

Project Description (2 pages only)

Background/needs:

Virginia's Standards of Learning in Science for fourth grade include objectives focusing on scientific investigation and living systems, including food webs, adaptations, and life cycles. At present, the fourth grade science curriculum at Wavy River Elementary School (WRES) includes classroom instruction and indoor activities related to these objectives. The only outdoor learning experience for fourth graders is a one-time field trip to Wiggler Pond Park, which is located adjacent to the school. The activities included in this trip (nature trail "walk-and-talk" led by nature center volunteer, tour of exhibits in nature center) do not provide in-depth hands-on experiences. This proposed project is designed to address the need for more student-centered field experiences which provide the opportunity for continued scientific inquiry.

Objectives:

This project's objectives are to:

- design and implement an aquatic science unit for Wavy River Elementary students which utilizes the Wiggler Pond Park resource, and includes field data collection and analysis
- improve WRES 4th graders' content knowledge of selected science concepts and skills
- improve WRES 4th grade teachers' ability to design and conduct field studies

Planned activities:

The purpose of the field studies is to help the students understand the concept of an ecological system, using the local pond and immediate surroundings as a site for regular investigation during the spring semester. Students will sample pond water and conduct water quality tests in the field using LaMotte kits. They will use nets to catch and identify aquatic insects, crustaceans, fishes, and plants. Digital photos will document live animals collected; all animals will be returned to their habitat unharmed with the exception of a representative sample of fish, snails, crayfish, and tadpoles to be maintained in classroom aquariums.

Each class will visit the pond twice (total of six field studies in two months). While on the trip, students will work in small groups of 8 or fewer. Each group will be closely supervised by a staff or volunteer educator from the Wiggler Pond Nature Center. The classroom teacher and the Project Manager will be present to provide overall supervision and teaching assistance. Activities on the pond shore and on the dock will be conducted with extreme care and students will wear personal flotation devices provided by the park.

Data collected by each class will be recorded in Excel spreadsheets. Teachers will guide the students in compiling and analyzing the data set. Through their observations, data collection and analysis, and related classroom reading and activities, students will learn the connections between the terrestrial and aquatic elements of the area, including the meaning of a watershed and the importance of human behavior in maintaining good water quality and ecosystem health.

As a culminating activity, all three fourth grade classes will organize and conduct a "Wiggler Pond Symposium," describing their research through posters and presentations during the school assembly held during the last month of the school year. The Symposium will be repeated at the May meeting of the school Parent-Teacher Organization meeting.

Location:

The program will be conducted at Wavy River Elementary School (WRES), a public school in Coleman County, Virginia. WRES is located in a unique area for aquatic environmental studies. Through a partnership with the Coleman County Parks and Recreation Department, WRES has access to a freshwater pond, beach and dock located in Wiggler Pond Park, next door to the school.

Target Audience (age, type, number):

The program will target all three fourth grade students at Wavy River Elementary School. Approximately 75 students and 3 teachers will be involved in the program during the pilot year.

Expected Benefits:

The project is expected to help improve the students' knowledge in specific science concepts and their skills in using scientific tools and computers to collect, store, and communicate data and other information. In addition, the teachers will gain experience in designing and conducting field-based ecology lessons with their students, which will benefit the students in these teachers' classrooms for years into the future. Finally, through the "Wiggler Pond Symposium," the project is hoped to increase the awareness of and interest in science among other students and teachers at WRES.

Project Advisor's Input:

Dr. Elfrieda Newt, head of the Biology Department at Coleman County Community College, will be the project advisor. She will work closely with the teachers during the fall semester as they plan activities to be conducted during the spring semester. Dr. Newt will be available throughout the school year to answer questions and provide encouragement to teachers and students.

Communicate will be primarily by email, but Dr. Newt will also provide specific instruction to the students through at least two classroom visits to Wavy River Elementary. In November, she will provide a hands-on laboratory experience in the fifth grade classrooms to teach the students and teachers how to use the water quality kits. In early March, she will conduct a field trip for the teachers to Wiggler Pond Park to pilot the data collection process. In late March, Dr. Newt will accompany the teachers and students on their first field trip to the park. She will participate in the Wiggler Pond Symposium as an honored guest.

