

Teaching  
with Small  
Boats Alliance  
Conference  
2017

# A Bosun's Mate's Log

## Developing Partnerships in STEAM Education

Mike May - The Discovery Center at St. Paul's Lower School

April 26-29, 2017



Chesapeake Bay  
Maritime Museum  
St. Michaels, Md.



<http://www.bosunsmate.org>



The Teaching with Small Boats Alliance (TWSBA) is a collaboration of educators and programs that teach math, science and other essential skills through the process of boat building.

### TWSBA Mission

Our mission is to support an alliance of organizations that give young people an awareness of and resulting pride in their learning potential. We do this through the hands-on study of the maritime arts, its history, and its relationship to success in science, technology, engineering, and math.



# St. Paul's School Mission

SEEK TRUTH, KNOWLEDGE AND EXCELLENCE;  
LIVE BY FAITH, COMPASSION AND INTEGRITY.

## St. Paul's Students..

**Seek truth.** They strive to become inquisitive, reflective, creative and open-minded critical thinkers.

**Seek knowledge.** They strive to be active and engaged learners who demonstrate initiative, seek to understand, and make learning their own.

**Seek excellence.** They strive to achieve their personal best in academic, artistic, athletic, and extracurricular endeavors while maintaining lives of balance.

**Live by faith.** They pursue spiritual growth and understand they are part of a world that is bigger than they are.

**Live by compassion.** They aim to be empathetic and seek to create a more peaceful and inclusive world through a life of service and commitment to others.

**Live by integrity.** They endeavor to act with honor and respect the dignity of all individuals.



# St. Paul's Lower School

A lifelong love of learning starts with joy. The St. Paul's Lower School is full of students finding joy in their achievements today, even as they are being prepared to find success in the years to come.

Seeds of curiosity and enthusiasm are planted every day, with our students beginning to develop the essential habits of mind they will need to succeed at St. Paul's, in their later education, and in life. They acquire an appetite for learning, a sense of wonder about the world, a heartfelt concern for others, and a confidence in their own abilities. We establish the solid foundation of skills that all children must have, then go beyond the fundamentals to help students develop their critical thinking, adaptability, and effective written and oral communication.

Three-quarters of our Lower School teachers have advanced degrees. They are a combination of master teachers with decades of experience and young practitioners with innovative approaches to education. All are talented, nurturing educators, there with the right word of advice or support, spoken when it matters most. Our small class sizes and focus on individual attention help each student achieve at his or her highest possible level.



# Lower School Discovery Center Project (Problem) Based Learning

The work that students complete within the confines of the Discovery Center enhances the traditional academic curriculum of the Lower School. In Project Based Learning (PBL), students go through an extended process of inquiry in response to a complex question, problem, or challenge. While allowing for some degree of student “voice and choice,” rigorous projects are carefully planned, managed, and assessed to help students learn key academic content, practice 21st Century Skills (such as collaboration, communication and critical thinking), and create high-quality, authentic products and presentations.

Through PBL, students gain a deeper understanding of the concepts and standards at the heart of a project. Projects also build vital workplace skills and lifelong habits of learning. Projects allow students to address community issues, explore careers, interact with adult mentors, use technology, and present their work to audiences beyond the classroom. PBL also motivates students who might otherwise find school boring or meaningless. In the Center, projects vary in length, from several days to several weeks or even a semester.

St. Paul’s is serious about developing 21st Century educational skills for our students, therefore PBL is at the center of instruction in the Discovery Center.



# The Discovery Center Project [Problem] Based Learning, STEAM, and Global Education

There has been a debate in Education of late: Do We Do Project [Problem] Based Learning or STEAM? Both PBL (project [problem]-based learning) and STEAM education (science, technology, engineering, art, and math) are growing rapidly in our schools.

Some schools are doing STEAM, some are doing PBL, and some -- as we have attempted here in the St. Paul's Lower School Discovery Center since its inception five years ago -- are leveraging the strengths of both to do STEAM and PBL. With a push for deeper learning, teaching and assessment of 21st-century skills, both PBL and STEAM help target rigorous learning and problem solving.

