2010
Summer Bridge Report
A PAST Foundation Publication

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Table of Contents

Bridge Program Overview ........................................... 1
Forensics in the Classroom ........................................... 7
Engineering and Advanced Materials: Solving Engineering Problems of the Future
Growing America: Season 2 ........................................... 11
Entomology: Historical and Current Impacts .......................... 13
Channel Islands: Cultural and Natural Resources ....................... 15
Chesapeake Bay: The Cultural Landscape of New Beginnings ............. 17
Forensic Sciences, Archaeology, and Anthropology ....................... 20
Slobodna: The New Find ............................................. 22
Bridge Program Overview

Following the conclusion of the 2009 Summer Bridge Program schedule, the PAST design team created its first review of the ‘Bridge Program’ concept. The report noted that these programs were originally called ‘summer field programs,’ but the branding was later changed to the more evocative ‘Bridge Programs’ as the PAST team sought to specify what the programs actually provided for students. The significant difference between PAST programs and programs at traditional field schools required a new name, and the term bridge served as an excellent metaphor for how these programs help students move from one level of thinking to the next. The Bridge Programs, then, developed into three levels of programming.

Level I Bridge Programs specifically target students transitioning from traditional learning environments to problem-based learning methods, and thus need a bridge to acclimate them to the new approach. For example, Forensics in the Classroom is a Level I Bridge Program that introduces students to this new paradigm of education by giving them the interactive challenge of solving a crime scene, which also teaches scientific methodologies and the principles of precise, critical thinking.

Level II Bridge Programs are created for students who excel at applied learning but sometimes struggle in a traditional, four-wall classroom. Level II also provides students the experience of working with the community to solve real issues, rather than artificially devised mental exercises.

Level III Bridge Programs provide advanced students, who attend STEM programs and have participated in previous Bridge Programs, with an opportunity to assume leadership roles. The programs Cave Ecology, Cultural Landscapes, and Growing America are used for both level II and level III Bridge Programs, simultaneously helping students flourish through applied learning and teaching students the essential practices of leadership.

The PAST Foundation’s decade of experience planning, scaling, testing, defining real world issues, and maintaining partnerships with engaging educators enable these programs to succeed. PAST believes that each program can
always be improved. Thus, each Bridge Program is constantly evolving to become a more dynamic experience.

As they guide this evolution, the PAST design team considers the Bridge Program structure in terms of four vital components: real issues, real partners, a trans-disciplinary approach, and a polished presentation of learning that follows professional scientific protocol.

**Four Vital Components**

The first essential component is to ensure that each project is based on a Real Issue. From the start of every project, the PAST team stresses to the students, parents, and teachers that the projects in which they are involved are contemporary, real world issues. For example, the 2008 marine environmental studies program, created informational placards about dive sites in the Florida Keys National Marine Sanctuary for dive charter captains to share with the 65,000 annual sport divers.

*Growing America,* introduced in 2009, perhaps the most ambitious Bridge Program, actually contains several projects under its broad umbrella. The *Growing America: Student Farm* partners STEM high school students with OSU Horticulture and Crop Science students to produce food on the university farm. Meanwhile, the *Growing America: Farmer’s Market* is an entrepreneurial project for high school students which actually brings the produce from its sister project to the market.

The second essential component of a successful PAST Foundation Bridge Program is having Real Partnerships. Students engage when they can work directly with experts in a field. The Cultural Landscape program, *New Beginnings in the Chesapeake,* also in its second year, originally partnered with a cultural resource management firm, the James River Archaeological Institute, to excavate a Colonial American farm near Williamsburg, Virginia. During excavations, a Metro student discovered a piece of English pottery which had never been seen in Virginia before, subsequently redefining previously held concepts of colonial trade. While the students worked on this Colonial period site, they were taught archaeological skills by professionals. Similarly, *Life in Transition* (2008 & 2009), a cave ecology program, brought in experts from several fields to work alongside the students. A spelunker guided the students in lessons on how to safely explore caves, an entomologist taught underground using a flashlight to find cave crickets, and a biologist directed an enquiry into water quality by having students take and analyze samples from a cave water system.

