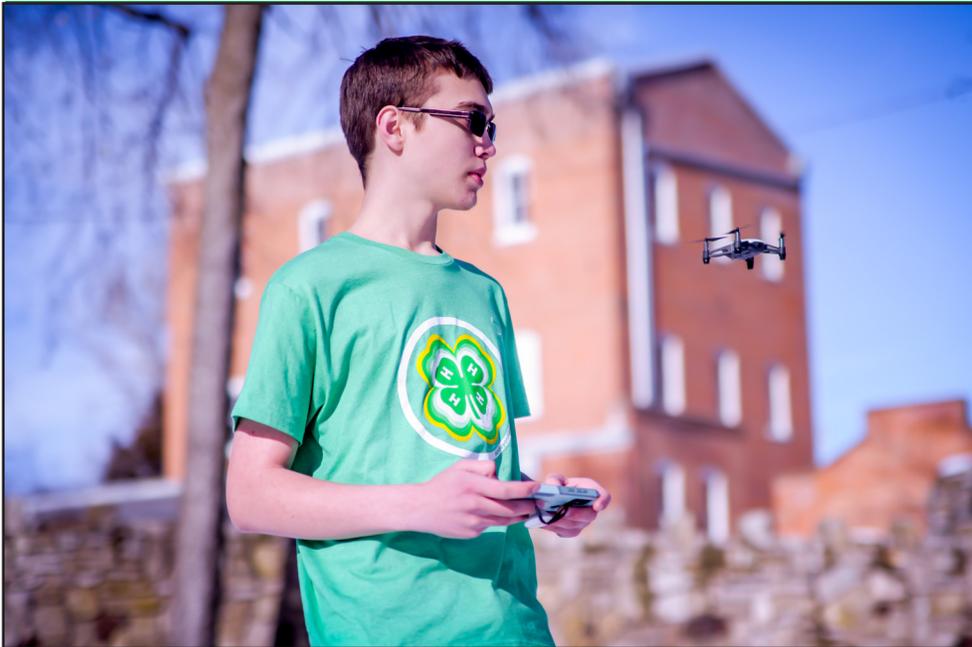




Uncrewed Aircraft Systems (UAS)



The Uncrewed Aircraft Systems (UAS) project brings science, technology, engineering, and math together as youth explore the exciting world of flight through drones. Members learn how drones work, how to fly them safely and responsibly, and how they are used to solve real-world problems. From delivering medical supplies and supporting search-and-rescue missions to monitoring crops and capturing aerial images, drones are transforming today's industries. Youth build, test, and operate drones, and learn the rules and regulations that govern airspace. Members develop skills that prepare them to be Beyond Ready for college, careers, and leadership in the growing field of aviation and technology.

Beyond Ready

Ready to Lead

Youth involved in 4-H are **two times more likely to have the goal of becoming a leader**. Through real-world experiences and the guidance of caring mentors, they develop the confidence, communication, and decision-making skills needed to lead in today's changing world.

Ready to Serve

Youth who participate in 4-H are **three times more likely to engage in community service**. Service learning provides them with purpose and connection at a time when **more than 53% of Gen Z report feeling lonely**. Through 4-H, youth are empowered to serve with compassion and make a meaningful impact.

Ready to Build

With nearly **10 million unfilled jobs and 77% of employers seeking real-world skills**, 4-H helps youth build what matters. Through hands-on projects and career exploration, youth gain adaptability, problem-solving, and workforce readiness.

Ready to Conquer

While 52% of young people feel like they're failing at life goals, 4-H youth rise with resilience. Backed by research and supported by caring adults, they learn to overcome challenges, set goals, and take charge of their future with confidence.

Building a Ready Generation in a World of Change!

Starting Out *Beginner:*

- Visit aviation museums.
- Explore flight technology and history.
- Learn basic terminology when flying drones.
- Learn FAA regulations that govern UAS/UAVs.
- Start flying with a reliable, low-cost drone.
- Try simple build-your-own drone kits.
- Learn basics of safely flying and operating your drone.
- Explore real-world tasks to evaluate your pilot abilities.

