



## *St. Joan of Arc STEM Family Newsletter*

**“The main hope of a nation lies in the proper education of its youth.”**

— Desiderius Erasmus Roterodamus

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October 2020

**STEM encourages critical thinkers, entrepreneurs, and change-makers, who will lead the nation at the forefront of discovery. Help us inspire our students to change the world!**

### **SJA Citizen Scientists**

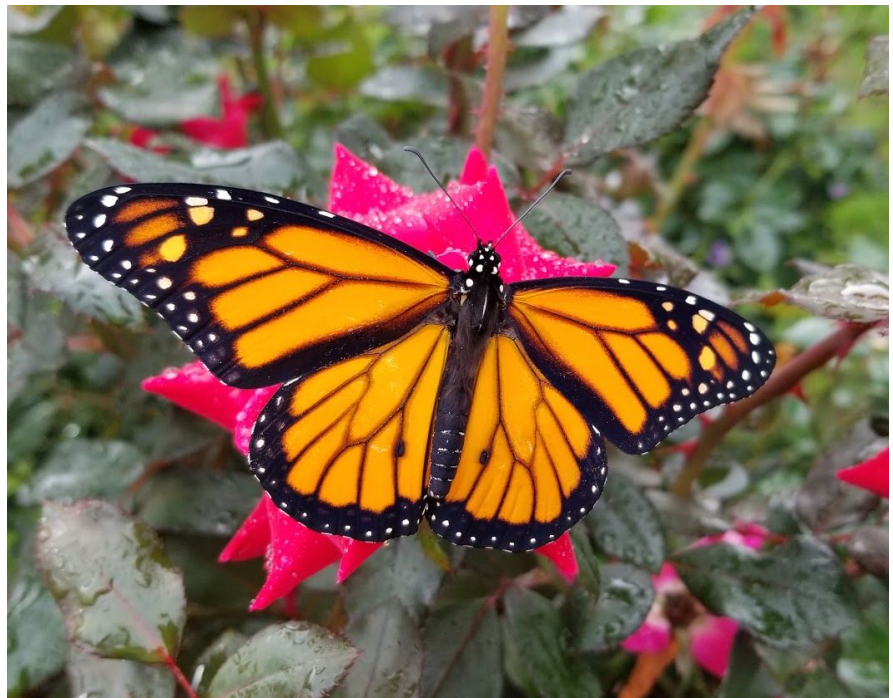
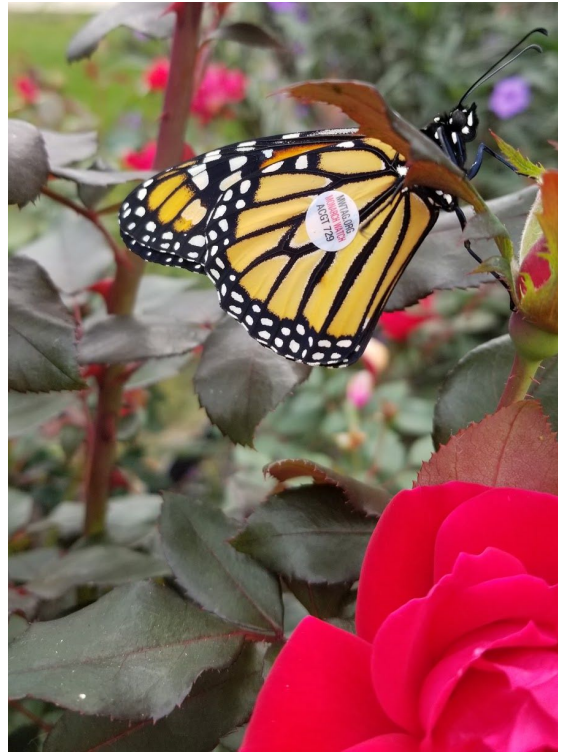
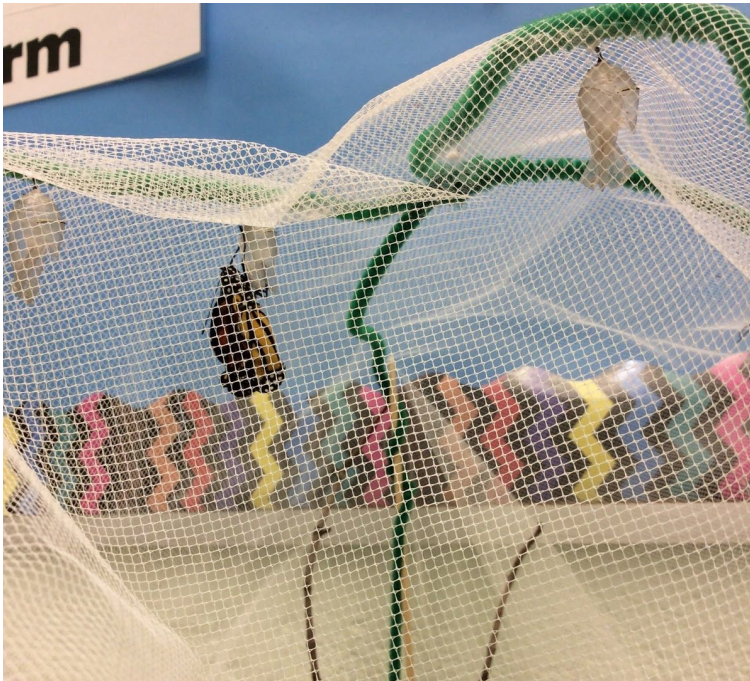
Now that our Monarch Butterfly Garden is fully established, we have had many monarch butterflies visiting and laying eggs. Our entire school has become involved in the Monarch Watch citizen scientist project. Classrooms have been raising monarch caterpillars found in our butterfly garden. Once they become butterflies, we tag and release them.

