



## PURDUE EXTENSION: **DISCOVERING A STEM WORLD**

In fields and classrooms, Purdue Extension is providing access to new technologies that solve worldwide problems applicable to animal and plant science, nutrition and engineering.

### YOUTH DISCOVERING STEM AND DIGITAL AGRICULTURE



- The Indiana 4-H Youth Development program introduces rural and urban youth to STEM (science, technology, engineering and mathematics) through hands-on experiences in and outside of school. From agriculture and animal sciences to robotics, computer science and more, Indiana 4-H inspires youth in all 92 counties to meet the future's challenges.
- Over 13,000 youth participate in Purdue Extension's unmanned aerial vehicle (UAV) programs per year. Topics include UAV principles, safety and hands-on flight experience.
- Indiana 4-H'ers raising livestock are required to participate in Youth Quality Care of Animals (YQCA), a national multi-species quality assurance program for ages 8-21. Nearly 19,000 youth complete YQCA each year, learning about the three core pillars – food safety, animal well-being and character development.
- Learn more at: [puext.in/4H](http://puext.in/4H)

### STEM IN 4-H

NEARLY 100,000 INDIANA YOUTH participate in 4-H STEM education annually.

Indiana 4-H STEM Areas: **ANIMAL & PLANT** | **NUTRITION & HEALTH** | **TECHNOLOGY & ENGINEERING**

In a survey of over 38,000 youth:

**90%**

*reported learning new information about science*

**79%**

*reported that they can explain how science can be used to help solve everyday problems*

**76%**

*reported that they can share a science-related project with others*

## YOUTH STEM PARTNERSHIPS

- *Computer Science*: Indiana 4-H computer science programs are growing through funding from Google and the National 4-H Council.
  - **8,000+ youth in 51 counties** were reached virtually and in-person through computer science efforts in 2020. Efforts include clubs, workshops, offline activities, STEM Challenge events and other events offered at the county level. Learn more at: [puext.in/ComputerScience](https://puext.in/ComputerScience)
- *Fluid Power Challenge*: Indiana 4-H has partnered with the National Fluid Power Association and Purdue Polytechnic Institute at Purdue University to teach STEM skills through the NFPA Fluid Power Challenge. Youth in grades 6-8 learn about hydraulics, pneumatics and other STEM skills through a five-week program where they design a fluid-powered robot.
  - Since its inception, over 300 youth have participated, with 86% reporting that they like science and 75% expressing interest in a job related to science.
- *Maker Space*: Maker Space pairs Indiana 4-H youth with adult mentors in zones of self-directed learning. Provided tools and raw materials, youth are encouraged to make discoveries on their own while having fun in the areas of 3D printing, construction, robotics, recycling and more!

## INNOVATIONS IN EXTENSION AND AGRICULTURE RESEARCH

- Purdue Extension and Purdue Agriculture are leading Indiana's technology outreach through the agricultural use of UAVs. Purdue Extension supports farmers and land owners gathering precise data for efficient, profitable and long-term success. Learn more at: [puext.in/UAV](https://puext.in/UAV)
- Mohit Verma, an assistant professor of agricultural and biological engineering at Purdue University, is bringing his research to farms in search of solving a worldwide livestock problem. Bovine respiratory disease (BRD) is responsible for \$900 million in annual losses to dairy and beef operators each year, and Verma is developing paper-based tests to monitor for BRD. Learn more at: [puext.in/BRD](https://puext.in/BRD)
- Purdue University and Extension digital agriculture experts are exploring how data science and technology can advance agriculture today and in the future through a free, weekly Data Driven Agriculture webinar series. Learn more at: [puext.in/DataWebinars](https://puext.in/DataWebinars)

## COVID-19 RESPONSE

- Purdue Extension's Indiana 4-H Youth Development team encouraged STEM activities at home during the COVID-19 pandemic with a comprehensive list of learning resources for families. Learn more at: [purdue.ag/4hhomeactivities](https://purdue.ag/4hhomeactivities)
- Purdue Extension is empowering producers and stakeholders to use digital devices and data science to improve agricultural efficiency, productivity and sustainability. Learn more at: [puext.in/DigitalAgriculture](https://puext.in/DigitalAgriculture)

Visit us at [extension.purdue.edu](https://extension.purdue.edu) for more information!

