



Project SEpTeMber:

The Falmouth Kids Global Climate Change Institute

Executive Summary

Falmouth Kids Global Climate Change Institute

Falmouth Public Schools

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HISTORY AND HIGHLIGHTS

Why Falmouth, Massachusetts?

Falmouth, MA is unique in that it has local access to international experts on global climate change. Falmouth Superintendent of Schools Dennis Richards, has successfully cultivated a collaborative partnership with the leadership of the scientific institutes based in Woods Hole. Mr. Richards designed a concept project entitled *Project SEpTeMber*, to promote student interest in advanced Science, Engineering, Technology and Mathematics and met with this leadership cohort throughout the summer and fall of 2006 to discuss and advance his idea and work towards strengthening and expanding existing partnerships to effectively utilize this remarkable educational resource. In December of 2006, the district hosted a community meeting facilitated by Alan November, an expert in building global communities. The group focused on identifying and establishing pathways to connect the work of professional scientists with classroom instruction. The meeting was a breakthrough, bringing educators and scientific experts together to explore ways to exchange knowledge and create engaging experiences for our students. The result was the concept of the *Falmouth Kids Global Climate Change Institute*.

The First Grant

In the spring of 2007, the district was awarded a \$45,000 Commonwealth Information Technology Initiative grant that funded a week long summer institute on global climate change for 25 middle school teachers. The grant funds projects that promote 21st century information technology skills through middle school mathematics and science curriculum initiatives. It is one of four middle school grants awarded in the state. <http://citi.mass.edu/k-12/resources.html>

Through a variety of hands-on experiences, expert speakers, curriculum resources, and professional collaboration, teachers designed learning opportunities for students that use tools including: podcasts, blogs, web portals, and wikis. This fall, teacher embarked upon the implementation phase of the project. Students are learning about global climate change and developing interview questions based upon their studies. Scientists are being recruited and

matched with classrooms. An interview schedule will be posted on the web portal to encourage students from around the world to submit questions in text or mp3 format.

Over the next 8 months our students will conduct interviews via Skype, and work in groups to create a unique podcasts. Students will edit and blend student questions and scientist's responses to create an engaging and polished podcast ready to be shared with students locally and around the world. These podcasts will also have RSS feeds to the Apple iTunes Education portal to expand the audience.

OBJECTIVES:

Engaging Students in Learning

Although our world has seen dramatic changes over the past 100 years, our classrooms have for the most part been remarkably unaffected. We need to engage students by incorporating new methods and skills that are relevant to their world, skills such as media literacy, innovation, creativity, collaboration, communication, leadership, critical thinking and problem solving. Research indicates that the most effective instruction includes hands-on learning experiences that are intellectually stimulating and connected to the real world. Our students and teachers need meaningful, relevant experiences to support their development of the technical skill, understanding, and confidence needed to embrace and adopt new instructional practices that make use of digital information and communication technology skills.

The *Falmouth Kids Global Climate Change Institute* was designed to help middle school teachers successfully integrate technology into instruction to enable students to become skilled at 21st-century information and communication technology skills in contextual learning experiences. Teachers and students in 25 middle school classrooms in Falmouth and Bourne, MA will use a variety of low cost, Web 2.0 communication tools such as SKYPE, Blogs and podcasts, to extend the curriculum beyond the walls of the classroom to engage in conversations with expert scientists studying global climate change issues. This authentic collaboration with the local scientific community will improve teacher and student understanding of this significant global issue, improve their 21st century information and communication technology skills, and introduce them to a variety of exciting career opportunities in the STEM subjects. This body of work will be a catalyst for a global conversation with an audience of students and experts from around the world and will provide participants with a unique opportunity to learn, share, and collaborate about the causes, consequences, and potential solutions to global climate change.

The Word is Spreading

In July 2007 we presented our project at the Building Learning Communities Conference in Newton, MA and at the WGBH regional meeting of public broadcasting stations. In October 2007 we will present at the STEM IV Conference in Worcester, MA. Although we are just beginning to implement our project on the web, the interest level has been tremendous and we have already received email requests to collaborate on this project from schools around the

world including California, Connecticut, Massachusetts, Ohio, Texas, Virginia, Australia, Brazil, and East Asia (<http://earcos.org/>).

