

Journey to the Smithsonian Timeline of Events

May 15, 2017: Principal Wendy Mullen and Dr. Terrance Mootz gave me the green light to pilot a new curriculum that would be aligned to NGSS and focused on science inquiry and engineering design. I had not yet created anything and did not know exactly what I would come up with.

Summer of 2017: After a lot of thought and research, I developed the **Student Citizen Science Monarch Butterfly Ecological Engineering Project**. The project was centered on students using argument driven inquiry to gather knowledge and using the engineering design process to plan, design, and create a Monarch Butterfly habitat. They would also have to involve the community and raise awareness about the loss of biodiversity caused by human impacts on the planet.

September 29, 2017: Students completed Phase 1 of the project; an inquiry based field study to measure the biodiversity and learn about the native plants in the existing west garden, which was planted in 2015 by Ms. Klafeta, her students, and Ms. Barrera.

October 6, 2017: Students completed Phase 2 of the project; an evaluation of the biodiversity of the west garden. They then researched what they would need to improve on in their own garden design to make the habitat suitable for monarchs and other pollinators.

October 13, 2017: Students take a field trip to evaluate the Monarch Waystation and native wildlife at Fullersburg Woods.

October 16-20: Students survey the Morton Freshman Center grounds and decide where we wanted to build our new Monarch Waystation

October 24, 2017: Superintendent Tim Truesdale and I meet to discuss the details of building a new garden. After listening to my presentation, Mr. Truesdale enthusiastically supports the project and grants my students and me permission to use the land we requested.

November 2, 2017: Students learn the cultural connections between Mexico and Monarchs and decide to decorate the Green 3 Day of the Dead Altar with monarch butterflies.

January 22, 2018: Mike Rizo, program specialist from the US Forest Service, gives presentations to the students about how the monarch butterfly conservation works in the real world. Students are now in Phase 3 of the project: 30 different teams of 4 students are formed. Each team member chose from one of four jobs, including scientist, technologist, engineer, and mathematician (hitting all 4 STEM learning areas). Their mission: to design a 5,000 square foot garden for the school that would provide a suitable habitat for the Monarch butterfly within a budget of \$5,000.

March 2, 2018: Omar Sanchez begins working with the technologists so that they can promote the garden project and begin recruiting the community to help build the garden.

March 6, 2018: Trees from Morton West are cut into stumps and brought to the Morton Freshman Center that will provide shelter and habitat for the wildlife in the new garden.

March 8, 2018: Team scientists begin to prepare over 1,200 milkweed seeds to grow in the classroom.

March 23, 2018: Green 3 students use detailed criteria to evaluate each team's garden design for the first round of voting for the best designs.

March 28, 2018: Green 3 students complete round 2 of voting.

April 2, 2018: Jamie Kulik, Ed Kulik, Tom Lovero, and Dan Diaz remove 5,000 square feet of sod to prepare the garden. This was an extraordinary effort.

April 19, 2018: Green 3 students put their monarch projects and designs on display in the great room for the first ever Monarch Exhibition. Students, staff, parents, and community members voted on the best design. Lizbeth Sanchez, Janet Hermoso, and Lisbeth Pardinaz received over 400 votes and won the exhibition.

April 25-27, 2018: Green 3 students begin building the garden in class under the direction of Lizbeth, Janet, and Lisbeth according to the dimensions of their design. Pathways are marked on the bare ground, weed fabric is pinned to the ground, and then covered in wood chips. Compost is spread around the planting beds.

April 27, 2018: Green 3 students receive over 600 plants off the truck during class from Midwest Groundcovers.

April 28, 2018: Over 200 members of the Morton Community came out to finish building the garden. Over 600 plants were planted, over 100 heavy tree trunks rolled into position, benches and picnic tables were constructed, and a 3 bin compost system was constructed. The Suburban Life photographed the event and made it a front page cover story.

June 2018: KidsGardening.org releases their national newsletter and writes a spotlight article recognizing the Morton Freshman Center as the winner of the **2018 Youth Garden Grant**. The article detailed the project and incredible work of my students.

October 9, 2019: Sarah Pounders emails me the following:

Hi Kevin-

Exciting news - I had an email from the Smithsonian Museum of Natural History in Washington, D.C. and they are putting together an exhibit called the "Age of Humans" and one of the sections of the exhibits is going to include information about pollinator garden efforts.

I shared the program spotlight we wrote about your pollinator garden and she would like to include a note and photo about your efforts in the exhibit as an example of ways people around the world are working to protect the things they love in the face of environmental changes.

October 15, 2019: Samia Bouzid, researcher from the Smithsonian emails me the following:

Dear Kevin,

I've been corresponding with Sarah Pounders about an exhibit we are designing for the Smithsonian Museum of Natural History and we're happy to be featuring your school!

June 8, 2018: The day of the grand opening of the "David H. Koch Hall of Fossils – Deep Time" Smithsonian Museum of Natural History in Washington, D.C.

June 8, 2018, 12:26 in the afternoon: Principal Wendy Mullen, Director of Science Anne Semenske, Biology Teacher Karen Klafeta, Biliteracy Coach Angela Barrera, two of the three students that designed the garden, Lisbeth Pardinaz and Janet Hermoso, and I see the Morton Freshman Center featured in the "Warner Age of Humans Gallery" in the Deep Time exhibit for the first time. The moment had finally arrived and it was better than any of us could have ever imagined.

Kevin O'Toole

Morton Freshman Center Science Teacher