Tagged monarchs observed or recovered in the United States, Canada, and northern Mexico are often found by people who are not familiar with the Monarch Watch tagging program. They are directed to submit the recovery information (complete tag code, date, location, and contact info) via the Monarch Watch Tag Recovery Form so that it may be added to the database. We will then receive a certificate letting us know of the monarch's sighting or recovery. The majority of the recovered tags are obtained from central Mexico.

We are also working with Project Monarch Health to monitor the butterflies for *Ophryocystis elektroscirrha*, or OE. OE is a parasite that infects monarchs and some other butterflies. OE is a single-celled organism known as a protozoan, a living thing that has many of the same characteristics as animals. OE must live within a host to grow and multiply. However, when it is not inside a host, OE survives in the environment as spores, which are resistant to extreme conditions. OE was first discovered infecting monarch butterflies in Florida in the late 1960s. It has since been found in all other monarch populations world-wide. This large range leads scientists to believe that this parasite has evolved alongside monarchs. OE spores are dormant cells found on the outside of infected monarchs. These tiny spores are sandwiched in between the scales that cover a butterfly's body. The greatest concentration of spores usually occurs on the abdomen. Once we tag a butterfly, we collect a sample from his/her abdomen by using a small piece of tape. These samples are labeled and will be sent to Project Monarch Health for analysis. Prior to sending, we have looked at some of them under microscopes ourselves and have found only one with evidence of OE.







## STEM at Home

Bring the joy of discovery to life in the comfort of home with a variety of exciting digital learning explorations that help students put STEM skills into action. Family members can join in as students get hands-on with ready-to-use activities promoting self-guided learning and career success.

<https://stemcareerscoalition.org/parents-and-guardians>

Many national and local organizations have websites for children that provide fun and educational activities, games, videos and more. Check out some of the following sites for STEM activities your child can participate in from home.

