Jennifer Donais:
2021 3rd place National AFA/Rolls Royce Aerospace/STEM Teacher of the Year

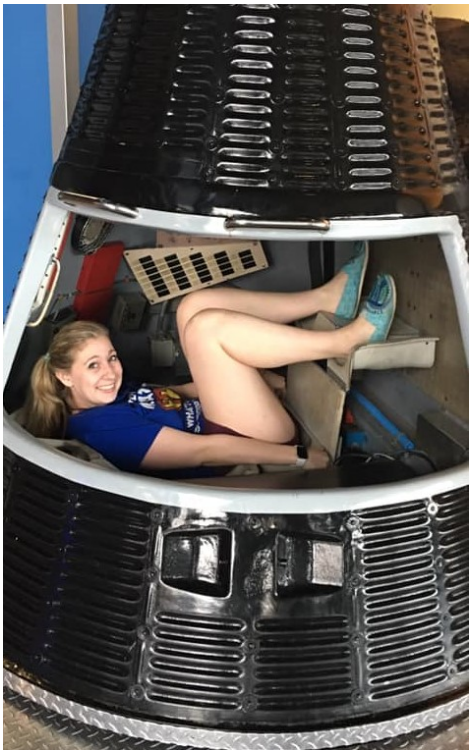
K-8th grade math and STEM coach

Amesbury Middle School
220 Main St
Amesbury, MA 01913

Amesbury Middle School, Principal
Mr. Brian Gill

Nominated by AFA's MA- 178 Paul Revere Chapter
Chapter President, David M. "Pilgrim" DeNofrio, Col, USAF (Ret) PhD
Chapter VP/AE, Shelley Rosenbaum Lipman
State President, Joseph P. Bisognano
State VP/AE, Maryanne Thompson

Jennifer Donais is a 13-year teaching veteran who is in her second year as K-8th grade math and STEM coach at Amesbury Middle School in Massachusetts. She quickly learned that for her students to acquire the 21st Century skills needed to solve authentic world problems, she had to engage them in solving real-world problems. Students have consistently told her about their attitude change toward math, with one student expressing that "Ms. Donais awakened a great love for math in me."



As she progressed through her teaching career, she became involved in teacher workshops and conferences where she found she had a keen interest in aerospace-related topics as a manner to teach relevance in math and science to students. She also found that by sharing her experiences with other teachers at these conferences, her skills improved in peer teacher instruction and inspiring teachers to try hands-on learning with special Project-based Learning (PBL) programs. She now works not only with the students in her school, but with the teachers there, helping them plan and implement innovative ways to teach math and science, through student-led Escape Room events, special STEM Kits provided by the Civil Air Patrol, and guiding students to take charge of their projects in making coded Sphero rovers and other fun and engaging STEM tools for learning.

Most recently, Jenn connected with her local AFA and CAP and found that she could bring in more subject-matter experts to aide in student exploration of aerospace-related STEM concepts. Having a Flight STEM Day at the school brought out pilots who demonstrated reading and plotting aeronautical charts, building and launching hot air balloons, and designing aircraft that would fly using the control surfaces after learning about Bernoulli's Principle. The students even launched rockets, much to their delight.

Jenn has now become a math and science coach that is allowing her to inspire more teachers to embrace STEM learning inside their classroom culture. The teachers and Jenn are now incorporating robotics into their curriculum and finding that the students are actually learning coding and math calculations that is demonstrating a greater understanding of the concepts being taught.

Jenn brought into her building the STEM Week Challenge that her state does every year so that teachers could be inspired to do more PBL with their students. By the second year, students became state-wide winners. The teachers' excitement at their students' interest truly motivated the staff to shift their teaching strategies to be more hands-on and involve more PBL. Students in all grade levels are working as teams to solve complex problems, such as getting microplastics out of the water and modifying a refrigerator to meet the needs of someone with paralysis. The teachers are finally realizing that this "stemification" of their curriculum still enables and increases the students being able to meet the required content and standards and content.

Jennifer has written and received over $100,000 in grants to get more STEM curriculum, and the associated tools needed to support more PBL and inquiry-based learning. Jenn has brought to the school Project Lead the Way and Desmos programs that are enhancing the instructional format and outcomes for the students.

In addition, Jennifer has written curriculum, pacing guides, and PBL lessons for teachers. By providing teachers with more resources and supporting them through the process, students' mindsets about education shifted.

