

# Rural School and Community Trust Fund for Teachers

## Project Planning Guide

Project Leader: \_\_\_\_\_ Kendra Snow/ Lori Littlefield & Steve Yates \_\_\_\_\_ Project Title: \_\_\_\_\_ MTA Ecosystem & Nature Trail Project \_\_\_\_\_

School Name: \_\_\_\_\_ Mt Abram High School \_\_\_\_\_ School District: \_\_\_\_\_ MSAD #58 \_\_\_\_\_

Grade Level(s) 10 (biology) & 9-12 (place-based) Content Areas:  Science  Arts  Math  Technology  Foreign Language  
 Social Studies  Place-based Learning  Other \_\_\_\_\_ Other \_\_\_\_\_

**1. Essential Question:** What is the project theme that will guide the work of students and community partners?

In the Mt. Abram Ecosystem, where would be the best place to make a nature walking trail for optimum flora and fauna viewing and preserving natural habitats of particular species? (This question may be more of an essential question for the years to come as we solidify our community partnerships)

**2. Project Description:** Include the following information: What is the scope of the project? That is, how many teachers, students, and community members do you expect to be involved? Who are your community partners and how are they involved in planning and implementation? How will students be involved in planning?

Currently, there are nearly a dozen people including teachers, students, former students, and community members involved with at least a dozen more anticipated over the next year. Our community partners include the Maine Conversation Corps, who provided a representative to walk the property and helped outline some trail considerations as well as bridge designs, the Center for Community GIS, who provided instruction for two students on GPS/GIS and technical assistance for the development of a map of the trail, and a school neighbor, who offered the use of his portable saw mill to help cut bridge timbers. In addition, all tenth grade biology students will be documenting flora and fauna in 1x1 meter transects with future biology students compiling additional data from year to year to better help them understand how the Mt. Abram ecosystem is dynamic. The data collected will also help us facilitate a trail that showcases the Mt. Abram ecosystem's flora and fauna.



**3. Community and School Connection:** How is the project connected to the unique identity of your place (e.g., culture, economy, infrastructure, natural resources)? What specific community or school need or interest will it address?

We are fortunate that our school property has 76 contiguous acres of land at the foot of a mountain and abutting a class A river. A school community group was established at least five years ago to look for ways in which to allow for more experiential opportunities for our students. The 'big idea' became focused around the idea of creating a multi-use safe place to explore and learn outside a regular classroom setting. In keeping with a more natural hiking trail setting and discourage use by motorized vehicles, there is currently a  $\frac{3}{4}$  mile trail of which  $\frac{1}{2}$  is well cut. The trail is between 2 and 3 feet wide with a surface that has been cleared of major obstacles so that it is safe for walking. There is more cutting and bridgework is still needed. Some is planned for late fall and early winter, to provide easier access with less damage to the ecosystem when snow is on the ground. In some cases, a platform trail needs to be constructed nearly two feet above ground level to protect its natural inhabitants and keep people out of the wet areas. Construction on that may be a year or two down the road.

In the long-term, it is hoped that this nature trail will include seating and interpretive signage (student created) to highlight the vernal pools, mixed woods, bushes, etc that our MTA ecosystem has to offer walkers and nature lovers alike, while sustaining itself as the ultimate outdoor classroom.



#### 4. Student Learning Outcomes, Standards, Activities and Assessment:

<b>Learning Outcomes:</b> What will students know and be able to do as a result of this project?	<b>Standards Addressed:</b> Which learning results or benchmarks do these outcomes address?	<b>Activity.</b> What activity(ies) will students engage in to accomplish stated learning outcome.	<b>Assessment:</b> How will you assess each student learning outcome?
1. Students will be able to photograph the flora and fauna of a 1x1 meter transect (mini ecosystem)	C1 Application of Creative Process – Students apply and analyze creative thinking skills to improve or vary their own work...  B4 Exhibition Students select, prepare, and help exhibit their works in the classroom, school or other community location...	Students will be taught to use the digital cameras' macro mode to ensure they capture close-up, detailed photographs of flora and evidence of fauna of MTA ecosystem, and upload the photos to his/her laptop. All students photographs will be used both to create their own 'virtual tour' website and compiled to create an endangered species gallery walk  Identified G/T students may help to create a quick reference guide for use in the field, help create a Salem Field Guide, or interview a community expert who has a career in ecology	Students will use the photos and data to construct a virtual tour of their mini-ecosystem using web design software so that their information can be shared with others  These products will become part of the Mt Abram website to show others what the MTA ecosystem is like
2. Students will be able to identify the flora and fauna of a 1x1 meter transect (mini ecosystem)	Organisms both cooperate and compete in ecosystems. The interrelationships and interdependence of these organisms may generate stable ecosystems for hundreds or thousands of years	Students will use assorted field guides to be able to identify flora and fauna in a 1x1 meter transect	same as 1, with special ed students able to choose one specific organism to study learning about its habitat, lifestyle, and ecology and present a case for its survival through a media presentation
3. Students will be able to compare and contrast the MTA ecosystem with an ecosystem from another area	E2 Ecosystems: Explain concept of carrying capacity and list factors that determine the amount of life that any environment can support	Students will research other ecosystems using direct resources from Ireland or selecting own using American Field Guide website	Students create a Venn Diagram or Inspirations web comparing & contrasting our ecosystem with another ecosystem of their choice
4. Students will observe primary and secondary succession areas in the MTA ecosystem, and classify development of ecosystems as primary or secondary	E2 Ecosystems: Explain why ecosystems can be reasonably stable over hundreds or thousands of years, even though populations may fluctuate	Data collected by Pasco Probes will be uploaded to My World and used in subsequent years to allow future students to see the dynamic nature of the MTA ecosystem	same as 1