[The NASA Kids' Club](#)

[PBS KIDS Lab](#)

[Science Kids](#)

[STEM-Works](#)

[Funology](#)

[Extreme Science](#)

[Smithsonian Institute](#)

## You Can Help

### Parent/Community Volunteer needed to be an advisor to the eCybermission Team.

eCYBERMISSION is a web-based science, technology, engineering, and mathematics (STEM) competition for students in grades six through nine that promotes self-discovery and enables all students to recognize the real-life applications of STEM. Teams of three or four students are instructed to ask questions (for science) or define problems (for engineering), and then construct explanations (for science) or design solutions (for engineering) based on identified problems in their community. Students compete for State, Regional, and National Awards. The U.S. Army Educational Outreach Program is committed to answering the Nation's need for increased national STEM literacy and to expanding STEM education opportunities across the country to open doors to new career paths for American students that lead to a brighter tomorrow.

A team of 3-4 middle school students can be registered anytime and the competition ends March 3, 2021.

Students will pick a Mission Challenge from the following:

Alternative Sources of Energy

Environment

Food, Health & Fitness

Forces & Motion

National Security & Safety

Robotics

Technology



## TREX Competition

Last school year, we recycled 325 pounds of plastic at SJA!! Thanks to everyone who participated! And a big thank you to Mrs. Smith and Mrs. Simmons for weighing it all and bringing it to be recycled. As a result of our efforts, we received a Trex planter. It looks great in our school lobby.



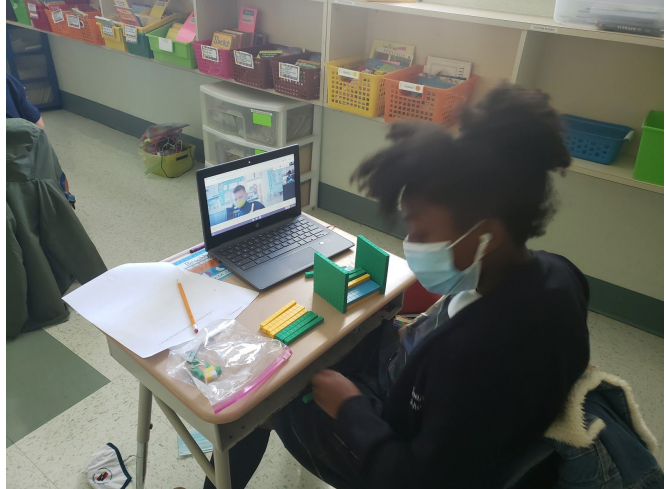
We have entered the contest again and are hoping to collect even more. If we collect the most in our division, we will get a Trex bench! Please see the below poster to know what to send in to our school to be recycled. We have boxes on each floor. Students can bring in the plastic from their household (and others they collect from) and deposit in the box at any time.



## Recent Happenings

**Second Grade Social Studies** has been learning about maps and we are going to create a map of our classroom.

Third Grade did a place value challenge.



## Middle School

Here is what some of our middle schoolers have to say about why STEM and science are important,

"I believe that stem is very important. My brother suffers from a rare throat disease called eosinophilic esophagitis. It is where he can't eat a lot. So maybe one day stem scientists can make a cure. So then me and my brother can eat the same dinner. Then my mom could stop worrying about him. Also if he has kids he might give it to them too. So it is worrying. "

"I think science is important because it helps a lot of people. It also helps people with cancer because if there wasn't science every single person with cancer would be dead. A lot of people in my family had cancer. When I get older I want to be a veterinarian because I don't like people, but I do like animals. If I can't be a veterinarian I want to be an oncologist so I can find a cure for cancer so nobody can suffer anymore."

"Science and STEM are important because they help us to learn more about the world around us and our planet and the animals and plants around us. It has also helped us to make our lives better and easier, like how we used STEM to discover electricity and created ways to use it. Science and STEM is also important today because it will help us solve a lot of the issues that are going on in the world, especially like covid-19. STEM and science is what is going to help us overcome it. It has already helped because now we know how it spreads and how to avoid getting it."

"Science is important because we need that to improve our lives, stay strong when a virus needs a cure and we are dealing with a dangerous pandemic. The doctors are working for a cure and testing. We need math because we are facing a pandemic and that math we need for a calculation for a cure/vaccine. Technology is important because tech has the power to search the best alternatives for coronavirus. We need engineering because we want to search for vaccine so we have to go to a certain place to find a cure."