They are not exactly the same, but they can easily be connected to teach not only STEAM content and design challenges, but also authentic learning and public, high-quality work. In fact, we know that STEAM education isn't just the content, but the process of being scientists, mathematicians, engineers, artists and technological entrepreneurs.





# NSTA-STEM Conference in Denver Colorado - 2016

“As our nation recognizes the importance of STEM education to our economic future, we are beginning to see collaborations in STEM education between preK-elementary schools, middle schools, high schools, higher education, and business and cultural communities, with varying degrees of success and impact. The sessions [presented] demonstrate an impact and have been successfully implemented ....”



# Chesapeake Bay Trust Grants

The Chesapeake Bay Trust is a nonprofit, grant-making organization with a mission to promote public awareness and public participation in the protection and restoration of the natural resources of the Chesapeake region. Our goal is to increase stewardship through grant programs, special initiatives, and partnerships that support environmental education, on-the-ground restoration, and community engagement activities.

The Trust's grant-making strategies are shaped by three core objectives; environmental education, demonstration-based restoration, and community engagement. We look to these objectives as basic touchstones for developing our grant programs, engaging new partners, and communicating about our work.

The Chesapeake Bay Trust Mini Grant Program was established to provide accessible funds to schools, organizations, and agencies for pre-K-12 Environmental Education to educate students about their local watersheds and how they can become environmental stewards and make a difference in watershed health. To accomplish this goal the program supports meaningful outdoor learning experiences around a watershed issue investigation including field trips, fieldwork, student-led action projects and schoolyard habitat projects as well as building teacher capacity to implement environmental education including professional development trainings and programs to advance environmental literacy in the Chesapeake Bay region.

<https://cbtrust.org>





# CBMM School Programs

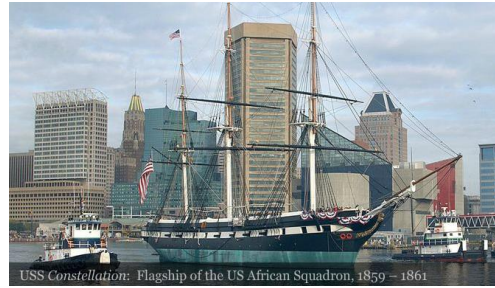
At the Chesapeake Bay Maritime Museum, we are dedicated to teaching students about the history and culture of the Chesapeake Bay's communities and environment.

## Lighthouse Overnight Adventures

The program is offered Fridays and Saturdays, April through June and September and October with advanced reservations required. Under the guidance of a museum educator, youth group participants experience the rustic life of a lighthouse keeper while spending the night in the historic 1879 Hooper Strait Lighthouse, located on the museum's 18-acre campus along the St. Michaels Harbor.

## Boat Yard Programs

CBMM offers a number of hands-on programs in the Boatyard, such as woodworking, carving classes, mosaic workshops, metal casting, tool sharpening, and the Apprentice for a Day Public Boatbuilding program runs year round.



## Historic Ships in Baltimore Hands-On Encounters With History

### USS Constellation Overnight Adventure

Historic Ships in Baltimore represent one of the most impressive collections of military vessels in the world. Located within easy walking distance of each other, four ships and a lighthouse exhibit life at sea from the mid-19th century to the mid-1980's. Experience "hands-on encounters with history" through tours, special events, live cannon firings, educational programs and more! Overnight programs provide individual organizations and groups (20-60 each) an immersive, nineteenth-century, hands-on experience that encourages team-work, problem solving, and learning.

The USS Constellation Overnight Adventure offers groups a unique opportunity to walk in the footsteps of sailors and learn about life aboard a mid-19th century, U.S. Navy warship. Participants become Landsmen, USS Constellation's newest crew members. Overnight recruits "learn the ropes" and quickly develop both a working nautical vocabulary and a familiarity with the basics of life aboard a man-of-war including Civil War-era dining, hands-on activities, and the navy hammock.



# Living Classrooms

## Shipboard Environmental Education in Baltimore

Living Classrooms Foundation has provided unique hands-on, interdisciplinary and environmental education programs aboard historic ships and on land since 1985. These dynamic, "learning by doing" programs emphasize applied learning in math, science, social studies, language arts, and social skills.

