Environment and Natural Resources Trust Fund
2015 Request for Proposals (RFP)

Project Title: **ENRTF ID:** 073-C

Splash Screen: SciGirls Exploring Watersheds Using Mobile Technologies

Category: C. Environmental Education

Total Project Budget: $ 187,400

Proposed Project Time Period for the Funding Requested: September 2015-February 2017

Summary:

TPT's Splash Screen: SciGirls Exploring Watersheds Using Mobile Technologies will empower 200 Minnesota 4-H middle school students to become stewards of local water resources.

Name: Joan Freese

Sponsoring Organization: Twin Cities Public Television

Address: 172 Fourth St E

St. Paul MN 55101

Telephone Number: (651) 229-1339

Email jfreese@tpt.org

Web Address www.tpt.org

Location

Region: Statewide

County Name: Statewide

City / Township:

Alternate Text for Visual:

SciGirls Infographic

_____ Funding Priorities	_____ Multiple Benefits	_____ Outcomes	_____ Knowledge Base
_____ Extent of Impact	_____ Innovation	_____ Scientific/Tech Basis	_____ Urgency
_____ Capacity Readiness	_____ Leverage		_____ TOTAL

PROJECT TITLE: Splash Screen: *SciGirls* Exploring Watersheds Using Mobile Technologies

I. PROJECT STATEMENT

As Minnesota's STEM-based industries grow, including environmentally-focused opportunities, so does our need for a prepared and engaged workforce. To this end, Twin Cities Public Television (TPT) proposes ***Splash Screen: SciGirls Exploring Watersheds Using Mobile Technologies.*** TPT currently reaches over 16,000 Minnesota children, educators and families annually with outreach opportunities. With expertise in STEM education, media production and digital technology, TPT has the experience and capacity to create innovative STEM learning with today's technologies.

Enter *SciGirls*, TPT's award-winning television, web and outreach program. Funded by the National Science Foundation, the *SciGirls* outreach network includes more than 100 partner organizations including community-based organizations, afterschool programs, science centers and Hispanic and African-American serving organizations hosting *SciGirls* clubs, afterschool programs and summer camps in 30 states including Minnesota. *SciGirls* serves girls, families and educators using evidence-based practices in STEM education for girls, *SciGirls*' videos, online interactives and hands-on activities work together to address a singular but powerful goal: to inspire, enable, and maximize STEM learning and participation for all students, encouraging greater interest in STEM careers. Although the number of women in STEM fields has increased tremendously over the past half-century, it still is not keeping pace with the rising demand for skilled workers in these areas. To prepare Minnesota's girls for the 21st century workforce, it is crucial to reverse these trends. Through this project, TPT will meet the following two goals: (1) To empower 200 middle school students in ten Minnesota 4-H programs to explore their communities' water resources using mobile technologies; and (2) To increase 4-H students' ability to be stewards and advocates of their local watersheds. This project models the scientific process, introduces and reinforces the use of mobile technologies for STEM research, and sparks STEM engagement with an eye toward ongoing study and future career paths. 4-H staff will recruit ten groups within Minnesota to participate in ***Splash Screen***. Each group will serve a target audience of approximately 60% girls and 40% boys.

II. PROJECT ACTIVITIES AND OUTCOMES

Activity 1: 4-H SciGirls programs in 4-H Clubs **Budget: $161,400**

Splash Screen will demonstrate how to integrate technology into traditional environmental education activities. To collect and report data, students at ten 4-H clubs will use tablets and free applications. 4-H will share technology resources and retain them to build organizational capacity for ongoing environmental programs. ***Splash Screen*** will teach youth about water resources in their own communities using a combination of place-based education and mobile learning, connecting students to the natural world and expanding their understanding via experiential, project-based learning. Combining mobile learning with place-based education utilizes the unique capabilities mobile technologies offer for learning: portability—learners can take the computer to different sites; social interactivity—learners can exchange data and collaborate with others; context sensitivity—learners can gather data unique to the current location and time; and connectivity—learners can connect handhelds to data collection devices and to a common network. Activities will integrate a variety of technologies to enhance learning, including geographic information systems (GIS) and global positioning systems (GPS), digital journals (blogs and video) and video, audio and other creativity tools.

TPT will also create a collection of video tutorials that provide how-to information for technology use. These video tutorials can be used by educators and shared directly with students. In addition, a variety of short clips (30 minutes) from the *SciGirls* television show will be selected for educators to use in a mobile application. These will illustrate specifically how to collect, analyze and share scientific data from the environment. Two 4-H instructors from each site will attend a preparation workshop. In their final projects, which will be shared at a culminating event at the University of Minnesota, youth will communicate what they know about their watershed with community members and suggest how they might work together to preserve the balance of human and natural concerns. In this way, youth become authentic stewards of their local watershed.