Utilizing a variety of experts highlights the third essential component of a Bridge Program structure: Holistic Study. The programs developed at PAST are designed to provide students with
rewarding educational experiences. To achieve this goal, each program is taught in the context of its surrounding area and culture. The only way to accomplish a real world experience is to approach the issue with an interdisciplinary mindset. It is impossible to understand the life cycle of a cave bat if you do not consider the cave in which it lives, the geology that developed the cave, the weather that surrounds it, or the humans that manipulate it. In the same way, understanding the architecture of Rome requires a holistic look at its history, politics, physical space, engineering, and society (Rome: Classical to Digital 2009). All Bridge Programs use a holistic approach, incorporating the sciences, humanities, language arts, math, and design arts. In short, no content area is left out.

The final component of Bridge Program structure is the Presentation of Learning that chronicles each student’s work at the culmination of the project. This can take many forms depending on the nature and location of the program. These presentations often incorporate digital media such as podcasts, iMovies or PowerPoint presentations to highlight each student’s unique perspective and voice, but where technology is scarce — such as when camping — essays, poetry, and public presentations are used. The student’s voice is essential to the nature of a PAST Bridge Program and, indeed, all problem-based learning.

**Bridge Program Evolution**

The four components outlined above create a platform that exposes students to the process of managing unforeseen difficulties. The 2009 cave ecology program is an excellent example of a PAST Bridge Program providing a successful educational and experiential project in the face of rapidly changing environmental factors. Due to the spread of White Nose Syndrome, a disease killing the bat population in North America, the public caves in Kentucky were closed. If the Bridge Program was designed any other way, this would have been disastrous news. However, since all PAST Bridge Programs pivot on real issues, the White Nose Syndrome became the new topic of study. Since all PAST Bridge Programs have real partnerships, there were experts from many different fields interested in this topic and willing to help. As all PAST Bridge Programs are holistic, there were many geological, biological, and historical aspects related to the topic that were studied. Finally, since all PAST Bridge Programs require presentations, the intensity of study remained vigorous.
The PAST team continually re-examines its programs to improve their scalability, sustainability, and transferability. *Forensics in the Classroom*, in its fifth year, is an excellent example of an ever evolving program. This year the program required retooling in terms of scale, program topic, and transferability. Generally, Bridge Programs operate on the small-footprint big-impact theory. However, this program needed to be reinvented in order to involve a large community of students.

Falling back on the design process and using the four vital components discussed above as guides, the PAST Bridge Program design team scaled the program to accommodate expanded numbers without sacrificing the small group focus. The team pivoted staff preparation to address algebraic understanding, while preserving the original intent and excitement of the popular program. Over the course of the weeklong FITC program rising seventh graders from across Columbus, Ohio gained valuable Algebra skills caught up in the excitement of solving a crime.

**2010**

The Bridge Programs of 2010 embraced the four building blocks — **Real Issues, Real Partners, Holistic Study**, and **Presentations of Learning** — continuing to flourish. In addition, the programs of 2010 explored new elements that focused on growing students’ life skills. While the 2009 Bridge Programs evolved the academic content of the programs and emphasized real projects and real partners, the 2010 objectives added to this list a close focus on the social and personal growth of Bridge Program students. The programs continued to push the students to reach their full academic potential, as well as bridge important physical and emotional growth issues.

Emerging evidence from a decade of programs suggests that Bridge Programs work best when students are challenged outside their normal security and comfort zones. This requires more than academic rigor. The PAST design team is aware of the importance of focusing both on academic
grow as well as life skills that enable students to more fully engage and grow beyond behavior patterns sometimes associated with traditional education systems. By focusing on both life skills and academic knowledge simultaneously in the immersion programs we can easily plot student growth over the course of a single week by simply charting participation and engagement.

This required new and different activities organized in concert with the academic challenges. It requires an articulation of organized free time and expectations. By piloting these activities, we were able to clearly see the difference in programs where they were used and programs where they were not. The combination of social activities and academic activities engaged even the reticent students, drawing them into participation, inquiry, and engagement.

The 2010 programs also demonstrated that the location of a program is just as important as its academic content. While college dorms may have convenient locations for academia, they do not necessarily promote behavioral growth. Behavioral growth is strongest in programs that rely on camping or other less private living quarters. In fact, the camping and sailing programs revealed equal amounts of growth in behavior and knowledge, whereas the programs that used dorms saw less behavioral growth than academic growth.