The Pearson Foundation's Mobile Learning Lab (<http://www.pearsonfoundation.org>) learned of our project and came to Falmouth last summer to present a weeklong workshop for teachers and students on creating digital videos focused upon global climate change issues. They were so impressed with our project that they have agreed to come back for another week to work with our staff and students in the classroom setting.

Educators around the world are excited about this project and want to take advantage of low cost web tools to enable their students to participate in this knowledge exchange. Global climate change is an authentic and significant issue, as well as a component of the middle school curriculum. There is enormous potential for the dissemination of information and the development of innovative student centered initiatives that could reduce the impact of global climate changes in their community, and the world.

What are the Goals?

This knowledge networking between the scientific and educational learning communities will improve teacher and student understanding of this significant global issue and transform instruction to engage students in developmentally appropriate scientific investigations that motivate student effort and interest. It embodies the type of collaborative relationship between the educational and scientific community that our schools so desperately need to awaken student interest and engagement in global issues. Our goal is to expand this project over the next 18 months to an international model of student centered knowledge networking through which our youth can contribute, shape and share their ideas to change the world.

What Do We Need?

The enthusiastic response to our project has revealed our need for a professional web site that will encourage and support the online collaboration we envision. Currently a volunteer steering committee has been supporting this initiative, but to achieve the full potential we need staff dedicated to support, guide and expand our project.

Who are our Partners?

Research and Educational Institutional Partners:

1. Marine Biological Laboratory, (Established in 1888) <http://www.mbl.edu/>

7 MBL Street, Woods Hole, MA 02543

Dr. Linda Amaral Zettler, Asst. Professor, Brown-MBL Joint Graduate Program amaral@mbl.edu

Sarah Bordenstein, Education & Outreach Coordinator srbordenstein@mbl.edu

2. Woods Hole Oceanographic Institution (WHOI), (Established 1930) <http://www.whoi.edu/>

MS #31, Woods Hole, MA 02543-1050

James A. Yoder, Vice President for Academic Programs, jyoder@whoi.edu

3. Sea Education Association, (Established in 1971) <http://www.sea.edu>

PO Box 6, Woods Hole, MA 02536

Dr. Paul Joyce, Dean, pjoyce@sea.edu

4. **Woods Hole Research Center (WHRC)** <http://www.whrc.org/>
149 Woods Hole Road ,Falmouth, MA 02540-1644
Dr. R. Max Holmes, Associate Scientist, rmholmes@whrc.org
5. **Waquoit Bay National Estuarine Research Reserve (WBNERR)** <http://www.waquoitbayreserve.org/>
PO Box 3092, Waquoit, MA 02536
Pat Harcourt, Education Director, Pat.Harcourt@state.ma.us
6. **NOAA's National Marine Fisheries Services (NMFS)** <http://www.nefsc.noaa.gov/nefsc/woodshole/>
166 Water Street, Woods Hole, MA 02543-1026
Dr. Nancy Thompson, Science and Research Director
7. **WGBH Teachers Domain**, 125 Western Ave, Boston, MA 02134 <http://www.teachersdomain.org/>
Carolyn Jacobs, Senior Account Representative, carolyn_jacobs@wgbh.org
8. **November Learning** 12 Hathaway Road, Marblehead, MA 01945 www.novemberlearning.com
Alan November, alan@anovember.com

Volunteer Consortia:

1. **WHSTEP – Woods Hole Science and Technology Education Partnership**
PO Box 487, Woods Hole, MA 02543
Patti Parker, Chairman patti.parker@verizon.net
2. **Falmouth Public Schools Volunteers in Public Schools (VIPS)**
113 Lakeview Ave, Falmouth, MA 02540
Tracey Crago, Director tcrago@falmouth.k12.ma.us
3. **UMASS Dartmouth, Center for University, School and Community Partnerships**
200 Mill Road, Suite 150, Fairhaven, MA 02719
Dr. Susan C. Lane slane@umassd.edu, Interim Dean/Associate Vice Chancellor

MAJOR ACTIVITIES:

Training:

