

## **Inspiration Award Entry Essay of Lower Merion High School TSA**

### **About Lower Merion TSA**

Lower Merion High School's TSA chapter (LM-TSA), founded in 2002, is a chapter of dedicated, involved, and passionate students. Currently, there are 51 members competing at the Regional Conference, including an officer team of six. The chapter is student run, with students taking initiative and leading outreach projects.

LM-TSA members work hard at their events; while success at competitions is important, a passion for service is manifested throughout the chapter. A focus of LM-TSA members is to have a profound and positive effect on the community, especially through teaching children STEM. LM-TSA uses the outreach projects to reinforce a sense community and introduce younger students in the community to STEM, while encouraging leadership and communication in LM-TSA members.

### **About LM-TSA's Projects**

Lower Merion TSA runs several major community outreach programs annually: an elementary school robotics camp at several elementary schools, a Junior FIRST Lego League Expo, volunteers at Lower Merion School District's (LMSD) annual Elementary Family STEM Night, and building relationships within the wider TSA community.

### **Elementary School Robotics**

For the last ten years, LM-TSA members have organized, conducted, and led an annual STEM outreach program for students at different elementary schools in the school district. This program is a four-week after-school robotics camp for fifth graders, who design and build robots using VEX materials and use the robots for a competition in the final week. The most recent ones were at Penn Wynne Elementary School (November) and Merion Elementary School (December to January). In addition, the annual spring session at Gladwyne Elementary School is being planned for 2018.

This program is completely student run. To manage this project, every year LM-TSA members contact and coordinate with district teachers and LMSD's Supervisor of Elementary STEM, transport and prepare the materials and tools, and mentor the elementary school students. The robotics camp program gives LM-TSA members valuable experience in event coordination, interacting and guiding younger students, professional communication, and leadership.

During the course of five weeks, every Wednesday LM-TSA members arrive at the elementary school at 3:15 PM and set up by sorting through the tools, pieces, and robots of different teams. When elementary school ends at 3:30 PM, the fifth graders arrive, split into teams, and work on their robots. Two or three TSA members mentor each group. At 4:50 PM, clean-up starts, and the fifth graders work with TSA members to store their robots, unplug appropriate electrical wiring, and ensure the workspace is clean. The fifth graders leave at 5 PM, and TSA members properly store equipment, complete any remaining duties, and leave for the day. TSA members arrange transportation of the entire kit of equipment on the first and last day. When certain pieces are needed, or advanced electrical repairs must be made, TSA members handle these responsibilities and organize necessary transportation. Throughout these five weeks, fifth graders gain skills in collaboration, leadership, design, and construction. During the first week, they split into teams and brainstorm designs. During the following three weeks, teams continue designing, begin construction, test their robots, and make any necessary redesigns. During the final week, teams gather and watch each other complete the program's challenge, cheering for their own teammates and students from other teams. This program aims to encourage a supportive and collaborative attitude: students work in teams of three to four, and the challenge focuses on self-improvement rather than inter-team competition. During the process of designing their robot, the fifth graders get an opportunity to practice leadership, use high school STEM tools and materials, become familiar with the design process, and learn effective construction techniques. This program is always a success as registration usually fills up in the first week.

### **Junior FIRST Lego League**

Over a decade old, the annual Lower Merion Junior First Lego League Expo (Jr. FLL) is run as an independent event under the FIRST organization. Hosted every spring by LM-TSA, this event gives students from kindergarten through third grade the fun learning opportunity to explore robotics through Legos. Teams of up to six research the annual theme, create a Lego model displaying this topic, incorporate at least one robotic component, and document their research and design process on a tri-fold poster. The annual Expo event happens in March, and is a four-hour event.

Jr. FLL is completely student run. Every year, one TSA officer coordinates the event by organizing and managing the event. During the year, the coordinator is responsible for the registration process, maintaining the event website (**LMSD Family STEM Night** LMSD's annual Elementary Family STEM Night is a kindergarten to fifth grade STEM event organized by teachers. Young students come with their families and participate in several engineering and design challenges requiring creativity and collaboration. LM-TSA is an important part of this annual event, with many members volunteering to help the event run smoothly. Last year, about 100 families attended, and LM-TSA helped staff this busy event and discussed STEM opportunities and topics with families. In addition, LM-TSA hosts a non-profit concession stand to provide refreshments for families during the event. This event is another example that LM-TSA actively promotes STEM education for young community members.

## **Contributions to the TSA Community**

- LM-TSA builds relations with other chapters by mentoring middle school students in events, contributing at the state level, and maintaining communication with other chapters.
- LM-TSA members give back to their middle school chapters by mentoring middle school TSA members from Bala Cynwyd Middle School (BCMS) and Welsh Valley Middle School (WVMS). This year and in years past, LM-TSA members have visited BCMS to tutor BC-TSA members in events like Chapter Team, and helped WV-TSA students understand the new LEAP Resume. LM-TSA also supports and coordinates with other chapters for fundraisers and events. LM-TSA members are actively involved in TSA at the state level.
- LM-TSA members serve on each of the five 2017-2018 PATSA committees. In addition, a LM-TSA member is a PATSA State Officer Team and has published resources for chapters on the PATSA website. He is also in the process of planning a Parliamentary Procedure interest session at the State Conference, which will likely include contributions from LM-TSA's chapter team.
- Through social media, LM-TSA documents and shares current activities and projects with chapters across the nation. LM-TSA maintains an Instagram page (@lm\_tsa) and a Youtube Channel (LM TSA – [goo.gl/vAEX2L](https://www.youtube.com/watch?v=vAEX2L) ). LM-TSA uses these platforms to share and communicate with other chapters and support other chapters in their initiatives.
- LM-TSA supports the wider STEM community outside TSA. Within Lower Merion High School, TSA members have donated projects to aid in classroom learning, such as donating 2017's nationally placing fashion design garments to the textiles classes. In 2017, an LM-TSA advisor worked with a private school in Newton Square to help them implement VEX IQ into the curriculum.

## **Conclusion**

LM-TSA recognizes the importance and long-lasting impact of STEM education to younger students. Through our community outreach programs, LM-TSA strives to give younger students opportunities to learn design, collaboration, and cultivate passion for STEM. LM-TSA members learn much from TSA, and believe in giving back and serving the community. Through implementing STEM education programs, building relationships with other chapters, and mentoring younger students, LM-TSA has demonstrated its commitment and dedication to help others and improve the community.