Fundamental to the success of the 2010 Bridge Programs was the infrastructure in which each student and staff member found a place to excel. The most striking example of this framework’s effectiveness was the performance of the student leaders of Growing America. Given direct responsibility of training incoming participants, student leaders took ownership of both the Student Farm and the Farmer’s Market. This energy spread to the participants who, on market day, enthusiastically sold their produce to the local community. The director proudly noted how she could step back and let her student leaders and managers develop the program.

The PAST Foundation in 2010 had the pleasure of hosting two Battelle Summer Fellows, Harry Kent and Reed Case, as assistants for the Bridge Programs. These undergraduate students contributed an enormous amount of positive energy and organizational support. They carried out daily logistical tasks and provided a crucial bridge between the Directors and students. They afforded guidance and laughter, helping create the safe and comfortable surroundings that make PAST Bridge Programs unique.

For the second year, PAST partnered with Montana State University’s Documentary Film program. Joining the programs this year from Montana was Katie Martell, a second year Master’s student in the program. Katie followed the programs documenting the voice of the students and verve of the programs.
Using the Bridge Program structure the PAST Foundation nurtured over a thousand students. While each program has its own unique qualities and activities, they are similar in their application of the four vital components, each having real world relevance, connecting with real partners, encompassing a multitude of disciplines, as well as requiring a final presentation. In addition, each program has an accompanying podcast.

The following descriptions of the 2010 Bridge Programs detail the participants as well as provide an overview of the project goals and activities. The PAST Summer STEM Bridge Programs were made possible through the generosity and partnership of the Battelle Memorial Institute, the Ohio STEM Learning Network, I Know I Can, and the The Educational Council. Participating Columbus schools included Columbus City Schools, Linden McKinley STEM Academy, Metro High School, Reynoldsburg High School, and Worthington High School. The programs also welcomed students from elsewhere in Ohio, New York, North Carolina, Connecticut, Georgia, Oregon, Iowa, Indiana, California and Colorado.
<table>
<thead>
<tr>
<th><strong>Program</strong></th>
<th>Forensics in the Classroom</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bridge Program Level</strong></td>
<td>Level I</td>
</tr>
<tr>
<td><strong>Dates</strong></td>
<td>July 26 - August 13, 2010</td>
</tr>
<tr>
<td><strong>Location</strong></td>
<td>Columbus, OH</td>
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<tr>
<td><strong>Director</strong></td>
<td>Lara McCormick, The Ohio State University, Department of Anthropology</td>
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<tr>
<td><strong>Program Coordinator</strong></td>
<td>Anne Corscadden Knox, PAST Foundation</td>
</tr>
<tr>
<td><strong>Staff</strong></td>
<td>Katie Martell, Documentary Film Intern, Montana State University</td>
</tr>
</tbody>
</table>
| **Students**         | Linden McKinley STEM Academy  
|                      | Metro High School           
|                      | Reynoldsburg High School    |
|                      | Worthington High School     |
| **Partners**         | I Know I Can                
|                      | The Ohio State University   
|                      | Arts Impact Middle School   
|                      | St. Stephen’s Community House |

**Program Objective**

Forensics in the Classroom introduces students to STEM disciplines, design principles, scientific methodologies, and project-based learning in a novel and engaging way. FITC capitalizes on students’ natural desire to solve mysteries, providing an interesting and fun framework in which academic skills can be honed. Partnering with the forensic division of the OSU Department of Anthropology, students participate in a weeklong preparation program that will take advantage of the expertise of the
police and other specialists in helping deepen the students’ understanding of specific forensic techniques and the reasons for using them.

Summary

Forensic Science is a perfect vehicle to deliver all types of content and skill sets. This year the program focused on basic algebra and science skills aligned with the Ohio Academic Content Standards for seventh and eighth grade. In addition, FITC consciously sought to promote specific learning objectives that relate to the development among young teens in the areas of cognitive skills, psychomotor skills, and the skills of being affective. Each of these agendas was delivered through the exciting platform of solving a crime. After only a week, students gained a better understanding and appreciation for science, the scientific method, and scientific reasoning by relating it to something that interested and challenged them. The intrigue and success of the scientific methods they learned in FITC helped the students lose their fear of science and math, historically considered too daunting even to attempt, much less master.