The success Jennifer saw working with the students and teachers at the district pushed her to make a difference in STEM education on a state, national, and even global level.

Jennifer has had the opportunity to take her expertise to the United Arab Emirates with a program called STEM Revolution. There, she has worked to facilitate STREAM (Science, Technology, Reading, Engineering, Arts, Math) training for those teachers- and their students.

This opportunity has allowed her students to learn about the Middle East in a real way, debunking preconceived misconceptions, creating empathy for others, and inspiring innovation on how to work to make other, less fortunate students' educational experiences more academically challenging and fulfilling. While away, Jenn created Flipgrid videos daily for her own students to see the culture, landmarks, and what it is like inside the other students' schools. Jennifer's students became engaged in trying to help the other students learn math concepts in a manner that fit both the Middle East and Massachusetts students. It has been a mutually rewarding experience for both sides of the world.

Through her experience with other international teachers, Jenn was inspired to bring more STEM ideas on design thinking and PBL back to her own district and school. One such activity was to have the students create a playground with a certain area and perimeter. Students creatively collaborated on a design and critically thought about how certain items could fit inside the predetermined area and perimeter. The network of teacher who traveled internationally have worked together to share new STEM-based projects with other teachers throughout the country. The use of webinars strengthened Jenn's ability to do virtual teaching, which

came in handy as COVID closed schools. She has led teacher trainings on how to integrate a variety of technology to accommodate virtual teaching and learning.

As a lifelong learner, Jennifer yearns to network and to keep learning through different professional development opportunities that arise. Some of her favorites have been Space Camp for Educators in Huntsville, AL, and Dayton Air Camp, which she has attended this summer. She realizes that the more she grows professionally, the more she can be a change agent in her school and school district.

Being an agent of change not only means being able to model best STEM practices by facilitating STEM lessons, but also providing resources and support to teachers. Through conferences and webinars she has supported her school and district teachers with STEM training, which she feels is the link to getting more students involved in STEM subjects, and, hopefully, career aspirations.

Summarization paragraph in Jennifer's Professional Bio section:
Jenn Donais is leading the charge in her school, and her school district, to help students apply 21st Century skills of collaborating, solving complex problems, and communicating the process of design and experimentation. She is an agent of change igniting a passion for STEM education not only with students, but with teachers facilitating professional development state-wide, nationally, and globally. Also being able to write and receive grants and develop new curriculum is truly supporting student learning. Through conferences and webinars and supporting teaching she is paving the way toward getting more STEM into students' hands, minds, and future. ***See Jenn's video entry HERE to learn more about her programs.***

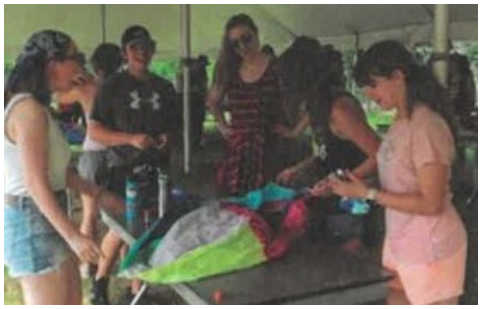
Most Recent Professional Services on Committees and Associations

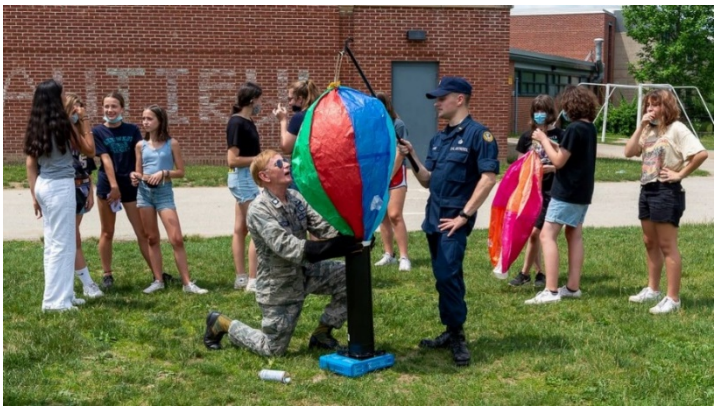
- Presidential Award for Excellence in Math and Science Teaching (PAEMST) Alumni Representative (2020-2022)
  - Increased engagement among alumni between the state and national level
- PAEMST National Selection Committee (Spring 2021)
- Digital Literacy Computer Science Ambassador for Massachusetts Department of Elementary and Secondary Education (2019-2021)
  - Facilitated presentations across the state on how to bring computational thinking into math and science classrooms
- Google Certified Coach (2020-present)
- Air Camp Participant (July 13-16, 2021)
- Space Camp Graduate (June 2019)
- Teacher Advisory Cabinet for Massachusetts Department of Elementary and Secondary Education (2017-2019)
  - Shared insights, suggestions and feedback with the Massachusetts DESE to help refine current policies and inform the development of new state level policies and resource

