

Maryland Association for Environmental and Outdoor Education



St. Joan of Arc STEM Family Newsletter

May 2019

Recent Happenings

Monarch Garden

The SJA Monarch Garden is coming along nicely. The black-eyed susans and milkweed from last year came back. Several grades have been busy growing some additional plants for the butterflies. Pre-K and 8th grade worked together to plant the *Salvia Coccinea* that the pre-K students grew.



6th grade and 1st grade worked together to plant the marigolds that 1st grade grew.



7th Grade Wax Museum

Students in 7th grade researched various scientists, wrote a research paper, and created class presentations. Then, they hosted a wax museum that the other grades visited to learn about each scientist.



John Carroll Middle School Engineering Challenge

This month, some middle schoolers attended John Carroll's Engineering Challenge. One of the teams placed third!



8th Grade Exit Projects

Students in 8th grade are presenting their exit projects. Many of them chose STEM topics such as:

How Can Art Therapy Help People Suffering from Physical Pain and Emotional Trauma?

What Is Depression and How Is It Treated?

What Is Social Anxiety and How Is It Treated?

Is There a Connection Between Food Dyes and Attention Deficit Disorder?

What Are the Different Kinds of Hackers?

Are Players of Violent Video Games More Likely to Commit Acts of Violence?

How Does Technology Affect Children?

Does Playing Video Games Help or Harm People With Attention Deficit Disorder?

Does the Measles Vaccine Cause Autism?

Antimatter

Global Warming

STEM Opportunities in the Community

APG Discovery Center

APG is building a world class science and technology center. It will be a place where all students will

Have the opportunity to explore, discover, learn, innovate and play. It is being completed in phases: [Phase I](#) -The Discovery Preview Center will open in Aberdeen, Maryland in late 2019. This 1200-SF facility will feature several small-scale exhibits similar to what will be found in the permanent Discovery Center.

[Phase II](#) - A 10,000-SF facility will open in 2022 featuring 12-15 hands-on exhibits, an Imax auditorium, flex space, large classroom, and a small store.

[Phase III](#) -The APG Discovery Center will double in size and be able to accommodate over 100,000 visitors a year.

Eden Mill Programs

Children ages 2-5 (accompanied by an adult)

Preschool Nature Series - spring - select Tuesdays

Children ages 6-12 (accompanied by an adult where noted)

Nature Storybook Art for Homeschoolers - spring- three Wednesdays per session

*NEW PROGRAM - Nature Storybook Art for Homeschoolers - Native American theme - three Wednesdays in the session

Family/ages as noted (minors must be accompanied by an adult)

Child and Adult Paint Afternoon - April, May, June ages 5-10 w/participating adult

Bird Banding-April and May

Spring Blooms - all ages

Owl Prowl

Sunrise Sunset Canoe Trips - ages 6 and over (no exceptions!)

Introduction to Tandem Canoeing-ages 14 and over

Summer Week Programs

Wee Wonders- July, Preschoolers with an adult

Nature Storybook Art - July, ages 5-10

Summer Adventure weeks - June, July, and August ages 6-11

For additional information about programs, please see the following flyers or visit:

<http://www.edenmill.org/Programs.html>

On-line preregistration is now available! Just click the link: [Preregistration](#).

Harford County Library Programs

The libraries in Harford County do a great job of offering STEM programs for all ages. STEM programs are free and open to the public and lead by skilled library staff and/or experts in the field. Please be sure to visit <https://hcplonline.org/leaprograms.php> to look at the programs.

35 STEM Books for Kids

<https://www.vivifystem.com/blog/2018/6/17/engaging-stem-books>

Ella the Engineer

This comic book series features Ella, a young, female role model, and aims to interest students in a character who will solve problems, use emerging technology, and collaborate to determine, for example, the whereabouts of a stolen class pet using analytics. The series consists of four comic books and a graphic novel. Learn more here:

http://womenofcolor.online/article_list/meet-ella-the-engineer-new-stem-comic-book/

Find the first issue here:

https://static1.squarespace.com/static/59dc13d712abd9f0c22ea5ba/t/5c6c7314085229ddae9c2c60/1550611252216/ella_the_engineer_new.pdf

Green Trees and Sam, A Landscape Architecture Story

This is a really cute e-book about a girl who aspires to be a landscape architect. It highlights many of the outdoor spaces in a community that are designed by landscape architects and has a glossary of important terms. <https://www.bolton-menk.com/books/sam/sam.html#p=24>

10 Books to Spark a Love of Math in Kids of All Ages

<https://www.kqed.org/mindshift/50593/10-books-to-spark-a-love-of-math-in-kids-of-all-ages>

Outstanding Science and STEM Trade Books

<http://static.nsta.org/pdfs/2018OSTB.pdf>

Free Passes!

The National Park Foundation is offering passes for free admission to national parks, national forests, and national wildlife refuges to fourth-grade students and their families. The admission passes are good from September 1, 2018 through August 31, 2019.

