

*"Hands-on experience with industry offers a tremendous value to student learning. As we need more young people to enter STEM careers, all efforts to increase student engagement are embraced. Thank you to GAMA and its partners for their efforts; this opportunity is truly one of a kind."*

**Michael Capuana, Director of Erie 1 BOCES Career & Technical Education**  
2018 winning high school located in Cheektowaga, New York

*"The chance for our students to compete in the Aviation Design Challenge broadened horizons in ways that we would not have been able to do without GAMA. Our students winning is one of the most exciting things to happen at Olney High School this year. The best part is that their learning will continue through the enriching experience they will have at Glasair this summer."*

**Matt Caffey, Principal of Olney High School**  
2017 winning school based in Olney, Texas

*"We are very honored, thankful, and extremely appreciative that our students and staff are being recognized for their diligent, hard work in and out of the classroom. This opportunity and recognition will allow further real-world educational experiences for these students to apply what was learned within the classroom. Thank you again to GAMA for the selection, recognition, and opportunities to come for our students and staff."*

**Jeremy Schroeder, Principal of Weyauwega-Fremont High School**  
2016 winning high school located in Weyauwega, Wisconsin

## **GAMA Aviation Design Challenge:**

# **Learn STEM Skills, Build An Airplane!**



**For more information,  
including how to register, visit:**  
[gama.aero](http://gama.aero)



**General  
Aviation  
Manufacturers  
Association**



**Students attaching wing**



**The team and GAMA staff work with the plane owner**



**Student working on the wing of the aircraft**

**T**he General Aviation Manufacturers Association (GAMA) Aviation Design Challenge is a life-changing competition offering U.S. high school students the ability to improve their knowledge of Science, Technology, Engineering and Mathematics (STEM) skills through aviation curriculum.

GAMA launched the Aviation Design Challenge in 2013 to help increase the number of young people entering the general aviation field. With the general aviation industry expecting a severe shortage of workers in the coming decades, ensuring a strong workforce of manufacturers, engineers, pilots and maintenance professionals is critical.

Each year GAMA sends registered teams, which must have a minimum of four students including one female, complimentary teacher and student copies of Fly to Learn curriculum and software powered by X-Plane. Over the course of six weeks, the students learn about topics such as the four forces of flight, aspect ratio and even advanced subjects such as supersonic flight. They then compete in a fly-off that requires them to modify a virtual airplane and fly a specifically tasked mission. GAMA judges the submission based on the score from the fly off, a checklist of steps the team took to complete the flight, a summary of the design changes the team made to the airplane and a summary of what they team learned throughout the competition. The winning team receives a firsthand general aviation manufacturing experience, which has typically been a two-week, all expenses paid trip to Arlington, Washington, to help the crew at Glasair Aviation build a Glasair Sportsman.

Since establishing the Aviation Design Challenge, GAMA has reached over 1,800 students in over 400 high schools spanning 43 states and Washington, D.C. For the winning team, the hands-on experience working

side-by-side with experts as they build a real airplane is phenomenal. For those teams that compete but do not win, the aerospace STEM education and exposure to aviation alone is tremendous. It has inspired many students to get involved in aviation or pursue a college degree and/or career path in the aviation industry, and it's even interested several teachers to attain their pilot's license or make aviation a permanent part of their school's curriculum.

In 2013, a senior on the winning team went on to attain study mechanical engineering and engineering physics at Kettering University. While studying, he worked part time for engine manufacturer Williams International and planned to pursue a master's degree in aerospace engineering.

A team from Wilson High School in West Lawn, Pennsylvania, started an aviation club because of the design challenge. The teacher of the team earned his private pilot's license after teaching the team, and sought to establish an aviation technology program and include flight training as part of the school's curriculum.

The 2017 winning team was the first ever to include two girls on it, one of whom has gone on to study pre-engineering at South Plains College in Lubbock, Texas, with plans to transfer to Texas Tech University to study architecture and engineering. One of the students from a 2017 competing team based in Orange, Florida, is now attending Embry Riddle Aeronautical University.

Sophomores on a 2017 competing team in Illinois were so excited about aviation after competing in the Aviation Design Challenge that they started an aviation club at their school. The club has over 35 members who have reached out to community groups and formed partnerships for activities and field trips to increase student awareness of opportunities in the aviation field.