During the six-week ***Splash Screen*** program, Minnesota students will

- Experience an introduction to community water resources;
- Be able to describe the major features of their local watershed;
- Explain ways humans can impact this important resource;
- Understand storm water run-off and what people can do to prevent it; and
- Develop a public information campaign to share with their peers, family and community.

Outcome	Completion Date
• 4-H educators are prepared to implement the *4-H SciGirls* program.	February 2016
• Ten Urban 4-H Clubs provide programs for middle school students.	August 2016
• Students educate peers, family and community members about their watershed.	August 2016

Activity 2: Program Evaluation **Budget: $26,000**

The Science Museum of Minnesota's Evaluation and Research in Learning group will conduct the program evaluation. Evaluators will work with TPT and 4-H staff during each phase of the project to monitor it in relation to the project's outcomes. Evaluation questions include: To what extent do youth increase their awareness and knowledge about watersheds, issues and decisions that affect watershed health, as well as actions they can take to be stewards of the watersheds in their community?; and To what extent does the project increase educator knowledge and skills around the integration of technology into environmental education? The summative evaluation will focus on measuring the overall impact of the project on the educators and youth in relation to the project outcomes. An Internal Review Board will ensure the privacy and confidentiality of all participants.

Outcome	Completion Date
• Formative evaluation focused on improvement of the educator training completed.	March 2016
• Educator pre and post interviews to measure achievement of educator outcomes.	August 2016
• Student pre and post surveys to measure achievement of student outcomes.	August 2016
• Summative evaluation of educator and student outcomes completed.	November 2016
• Presentations at national and regional conferences of findings.	February 2017

III. PROJECT STRATEGY

A. Project Team/Partners

Splash Screen TPT staff: Joan Freese, Interactive & Educational Content Producer, Rita Karl, Director of STEM Education and Sarah Carter, STEM Outreach Specialist. The Urban Youth Development Office (Urban 4-H), at the University of Minnesota Extension's Center for Youth Development will manage the program implementation at 4-H sites. 4-H contributes to the field by developing, piloting, and sharing successful models and methods of improving the learning and leadership of young people, particularly those youth who live in at-risk conditions.

B. Project Impact and Long-Term Strategy

TPT will share evaluation and program findings throughout our state, including at the Minnesota Association for Environmental Education Conference, the annual Education Minnesota Professional Conference, the Minnesota Conference on Science Education (sponsored by the Minnesota Science Teachers Association), the Minnesota TIES Education Technology Conference, as well as through established 4-H Youth Development channels.

C. Timeline Requirements

Splash Screen is designed to run from September 2015 to February 2017.

- September 2015-January 2016: 4-H will select ten participating sites; TPT will prepare the workshop.
- February 2016: The workshop will be hosted in St. Paul, Minnesota.
- March and August 2016: Sites will implement the program with students. Support for training will occur online and during bi-monthly webinars.
- September 2016: TPT will host a celebratory event during which groups will share their youth work with each other and the community.
- October 2016-February 2017: Evaluation work and conference presentations.

2015 Detailed Project Budget

Project Title: *SciGirls SplashScreen: Exploring Watersheds Using Mobile Technologies*

IV. TOTAL ENRTF REQUEST BUDGET *1.5* **years**

BUDGET ITEM	AMOUNT
Personnel: For all employees below, Salary is 74% o the cost displayed and fringe is 26%. Hours are spread across the 18 month project period unevenly depending on project activity phase; $25,000 of this cost covered by other support as below so ENRTF total here is reduced by that amount	**$ 62,700**
Project Director - 310 hours - $15,500	
Executive Director - 75 hours - $4,300	
Project Manager - 200 hours - $8,000	
Outreach Specialist - 700 hours - $27,000	
Outreach Coordinator - 520 hours - $15,200	
Business Manager - 50 hours - $3,100	
Associate Producer for clip assembly - 3 days - $700	
Media Coordinator - 80 hours - $2,500	
Interactive developer for Ap - 160 hours - $10,800	
Contracts:	**$ 30,800**
U of M 4-H partner coordination fee - $10,000	
Evaluation - $18,000	
Content experts and trainers for training events - $2,800	
Equipment/Tools/Supplies: *I*	**$ 11,700**
Tablets for 4-H clubs - 12 units - $6,500	
Workshop event supplies - $700	
Closing event supplies (2 events) - $3,000	
25 field kits - $1,500	
Travel:	**$ 6,400**
2 State educational conferences for presenting evaluation (includes conference fees) - $2,400	
Mileage @ federal mileage rate (100 miles/month)- $700	
Two evaluator trips to out-of-metro sites $1,000	
Out-of-metro educators travel to workshop - $2,500	
Additional Budget Items:	**$ 75,800**
10 4-H Club minigrants - $40,000	
Edit suite for student asset and video clip assembly (13 days) - $750	
Dataplan for 4-H group activities (9 months) - $900	
4-H site blog storage fees (10 sites) - $500	
Indicrect cost at TPT's federally-negotiated rate of 21.26%	
TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND $ REQUEST =	$ 187,400