Time Line: Project activities will take place during the 2007 – 2008 school year.

Date	Activity
October- Dec 2007	Teachers plan activities, purchase equipment, prepare lesson materials, field test data collection and labs (with Dr. Newt)
November 2007	Dr. Newt and teachers conduct water quality labs with students
Jan –Feb 2008	Classroom activities conducted by teachers
March – April 2008	Field trips begin; data collected on bi-weekly basis; related classroom activities continue
May 2008	Students complete data analysis and reporting Students present “Wiggler Pond Scientific Poster Session” to all Wavy Elementary students and teachers and to Parent-Teacher Organization
Summer 2008	Compile evaluation data; prepare and submit final report to MAMEA no later than September 30, 2008
Fall 2008	Project Mgr does Masthead article or presents at MAMEA meeting

Evaluation:

The evaluation will address two target groups:

1. Fourth grade students (changes in their content knowledge will be measures, as well as their opinions about the project)
2. Fourth grade teachers (impressions and opinions of the overall project will be assessed, including the planning and implementation process as well as the project’s impact on the students)

The project manager, with input from the fourth grade teachers, will design questionnaires for the teachers to administer to the students. The content questionnaire will be given as a pre-test and a post-test; students’ scores will be analyzed by class and by individual student. The Project manager will also design a written questionnaire and questions to be used in a face-to-face interview with each teacher. Teachers will be given the questionnaire and the interview as soon as convenient after the end of the project. Interviews will be conducted by an impartial interviewer, Ms. Paula Myers-Briggs, a senior honors student from Coleman Community College’s psychology/sociology program.

Future Plans

The intent is to continue this field program annually with all fourth grade students at Wavy River Elementary School. The equipment and resource materials purchased with this grant will be property of WRES, and will be maintained and inventoried by the fourth grade lead teacher. It will be available for use by other classes at WRES at the discretion of the lead teacher. Funding for routine replacement of consumable materials will come from the school’s annual science budget. However, if replacement of more expensive items (binoculars etc.) is needed, funds will have to be sought from additional local sources. Evaluation data from the 2007-2008 pilot program will be used in support of additional proposals to continue and expand this project.

Budget: See attached budget detail.

Budget Item	MAMEA	Other-1	Other-2	In-Kind	Totals
Supplies					
Materials		175			175
Equipment	450	125		300	857
Duplication/printing					
Activity/admission fees					
Consultant fees	50				50
Travel costs/reimbursement					
Meals/refreshments					
Lodging					
Other					
Other					
TOTAL	500	300		300	\$1,100

Other source – 1: Wavy River Elementary School, Science budget

Other source – 2: _____

After you have completed the application form, review for accuracy and make a copy for your records. If you have any questions, please contact Barry Fox, Grants Chair.

A. Letters of support:

Letters of support are being sent to Awards Committee Chair by email from Dr. Elfrieda Newt (project advisor and MAMEA member), Dr. Geraldine Grundy (Wavy River Elementary School principal), and Mr. Jasper Rivers (Director of Wiggler Pond Park Nature Center). Also included are letters of commitment regarding the equipment donations from the managers of Larg-Mart and Barker’s Pet Supply.

B. Additional Material:

1) Please see www.colemanschools.edu/wavy for a description of Wavy River Elementary School’s facilities, including a description of the Wiggler Pond Park partnership and images of Wiggler Pond Park.

2) Budget Detail:

Budget Item	Wavy Elem. School Science Budget	In-Kind	Requested from MAMEA Grant
Field and lab equipment (water test kits, seine net, hand lenses, binoculars, thermometers, field guides, digital camera)	\$125		\$450
Buckets, shovels, clipboards, first aid kit		Donated by local Larg-Mart \$75	
Three 15 gal aquarium outfits		Donated by Barker’s Pet Supply \$225	
Microsoft Office (with Excel) software for data storage and analysis	\$175		
Stipend for CCC student assisting with evaluation interviews			\$50
TOTALS	\$300	\$300	\$500