Leadership Experience

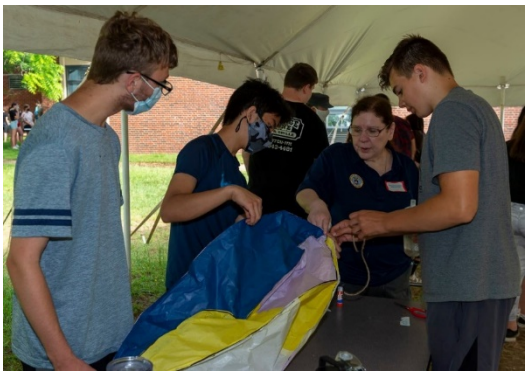
- Global STEM Trainer with STEM Revolution
  - Facilitated professional development to teachers in the United Arab Emirates on project-based learning and shifting lessons to STEM lessons
- Presenter at National Council of Teachers of Mathematics Conference in Atlanta (September 2021)
  - Lead Speaker: Broaden Your Horizons: Learn how to Implement Financial Literacy, PBL and STEM in the Math Classroom
- Presenter at Space Exploration Education Conference (February, 2021)
  - Lead Speaker: Journey through Mars Escape Room
- Adventure Presenter at ST Math Champion Hour (January, 2021)
- Guest Presenter at Albion College (November, 2020 and February, 2021)
- Project Lead the Way Lead Teacher (June 2021-present)
  - Instructional leaders who provide ongoing guidance and support for PLTW classroom teachers by leading training and modeling best practices
- Desmos Site Coordinator (2020-present)
  - Instructional leader who provides ongoing guidance and support to classroom teachers with Desbook, which is a STEM curriculum that supports math inquiry-based learning in a core-math curriculum
- ST Math District Champion (2019-present)
  - Instructional leader who provides ongoing guidance and support to teachers with ST Math, a supplemental STEM curriculum that uses spatial temporal reasoning to have students solve puzzles to support the common core standards

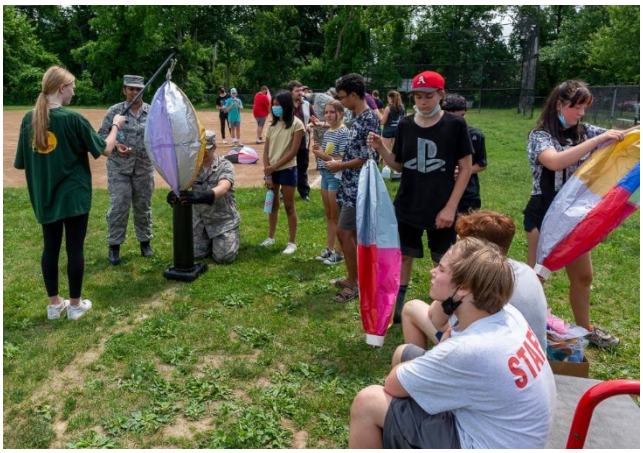
- ST Math Middle School Lead for the state (2021-present)
  - Supported teachers around the state who use ST Math in the middle school to use the program more effectively with their students
  - Lead school-wide professional development on technology when pandemic hit for multiple days in a row
  - Brought in teachers to lead trainings on google workspace
  - Led sessions on: Gamify Your Remote Classroom and Create Interactive Lessons with Google Slides
- Mentor to Presidential Award for Excellence in Math and Science Teaching applicants (2019-present)
- Wrote and received over $100,000 worth of STEM grants for Amesbury School district in the past two years
- Facilitated Massachusetts STEM Week Challenge (2019-present)
  - Elementary School student received 1st place
  - Middle School student received 1st place and another student received 3rd place
- Facilitated Presidential Award for Excellence in Math and Science Teaching Alumni Webinar on International Learning and Teaching Lead Math PLCs (Professional Learning Community) to math teachers (2019-present)