"Science and stem are important because most of the things that we are used to using are all made by using science and stem. Another reason that science is important because it helps slow down the spread of viruses such as using vaccines, anti bacterial spray, and other chemicals. STEM is important because it makes people get the right education to make all these things that make our life easier."

"These people who learned with STEM also make cars which really help travel go faster. The people who are working on making electrical cars are the people who have learned using STEM. These people also make things to help our economy and trade using computers and making it so that we can communicate to countries around the world. Science and STEM are really important and can help anyone have a better life and not just using the products but getting more people employed. This is Why Science and STEM are really important."

"Why science and STEM are important is because it makes our lives simpler and easier. Since we study science and do STEM to understand and create things which improve our lives. It also increases our interests in the world, and opens new aspects of the world. It helps us, heals us, teaches us. Science and STEMs importance increases constantly."

"With science and STEM, our world becomes safer and more prepared for future events. Vaccines, lights, cables, signals, and much more is here in the world. It also prepares a way for others to make something better. It allows us to understand the world, and like I have been saying, improves, fixes, and makes things easier. It allows the world to be safer and more comfortable, for all people."

"Science and STEM are important because Science made computers and I love computers. I also like science because it's just really cool!"

Science is important because I wear glasses and science helped my eyes. I was born with a cataract so science helped figure that out."

# STEM Opportunities in the Community

## Challenge Island Programs

Challenge Island offers a wide array of exhilarating, collaborative STEMtastic programming for kids ages 4 to 14+. Our action-packed options include afterschool enrichment classes, in-school field trips, camps, parties, and much more! No matter what kind of Challenge Island program you choose, you can be sure it will be a blockbuster hit!

Now, kids can experience the magic of Challenge Island®, the world's #1 STEAM program, from the safety and comfort of home. All Home Island Virtual Camps, Field Trips, and Enrichment Classes are taught live by certified Challenge Island® teachers. Children interact with their peers throughout all of our programs.

More info and registration [here](#).

## Eden Mill Programs

The nature center and historic grist mill museum are open, by SCHEDULED APPOINTMENT ONLY, Monday- Friday from 8:30-4.

The park grounds are open, but social distancing must be maintained.

All Eden Mill Nature Committee programs have been canceled for 2020 due to the Covid-19 pandemic. Check out our Facebook page for fun nature-themed activities you can do at home!

## STEM Saturdays at Microsoft

Teachers, students, and parents are welcome to drop by their local Microsoft Store to participate in these learning experiences. Projects are designed for 11- to 14-year-old students but can easily be completed by younger students with parental support. (\*The closest one is in Christiana Mall.)



# GRAB 'N' GO BY APPOINTMENT!

AT ALL HARFORD COUNTY PUBLIC LIBRARY LOCATIONS



Harford County Public Library  
will offer **Contactless Pickup** at  
all Harford County Public Library  
locations, Monday through Friday,  
10:00 am – 6:00 pm.

- ▶ **ALL LIBRARY BUILDINGS** remain closed  
and appointments are required (NO walk-ins & NO drop-ins)
- ▶ **DRIVE-THRU** Service only at Abingdon, Bel Air, Edgewood,  
and Jarrettsville libraries.
- ▶ **FRONT DOOR PICKUP** Service only at Aberdeen, Darlington,  
Fallston, Havre de Grace, Joppa, Norrisville, and Whiteford libraries.
- ▶ **BOOK RETURN DROPS** are open and all materials to be  
returned must be placed in the book return drops.
- ▶ **BOOK DONATIONS** are NOT accepted at this time.

We are committed to following the latest safety guidelines from  
State and Local authorities; including the following precautions:



Customers & Staff  
must practice 6' social  
distancing at all times.



Customers & Staff  
must wear masks covering  
nose & mouth at all times.



All Libraries  
will follow rigorous  
cleaning procedures.

