

CRA Mini-Grant proposal

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By

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Selawik Davis-Ramoth School

CRA Mini Grant Application Form  
(Project Control Number –to be assigned by CRA: \_\_\_\_\_)

**I. CONTACT INFORMATION**

Name of project Leader: Mark P Proch

## **II. EXECUTIVE SUMMARY SPECIFIC**

This project will focus on the resources offered by trapping the furbearers available in the arctic biota. This has long been a valuable resource of people of the arctic as this resource is used for food, clothing and shelter.

Several inter-related topics will be covered including taxonomy of local animals, proper trapping techniques, knowledge of ecology, use of statistics and probability to improve efficiency, design of web page, and use and preparation of hides.

This project will include the construction of a trap line by two teams of students (8 to 10 students per team) under the guidance of science teacher and local elders. Teams will first take an overview of several surrounding areas and try to locate a suitable place to set up line. Students will be guided and taught correct use and set up of their project. Once the line has been set up the groups will monitor success and adjust line as needed. As animals are trapped data of the each animal will be taken and all information will be recorded and graphed as appropriate.

Program will incorporate the use of statistics and probability to keep watch on trap line and also require students to keep the public abreast of results through local town meetings and personal web page set up by students. Project will take place within the area of Selawik, and students considered for inclusion will be in grades 9-12 as well as middle school grades.

Areas of study will include statistics and probability, ecology of species, taxonomy, proper techniques associated with subsistence activities, scientific method, and web page design. This project will allow students to use local resources and knowledge to understand math and science principles.

### III. PROJECT BUDGET

Proposed Budget	<u>From requested Grant funds</u>	<u>Match</u>
Grant year 2003/2004		
<b>Professional staff costs</b>	<u>2560.00</u>	<u>2560.00</u>
<b>Travel</b>	<u>360.00</u>	<u>240.00</u>
<b>Materials and supplies</b>	<u>1184.50</u>	<u>          </u>
<b>Consumables</b>	<u>          </u>	<u>          </u>
<b>Total</b>	<u>4104.50</u>	<u>2800</u>
	<b>6904.50</b>	

### IV. BUDGET NARRATIVE

**Professional staff cost:** Included in the program will be the use of a local elder to teach basic techniques of tracking, safety, and setting up of traps. They will be paid 20.00 hr @ 4 hours a week for total cost of 2560.00 over 8 months. Staff will also donate their own time at a rate of 20.00 hr @ 4 hours a week for a total of 2560.00.

**CRA Funds** \_\_\_\_\_ **\$2560**      **Matching Funds** \_\_\_\_\_ **\$2560**      **Total \$5120**

**Travel:** Gasoline and engine maintenance products will be required for snowmachine to take students to and from trapping sites. This includes a ration of \$60 month split evenly between CRA and science department for a yearly total of \$240 to each, and maintenance supplies at 15.00 month yearly total of \$120.

**CRA Funds** \_\_\_\_\_ **\$360**      **Matching Funds** \_\_\_\_\_ **\$240**      **Total \$600**

**Materials and supplies:** These include three basic types of traps Conibear 10” spread @ \$9.95 x 30 traps (\$298.50), Long spring 1120 @ \$9.95 X 30 traps (\$298.50), And Bridger #2 @ \$9.95 X 30 traps (\$298.50).(these are the three main sizes of traps needed, Animals targeted will include fox, beaver, wolf, mink, muskrat, and wolverine) Two roles of 14 gauge wire @ \$13.50, 2 rolls of 11 gauge wire @ \$14.25, Two wire reels @ \$39.90 (these will serve to fasten and hold traps firmly in position) , 3 doz Snares @ \$67.65, trapsetter conibear @ 11.95, Ziplock bags @ 33.75 12/20 count, 4 Spring scales @ \$51 (usd to measure mass of animals taken), 4 measuring tapes @ \$42,(used to measure vital stats of area and animals) And 6 thermometers @ \$15 each.( used to measure vital stats of both environment and animals.

**Note:** While these traps are the basics needed to begin this project it is hoped that local residents will donate needed materials (traps) if they are needed. We will also try to make use of hides collected to purchase new supplies as project progresses.

**CRA Funds \_\_\_\_\_ \$1184.50                      Matching Funds \_\_\_\_\_ \$0                      Total \$1184.50**

## **V. LETTERS OF SUPPORT**

Letters of support are attached as required.

## **VI. NEED OF PROJECT**

The taking of furs and use of these furs in traditional purposes including but not limited to the making of clothing and shoes has long been a great provider for people of the arctic, and this project hopes to help continue this tradition while incorporating needed skills such as math and science. By combining these two concerns it is believed a relevance for math and science will occur to the students and a need to achieve in these areas will increase as a result.

