



BUILDING SCIENCE LITERACY AND FUTURE STEM PROFESSIONALS

90,519

Michigan 4-H youth experiences related to science, technology, engineering and math in 2019-2020

644

Michigan 4-H sessions offered in 2019-2020 on science, technology, engineering and math

PRIORITY

A R E A S

Michigan State University Extension's 4-H Youth Development programs excite youth about future science, technology, engineering and math (STEM) careers and build critical STEM skills. These programs seek to increase:

- **Aspirations and attitudes toward science.**
- **Interest and engagement in science.**
- **Skills in critical thinking, problem-solving and decision-making.**

The experiential inquiry-based learning process is offered through a variety of science experiences ranging from animal science to robotics and biology to consumer science.

For more information about MSU Extension's science programs and resources, contact 4Hscience@msu.edu or visit us online.

IMPACTS

As a result of Michigan 4-H science activities, thousands of Michigan youth are more likely to recognize the relevance of science and see themselves pursuing a related career, as well as more equipped with cutting-edge STEM skills in high demand. A 10-year longitudinal study conducted by Tufts University found that compared to their non-4-H peers, 4-H youth are:



2X

2 times more likely to participate in science programs during out-of-school time.



3X

3 times more likely to take part in science programs as a female in grade 12.

“ I learned so much, I learned to code, learned that there are so many opportunities in computer science and I learned a lot about teamwork and sharing ideas with each other. ”

— Youth participant in a Michigan 4-H science program about computer coding

“ Thanks so much for the really fun and informative presentation. We had a great time learning! ”

— Parent of a participant in a Michigan 4-H science program



SPLASHING INTO SCIENCE LITERACY WITH HANDS-ON LEARNING



In early 2020, 11 4-H members from Montcalm and Newaygo counties had a once-in-a-lifetime learning experience through Michigan 4-H. The youth, who were in grades 7-10, explored the exciting world of marine science with the MI SHARK (Scientific Hands-On Applied Research Knowledge) SPIN (special interest) Club. Throughout the six-week learning experience, youth learned about marine biology, natural resources, water quality, environmental issues, scientific methods and more through a series of presentations and speakers from experts in the field.

The culmination of the learning experience was a four-day trip to Miami, Florida, in February. The youth boarded the R.V. Garvin, a real-life research vessel in Biscayne Bay. While on the boat, participants conducted seining and worked alongside real-life marine field scientists to capture, measure, fin clip, tag and release live sharks. The group also assisted with a beach clean-up.

"This trip went above and beyond my expectations," said one participant, a high school sophomore. "It sounded like it would be something fun but being there was so much more real."

Upon returning home, the youth continued with their learning experience by sharing what they had learned with others through posters, presentations and more. In the future, they hope to also host a local beach clean-up in Michigan.

ADDRESSING NEW CHALLENGES IN THE COVID-19 PANDEMIC

When the COVID-19 pandemic shut down in-person learning in Michigan schools, MSU Extension professionals across the state sprang into action to support parents, teachers and youth alike with opportunities for at-home learning. From March to December 2020, Michigan 4-H offered countless virtual learning experiences ranging from junk drawer robotics to animal exploration. While virtual connections offered a fun opportunity for engagement, 4-H professionals in rural areas knew connectivity was a problem for some local youth. As a result, MSU Extension 4-H program coordinators like Leah LaVanway in Charlevoix County created their own at-home engagement experiences for youth that required zero internet.

"I partnered with the Boyne City Public Schools to hand out 4-H science project bags at the same time they were passing out lunch and breakfast bags for youth and their families," explained LaVanway.

In her kits, LaVanway included a 4-H science lesson plan, "Teaching Science When You Don't Know Diddly-Squat: Does the Type of Paper Make a Difference in Paper Airplanes?" and six different types of paper for youth to test out their hypothesis. LaVanway also included pencils for recording their experiments, as well as other easy hands-on learning activities such as Science on a Stick (easy science ideas), "Crafts Around the World: Japanese Origami 4-H Clovers," 4-H animal science bookmarks and coloring sheets.

"The school contacted me after the first hour of handing out the bags and said they were a huge hit," commented LaVanway. "All of the bags were already gone."

Kits like those offered in Charlevoix County were offered in various other communities across the state as local MSU Extension professionals sought to keep learning fun and hands-on while youth remained at home during the pandemic.

MICHIGAN STATE UNIVERSITY | Extension

MSU is an affirmative-action, equal-opportunity employer, committed to achieving excellence through a diverse workforce and inclusive culture that encourages all people to reach their full potential. Michigan State University Extension programs and materials are open to all without regard to race, color, national origin, gender, gender identity, religion, age, height, weight, disability, political beliefs, sexual orientation, marital status, family status or veteran status. Issued in furtherance of MSU Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Quentin R. Tyler, Director, MSU Extension, East Lansing, MI 48824. This information is for educational purposes only. Reference to commercial products or trade names does not imply endorsement by MSU Extension or bias against those not mentioned.