<https://www.everykidinapark.gov/>

Let's Go Fishing! Activity Booklet

For students in grades 3-7 and their families, this booklet was developed as part of the FWS National Park Service Junior Ranger Program. It contains 12 games and activities to foster safe and enjoyable fishing experiences and promote the conservation of native fish and their habitats. Interested students can turn in the completed booklet at a participating site and receive a Junior Ranger fishing badge. <https://www.fws.gov/fisheries/junior-ranger-fishing.html>

Harford Streams

Visit a Stream * Take a Selfie * Win a Prize

This summer explore the natural beauty of Harford County streams, snap stream-side selfies at your favorite locations, and win prizes in Harford Streams Summer Adventure, open May 24, 2019 through September 2, 2019 for citizens of all ages.

Harford Streams Summer Adventure seeks to raise awareness and support for protecting and restoring our precious natural resources by encouraging visitors to scenic waterways throughout Harford County.



The poster features a green background with white and blue text. At the top left, it says "Harford Streams SUMMER ADVENTURE 2019". To the right is the Harford County seal and the name "Barry Glasman County Executive". The central image shows a smiling boy in a blue striped tank top by a stream. Below this are three overlapping circles with the text "VISIT HARFORD STREAMS", "TAKE SELFIES", and "WIN PRIZES!". At the bottom left, it lists rewards: "7 locations = Free T-shirt", "11 locations = Drawing for a pontoon boat trip", and "15 locations = Drawing for a canoe trip". It also provides a registration link: "www.harfordcountymd.gov/harfordstreams/summeradventure". At the bottom right, it says "Follow us and check out your selfies!" with Facebook and Twitter icons and handles: "Harford Streams" and "@HarfordCountyMD". A small inset photo shows a woman and a child taking a selfie. At the very bottom, it says "For more information please call Harford County Department of Public Works at 410-638-3217 x2448".

Join the Harford Streams Summer Adventure! Visit Harford Streams and take selfies to enter to win prizes! Register and upload your selfies here: <http://www.harfordcountymd.gov/1908/Summer-Adventure>

The Catholic High School is offering several camps for middle school girls:

Summer Camps at TCHS for middle school girls



Volleyball Camp

June 17-20

8:30 am - 12 noon

Science Camp - STEM & Biomedical

June 17-20

8:00 am - 3:00 pm

Exploring our Bay Ecosystem Camp

June 24-27

8:00 am - 3:00 pm

Creative Writing & Art Camp

June 24-27

8:00 am - 3:00 pm

Basketball Camp

July 15-18

8:30 am - 12 noon



To Register...

Visit us online at thecatholichighschool.org
or call: 410.732.6200

Exciting News

SJA is proud to announce that we will be offering a STEM Camp from July 15th - July 19th from 9am-3:30pm for incoming grades K-6. There is also a Leaders-in-Training (LIT) program for incoming 7th-9th graders. LITs will gain mentoring and collaboration skills while helping guide campers throughout the week! Camp will be run by our very own Mrs. Barberry! See below for details. If you would like to help at this camp, please email Mrs. Tokarski to let her know (ttokarski@stjoanarc.org).

Unmask your child's creativity this summer in the all-new Camp Invention® program, Supercharged, where children build confidence, learn to collaborate and transform their wild imaginations into epic creations. Campers in grades K-6 will learn creative problem-solving skills while coding and programming futuristic robots, uncovering ancient fossils, designing high-tech superhero gadgets and exploring radio frequencies. Local educators will lead this action-packed program featuring exhilarating, hands-on STEM activities teaching children to question, explore, break through obstacles and embrace failure! Early registration discounts are available! Register and find current promotions at invent.org/camp or call 800.968.4332.

The new Camp Invention® program, Supercharged™, allows campers to experience real-world problem solving and creative thinking! From robots and high-tech farms to superhero gadgets, campers will invent the future! SJA is hosting Camp Invention from 7/15 to 7/19. Visit invent.org/camp or call 800-968-4332 to register!

Calling all students entering grades 7-9!!!

Want to be a part of STEM camp, but disappointed that it is for campers up to 6th grade? Would you like to earn volunteer hours/experience at SJA's STEM Camp (July 15th - July 19th from 9am-3:30pm) and work with Mrs. Barberry and Mrs. Smith? You will build leadership skills and gain mentorship experience as you help them lead a week of creativity! The cost for the week is \$130. If you are interested, register here: <https://www.invent.org/programs/leaders-in-training>

For High School Students

Internship available at SJA's Summer STEM Camp

Leadership Interns will work closely with Mrs. Barberry and Mrs. Smith and Camp Invention® and Invention Project® participants to help them explore STEM concepts and become creative thinkers who can invent a better tomorrow. (SJA's STEM Camp will run July 15th - July 19th from 9am-3:30pm.) You will get at least 40 volunteer hours. If interested, you can apply here: <https://www.invent.org/programs/leadership-intern>