## **Citizen Science & Libraries Event Series**

Thanks to support from the National Library of Medicine, SciStarter is partnering with libraries across the country to host virtual events that provide real-time, step-by-step project instructions, Q&As with project scientists and engaging discussions about citizen science across all levels of experience. [Join us for the online events!](#)

## **Help Accelerate Alzheimer's Research by Playing a Game**

Join SciStarter and Bradley Beach Public Library on zoom to learn about citizen science and how YOU can accelerate Alzheimer's research by playing a game. All are welcome! [RSVP](#) to join us on October 21 at 3:30 PM ET

## **For High School Students**

### **HS Girl Military STEM Career Night**

7 pm on October 13th      Calling All High School Girls. The Military is not just for boys. Meet Military Women in STEM Careers and learn about the opportunities available. Keynote speaker is Retired General Linda Singh.

## **Biomedical Engineering Innovation**

Biomedical Engineering Innovation (BMEI) is a fully online course with hands-on labs that introduces biomedical engineering to high school students by (1) modeling biological systems and designing experiments to test those models and (2) introducing engineering principles to solve design problems that are biological, physiological, and/or medical. Students will model human efficiency, the arm, and the cardiovascular system. Students are expected to use the informational content being taught in math, physics and biology and to apply this knowledge to the solution of practical problems encountered in biomedical engineering.      Course number: EN.500.130

### **Program Dates**

- Spring 2021
  - January 25 – April 23, 2021
- Summer 2021
  - TBD

The [application](#) for Spring 2021 will open in mid-October. Click [HERE](#) or contact [BMEI](#) for more information.

# Smart Scholarship Program

The Science, Mathematics, and Research for Transformation (SMART) Scholarship-for-Service Program is funded by the Department of Defense (DoD). It is a combined educational and workforce development opportunity for bachelors, masters, and Ph.D. students to gain technical skills in critical STEM fields and support the national security mission of DoD.

Mission: The SMART Program provides a combined education and career opportunity to students pursuing STEM degrees that will enhance the Department of Defense (DoD) civilian workforce.

Vision: The SMART Program creates a highly skilled Department of Defense (DoD) STEM workforce that competes with the dynamic trends in technology and innovation to protect national security.

The SMART Program provides STEM students with the tools needed to pursue higher education and begin a career with the DoD. With a full scholarship, students pursuing science, technology, engineering and mathematics (STEM) degrees will be able to focus on complex research to further the DoD's mission and create lasting impact. SMART is a one-for-one commitment; for every year of degree funding, the scholar commits to working for a year with the DoD as a civilian employee. Summer internships prepare scholars for full-time employment and get them accustomed to working with the DoD.

SMART offers a large package of benefits to qualified candidates:

- Full tuition and education related educational expenses (meal plans, housing, and parking not included)
- Stipend paid at a rate of \$25,000 - \$38,000 a year depending on degree level (may be prorated depending on award length)
- Summer internships ranging from 8 to 12 weeks
- Health Insurance allowance of up to \$1,200 per academic year
- Miscellaneous allowance of up to \$1,000 per academic year
- An experienced mentor at one of the Sponsoring Facilities
- Employment placement at a DoD facility upon degree completion.

For more information, click [here](#).

## STEM in the News

### STEM on the Job

Most employers want workers who are able to reason and solve problems using some math, science, or technology knowledge. Key STEM skills include:

- Analytical skills to research a topic, develop a project plan and timeline, and draw conclusions from research results.
- Science skills to break down a complex scientific system into smaller parts, recognize cause and effect relationships, and defend opinions using facts.
- Mathematic skills for calculations and measurements.
- Attention to detail to follow a standard blueprint, record data accurately, or write instructions.
- Technical skills to troubleshoot the source of a problem, repair a machine or debug an operating system, and computer capabilities to stay current on appropriate software and equipment.



Think STEM is just for geeks? Not true! Many workers in STEM fields use "soft" skills at work as much as they use math and science. These soft skills include:

- Communication and cooperation skills to listen to customer needs or interact with project partners.
- Creative abilities to solve problems and develop new ideas.
- Leadership skills to lead projects or help customers.
- Organization skills to keep track of lots of different information.

<https://careerwise.minnstate.edu/careers/stemskills.html>