AVA LONNEMAN is no ordinary 17-year-old. The third-generation 4-H member from Suffield, Ohio, just east of Akron, is the winner of the 2017 Youth in Action Pillar Award for Science, Technology, Engineering and Math (STEM) from the National 4-H Council.

She is being honored for organizing 4-H members in her high school STEM club, at Bio-Med Science Academy in Rootstown, to share their knowledge with more than 600 middle schoolers in surrounding Portage County.

Club members used the 4-H National Youth Science Day curriculum, Motion Commotion, to teach about such things as Newton’s laws and to show the consequences of texting when in motion. Their visits to middle schools were made possible by a $1,770 Ohio 4-H Foundation grant for youth STEM outreach.

While science has always interested her, “STEM isn’t just for super geniuses,” Lonneman said. “It wasn’t always easy for me. You just have to keep working on it.”

RESEARCH AND EXTENSION NEWS
from the College of Food, Agricultural, and Environmental Sciences

Ohio 4-H Member Wins National Award for STEM Work

She can recite Newton’s laws the way most people give out phone numbers. She built a model of a trebuchet — a catapultlike device used in the Middle Ages to hurl stones — and can accurately predict the trajectory of the marble it throws. She even decorated the mini weapon with a picture of the “Father of Anatomy,” Andreas Vesalius, born in 1514. When she turned 8, she wanted a “science-themed” birthday party, to include a History Channel program and science experiments.

Hands-on learning is one feature that attracted Lonneman to 4-H. “I have ADHD (attention deficit hyperactivity disorder). I figured out I get the most out of learning by doing,” Lonneman said. “That’s what 4-H is all about. Hands-on learning.”

Lonneman started in 4-H as a Cloverbud, the 4-H group for children in kindergarten through second grade. Her mother, Rhonda, served as advisor for their Lucky Clovers 4-H club, which focused on science projects including rocketry, Ohio birds and Junk Drawer Robotics; and she continues to serve as advisor for the high school STEM group at Bio-Med Science Academy.

Story continues on next page

4-H MEMBERS TIMES THREE.
Ava Lonneman (middle) with mother Rhonda (left) and grandmother Audrey (right), all of whom have participated in 4-H.

The Ohio Agricultural Research and Development Center and Ohio State University Extension are the research and outreach arms, respectively, of the College of Food, Agricultural, and Environmental Sciences.

cfaes.osu.edu
“The ‘sciencey’ nature runs in my blood,” Lonneman said. Her parents are engineers and land surveyors — her father, Andy, built their Victorian-style home himself, in only nine months.

Being honored seems to run in the Lonneman family blood as well. Her sister Maria’s room is lined with ribbons and trophies, as is Ava’s. Her father and his employer were honored during Ohio 4-H Week, March 6–10, as a “Friend of Ohio 4-H” for volunteer work he organized at 4-H Camp Whitewood, with volunteers and a grant provided by Dominion East Ohio Gas Company.

“This family lives and breathes 4-H in our county and is constantly coming up with new ideas and ways to get youth involved in this great organization,” said Ashley Hughey, Portage County 4-H educator for Ohio State University Extension.

OSU Extension operates the 4-H program in Ohio and is the outreach arm of the College of Food, Agricultural, and Environmental Sciences at The Ohio State University.

Ava Lonneman has served as a 4-H camp counselor with Hughey for three years. She is also in the National Honor Society, and she served on the 2016 Portage County Junior Fair Court.

As for the Youth in Action Award, Lonneman received a $5,000 scholarship for higher education and, for the next year, will serve as a spokesperson for 4-H STEM programming. She was recognized at the 4-H Legacy Awards in Washington, D.C., on March 21.

When asked if she has a message for fellow teens, Lonneman said this: “What makes a true scientist isn’t intellect or knowledge. It’s character. If you persevere and push through, you will make it.”

WHAT MAKES A TRUE SCIENTIST ISN’T INTELLECT OR KNOWLEDGE. IT’S CHARACTER.

IF YOU PERSEVERE AND PUSH THROUGH, YOU WILL MAKE IT.