The programs serve students from a variety of backgrounds and economic means and range in length from one-day expeditions for school and youth groups to extended shipboard and land/sea programs. Participants see how academic skills are used in the real world. Leadership and teamwork are key objectives as students work together to raise and lower sails, trawl for marine life, perform scientific tests, and explore the commerce, history, natural resources, and ecosystems of the Chesapeake Bay.

Living Classrooms shipboard education programs serve thousands of students per year from throughout the region aboard the Foundation's floating classrooms including schooner Lady Maryland, Chesapeake Bayboats Mildred Belle and Half Shell, and Skipjacks Sigsbee and Minnie V.

# Discovery Center - Historic Ships in Baltimore

## Nautical History and Marine Engineering



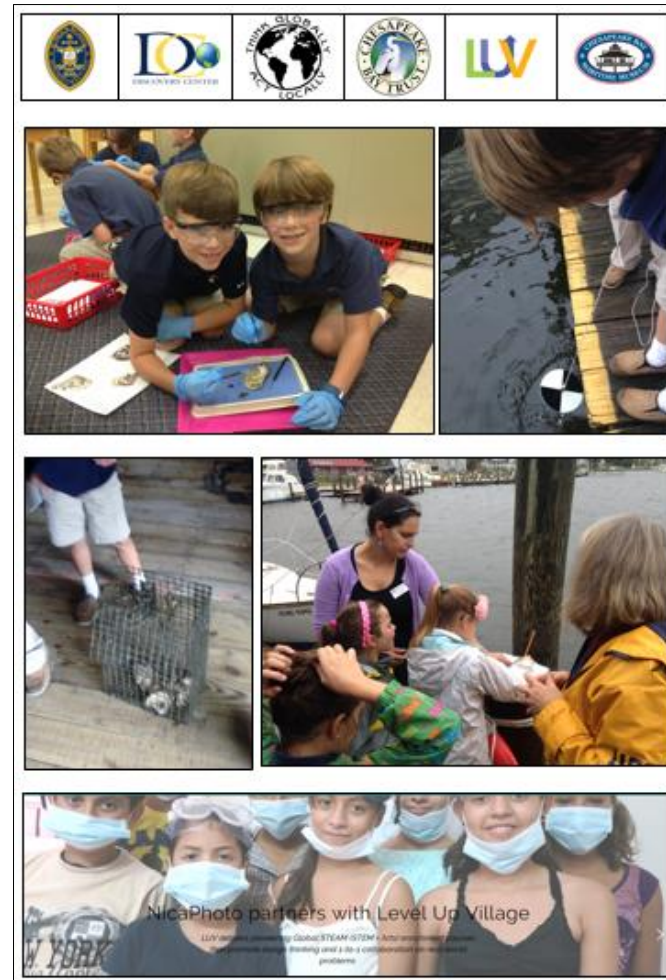


# Discovery Center - Living Classrooms: Chesapeake Bay Ecology and Nautical Science



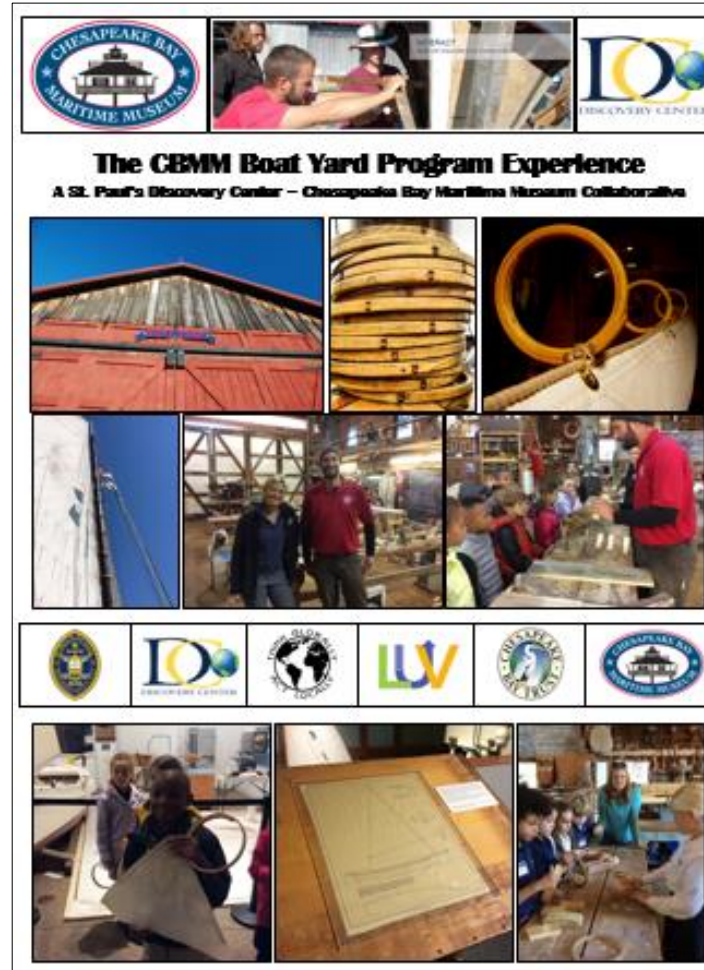
# Discovery Center - Chesapeake Bay Maritime Museum

