TERRA MINI-GRANT APPLICATION
2013-2014 SCHOOL YEAR

The Technology Education Resource & Redesign Alliance (TERRA) is a non-profit organization whose mission is to mobilize the resources, knowledge, and capacity of individuals, foundations, business and industry in shaping and facilitating educational policy, practice, and research for increased achievement in a global environment.

What this funds: TERRA's Mini-Grants are intended to support school-based projects in pre-K through 12 that are consistent with TERRA's mission, and have a positive impact on education by using technology. These grants should fund initiatives that utilize technology in a new and innovative way or sustainability initiatives seeking to encourage and support creative, local environmental education and stewardship activities.

Who can Apply: Florida public, charter, and private schools and educators are eligible to apply.

Amount awarded: A total of $30,000 will be made available for a limited number of awards ranging from $500 to $3,000. Grant applications may be submitted for the 2014/2015 school year from September 1st through midnight October 3rd, 2014. The TERRA Grant Committee will review proposals and make funding recommendations to the TERRA Board of Directors.

What we are looking for: TERRA seeks applications for projects in which students participate in learning experiences that utilize technology in an innovative way or promotes environmental sustainability. **Funding is intended to encourage and support creative activities that build on the unique assets and strengths of individual education communities.** As part of this project, individuals receiving awards will be required to share what they learn with the broader community through outreach such as public events, presentations and displays and/or media engagement. Preference will be given to projects with matching funds or in-kind services.

Details:

- **The deadline for the 2014-15 school year is October 3, 2014. Applications received after this date will not be considered.**
- Financial assistance is limited to $3,000 per school, per year.
- Grantees will be required to provide ongoing feedback of grant activities, documentation of their project, including a financial report of how money was spent, at least 5 high-resolution digital photos (including publicity releases), and a short reporting form.
- The Teacher/Applicant listed is whom we will contact regarding your application.
- Inquiries should be submitted via email to: grants@terraonline.org.

Application Instructions:

- To apply, please submit this completed form by October 3, 2014.
- Fill out the form completely
- Gather appropriate signatures. Applications without signatures will not be considered.
- Submit signed proposal via e-mail to grants@terraonline.org with your school name contained in the filename.
- We will confirm receipt of your application within 2 weeks via email. If you have not heard from us, please contact us at grants@terraonline.org. Awards will be sent within one month of application submission.

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A. SCHOOL AND APPLICANT INFORMATION

Submission Date:	September 26, 2014	**School Year:** 2014-2015
School Name:	Holy Trinity Episcopal Academy	
Applicant Name:	Wes Lovelace	
Principal Name:	Christopher Hayes	
County:	Brevard	
Type of School:	❑ **Public** X **Private** ❑ **Charter**	
Student Enrollment:	850	**Number of Teachers:** 92
Range of Grade Levels at School:	**K-12**	**% Eligible for Free/Reduced Lunch:**
Applicant's Phone #(s):	**321-723-8323**	**Direct # (ext. or cell) ext. 357**
Applicant's Email Address:	**Wes.Lovelace@HTES.ORG**	
Applicant's Affiliation to School/Organization	**Full time faculty**	
If Applicant is a Teacher, please list:	**Teacher's Grade Level(s): 9-12**	**Teacher's Subject(s) Area: Field Biology/Ecology Honors Science, Sustainability, and Civilization Honors**
If Parent/Community Volunteer or Other non-school staff, please list School Contact as a Co-Applicant:	**Co-Applicant Name:**	**Co-Applicant Affiliation to School/Organization:**
If Co-Applicant is a Teacher, please list:	**Teacher's Grade Level(s):**	**Teacher's Subject Area(s):**

B. PROGRAM INFORMATION

Please list the focus area(s) for this TERRA Mini-Grant request.	Environmental Science	Biology	Mathematics	

C. PROJECT INFORMATION

Project Title: **Holy Trinity OspreyWatch Observation Program**	
Project Start Date:	**Project End Date:**
# of Students Participating: 100+	**Grade Levels of Students Participating:** 9-12 ; Holy Trinity Lower school ~300)

Mini-Grant Abstract (300 word max):
Briefly describe what your proposed project is about. Abstracts of winning proposal will be viewable at www.terraonline.org

Holy Trinity seeks a Terra Mini-grant program to support:

- Ongoing participation in *OspreyWatch*
- Its commitment to enhance practical/hands-on STEM learning
- Continued development of students as stewards of the global environment

As an observer organization in OspreyWatch, Holy Trinity will leverage its unique campus environment, remote cameras and computers to collect data for researchers at the national Center for Conservation Biology. It will also allow faculty and students of Holy Trinity and other schools to enhance science curricula; and raise awareness of the health of the global aquatic environment.

The Osprey is one of few truly global sentinels for aquatic health. OspreyWatch documents worldwide

data that are used as indicators for pressing issues facing aquatic ecosystems including climate change; depletion of fish stocks; and environmental contaminants. Observers submit data through http://www.osprey-watch.org/.