The value of this resource goes beyond monetary concerns, as it will provide a chance for elders and young members of the community to work together to learn about both old and new ways. It is often a struggle to get the elders and the young of the generations together in an environment where both traditional and new world ideas can have true relevance, but this project bridges this gap.

With the formation of the wildlife refuge systems more and more regulations and concerns about conservation and use of resources have arose among people of the rural community. This project will try to begin to address these issues through the use of analysis of population dynamics including population density and identification of habitat. It will also allow a means of discussion among communities as they begin to wrestle with such concerns as hunting and fishing regulations and subsistence with both the ideas of young and old alike discussed on a productive forum.

Analysis of animals taken in the field will include general physiological structures found in furbearers and specimens will be examined to determine for diet and general health. Local fish and wildlife officers and biologists will be contacted and encouraged to participate in this and all other areas of the project.

Data from this project will be shared with local game and wildlife officials, and communication is on-going to solicit cooperation from Alaska game and fish to provide instructors and or advice on how to instruct students in the laws and practices of trapping in Alaska. Data will also be shared with a fellow teacher from Kotzebue High school (Sandra Summerall-Lloyd, to help the program run smoothly. Individuals at UAF will also be included to help build Community involvement. This effort is ongoing and, I am currently trying to make connections with UAF through the local 4-H extension office to help facilitate this cooperation.

This project will also provide hands on opportunity for native students to learn math, science and technology in the context of their culture. This project will be aimed at high school students (grades 9-12) who need basic skills in math and science. It will use the technique of trapping and placing of a trap line to teach statistics, probability and simple manipulation of numbers including multiplication and division. Students will also be introduced to the concepts of biology including taxonomy, ecology, and sustainability of species.

This project will make use of village elders to teach the subsistence methods including removal of furs and methods used to locate suitable trapping areas in an attempt to provide knowledge of culture. A heavy emphasis will be on fieldwork with students having as much hands on learning as possible. This project will serve as many as twenty students in the high school and additional students in the middle school.

## **VII. PROJECT DESCRIPTIONS**

The project goals will include the identification of tracks, waste, and other signs that show the presence of particular fauna, the learning of Inupiaq and taxonomic names, levels of hierarchy among organisms, and proper game management. The use of probability and statistics will also be used to try and get maximum efficiency out of each line. This will include the proper taking of data in the field, analysis of data using Microsoft Excel, and extrapolation of data using principles of math that includes probability and Poisson principle. Through the use of village elders and volunteers students will be taught traditional ways of harvesting fur-bearing animals stressing the use of local knowledge and ways of knowing. The objectives will be as follows.

### **Phase 1- Introduction** (August 2003 to October 2003)

**Area of study** :Techniques in trapping, proper setting of traps, hunting safety, Learning of names and characteristics of organisms, taxonomic names and habitats of species.

**Tools** : Village elders, School science and math teacher, village volunteers, Environmental Science text, Modern biology text, Inupiaq dictionary, hunter safety manual, and field notebook.

**Standards:** **Alaska science standard A14 A, B, C** Students should understand the interdependence between living things and their environments, that living environment consists of individuals, populations, and communities, and that a small change in a portion of an environment may effect the entire development.

**Alaska Cultural Standard A4** students should practice their responsibilities to the surrounding environment.

**Assessment** : Written tests, project design, class discussion, and group presentation (proper setting of traps, trap line design, and safety judged by elder and teacher).

### **Phase 2- Project Field setup** (October 2003 to February 2004)

**Area of study** : Setup of trap line, use of statistics, study of ecology, proper taking of samples.

**Tools :** Village elders, School science and math teacher, village volunteers, field notebook, Environmental Science text, Modern biology text, Inupiaq dictionary, hunter safety manual.

**Standards:** **Alaska science standard A14 A, B, C** Students should understand the interdependence between living things and their environments, that living environment consists of individuals, populations, and communities, and that a small change in a portion of an environment may effect the entire development.

**Alaska Math Standard A 6** A student should collect, organize, analyze, interpret, represent, and formulate questions about data and make reasonable and useful predictions about the certainty, uncertainty, or impossibility of an event.

**Alaska Cultural Standard B2** A student should make effective use of the knowledge, skills, and ways of knowing from their own cultural traditions to learn about the larger world in which they live.

**Assessment :** project design (proper setting of traps, trap line design, and safety judged by elder and teacher), class discussion, and group presentation of data and suggestions for its use (each group will be asked for suggested changes based on knowledge obtained from Elders and data. Groups will present report to Advisory school committee on progress of study, start of web page design.

### **Phase 3- Field maintenance** (February 2004 to May 2004)

**Area of study :** maintenance of trap line, use of statistics, proper taking of samples, suggestions that provide self sustainability.

**Tools :** Village elders, School science and math teacher, village volunteers, field notebook, Environmental Science text, Modern biology text, Inupiaq dictionary, hunter safety manual.