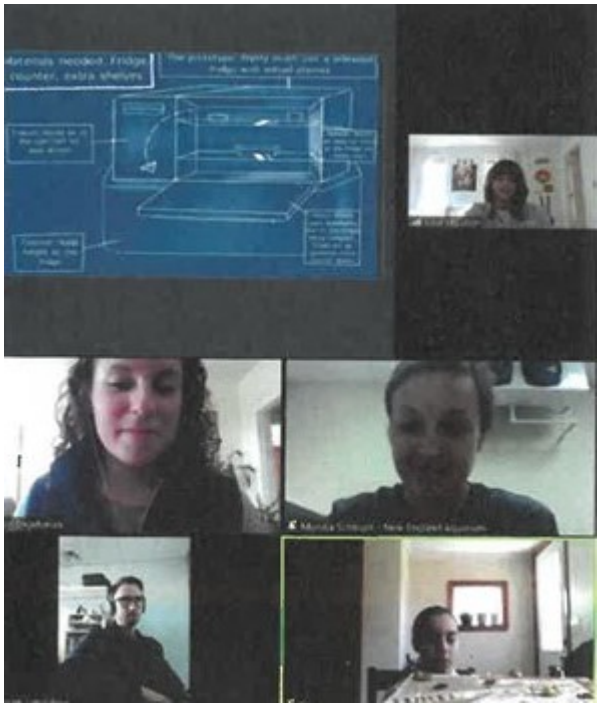




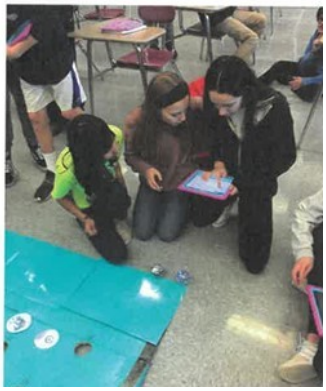
Recent School Flight STEM Day







Project-based Learning and
STEM Kit coding and exploration



Jennifer feels her platform as a 2021 AFA National Aerospace/STEM Educator Ambassador would be to work to help make small, manageable steps for teachers to see easy ways they can bring STEM education into their subject area content. Supporting teachers through STEM-directed professional development would be a first step in her actions. Through her networks with so many national organizations, she would also work to build a STEM network to be shared with teachers nationwide.

Notable Quotes from her nomination package:

"I first heard about Jenn when she was in the newspaper for creating real life escape rooms with her students in Haverhill. I reached out to her and she supported me in implementing those in my school. I then followed her blog and got dozens of other great ideas for my classroom. Soon after this, I was elated to learn, she was hired at my school! Terrific changes have since occurred. Jenn is a motivation person who has a passion for sharing STEM education with teachers and students- even my special education students are thriving."

~ Catherine Jackson, Sixth Grade Special Education Teacher, Amesbury Middle School

"This year Jenn is working as a Math Coach at an underperforming middle school. In just a short amount of time, Jenn's infectious enthusiasm and passion for STEM education has already made an appreciable difference in the school. Students have participated in a STEM fair and teachers have begun shifting their instructional repertoire to include more project-based and engineering design lessons. Not only is she leading the way in our school and school district, she is working with our state department of education in creating change for our entire state. As should be apparent, Jenn is an excellent educator and I can wholeheartedly recommend her to the AFA." ***~ Jared Fulgani, Superintendent, Amesbury Public Schools***

"During the pandemic, Jenn created STEM lessons to integrate real-world skills in math lessons. These units supported conceptual understanding, financial literacy and project-based learning. Since introducing these units to the teachers, students have more discourse inside the classroom. She presented one of her lessons at the Space Exploration Education Conference that was a Mars Escape Room where students solve math problems on a Google site and then need to communicate with other teams to create something they need in Mars.

Ms. Jennifer Donais is the epitome of what we want all STEM teachers to aspire to: excited about her craft, passionate, innovative, and loves helping her students and fellow teachers. We are thrilled to nominate her for the AFA National TOY!"

~ David M. "Pilgrim" DeNofrio, Col, USAF (Ret) PhD AFA MA- 178 Paul Revere Chapter President

"Besides bringing STEM to the Amesbury students, Ms Donais is a Global STEM Trainer for STEM Revolution and went to the United Arab Emirates (UAE) to facilitate professional development to teachers there about STEM subjects. While there, she shared the activities with the Amesbury students; the students said it was "cool" to see a different school from a different country, and talked enthusiastically about what they learned when she was in the UAE."

~ Joseph P. Bisognano, President, Massachusetts Air Force Association