FITC has a secondary importance. This program provided twenty graduate students from The Ohio State University Department of Anthropology with a low stakes entry into the world of teaching K-12. As they worked on this invaluable teaching experience, the graduate students realized that lecture-based teaching, while comfortable for the lecturer, did not make material accessible to middle school students. Thus, they had to change their approach, developing programs that have real world applications. FITC provides a vital introductory experience regarding relevant materials and applicable teaching practices that bridge the gap between the professionals and the students.

*It made me feel that I could do anything no matter as long as I try and work hard.*

— Tatiana
Program       Engineering and Advanced Materials
Bridge Program Level       Level I and II
Dates       June 27 - July 3, 2010
Location       The Ohio State University
Advanced Material Labs
Columbus, OH
Director       Dr. Andy Bruening, Metro High School
Program Coordinator       Anne Corscadden Knox, PAST Foundation
Staff       Reed Case, Battelle Scholar, University of Vermont
Harry Kent, Battelle Scholar,
McAllister University
Katie Martell, Documentary Film Intern,
Montana State University
Students       Linden McKinley STEM Academy
Metro High School
Worthington High School
Partners       The Ohio State University
Battell Memorial Institute
Ohio STEM Learning Network

Program Objective

We are a disposable society. We throw everything away as garbage. Landfills are reaching maximum capacity, yet we continue to generate more waste. In the early 1970’s, archaeologist Dr. William Rathje examined landfill content to determine what Americans were throwing away and found paper was the most abundant component of modern landfills. Forty years later, more plastic than paper is entering landfills. A recent study in California estimated that over one billion plastic bottles end up in landfills each year — that’s more than three million bottles per day. Managing plastic waste is a global problem. As we are depleting our natural resources and stuffing landfills to capacity we are creating an environmental, ecological, and economic dilemma that can only be
solved through engineering.

To address the issue of increased plastic in today’s landfills and to examine sustainable solutions to this issue, students studied the waste habits of modern societies through Garbology and materials science engineering. Specifically, students analyzed the role that polymers play in recycling.

**Summary**

Initially, the PAST team in partnership with the OSU Materials Science lab proposed to look at the “reuse” of plastic bottles, thereby introducing the study of polymers. Soda pop bottles were collected but proved incompatible with the lab’s capabilities, so the team began collecting heavier plastic milk bottles, but still did not find success. The team went back to the drawing board and, through a series of brainstorms, created a program that maintained a real issue focus in conjunction with recycling plastics.

The new project provided the students with a rare opportunity. The OSU Advanced Materials Lab had just created a new biodegradable material that is in the process of being patented, and thus the scientists were unable to readily identify the material for the students. The material was so new that, although the scientists knew it is biodegradable, they had not yet determined how recyclable it is. Thus, it became the challenge of the students to test it. Demonstrating their commitment as a partner, OSU scientists eagerly attended the final presentation to hear the results presented for the first time. This project focused on such a real issue that the students’ findings will remain classified until the patent is awarded.

The complexity of the issues relating to advanced materials proved the greatest challenge in developing a course appropriate for teenagers. Ultimately, the focus of the program was on more familiar topics such as waste management while exposing the students to the more complex subject of polymers. The students’ final presentations showed they had gained knowledge of applied materials and successfully related it back to issues of plastics in our landfills. This was a valuable lesson in designing bridge programs — they must lead from the known into the unknown in order for students to grow their knowledge base.
Program        Growing America
Bridge Program Level     Level I, II, and III
Dates        July 26 - August 14, 2010
Location     Waterman Farms
             The Ohio State University
             Columbus, OH
Director     Kat Deaner, The Ohio State University,
             College of Food, Agricultural and
             Environmental Sciences
Program Coordinator     Anne Gorscadden Knox, PAST Foundation
Staff        Katie Martell, Documentary Film Intern,
             Montana State University
Students     Linden McKinley STEM Academy
             Metro High School
             Reynoldsburg High School
             Worthington High School
Partners     Ohio State University
             Metro High School
             The Food Alliance

Program Objective

Urban youth have limited access to educational experiences with agriculture and equally limited access to locally produced food. There is a strong need to bridge the gaps in students’ understanding of the food system by engaging urban youth in agricultural production activities. Currently, there is a lack of urban agricultural education programs in Ohio that immerse students in food producing activities.
In addition, there is limited availability of highly nutritious, fresh foods to many urban youth. A study on the access to nutritious foods among low-income populations reported that 58% of the low-income rural group had access to garden vegetables, while only 23% of the low-income urban group reported access. This lack of access to garden produce can be directly attributed to the absence of knowledge on how to plan, develop, and maintain a home garden.