Interesting Articles

16 Women Scientists You Should Know: <https://www.amightygirl.com/blog?p=11511>

Why it is important to expose children to a STEM education in the early years:
<https://districtadministration.com/stem-education-myths-early-grades/>

BUILDING AMERICA'S FUTURE: STEM EDUCATION INTERVENTION IS A WIN-WIN
<https://publicpolicy.wharton.upenn.edu/live/news/2188-building-americas-future-stem-education/for-students/blog/news.php>

Interesting Facts

STEM FACTS
That should SHOCK you

According to economic and education experts, the U.S. is currently experiencing a STEM crisis. But what are some current statistics on STEM? Are things improving? These statistics reveal that there's still a lot of work to be done!

Economy

There are currently 26 million STEM jobs, comprising 20% of all U.S. jobs

VS

Through 2020, the U.S. will have 9.2 million more STEM jobs. 4.6 million of those will be in computing alone.

From 2010-2020 there will be an increase in:

- Math Jobs: 16%
- Computer Systems Analyst: 22%
- Systems Software Developers: 32%
- Medical Scientists: 36%
- Biomedical Engineers: 62%

Only 31 % of U.S. bachelor's degrees were awarded in science and engineering compared to:

U.S. (31%)

61% in Japan

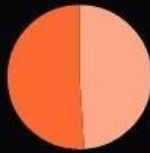
51% in China



Other (69%) STEM (31%)



Other (39%) STEM (61%)



Other (49%) STEM (51%)

During the Great Recession (2010) people with STEM jobs had a 5.3% unemployment rate

vs

10% for non-STEM jobs



In 2009, for the 1st time, over 1/2 of U.S. patents were awarded to non-U.S. companies because STEM shortcomings are forcing a hold on innovation.

Teens/Degrees

U.S. elementary schools devote an average of 2.3 hrs/week to science, a decline of 43 minutes since 1984.



63% of teens have NEVER considered a career in STEM.

Only 27% of 2011 test-takers took an AP science exam. Only 26% took an AP math exam.



Only 44% of 2013 high school grads were ready for college-level math courses; 36% for science.

38% of students who enrolled in a STEM field didn't graduate with a STEM degree.



By 2018, 92% of traditional STEM jobs will require some post-secondary education.

Women



In most states, only about 3 in 10 STEM awards is attained by a woman.

Only 31% of STEM degrees are awarded to women.



References:

STEM Education Coalition, Bureau of Labor Statistics, National Math + Science Initiative, U.S. DOE, STEM Advantage

In the News

Chan et al. developed a smartphone system to detect middle ear fluid that uses the microphone and speaker of a phone to emit sound and analyze its reflection (echo) from the eardrum. The smartphone system outperformed a commercial acoustic reflectometry system in detecting middle ear fluid in 98 pediatric patient ears, and the system could be easily operated by patient parents without formal medical training <https://stm.sciencemag.org/content/11/492/eaav1102>

Tiny microbes are munching away at plastic waste in the ocean.

<https://www.sciencemag.org/news/2019/05/these-tiny-microbes-are-munching-away-plastic-waste-ocean>



As part of our STEM school status, we need to have an active Parent STEM Committee. Responsibilities may include helping with STEM project ideas, after school activities, securing speakers/presenters from various STEM careers. We are seeking members and a chairperson for this committee. The committee can set their own meeting times/locations. Please e-mail Mrs. Tokarski (ttokarski@stjoanarc.org) and/or Mrs. Bahr (vbahr@stjoanarc.org) if interested.

The first meeting will be Tues, May 28th at 3:30pm in the Science Lab. We will talk about how the after-school club will look for next year.

Parent STEM Committee Mission Statement:

The Parent STEM Committee provides enrichment by sharing career and achievements through learning experiences which expand student interest in STEM careers. The committee will actively participate in providing teachers and students with STEM learning opportunities both inside and outside of the school day.

Goals:

- Facilitate an after-school STEM Club's bi-weekly or monthly meetings to engage students in STEM activities/projects.
- Solicit qualified presenters who will engage students in various STEM experiments, projects, and explorations during the school day.

Committee Chair's Responsibilities:

- Ensure that meeting minutes are submitted to SJA admin.
- Arrange meetings as needed



Did you know... Bay Plates helped pay for your child's outdoor experience?

Your child's outdoor learning experience was funded in part by the Chesapeake Bay Trust, a nonprofit organization that provides grants to schools so that children like yours can learn in their natural world. The Trust is funded by sales of Maryland's Protect the Chesapeake license plate which each year allows more than 80,000 Maryland students to get outside and learn through hands-on experiences. To find out more about the Bay plate, please visit www.bayplate.org. Bay plates only cost \$20 and you can change to a Bay plate anytime to help support additional field trips for Maryland students.

Chesapeake Bay Trust bayplate.org cbtrust.org 410-974-2941