## Bay Ecology & Nautical Science





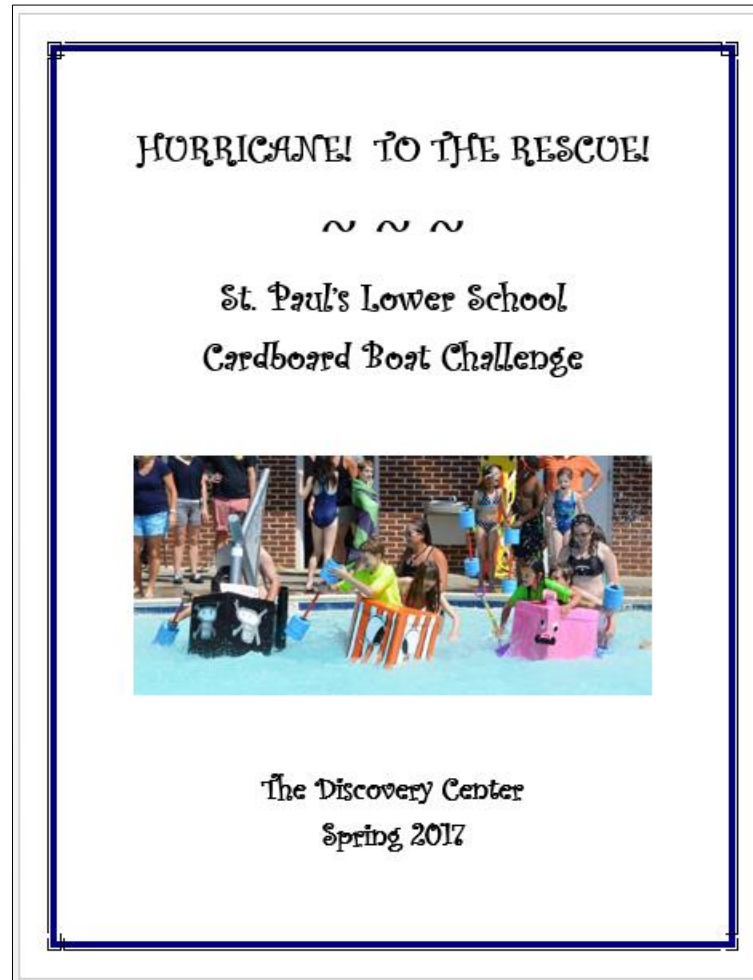
# Discovery Center - Chesapeake Bay Maritime Museum Boatyard Shipwright Experience



# Discovery Center - Chesapeake Bay Maritime Museum Nautical Science & Lighthouse Engineering



# Discovery Center of St. Paul's Lower School Hurricane! To the Rescue! Cardboard Boat Regatta



# Discovery Center of St. Paul's Lower School Hurricane! To the Rescue! Cardboard Boat Regatta



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# Thank you!

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<https://www.stpaulsschool.org>

<https://www.stpaulsschool.org/page.cfm?p=4910&LockSSL=true>

<http://stpdiscoverycenter5.wikispaces.com>

<http://www.nsta.org>

<https://cbtrust.org>

<http://cbmm.org>

<http://www.historicships.org>

<https://www.livingclassrooms.org>