**Summary**

Growing America and its agriculture-based, STEM-delivered educational program for urban youth promotes understanding of how food is produced, processed, and marketed. In its second year, the Summer Program continued to provide urban students in Columbus, Ohio the opportunity to be directly involved in different aspects of the food handling, marketing, and distributing. The community welcomed back the Saturday market making Saturday mornings in the Metro parking lot quite bustling. Throughout the weeklong program students participated in all aspects of the program from working at the OSU Waterman Student Farm to harvesting the produce and selling it at the Saturday Market. Interwoven into the hands-on learning experience were important knowledge building lesson from soil composition to the development of a farmer’s market.

Moreover, the program encourages student scaffolding which promotes accountability and responsibility. Student managers and leaders took the lead in helping design the program in the fall and spring quarter and then implementing student leadership during the harvesting and famers market in the summer. Through leading by example, the student participants embraced all aspects of the program.

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*I always took my food for granted, never giving any thought to where it came from, how it was harvested, and especially its carbon footprint. But now I know — buy local!*

— Christie
Program                  Entomology
Bridge Program Level     Level II
Dates                    June 20 - June 26, 2010
Location                 The Ohio State University
                         Columbus Entomology Lab
                         Columbus, OH
Director                 Dr. Josh Benoit, Yale University
Program Coordinator     Anne Corscadden Knox, PAST Foundation
Staff                    Reed Case, Battelle Scholar, University
                         of Vermont
                         Harry Kent, Battelle Scholar, McAlister
                         University
                         Katie Martell, Documentary Film Intern,
                         Montana State University
Students                 Linden McKinley STEM Academy
                         Metro High School
                         Reynoldsburg High School
                         Great Neck South High School, NY
Partners                 The Ohio State University
                         Yale University

Program Objective

Insects have had immense power over humanity since the dawn of civilization, particularly in agricultural development and public health. Entire nations have been destroyed by famine caused by ravenous pests, and empires have collapsed as a result of the diseases transmitted by the tiny creatures. Today, many industries are dependant on insects for their products. In the 1950's and 1960's, experts believed pesticide would eliminate insect-borne diseases and agricultural pests altogether, but the insect world has proven itself resilient. Bed bugs, African sleeping sickness carried by tsetse flies, and mosquito-transmitted malaria still persist. Scientific education in the field of entomology may contain many solutions, and thus this program gives students a chance
to explore, in concrete terms, how insects alter human development and progress.

**Summary**

Entomology provided students with a basic knowledge of entomology and related fields of biology, introduced field data collection, and helped acclimate students to a college environment. Using a combination of lectures, experiments and trips to collect insects and visit insect displays at local zoos, the students became fully immersed in Entomology. The quality of the final presentations where students, after only one week, confidently explained complex experiments on insect physiology reflects the success of the problem-based learning approach.

After observing the student’s wandering attention, the staff began readjusting the daily schedules to include more physical activities. On some days when students spent their entire time in the field collecting insects few adjustments were required. However, on the days in the lab with more lecture, the staff found alternating low energy activities with high-energy activities helped keep students focused, disciplined and enthusiastic. The study of bugs seems to naturally interest and excite students. Even in grueling hot field conditions the students doggedly collected specimens for study back at the lab. Examples of student presentations of learning included ‘Termites and Methane Production’, ‘Insect vs Winter, what happens to insects when winter comes’, ‘Insect immunity’ and ‘Mite Pheromones.’