In June of 2007 a group of 25 teachers attended a summer institute at the Lawrence School in Falmouth, MA. Through a variety of hands-on experiences, expert speakers, curriculum resources and professional collaboration, teachers learned the content and technology skills needed to implement a middle school curriculum on global climate change. Brochure: <http://www.falmouth.k12.ma.us/CITI/citipdfs/SummerInstituteBrochure.pdf>

The Falmouth Kids Global Climate Change Summer Institute

syllabus included:

- *2 Days of hands on training: An Educators Guide to Blogging, Podcasts and SKYPE presented by November Learning*
- *WGBH Teachers' Domain 30 hour web based course: Weather and Climate*
- *Content Workshop: What all Educators Should Know about Global Climate Change*
- *Scientific Guest Speakers*
- *September Follow-up training on Blogs, Podcasts and SKYPE*



Classroom Integration:

As a culminating activity, this fall students are being matched with scientific experts engaged in authentic global climate research from our partner institutions. Teachers will guide students as they prepare questions and interview scientists using ICT tools. These interviews and subsequent discussions,

links to global climate change resources, collaborative student projects, solutions, and strategies developed by the students to reduce the human contribution to the causes of global climate change will be published to *The Falmouth Kids Global Climate Change Institute's* web portal. Using the Internet to publish their cumulative research will provide students and teachers with a unique opportunity to share and collaborate with students, teachers, and experts around the world as they engage in dialogs about the causes, consequences, and potential solutions to global climate change. Through this collaboration, students will develop ideas for innovative local programs and solutions that could reduce the impact of global climate change in their community.

SPECIAL EVENTS

The grant has been attracting new partners and opportunities including:

Conference Presentation:

Alan November's Building Learning Communities Conference, July 2007

Early Bird Conference: The Falmouth Global Climate Change Institute

Presented by: Dennis Richards, Superintendent of Schools and
Liz McGonagle, Director of Curriculum and Instruction



The Pearson Foundation's Mobile Learning Institute for Middle School Students

The Pearson Mobile Learning Institute came to Falmouth in July of 2007. Twenty middle school students and 14 teachers participated in this free hands-on workshop. Over a five-day period, students designed, developed, and completed 1-3 minutes public service announcements that were submitted to the Current TV "Sixty Seconds to Save the Earth" contest. They worked in small teams, using lap-top computers and digital video and audio equipment provided by the Pearson Foundation. Pearson has agreed to return to Falmouth in October 2007 to work directly with teachers and students engaged in *The Falmouth Global Climate Change Institute* project in the classroom setting.

WGBH Public Television Forum

Invited to be a member of the panel for a discussion on distance learning at the regional meeting of public television stations in July 2007

Recent Press:

<http://www.wickedlocal.com/falmouth/news/x2130787871>

<http://www.wickedlocal.com/falmouth/archive/x951707424>

LEARNING OUTCOMES:

Teacher Learning Outcomes:

Teacher will be able to:

- develop, expand and implement a science curriculum on global climate change that creates opportunities for students to learn and apply 21st century Information and Communication Technology (ICT) skills.
- design and implement hands-on, engaging student activities that promote understanding of the causes, effects, and potential solutions to global climate change.
- teach and learn using ICT tools such as podcasts, Blogs, SKYPE and Wikis.
- infuse 21st century life skills such as leadership, ethics, personal productivity, interpersonal skills, self-direction and social responsibility into the curriculum.
- successfully collaborate with scientific experts who are engaged in authentic research projects on global climate change both locally and internationally.

Student Learning Outcomes:

Students will be able to:

- differentiate weather and climate
- explain the greenhouse effect and the role of carbon dioxide in trapping heat in the atmosphere
- identify at least three ways scientists study past climates
- describe the trends in global average temperature and carbon dioxide concentration over the past 1000 years
- construct and interpret graphs of data relevant to climate
- explain the main consequences of climate change and their impacts on New England coastal and inland areas
- describe at least three actions individual can take to reduce carbon dioxide emissions
- learn and communicate using ICT tools such a podcasts, Blogs, SKYPE and Wikis
- successfully collaborate with scientific experts who are engaged in authentic research projects on global climate change both locally and internationally.