AVA LONNEMAN
4-H Member
Punch in the Kidneys Could Stop Mosquitoes

You may someday hear less of that buzzing sound.

A team led by scientists from The Ohio State University and Vanderbilt University has taken the next step toward developing an improved, sustainable mosquito insecticide — one that won’t cause the biting, sometimes-disease-carrying pests to become resistant to it.

If successful, their work could one day help fight the spread of mosquito-borne illnesses such as Zika and malaria.

Called VU041, the experimental compound targets a mosquito’s kidneys — or Malpighian tubules, to be exact — instead of its nervous system, as most current mosquito insecticides do. By doing that, Piermarini said, the new compound bypasses a mosquito’s mechanisms for developing resistance.

Insecticide resistance is a “major challenge” in controlling mosquitoes, Piermarini said. It can hamstring efforts to control new mosquito-borne disease outbreaks when they occur, such as when Zika was detected last year in mosquitoes in parts of Miami, Florida — the first finding of the virus in mosquitoes on the U.S. mainland. Zika can cause birth defects in babies born to infected mothers.

Resistance also can shrink what’s already a “very limited” arsenal of usable mosquito insecticides, Piermarini said.

“Most of the current mosquito insecticides target the nervous system, and in some cases, resistance to one of those insecticides leads to resistance to others,” he said. Because of that, he said, “We need to develop new insecticides that are toxic to mosquitoes via new mechanisms if we want to develop an effective chemical toolkit for controlling mosquitoes.” Read more at go.osu.edu/mosquito.
Two Great Places for People Who Love Plants

Ohio State has not one but two arboretums (big botanical gardens). And you’re welcome to visit them. Enjoy tall trees, gorgeous flowers, trails to walk on and more in Chadwick Arboretum in Columbus and Secrest Arboretum in Wooster.

Free admission!
chadwickarboretum.osu.edu
secrest.osu.edu

Live Smart Ohio Blogs

OSU Extension’s Family and Consumer Sciences (FCS) program focuses on building healthy people, healthy finances and healthy relationships. The goal is to help people stay healthy through good nutrition and food safety, help them use their money wisely, and help them balance the demands of life and work. FCS provides accessible and reliable science-based information to help people help themselves. Read FCS’s Live Smart Ohio blogs at fcs.osu.edu/news/blogs to learn timely tips and helpful information.

New Scholarship Fund Helps Feed Food-Insecure CFAES Students

The CFAES Nourishing Success Scholarship Fund (315732) — created through a gift from Bill Hoerger and Ellen Lake, both of Oakland, California — helps cover meal-plan costs for income-eligible college juniors and seniors living off-campus. This lets them concentrate on their studies instead of on empty stomachs. Every $4 donated provides a meal to a student in need.

For more information, contact the Office of Advancement at 614-292-0473 or faesdevcom@osu.edu.

Growing Green, Green Grass at Home

Keep your lawn green this summer with science. Get turf tips on Ohioline, a website by OSU Extension. Dozens of free fact sheets — sourced from Extension specialists and grounded in research — cover topics such as diseases, pests, soil tests and more.

Visit ohioline.osu.edu.

Taking Action to Combat Ohio’s Opioid Epidemic

OSU Extension has partnered with Ohio State University’s colleges of Public Health, Social Work, Nursing, Pharmacy and Medicine to combat Ohio’s opioid epidemic. Ohio is considered “ground zero” for the opioid epidemic. There were 3,050 deaths due to opioids in 2015, ranking Ohio No. 1 in the nation. With an office located in all 88 Ohio counties, OSU Extension is uniquely positioned to address the prevention of opioid abuse statewide, said Ken Martin, chair and associate director, programs, OSU Extension.

OSU Extension’s broad range of programs and activities has the ability to reach individuals, groups and organizations statewide, he said.

“Opioid addiction is a community and family problem; and because OSU Extension works directly with communities and families as part of our outreach mission, we are positioned to help people understand how they can contribute to helping take on this challenge,” Martin said. “In addition to expanding and enhancing the numerous existing tools, resources and programs that can be readily implemented in communities statewide, OSU Extension will also work to build community coalitions to take this issue on as a health challenge.”