What causes combustion? What prevents bridges from collapsing? How are robots made? Students in elementary and secondary school have a natural curiosity about these and many other questions about how the world works; however, research shows that by 4th, 5th, and 6th grade, interest begins to fade as more difficult formulas and computations become part of the curriculum.

STEM events provide students with opportunities to see and interact with Science, Technology, Engineering, and Mathematics (STEM) in fun and engaging ways, stimulating their curiosity and interest. With the help of professionals in these fields, schools can create events that will engage not only students, but also parents and the entire community.

In 2014, Highland View Academy in Hagerstown, Maryland, U.S.A., under the direction of Ophelia Barizo, created a new STEM Department. The program offers students an interdisciplinary approach to STEM and utilizes problem-based learning. Students learn how to apply principles to solve problems they will encounter living in the digital age. They also have opportunities for internships, field trips, STEM-related community service and outreach, special courses (robotics, app development, project-based learning, and AP computer science), and networking with STEM professionals.

STEM Fest is sponsored by this department to create a school- and community-wide culture of appreciation for STEM and cultivate and nurture in younger students an interest and desire to study in these areas. The annual event, coordinated by Ophelia Barizo with the help of STEM teachers Colleen Lay, Lisa Norton, and Myrna Nowrangi, is in its fifth year.

The first STEM Fest took place in October 2014. Organizers invited several Federal STEM organizations such as the U.S. Department of Energy (DOE), the National Oceanic and Atmospheric Administration (NOAA), the National Aeronautics and Space Administration (NASA), the National Institutes of Health (NIH), the National Science Foundation (NSF), the U.S. Department of Agriculture (USDA), the National Security Agency (NSA), and many other private STEM organizations to have booths and representatives present.

At the booths, organizations showcased the many exciting aspects of STEM careers and gave away resources, posters, information sheets, and other materials for teachers, stu-
dents, and homeschoolers. The event was such a success that since that time, STEM Fest has expanded to include many more representatives from STEM-related organizations, breakout sessions, interactive activities, STEM challenges (activities), and more.

During breakout presentations, professionals working in STEM industries share cutting-edge research. For example, in 2016, the festival featured breakout sessions from presenters such as Walt Sturgeon, nationally known mycologist and photographer who has written several books on mycology (the study of fungi), and is chief mycologist for the North American Mycological Association. Sturgeon spoke on “Wild Mushrooms, a World of Wonder at Our Feet.”

The 2016 STEM Fest also featured Natalie Harr, an award-winning educator and former Einstein Fellow and Presidential Awardee in Math and Science Teaching, who has been on two research trips to the Antarctic. Harr talked about her experiences traveling to the Antarctic Peninsula to study the world’s southernmost insect, the wingless midge (fly) *Belgica antarctica*. In addition, Maria and Chris Esquela shared the work of e-NABLE, a global network of volunteers using 3-D printing to create fingers and hands for children and adults in the underserved areas of the world.5

Many STEM representatives from programs at private and public colleges and universities also attend STEM Fest, giving students an opportunity to hear what is available in terms of degree and certificate programs. At the booths, resources, posters, information sheets, DVDs on science-related topics, and much more are given away. Both teachers and parents who homeschool have found these to be very useful.

The HVA STEM Department also prepares hands-on, interactive activities for children, teens, and attendees such as: bridge building; robotics with Ozobots, Spheros, and Dash and A student admires the towering structure he built using Keva Planks™, which are 3/4-inch thick, 3/4-inch wide, and 4-1/2-inch-long blocks that can be stacked upright to create a variety of complex structures.
Dot robots; 3-D printing; 3Doodler; making slime, silly putty, and polymer snow; several STEM toys for a Kids Korner; and many other items. Craig Trader’s Chaos Machine, a massive collection of tubes, tracks, lifts, and motors that move marbles around, is a hit with everyone, especially the children.

Refreshments are sold during the event, and the proceeds go to support the STEM program. The family-friendly, free event continues to be a success. The conference-wide event brings students from neighboring Adventist schools, private schools, and public schools. From the program’s inception, the attendance has averaged around 400 people.

**Five Tips for Organizing a STEM Event**

1. Attend STEM conferences whenever possible. Visit the exhibit halls to get ideas for STEM events.
2. Network with STEM professionals. These experts are excellent resources for booths and breakout sessions, or may know someone who is an excellent presenter for breakout sessions.
3. Prepare for the event several months in advance. It takes time to make phone calls, write e-mails and letters to possible presenters for breakout sessions, arrange for people to run STEM booths, and secure a place in the school’s calendar of events. Some people will not be able to participate for a variety of reasons, so organizers will need to keep expanding the list of contacts and reach out to other potential participants.
4. Order materials for STEM hands-on activities and challenges several months in advance to be sure they arrive in time and can be screened and organized more efficiently (e.g., making sure all the necessary materials are included and that the experiments and challenge activities work as they should).
5. Organize volunteer participation a few weeks before the event. Invite parents, board members, and students to help set up the gymnasium and breakout rooms for the event, man the booths, conduct hands-on activities, and sell food for STEM fundraising.
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If you plan early, get a sufficient number of contacts for the event, and organize well, your school will be on its way to a successful STEM event that will be educational and fun for everyone.

Ophelia Barizo, MSc, is STEM Coordinator for the Chesapeake Conference in Columbia, Maryland, U.S.A. Prior to this, she served as Vice President for Advancement and STEM Coordinator at Highland View Academy (HVA) in Hagerstown, Maryland. Mrs. Barizo earned an MSc in teaching chemistry from McMaster University in Hamilton, Ontario, Canada, and taught various science classes and mathematics at HVA for 21 years. She was an Albert Einstein Distinguished Educator Fellow (2013-2014) with the National Science Foundation and was named 2017 Environmental Educator of the Year by the Chesapeake Bay Trust, a nonprofit grant-making organization that has funded environmental education at HVA since 1999. She was also the recipient of several National Science Teachers Association (NSTA) awards, one of which was STEM Educator of the Year for High School in 2012.


NOTES AND REFERENCES
3. Ibid.
4. Schools outside the Washington, D.C., area could invite scientists and engineers from STEM programs at local colleges and universities to make presentations or connect with local manufacturing companies that hire in STEM-related fields. For example, one regular participant at the HVA STEM Fest is a leading manufacturing company that makes lift equipment. Additional STEM Fest participants could come from private STEM organizations, hospitals, laboratories, wildlife/animal preserves and parks, zoos, and botanical gardens.