**Alaska Math Standard E1** Students should explore problems and describe results using graphical, numerical, physical, algebraic, and verbal

mathematical models or representations.

**Alaska Science Standard B3** Students should understand that scientific inquiry often involves different ways of thinking, curiosity, and exploration of multiple paths.

**Assessment :** project design(proper setting of traps, trap line design, and safety judged by elder and teacher), class discussion, and group presentation of suggestions for project self sustainability. Use of web page to share results and findings. Poster making contest among elementary school students.

#### **Phase 4- Project conclusion / further study** (March 2004 to June 2004)

**Area of study :** Project analysis, suggestions for areas for focus based on results.

**Tools :** Village elders, School science and math teacher, village volunteers, field notebook, Environmental Science text, Modern biology text, Inupiaq dictionary, hunter safety manual, computer.

**Standards:** **Alaska Technology C3** students should be able to create new knowledge by evaluating, combining, or extending information using multiple technologies.

**Alaska Cultural standard C1** Students should be able to perform subsistence activities in ways that are appropriate to local cultural traditions.

**Alaska Science Standard C5** Students should understand that sharing scientific discoveries is important to influencing individuals and society and in advancing scientific knowledge.

**Assessment:** Completion of web page, presentation to Advisory school committee, sustaining of trap line, completion of research paper on trap study. Inclusion of finding in district science fair.

## **VIII. PARTICIPANTS**

Mark Proch- Selawik High School Science teacher- Project leader  
Steven Springate-Selawik High School Math/ Technology Teacher  
Gilbert Smith-Elder  
Ira representative- Arlo davis  
Sandra Summerall-Lloyd-science teacher Kotzebue High school  
Clyde Ramoth- City mayor, Fish and Game Officer

## **IX. SPREADING THE WORD**

The success and results of this project will be share via use of the Internet and local newspapers. The project will include a student driven website designed by the students that will be linked to district and school website. Students will also be expected to write at least one article a month on the results of the project to be submitted to the school newspaper as well as *The Sounder*. I plan to work with a local science teachers in the district to share my results and exchange ideas and thoughts to help the project improve. Students will also be expected to make posters, brochures, and flyers outlining the progress of the project.

There are many avenues that can be explored once this project is started including a middle school class on preparation of furs that are taken. Community involvement will be stressed and fostered, and elders and Inupiaq teachers will be encouraged to participate and include this project in the the normal area of study and many teachers are excited about the opportunity.

Data from the project will be shared with teachers from all other village schools, and links among the schools will be stressed. A project like this provides a great opportunity for cultural concerns to be melded with traditional methods of teaching and can offer a great avenue for success.

## **X. SUCCESS**

The projects success will be based on the completion of the four phases of the project. Each phase has a specific goal and assessment will include some traditional assessment such as tests and quizzes but will be largely based on completion of hands on projects that are based on ideas grounded in the knowledge the students already possess.

In **Phase 1** the students will learn proper safety procedures and will begin to design a trap set up they think will be successful. When all groups have presented a project design and have shown proper safety procedures phase 1 will be considered completed.

In **Phase 2** initial setup will be done and students will be asked to analyze success and suggest changes. Assessment will include teacher, elder, and peer assessment. This phase will be considered completed when students have shared data with peers and others, and have graphed this data on the website. Also included in this phase is a report to the ASC on progress of the project. Each group will be expected to complete an article for local newspaper.

In **Phase 3** Students will be expected to continue to check results mathematically and suggestions and a plan for self-sustainability will be expected. The students will be expected to continue to update website and write articles for local newspapers. Groups will also share results with ASC.

The completion of **Phase 4** will result when student groups have submitted a research paper compiled by the group as a whole. The website will also include final results. Groups will also be expected to offer suggestions for further study to teacher and elder. It will be expected that the students will have designed a fully sustainable project that can be used by students in the future using the suggestions of the first groups.

The ultimate success of students and project will be measured on the ability of students to understand the importance of understanding the environment and the role they play in helping keep it sustainable. The role of subsistence in village life is without parallel and this project will help elevate both the students and teachers understanding of this important issue. Success of this project will be based on the ability of students to take knowledge they already have (cultural knowledge) and apply it to real life situations (math and science). A student who is successful in this project should be able to incorporate local knowledge of flora and fauna and incorporate it into new knowledge of science and math they will learn over the course of the project. This will include a research paper describing all aspects of scientific method used and a discussion of cultural knowledge that was used along with this new knowledge to achieve success. Students will also be expected to share success and failures on a web page connected to school web site. They will also be measured in the traditional method such as quizzes and exams. The program will be incorporated with the regular Biochemistry class and the scheduled assessments will include material taught in the class.

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Signature of Project leader

Date

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Signature of School Principal

Date

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Signature of CRA Campus Director

Date