V. OTHER FUNDS *(This entire section must be filled out. Do not delete rows. Indicate "N/A" if row is not applicable.)*

SOURCE OF FUNDS	AMOUNT	Status
Other Non-State $ To Be Applied To Project During Project Period:	**$ 25,000**	*Pending*
Corporate foundation - $12,500		
Corporate f Foundation - $12,500		
Other Non-State $ To Be Applied To Project During Project Period:	N/A	
In-kind Services To Be Applied To Project During Project Period:	**$ 30,000**	*Comfirmed*
Instructional video clips to include in the Ap - 10 clips of 3 minutes		
Funding History: SciGirls has a multi-year history of securing approximately $200,000 annually from corporate foundations for STEM outreach activities such as this project.	$ -	
Remaining $ From Current ENRTF Appropriation:	N/A	

100% of girls can be SCIGIRLS

Science, Technology, Engineering and Math (STEM) jobs are expected to grow **20%**

74% of teen girls say they are interested in STEM

Women currently receive **48%** awarded STEM degrees

Every Girl Can be a SciGirl

because...

SciGirls CONNECT is a network of **50** STEM partner organizations in 28 states

SciGirls broadcasts reach **90%** of the country

700 educators impacted

received **14,779,666** gross viewer impressions

SciGirls.org

Snags **610,000** monthly page views

Joan Freese - Project Manager
Joan Freese is the Interactive and Educational Content Producer for the TPT Science Unit. She is responsible for the *SciGirls* website and mobile products for girls ages 8-13 and educational curriculum and resources for educators and parents. Joan collaborates with interactive and game development firms and PBS Kids Interactive to place *SciGirls* on pbskids.org, and works with science content experts to produce educational materials. Prior to this project, Joan produced *DragonflyTV*'s educational campaigns and materials for children, educators, and parents. Before joining TPT, Joan worked in online educational publishing at PLATO Learning and the Learning Company, developing interactive reading, math, and social studies content and games for the K-12 market. Joan has a Master's in Learning Technologies from the University of Minnesota, Department of Curriculum and Instruction. This past summer, she completed Hamline University's Center for Global Environmental Education's Rivers Institute and is certified to teach the *Project Wet* curriculum. She is currently a participant in the Master Water Stewards program, a partnership between the Freshwater Society and the Minnehaha Creek Watershed District, which trains, certifies and supports community leaders to install pollution prevention projects that educate community members, reduce pollutants from urban runoff, and allow more water to soak into the ground before running into storm sewer systems.

Organization Description
SciGirls Splash Screen will be managed by the Science Unit of Twin Cities Public Television (TPT), the PBS affiliate station serving Minneapolis/St. Paul. A noted producer of award-winning PBS programs, TPT has become one of only three public television stations (out of 348 stations nationally) that maintains a Science Production Unit. The station has a long track record developing national productions and associated education guides, outreach programs, websites, and local and national partnerships. TPT's Science Unit has created PBS science media, educational resources and outreach programs for over 25 years, beginning with the long-running family science series *Newton's Apple*, continuing with the children's series *DragonflyTV* and *SciGirls*, all national Daytime Emmy Award winners.

TPT is a recognized innovator in multimedia and transmedia, beginning with interactive learning products based on *Newton's Apple*, early adoption of digital distribution on *DragonflyTV* and the Emmy-award winning transmedia initiatives in *SciGirls.* TPT has two decades of experience providing training to educators on how to integrate media and digital technologies into lessons and activities. TPT manages *SciGirls* CONNECT, a National Science Foundation-funded 5-year effort that engages thousands of boys and girls through afterschool programs, summer camps and outreach events that feature collaborative, inquiry-based STEM activities. More than ninety educational organizations, including community-based youth programs, Girl Scouts, Boys & Girls clubs, 4-H groups, science centers, universities, schools and public television stations, are part of the *SciGirls* CONNECT network. More than 1,000 educators have received training from scores of affiliated organizations, resulting in programs reaching well over 10,000 girls in 2013. *SciGirls*' educational outreach work has won national accolades, receiving the 2013 Best Community Engagement Award from the National Educational Telecommunications Association.

Rita Karl is the Director of STEM Outreach and Education for TPT. Rita has 17 years of senior-level experience in STEM education and outreach program leadership. She will oversee the project, budget, partnerships and activities and directly manage project staff and consultants. Ms. Karl has designed, developed and evaluated formal and informal STEM education and outreach programs at NASA, USAID and the Challenger Center for Space Science Education. She has led professional development, curriculum design and evaluation efforts in the U.S. and abroad, designing major award-winning programs for USAID and NASA using technology-based teaching and learning methods to enhance inquiry-based classroom and informal education. She served as PI on two major NASA climate change education grants in recent years.