Learning More *Intermediate:*

- Attend UAS workshops and camps.
- Challenge yourself to increase speed, height, and control during flights.
- Explore First-Person View (FPV) drones. (Connect to a virtual reality headset, watching from the drone's point of view).
- Fly simple obstacle courses to improve control, focus, and reaction time.
- Use a camera drone to take aerial photos.

Expanding Horizons *Advanced:*

- Build a drone using a kit or from scratch.
- Learn how weather affects flight; record observations.
- Learn how GPS and remote controls communicate with a drone.
- Practice taking off, hovering, and landing with precision.
- Investigate aerial photography, FPV flight, fixed-wing aircraft.
- Expand leadership by giving presentations and demonstrations.

Uncrewed Aircraft Systems

Expand Your Experiences!

Healthy Living:

- Practice proper safety when using equipment, including proper filtration and wearing eye protection.
- For safety, never touch a propeller before it has stopped turning.
- If a lithium-ion battery begins to swell, dispose of it properly.
- Stay hydrated and protect yourself from sun exposure when flying outdoors.

Science and Agriculture:

- Visit a farm to see how drones help survey fields, monitor crops, and support precision agriculture.
- Investigate how design factors affect flight performance.
- Experiment with electronics, motors, and coding to understand how drones operate.
- Learn how sensors, cameras, and GPS collect data and monitor the environment.

Community Vitality:

- Look into starting a local flying club.
- Share your drone knowledge with younger members, peers, or neighbors to promote STEM learning.
- Volunteer to do surveys or inspections of fields for local farmers and ranchers.
- Map a local park and capture aerial images for a school or service project.

Communication and the Arts:

- Explore the field of aerial photography or FPV cinematography.
- Share videos of your UAS work on platforms like YouTube.
- Practice public speaking by presenting your drone project to your club, school, or civic group.
- Design a poster or infographic showing how drones work to help solve real-world problems.

Career Exploration:

- Job shadow a professional UAS pilot.
- Visit colleges that offer UAS piloting, construction, or maintenance degrees.
- Investigate benefits of receiving a Part 107 license.
- Explore potential business opportunities using your UAS.
- Interview a drone engineer, technician, or software developer.
- Check out the Flite Test Community Association (FTCA): <https://ftca.flitetest.com/>
- Create a real/conceptual UAS product or service business and participate in a YEC (Youth Entrepreneurship Challenge) competition.
- Explore cybersecurity jobs in the UAS industry.

Contact Information

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Resources & Events:

Access tools, expertise, and real-world experiences that strengthen your skills in Uncrewed Aircraft Systems.

- Contact your Extension office.
- Club Day Presentations
- County Fair Exhibits
- Discovery Days
- K-State Open House

Curriculum & Resources:

- Kansas 4-H Project Website: <https://www.kansas4-h.org/projects/engineering-technology/uncrewed-aircraft-systems/>
- Shop4-H.org — Quads Away <https://shop4-h.org/collections/aviation-and-space-exploration-curriculum>
- FAA Drone Zone
- B4UFLY

4-H Record Keeping:

Learning to keep accurate records is a life skill.

- Setting 4-H Project Goals (4H1100): https://bookstore.ksre.ksu.edu/download/setting-4-h-project-goals_4H1100
- Kansas 4-H Record Keeping: <https://www.kansas4-h.org/resources/awards-and-recognition/>
- Keep a flight log including date, location, weather, flight time, and mission objectives.
- Record flight patterns, maneuvers, and progress on skills.

Project Exhibit Ideas:

- Create an educational display about the parts of a quadcopter or fixed-wing aerobatics.
- Build your own UAS.
- Design and test UAS attachments.
- Evaluate the efficiency of propeller designs and make a display with your findings.
- Develop a flight demonstration to showcase maneuvers or skills.
- Explore aerial photography and mapping.