### 5. Literacy Goals, Strategies, and Assessment:

<b>Goals:</b> What specific literacy goals will the project address?	<b>Strategies:</b> What literacy strategies will the project employ?	<b>Assessment:</b> How will you assess students' literacy acquisition?
1. Front load some new vocabulary so that students can make connections from text to their MTA ecosystem, with a word wall maintained to keep the new vocabulary in plain view	Students will employ the GIST strategy to identify all biotic factors (flora and fauna) in the 1x1 meter transect	Students will identify both the common and scientific names of all biotic factors, as well as write an accurate description
2. Students will revisit their experiences from this study and write a poem that conveys their personal reflections on biodiversity (if time permits)	Students will employ both reflection and presentation to reinforce their literacy at communicating	Using a multimedia tool of their choice, students will share their poem with peers

### 6. Community Outcomes and Assessment:

<b>Community Outcomes:</b> What will change in the community or school as a result of this project: e.g., new resources, new partnerships between school and community, new services or products?	<b>Assessment:</b> How will you document and assess community or school outcomes and support?
1. identified Gifted students have option to research ecological careers using community members as a new resource	Students will make contact, set up an interview or class visit, and record their experiences and reflect upon what they've learned
2. identified Gifted students may research common flora and fauna to create a quick reference guide to use in the field	Students will create a Salem Field Guide that could be available to school and community alike
3. New partnerships between school and community will help to strengthen our school against future proposals to close it due to reduced student enrollments	Students could highlight the project in an upcoming issue of the new journalism club newspaper that will be distributed to school and community
4. Students will have photographs of the MTA ecosystem of a 1x1 meter transect (mini ecosystem)	Students will create a web site highlighting information and photographs of their 1x1 mini-ecosystem
5. Community will ultimately have a nature walking trail that is scenic, safe and educational with interpretive signage outlining the flora and fauna features of each area	Photos of the project as it proceeds will document the process and may better help us to predict a final completion date



**7. Who will be involved in assessing student learning and community or school outcomes? How will they be involved? How will students be involved in assessment?**

Kendra Snow, biology teacher, will assess student work for the career research and reference guide as part of a larger student ecology unit. Kendra and Lori Littlefield will jointly assess students' websites highlighting their mini-ecosystem, as part of a larger ecology unit.

Lori Littlefield, as advisor to new journalism club, and the student writers will assess the article highlighting the nature trail project. Lori Littlefield and Steve Yates will jointly assess the nature trail's progress and anticipated completion. Steve's retirement at the end of the 2009 school year will enable him to dedicate more of his time to this project, in which he is so passionate about completing for our school and community.

**8. Major Activities Timeline**

<b>Major Activities:</b> What will you and students do to accomplish the stated student learning and community outcomes?	<b>Timeline:</b> When will these activities happen?
1. Kendra will teach students how to gather data using Pasco probes and Lori will teach students how to use macro mode to take quality digital photos of the flora and fauna in their 1x1 meter mini ecosystem	first week in October 2008 (complete)
2. Students will construct web pages highlighting their 1x1 meter mini-ecosystem	due by October 31, 2008 (in progress)
3. Lori will transfer student web pages to school website to make them 'live' on the internet	November 2008
4. Lori will host a presentation of the flora and fauna of Ireland	November 2008
5. Students will create a digital student-choice comparing their mini-ecosystem to the ecosystem of Ireland	due by mid-December 2008
6. Students will create an endangered Gallery Walk	due by mid-December 2008
7. Students will revisit their 1x1 meter transect mini ecosystems to explore changes	spring 2009 (after last of snow has melted)
8. Identified gifted students will create a Salem Field Guide to be available to students and community alike	Fall 2009 (when identified gifted freshmen take biology as sophomores)



**9. Technology:** What technology tools will the project employ? How will that technology be used to enhance learning and improve on the community or school issue(s) the project is addressing?

Students will be using Pasco probes to gather data, digital cameras to take photos of their flora and fauna, iMac laptops to upload their probe data, upload their digital photos, gather information from the internet regarding ecosystems in other areas of the world, view a presentation of the flora and fauna of Ireland, create a digital Venn diagram comparing their mini-ecosystem to an ecosystem from another area, and create their own website representing their mini-ecosystem.

**10. Documentation and Celebration:** How will you celebrate the project and document its impact on you as a teacher and on students, the school, and the community?

**11. Project Budget:**

Costs for the Pasco probes and digital cameras necessary to gather data and photographs were purchased with funds from a grant this past spring. There has been a couple of thousand dollars allocated to purchase some construction materials that can't be donated; it will be purchased late winter and early spring this school year. Most of the other materials have been donated or will be so that there is no additional expense to the school or school district for this project. Some of the lumber needed for the bridges, for example, will be come from split cedar logs from trees and such already on the property.

Please attach any lesson plans to this guide.