More than seven years ago, science teacher and program coordinator Wes Lovelace initiated formal activities for Holy Trinity's advanced science students to study the school's environment: a 40-acre campus with 10 acres of wetlands and a 2.29-acre lake. New cameras, computers and network connections will help to monitor two of four campus Osprey nests. Previous cameras captured the fledging of more than 30 ospreys.

The program will support the Field Biology/Ecology Honors class curriculum and general biology classes to support a unit on birds, stimulate interest in science observation, and provide practical learning for recognition of animal behavioral patterns.

Cameras and remote observation capability will allow students to observe from home for specific lessons Mr. Lovelace will create for bird behavior and weather; hatching success; and, since ospreys allow other birds to sometimes occupy lower levels of their nests; relationships among the different bird species. Remote observation will also allow Mr. Lovelace to provide access to his national network of teachers and their students.

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Mini-Grant Project Proposal (1500 word max)

Please explain how your proposed project/activity will enhance learning for your students. Include the following:

1) How is your project innovative? *(25 points)*
2) How will it fit into your curriculum (include standards)? *(10 points)*
3) How will it encourage long-lasting change in your classroom, school or community? *(20 points)*
4) How will technology be utilized? *(20 points)*
5) What evidence will you collect to show student gain? *(10 points)*
6) How will participants share your project results with the community? *(15 points)*

PROPOSAL

1. Innovation

The innovation behind Holy Trinity Osprey Watch is in recognizing the outstanding opportunity for student engagement and learning enhancement that can be realized by bringing together school resources, technology, and real-world global issues to institute changes and enriched curricula for the benefit of the student learning experience in biology and environmental science. The program will also help further develop the school's culture of participation and contribution to the health of the environment and the communities that work to conserve it.

Holy Trinity's upper campus is situated on 40 acres that include 10 acres of wetlands and a lake spanning more than two acres. The unique campus provides an exceptional on-site outdoor environmental-classroom that many teachers use to support various projects ranging from biology to engineering to art. More than seven years ago, science teacher and Holy Trinity Osprey Watch program coordinator Wes Lovelace initiated formal activities for Holy Trinity's advanced science students to study the school's environment.

Mr. Lovelace's programs included projects to monitor frogs and the local environment to study how water quality and temperature affect the species in an ecosystem, and to a larger extent, the environment. He also initiated a soundscape program and installed cameras to monitor two of the four osprey nests on campus. Previous cameras captured the fledging of more than 30 ospreys.

By revitalizing the osprey observation set-up, Mr. Lovelace will be able to further enhance the program with remote operation of the cameras and remote access to the video feeds and data. It will allow Holy Trinity to provide more, and more reliable data to OspreyWatch, since students will be able to observe from home. It will also allow Mr. Lovelace to share the capabilities with his network of science teachers and their classrooms around the nation.

2. Curriculum

The new observation equipment and OspreyWatch participation will be used to support the Field Biology/Ecology Honors class curriculum and general biology classes to support a unit on birds, to stimulate interest in science observation, and provide practical learning for recognition of animal behavioral patterns.

Additions and enhancements to the current curriculum in the advanced biology and biology classes will be developed around the activities that the capabilities the remote observation capability allows, including real-time monitoring, data recording and research. Since the camera set-up will allow students to observe from home, specific lessons for bird behavior and weather; hatching success; and, since ospreys allow other birds to sometimes occupy lower levels of their nests; relationships among the different bird species, will be added. The new sections will allow curriculum enhancements that further the correlation to the *National Science Standards* including:

1. C. Life Science – students will focus combining research and facts and models they observe and record to develop theories and principles, such as characteristics of organisms, structure and function of living systems, life cycles, reproduction and heredity, interdependence of organisms, populations of ecosystems, organisms and environments that are important for all students to know, understand and use.
2. F. Science in Personal and Social Perspectives – students will develop an understanding of elements such as characteristics and changes in population, populations, resources and environments, population growth, natural resources, environmental quality, hazards, and science and technology in local, national and global challenges.
3. U. Unifying Concepts and Processes – as students observe and research the habits and development of Osprey, they will learn and think about and integrate a range of basic ideas, which builds an understanding of the natural world.
4. A. Science as Inquiry – students will use observations and data collected as a basis to combine processes and scientific knowledge with scientific reasoning and critical thinking to develop an understanding of a

biological system.

3. Long Lasting Classroom, School and Community Enhancement

By reviving the observation equipment and engaging with OspreyWatch, Holy Trinity will provide a real-world mission for hundreds of students that enhances the learning opportunities at our school, other schools and makes a significant contribution to the research ongoing through the OspreyWatch. The program will impact k-12 students for years to come through sharing the capabilities

In addition to Mr. Lovelace's classes, the observation equipment will also be made available to k-12 Holy Trinity art instructors to provide models for drawing natural life, and engineering classes looking at natural structures and their wind resistance and resiliency.