*To be a scientist you have to be determined and passionate about what you do. Conditions can be tough, but if you love what you do then anything is possible.*

— David
Program: Channel Islands

Bridge Program Level: Level II

Dates: July 6 - July 12, 2010

Location: Channel Islands, CA

Director: M. J. Harris-Taylor, American Tall Ship Institute
          Abbey Novia, American Tall Ship Institute

Program Coordinator: Anne Corscadden Knox, PAST Foundation

Staff: Reed Case, Battelle Scholar, University of Vermont
      Harry Kent, Battelle Scholar, McAlister University

Students: Linden McKinley STEM Academy
            Metro High School

Partners: American Tall Ship Institution
          Battelle Memorial Institute
          Leo & Jaren Lewis, Union Jack
          Ohio STEM Learning Network

Program Objective

The Channel Islands are home to immense kelp forests that form a foundation to the local marine food chain. Studying these kelp forests helps us to understand the balance of ocean life as well as the affect of overfishing and global warming on the ocean environment. Studying the changing kelp forests and sea urchin population teaches how human involvement in the Channel Islands has greatly affected the animals in the ocean and on
the land. The Channel Islands also contain a variety of shipwrecks including the Gold Rush era passenger steamer Winfield Scott, and the steam schooner Lotus. By studying these shipwrecks, visiting Chumash habitation sites on Santa Cruz and Anacapa Islands, and by reading primary source accounts of life on the Islands, students studied the cultural and natural landscape of the Channel Islands.

Summary

Living onboard the tall ship The Bill Of Rights and sailing round the Channel Islands was a remarkable adventure for twenty Columbus students. The Channel Islands project, like the Chesapeake project, took students far beyond their normal experiences. It is certainly the most ambitious program PAST has designed, in which life skills and academic skills are closely meshed. Life aboard ship is non-arbitrary, demands collaboration, and is often exhausting.

Added to the life skill experiences were the academic challenges of understanding the robust ecosystems of the Channel Islands. Hiking around the Pelican Bay students donned wetsuits and braved the cold pacific waters to study the kelp forests, paying particular attention to the ecosystem it supported. Back at harbor the students surveyed the ecosystem that used the harbor as a habitat, collecting samples and analyzing them under microscopes.

Long adventurous days were followed by cozy nights in the galley as the students drank hot chocolate, consumed freshly baked cookies, and listened to excerpts from “The Diary of a Fisherman’s Wife,” which describes life on Anacapa Island during the time of the California Gold Rush. The full days concluded with rocking to sleep by the gentle waves hitting against the sturdy hull of The Bill of Rights.

The combined experiences inspired the students to creatively recount their adventures in imaginative final presentations, ranging from a rap about the Channel Islands National Marine Sanctuary in the style of “The Fresh Prince,” to a hands-on activity on ship construction. The presentations readily revealed of the newly gained knowledge about the environment and new life skills.

Cool breezes, calm sails with mountains in a distance,
Quickly brighten up our path to our destination.
The voyage progresses,
As we wait to help watch across the ship’s deck.
Awakening to a star-filled sky,
Glimmering and shimmering,
As if sugar on a wondrous pie.
This adventure is surely flying by.

— Channel Islands
Team C
**Program**
Chesapeake Bay

**Bridge Program Level**
Level II and III

**Dates**
June 13 - June 19, 2010

**Location**
Newport News, VA

**Director**
AnneCorscadden Knox, PAST Foundation

**Program Coordinator**
AnneCorscadden Knox, PAST Foundation

**Staff**
Josh Benoit, Yale University
Harry Kent, Batelle Scholar, McAllister University
Katie Martell, Documentary Film Intern, Montana State University

**Students**
Linden McKinley STEM Academy
Metro High School
Reynoldsburg High School

**Partners**
The William and Mary Center for Archaeological Research

**Program Objective**

*Cultural landscapes* are platforms that present the past in a unique way, allowing their students to find attachment and a sense of place. In 1929, Carl Saur coined the term *landscape morphology* to describe the process in which “culture is the agent, the natural area is the medium, [and] the cultural landscape is the result.” The systematic interpretation of a cultural landscape is essential to the appreciation, understanding, and the preservation of our cultural and natural heritage. For Americans, there is no ‘sense of place’ greater than that found at Jamestown, the first settlement established in what was to become the United States. Contact with Native Americans and colonization were struggles common to all pioneers. The cultural landscapes in Jamestown reflect their decisions.
As the second year of the Chesapeake program, the 2010 project goal was to create a flagship cultural landscape program that could be recreated by others. Building upon the success of 2009, the 2010 program continued its partnership with James River Institute and the archaeological excavation of a Colonial period site. Through these relationships, the excavation and study of the cultural landscape provide a project in which mathematics coexist on a transdisciplinary platform with history, geography, language arts, and biology. Complementing their holistic study of the cultural landscape, the students would also be developing skills needed for life long learning, time management, and responsibility.

