends and/or take-home supplies for teachers attending the workshop(s). The LOT should consider whether it is typical for workshops in your area to provide a stipend for participating teachers (typically up to \$30 per day). Check with local teachers on your LOT.

Application Guidelines

Return application and attachments as indicated (pages 7-9) to:

LOT Program – Continuation Funding
APS Education Office
The American Physiological Society
9650 Rockville Pike
Bethesda, MD 20814-3991

Phone: 301-634-7132
Fax: 301-634-7098
Email: education@the-aps.org

**Frontiers in Physiology Local Outreach Teams
Existing LOT Proposal Cover Sheet**
(This form can be replicated on your word processing program)

| I. Team Leader Information | |
|--|--|
| Name | |
| Position | |
| Institution | |
| Mailing Address | |
| Email | |
| Phone | |
| Fax | |
| Are you an APS Member in good standing? | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Sure You can check on the status of your membership at: http://www.the-aps.org:90/cgi-bin/PM-APS/login.html |

| II. Department/Department Chair Information | |
|--|--|
| Name of Department | |
| Department Chair | |
| Email | |
| Phone | |
| Fax | |

| III. Current and New LOT Team Members | |
|--|--|
| Name | Position (e.g., faculty member, teacher, principal, science supervisor, etc.) |
| | |
| | |
| | |
| | |
| | |

| IV. Team Training Session | |
|--|---|
| Which of the 4 new LOT units would you be interested in field testing? Rank in order <u>all</u> that apply. | Rank your choices (1-3). Do not rank any units you are not interested in field-testing. ___ Cell-ebration (Middle School) ___ Physiology of Exercise (Middle School) ___ A Kidney Under Pressure (Middle/High School) |
| Are you interested in field-testing more than one of the above units? | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Sure |
| When would you be interested in holding your Team Training Session? | Month(s), 2002 (Check all that apply) <input type="checkbox"/> March <input type="checkbox"/> June <input type="checkbox"/> Sept <input type="checkbox"/> December <input type="checkbox"/> April <input type="checkbox"/> July <input type="checkbox"/> October <input type="checkbox"/> May <input type="checkbox"/> August <input type="checkbox"/> November |

Please answer the following on an attached sheet:

Where do you plan to hold the Team Training Session?

Location:

Does this location have a computer lab with online access?

How many computers/stations are available?

V. Workshop Plan Information

1. How many workshops do you plan to conduct and of what length?

___ Workshop #1 ___ days

___ Workshop #2 ___ days

___ Workshop #3 ___ days

2. Where will you hold the workshop(s)?

Location(s):

Describe access to online computer lab:

3. Targeted Teachers:

(School Names/District and description of recruitment and publicity plan).

4. Have the above-targeted teachers participated in a previous workshop(s) presented by your LOT team?

Yes No

Comment:

5. Will teachers receive stipends and/or materials for attending your workshop?

6. Describe each workshop you listed above in terms of the LOT unit to be used and other planned activities.

7. What resource(s) will your department/institution provide?

8. Is there other information you'd like to provide about your plan?

VI. Follow-up “Brainstorming” Session

Follow-up "brainstorming" session date(s):

Brainstorm Session #1 _____ date(s)

Brainstorm Session #2 _____ date(s)

Brainstorm Session #3 _____ date(s)

Where will you hold the Brainstorming Sessions?

Describe your plans for the brainstorming session(s).

| VII. Budget Request | | |
|--|--|-------------------------|
| Total Funding | In-kind support from LOT institution or other local sources | Request from APS |
| Stipends for teachers on the LOT: | \$ | \$ (\$2,000 max) |
| Participant teacher stipends: <i>(Varies by site)</i> | \$ | |
| Workshop materials costs: <i>(Itemize on separate sheet)</i> | \$ | \$ (\$2,500 max) |
| Other Costs: * <i>(Itemize on separate sheet)</i> | \$ | |
| TOTAL | \$ | \$ |

* Note: Stipends for faculty, support staff, and consultant costs are not allowable costs for submission to the APS.