This remote observation linked to a web site will also allow Mr. Lovelace to provide access to the observation equipment and his curriculum to his national network of teachers and their students. The local community will also be engaged through the development office at the school, with outreach to the news media to cover the program and its importance will also provide a lasting resource that will contribute to community awareness.

The lifespan of the observation equipment is expected at about five years, which will provide lasting capabilities for the students, school community, region and researchers involved in OspreyWatch. As part of OspreyWatch Holy Trinity will become an active partner, along with its other participants thanks to the technology, of a global community of observers focused on breeding osprey and the health of aquatic environments. The Holy Trinity program will help advance the mission of OspreyWatch to collect information on a large enough spatial scale to be useful in addressing three of the most pressing issues facing aquatic ecosystems including global climate change, depletion of fish stocks, and environmental contaminants.

4. Technology

Two osprey nests will be covered by cameras that feed to the upper and lower school's classroom computers. Since they are all linked, every classroom in any discipline will be able to observe the activities from nest rebuilding, mating, egg laying, and fledgling of the young chicks. These feeds will also be made available to other schools and organizations through a web-based video feed, along with online access to curriculum enhancements developed by Mr. Lovelace. The two locations include the front side of the upper school campus and in the back of the campus, behind the library building. Both existing outdated IP cameras will be replaced with new PTZ Axis IP cameras.

5. Assessment

For all Holy Trinity upper school classes opting in to integrate the OspreyWatch program, a test that covers Osprey and bird biology, as well as key elements of the national science standards will be given both before and after the program is presented. Students will also prepare a digital presentation for the school's broadcast, and try to construct a digital booklet on the life of an osprey.

6. Dissemination

This remote observation will also allow Mr. Lovelace to provide access to the observation equipment and his curriculum to his national network of teachers and their students. From the research standpoint, students will submit data through http://www.osprey-watch.org/. Students will document a variety of data requested by the project, in a series of activities reports that will log activity at each observed nest. Activities are milestone events in the breeding chronology of the nest. Data entered in the activity report by Holy Trinity students in the online forms will be tabulated for the annual project report and used to calculate breeding statistics. Data will include

- Date of pair arrival
- Date of egg laying
- Date of incubation initiation
- Date of clutch hatching
- Date of nest failure
- Reason for nest failure
- Number of nestlings
- Date of first chick fledging

- Number of fledglings
- Date chicks last observed at nest

Students will also be able to upload photos taken with the remote cameras, as well narratives of their observations through a *Nesting Diary*.

From the community standpoint, Mr. Lovelace will share the streaming video from the cameras with students, other teachers and schools, and the local environmental community on a public web site. He will also share lesson plans and curriculum modifications with teachers within his professional network. Holy Trinity will, once the cameras are installed and tested, share the project with the local media and invite other schools to participate in collecting data through the observation equipment that will be streamed on a public web site. The project will be publicized on campus to the student body through the student newspaper, family newsletters and through the high school broadcast class news updates. Holy Trinity will leverage key milestones, such as Earth Day, and hatching events to renew interest in the project and the importance of marine ecology.

D. BUDGET: Describe all costs associated with your project activity. (*Attach additional pages if necessary)*

Service/Item Description	**Cost**
Axis P5532E PTZ Cameras	5,524.95
Installation	1,007.50
Cables including fastening hardware, adaptors, surge protection, installation and testing	$2,246.69
Total Cost of Project	**$**8,779.14
Amount requested from TERRA:	**$3,000**
If matching/additional funds have been identified to help pay for your project, please list ➔	**Source:** Sue Basset Foundation, Pending: HTEA, Cables
	Amount: $5,779.14
If any goods or services have been donated for this project, please list ➔	**Source:**
	Goods/Services:

E. COMMITMENT

By submitting this application and signing below, you agree to the following:

- TERRA is not liable for any injuries or losses that may occur as a result of participation in the proposed project.
- The applicant is responsible for submitting required documentation via e-mail to TERRA including on going updates, financial report, high-resolution digital photos (and media releases) that are cleared for use in TERRA's outreach materials, and any mini-grant project-related lessons developed. A short reporting form will be sent to schools when awards are made.
- Schools that do not submit reporting documentation materials automatically waive this remaining 10% and may jeopardize future funding opportunities.
- Equipment purchased using mini-grant funds will become the property of the school receiving funds.

Applicant's Name:	Wes Lovelace		
Applicant's Signature:	George Wesley Lovelace	Date:	10/03/2014
School Administrator/ Principal's Name:	Christopher Hayes		
School Administrator/ Principal's Signature	Christopher W. Hayes	Date:	10/03/2014
School Address (for mailing of award)	5625 Holy Trinity Drive, Melbourne, FL 32940		