Summary

Due to the economic climate, archaeological funding for projects is at an all time low. Thus, James River Archaeological institute had no projects to share with the PAST program. However, through strong partnerships created with other organizations in the Chesapeake area during the 2009 program, the PAST team was able to shift the program focus while maintaining the same experience strategies and outcomes. The 2010 program partnered with William and Mary Center for Archaeological Research (WMCAR) and the Mariners Museum, involving the students in the survey of historic places eligible for nominations to the National Register of Historic Places. A time consuming endeavor, the eventual inclusion on the National Register is critically important to funding and sustainability of historic sites, thus the real issue of finding volunteers to help survey. This archaeological documentation gave the students a daunting but manageable challenge.

The James River area is a stratified cultural landscape with archaeological remains from virtually every time period of human occupation in Virginia. The sites chosen reflected the diverse cultural and historical significance of the area and epitomize the evolution of the cultural landscape of the James River valley. The first site visited was Fort Pocahontas where students witnessed the sequence of occupation at the site, how the landscape changed from early colonial through the Civil War fortification. This was followed by a visit to Westover Church and Charles City Courthouse, here the students could see the scale and settings of these key, typical features of the colonial tidewater landscape. Another site was Weston Manor, which has a real world application of historical/archaeological research of which was used
to reconstruct a past landscape. Here the students embarked on a mapping exercise, comparing historic maps, archaeological site plans, and the locations of the outbuildings relative to the main house and the riverbank.

The building survey needed by WMCAR was a great activity that engaged and inspired the students collecting so much information by mid-week, that an impromptu set of mini-presentations, modeled on the popular TV show “Survivor,” was needed to help students sort and synthesize data. This was such a success that several of the subsequent 2010 summer program integrated it into their schedule.

Building on the 2009 Chesapeake pilot, the staff this year included a numbers of new activities focused on life skills, ice-breakers, and engagement. The overwhelming success of the additions transitioned to other programs and will be used throughout future programs.

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**When Iron Meets Iron**

An iron ship patrolling the sea  
Confederates versus the Union  
The battle of the century  
Virginia versus the Monitor  
On the sidelines sat the rest  
The obsolete wooden fleet  
As those titans clashed  
Guns fired and ready  
Four hours they fought  
For hours they stood  
Till battled and bloodied  
And it ends with a draw  
Their ways they did go  
And thus did end  
But those on both sides  
Shall forever remember  
When iron met iron  
And up went the siren  
Of the end of the wood  
And the birth of the iron

— Amy & Michael
<table>
<thead>
<tr>
<th>Program</th>
<th>OSU Forensics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridge Program Level</td>
<td>Collegiate Field School</td>
</tr>
<tr>
<td>Dates</td>
<td>June 21 - July 9, 2010</td>
</tr>
</tbody>
</table>
| Location      | The Ohio State University       
               | Waterman Farms                        
               | Columbus, OH                           |
| Director      | Dr. Sam Stout, The Ohio State University,  
               | Department of Anthropology             |
| Program Coordinator | Anne Corscadden Knox           |
| Staff         | Jules Angel, Co-Director, The Ohio State University,  
               | Department of Anthropology             
               | Dr. Carol Parks, Columbus School for Girls 
               | OSU Anthropology Graduate Students    |
| Students      | The Ohio State University                      |
| Partners      | The Ohio State University                      |

**Program Objective**

The Ohio State University Forensics program provides an intensive, three-week short course in the forensic sciences to undergraduate students. Modules include crime scene investigation/management, videography, photography, trademark analysis, ballistics, DNA, fingerprints, trace evidence, osteology, anthropology, archaeology, pathology, entomology, criminal psychology, the legal system, and courtroom testimony. Experts in each of the aforementioned modules are invited to speak to the students and lead hands on exercises. Each module is used to help the students build a case for the mock crime as they investigate and process both an indoor and outdoor crime scene, interpret the evidence,
and testify about their findings as an expert in court. By the end of the program, students are able to distinguish between real forensic science and pseudo-forensic science, whether it is in the media or in fictional accounts. Students are able to network with forensic experts and investigate career paths previously unknown to them. Overall, the program improves team work, problem solving, public speaking, math, and writing skills.

