

Colleen Cain

2023 3rd Place National AFA/Rolls-Royce Aerospace/STEM Teacher of the Year

7th grade science teacher

[Larson Middle School](#), Troy, MI

Mr. Brian Zawislak, Principal

[Troy School District](#)

Dr. Richard Machesky, Superintendent

Nominated by AFA's MI Mt. Clemens "Selfridge" Chapter 179

Chapter 179 and MI State President: Doug "Odie" Slocum

Chapter 179 and MI State VP/AE: Ashlie Smith



Colleen Cain is a passionate 7th grade science teacher from Larson Middle School in Troy, MI, who strives to inspire students by fostering three Cs which are her guiding points: collaboration, connection, and community. She has worked hard for the past 18 years to provide a variety of authentic science opportunities for her students.

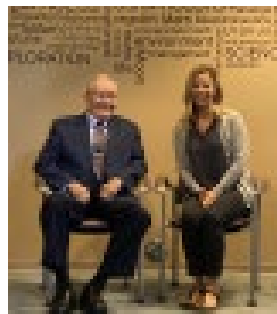
Colleen is a National Geographic Certified Teacher who focuses on developing student explorer mindsets through hands-on/real-world learning experiences. Some examples of programs experienced by Colleen's students at Larson Middle School (LMS) are:

- LMS participated in the National Geographic Geo Challenge which focused on tackling the single use plastic waste problem facing our earth. Groups designed innovative solutions and shared their findings with their peers and the National Geographic community. Multiple projects from LMS were selected to compete in the regional competition.
- LMS students have grown tomatoes from the International Space Station through the Tomatosphere program to investigate the impact of microgravity on plant growth.
- On Earth Day, Colleen co-organizes an annual school-wide cleanup for all 7th graders at LMS.
- In addition, Colleen arranged the following experiences for the students:
 - Arranged for Dr. Emily Matula, EVA flight specialist at NASA, to speak with students
 - Arranged for speaker Major Adrien Law of the United States Space Force through the USAF STEM Engagement program, STEM2SPACE
 - Partnered with Troy School District elementary media consultants to share microgravity makerspace lessons district-wide
 - Arranged field trips for LMS students to travel to elementary schools to facilitate microgravity makerspace activities with younger students
 - Co-organized district-wide Salmon in the Classroom release event with guest speakers from the DNR, EGLE, Clinton River Watershed Council, Oakland County Conservation Officer, and Premier Pet Supply
 - Arranged for a hot air balloon visit to the school
 - Arranged for school visit from "Science with the Engineers" program

Colleen continues to participate in her own professional development opportunities:

- She recently attended the Lift Off aerospace workshop sponsored by the Texas Space Grant Consortium in Houston, TX. This changed her focus and ignited a new love for aerospace education.
- Colleen attended the Space Exploration Educators Conference (SEEC) in Houston, TX with the support of the Michigan Space Grant Consortium. While there she had the opportunity to complete aviation orientation with the Civil Air Patrol's Teacher Orientation Program flight at Ellington Field, TX. This entire conference experience was transformative to her teaching practice.
- In 2021-2022, she completed 30 credit hours of graduate coursework in the fields of STEM education and innovative teaching practices at Andrews University (Berrien Springs, MI) & Augustana University (Sioux Falls, SD).
- Colleen is one of ten teachers nationwide accepted to the 2023 Embedded Teacher program which is a partnership between the Wisconsin Space Grant Consortium and the ZERO-Gravity Corporation.

This highly competitive NASA-supported program gives teachers the chance to develop and fly experiments on a microgravity flight while engaging students in the engineering design process. Her students are currently developing three experiments for her flight this fall. They have shared their learning and experiments with NASA scientists, students in local elementary schools and at the LMS open house event to parents, students, and staff.



Colleen's Message as an AFA Educator Ambassador:

As an educator, my goal is to inspire the next generation of innovators and creators through unique learning opportunities. Incorporating community-based partnerships into the classroom helps students to become engaged, life-long learners. The 21st century skills necessary to be successful in the careers of the future include collaboration, critical thinking, and hands-on learning, My role as an AFA education ambassador is to collaborate with like-minded educators to build learning communities that develop these skills.



- See amazing [VIDEO](#) of Colleen's exciting news that she will be aboard the NASA Zero-G flight wherein her students' experiments will be involved in micro-gravity research.
 - Said one student, "She makes me want to learn more about science."

Inspiration, Grants, and Impact

AFA MI State and Chapter 170 President, Doug "Odie" Slocum:

"Mrs. Cain continues to set the bar when it comes to STEM education excellence. Within the last year she has added the Troy Foundation for Educational Excellence (TFEE) Grant, the AFA Educator Grant, and a STEM powered grant. She was one of only five teachers selected nationwide for the NASA Wisconsin Space Grant Consortium-supported Embedded Teacher Workshop to fly on a Zero G flight. In addition, she was one of twelve teachers in the nation selected to attend the Embedded Teacher's Workshop on Microgravity at Carthage College in Wisconsin. Her long list of accolades, awards, and recognitions continue to pile up.

"In the last 12 months, Mrs. Cain's enthusiasm and communication skills led to several appearances on local news with reports and stories highlighting STEM classroom activities and programs. The local Troy Foundation for Educational Excellence (TFEE) awarded her grants for Google Expedition Goggles, as well as support for a SkyDome Mobile Educational Planetarium presentation. She also completed Orion's Quest which engages teachers and students in authentic space-based research through live or virtual 'missions.' When it comes to STEM, she wonderfully pushes the limits of what's possible. As a result, her students have gone on to pursue degrees and careers in science, physics, engineering, and more."

Dedicated Science Education Champion

Larson Middle School Principal, Joe Duda:

"Colleen has been a distinguished science educator at Larson Middle School for many years and she has worked tirelessly to promote STEM and science-related activities. Mrs. Cain's contributions are a large reason why Larson Middle School is a distinguished STEM school, with numerous award winners at the Science & Engineering Fair of Metro Detroit and a Michigan State Final Science Olympiad Team. She is dedicated, passionate, and always looking for unique learning experiences for young scientists. As a principal, she is a joy to work with. Colleen is driven to expand her knowledge base and continually seeks new and innovative opportunities for her students. She would champion STEM activities in any way you deemed appropriate."

A Positive Influence

8th Grade Science Teacher at LMS, Shannon Dziwanowski:

"Mrs. Cain is more than deserving of this recognition and nomination based on her professional achievements in aerospace education. However, what I believe is most impressive is her ability to care for and inspire her students. Especially at the middle school level when adolescent development can be fragile, Mrs. Cain treats all students with love and respect. On any given day, you will find swarms of students around her just to share what is going on personally with them because she is a compassionate listener. Her students will refer to her as calm, gentle, kind, and empathetic. This creates the safest environments for students to take risks to see their full potential. Because Mrs. Cain is a learner herself, her students are at ease trying new endeavors under her care. She is genuine and welcomes even our most vulnerable learners and creates opportunities that build their confidence. Her positive influence lasts

longer than just the school year as well. As I teach science at the next grade level up, I get to single handedly witness the knowledge and passion of science they take with them. Her students will share their memories of Mrs. Cain and her impact on them regularly. This is not by accident, but it is with the nurturing intentions of Mrs. Cain. She is the type of teacher you want your own personal children to have in front of them.”