Summary

This course challenges students at the highest level of understanding and analysis exposing them daily to cutting edge science in related forensic fields. From cadaver dogs to ballistics, from trace and spatter analysis to the final presentation and cross-examination of evidence in a court of law, students experience the real side of forensic science.

In addition, the forensic collegiate field school plays an important role in program development at PAST. The cutting edge nature of a level III program helps the PAST team assess information being taught in the scaffolded programs such as FITC, keeping the information for the level I program fresh and relevant.

The main thing I learned is that there is always more than one way to solve a problem. We constantly had to rethink our assumptions about the evidence and try another approach, which made coming to solutions that much more rewarding.

— Lauren
Program
Slobodna

Bridge Program Level
Collegiate and Adult Field School

Dates
July 25 - August 6, 2010

Location
Florida Keys National Marine Sanctuary
Key Largo, FL

Director
Dr. Sheli Smith, PAST Foundation

Program Coordinator
Anne Corscadden Knox, PAST Foundation

Staff
Rob Church, C&C Technologies
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Students
Twelve College and Adult Students

Partners
NOAA
National Marine Sanctuaries
Florida State Bureau of Archaeological Research
Quiescence Dive Charter

Program Objective

Gaining hands-on experience in underwater archaeology is often difficult. While various institutions sporadically offer field schools, these schools rarely provide true field experience, despite how similarly both are marketed. Therefore, for the past ten years, PAST has offered an annual field school that guides adult students through the investigation process, from material culture and surveying techniques to field report writing. Each year PAST partners with other agencies and institutions to study a specific submerged cultural resource in an effort to provide training, increase knowledge, and improve site stewardship. The schedule and process remain the same, although the sites and partners may change.
Beginning in 2005, the PAST underwater archaeological field school initiated a detailed study of the shipwreck Slobodna. The Polish sailing ship, headed for the Baltic carrying cotton out of New Orleans, ran aground on Molasses Reef in 1887. Today, the wreckage is scattered across the reef with concentrated sections in at least three distinct locations. In 2005 and 2006, students mapped the Winch Hole and the Mast Site, where the ship initially grounded and where the foremost and bow ultimately came to rest. In 2008, the high school bridge program students inadvertently smirkeled over a third pocket of debris, discovering more of the wreck site. This past summer the collegiate underwater archaeological field school team began a multi-year project of mapping and assessing the newest locus of shipwreck debris, dubbed the Mainmast Site.

**Summary**

Following the PAST field school process, students began the two week experience by examining and recording artifacts belonging to the Key West Maritime Museum. Eighty-five previously un-recorded olive jar neck and mouth fragments, from either the Atocha or Santa Margarita wrecksites, were carefully documented and entered into a searchable database. Olive jars, the ubiquitous container of the colonial period, can illuminate a great deal about economics, trade systems, aesthetics and function. The students poured over the artifacts, learning about material culture while at the same time helping provide valuable data for future research. Their work culminated in a trip to the Key West Museum where they presented a print version of database to the museum staff and got a behind the scenes tour of the conservation labs and the archives.

While building their material culture knowledge the team slowly built their skill in underwater mapping techniques. The four teams of three were assigned to different sectors of the wrecksite and entrusted with mapping tagged artifacts. Daily, the team created a large base map of the site, as well as detailed drawings of each artifact. By the close of the second week of field school, the teams had successfully positioned major objects on the site map and established a series of datum points around the site where fragments of the mainmast rest.

On the final evening of the project, the team presented NOAA’s Florida Keys National Marine Sanctuary liaison representative, Brenda Altmeyer, with a report chronicling their work, methodologies, findings, and recommendations for further site research.

In its tenth year, the underwater archaeological field program is an excellent avenue for hands-on experience in a low-risk environment. The program is also a model example of strong partnerships that promote good resource management in concert with rigorous education.