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News you can use for license instruction and radio science education

Successful High-Altitude Balloon Launch and Chase by Merry Cagle, KQ4THR

A heartfelt thank you to everyone who participated in the West Georgia Radio Club's high-altitude balloon launch and chase on Saturday, July 25. Special kudos to Blake, N4BWR, and Brian, WX4BK, for seamlessly putting together this complex event. Blake's flight prediction modeling was spot on.

The balloon launched at approximately 10:35 AM with a fairly aggressive ascent rate, climbing swiftly into the upper atmosphere. Initial tracking models anticipated a landing or "crash" zone just south of Ephesus, Georgia. As predicted, the balloon reached its peak altitude, bursting at approximately 105,000 feet before beginning its descent into the rural outskirts of Ephesus.

The recovery operation team tracked the payload directly to its landing site. The primary retrieval crew – Richard, KN4FRP; Joshua, KF4DVW, and Brandon, KJ4SHI – secured the payload, while Marshall, KK4OHF, and John, WD8LQT, arrived shortly after to join in the post-launch celebration.

A few takeaways from the field:

- Redundancy is essential. Always prepare a backup for your backup. The balloon's primary APRS GPS module lost its lock above 40,000

feet – a common limitation with standard receivers – before reacquiring telemetry on the way down. Thanks to a multi-layered setup using APRS, LoRa/Meshtastic, and an RF radio direction-finding "fox" beacon, the team maintained tracking awareness and quickly pinpointed the exact landing location.

- Stay hydrated! Trekking through dense brush and unfamiliar terrain to find your balloon takes more energy than one might expect. Carrying ample water is mandatory for future field recovery teams.
- Bring adequate trail-clearance gear. Navigating through thick, overgrown brush taught us a practical lesson – make sure your machete is sharp before heading out.

Our balloon's onboard camera successfully recorded continuous video of the entire ascent and descent, capturing breathtaking footage from the ground all the way to 105,000 feet. Once the video processing and telemetry data syncing are complete, the final footage and flight analytics will be published for the community. Thank you again to all the operators, chasers, and supporters who made this flight a resounding success!

Building Tomorrow's Operators: A Year with the 4-H Science Ambassadors

by Jeremy Montgomery, KD9RUO

In October 2024, I attended ARRL's Teachers Institute on Wireless Technology (TI-1), where every attendee is asked to write a letter to the sponsor who made their seat possible. That letter ultimately turned into a partnership – my sponsor, John Carobine, WB8RFB, wrote back and offered to help fund a program that would allow me to put the TI coursework into the hands of kids. A close family friend, a retired teacher who wishes to remain anonymous, offered additional support after hearing about the plan. Between their support and the University of Illinois Extension's 70% match on donated program funds, I had what I needed to build a radio and STEM club from scratch.

I was substitute teaching at a local middle and high school at the time, but neither school had room in the schedule for a stand-alone wireless communications elective. So, I went back to a program I already knew well – University of Illinois Extension 4-H, where I had once coached an archery club with my daughters. The Extension offices serving Kane, Kendall, and DuPage Counties agreed to host an amateur radio-focused program within an already existing 4-H Science Ambassadors Club, and the 2025 – 2026 school year was the first full run of the new program.

We started with fundamentals. Every student worked through Etron Circuits' The Basics v3 "Intro to Electronics" kits, picked up a soldering iron for the first time, studied resistor color codes, and learned how to use and read a digital multimeter. With their safety glasses on and solder smoke curling into the air, a room full of teenagers discovered that a cold-solder joint is a lesson all its own – it is, without fail, my favorite part of the semester.

From there, we moved into software-defined radio (SDR). With RTL-SDR dongles and a stack of Raspberry Pi boards, we spent the spring working through the CubeSatSim platform, the same open-source satellite simulator flown by schools and universities around the country (for more info, check out "Meet the CubeSat-Sim, by Mark Samis, KD2XS, in the September 2026 issue of QST). I leaned heavily on the developer, Alan Johnston, KU2Y, who was generous with one-on-one technical support as we worked through the signals and modulation schemes a real CubeSat would use. By the time we wrapped up, students who had never touched an SDR were pulling telemetry off a simulated spacecraft.

Looking ahead, the fall 2026 session will take the biggest step yet – the club will work through the amateur radio Technician license curriculum. Students who complete the course and pass their license test will receive a handheld radio of their own and get on the air for the first time. I am in the process of reaching out



Jeremy Montgomery, KD9RUO, gives a student one-on-one soldering coaching during an electronics build night. [Jeremy Montgomery, KD9RUO, photo]



Two students in the University of Illinois Extension 4-H Science Ambassadors Club compare notes over an Etron Circuits' The Basics v3 "Intro to Electronics" kit during one of the club's soldering sessions. [Jeremy Montgomery, KD9RUO, photo]

to local amateur radio clubs to help run testing sessions and mentor new operators, the same way the TI program's sponsors once helped me. The club currently caps enrollment at 15 students to keep the hands-on ratio high, but I would gladly find room for more if the interest – and willing mentors – are there. The Extension office has also floated the idea of adding a radio station of our own, with space already identified for an antenna tower.

None of this would have been possible without the people who supported the program before it existed:

John Carobine, WB8RFB, whose sponsorship got this project off the ground; the family friend who believes in the mission and quietly made sure the budget would work; Alan Johnston, for his patience with a club full of CubeSatSim beginners; and the ARRL

Teachers Institute, for putting the tools in my hands in the first place. If you're on the fence about whether to try out the ARRL TI program, or a similar program, I suggest you take the class. You never know what it might turn into!

Empowering Student Leaders: Launching KE9JAY and Inspiring the Next Generation

by Jackie Blumer, KC9LEH

Excitement is in the air at Greenville Junior High as our school officially launches its new amateur radio club under the call sign KE9JAY! This milestone represents an important step forward for our STEM program here in Greenville, Illinois, offering students authentic experience with wireless technology, radio theory, electronics, satellite communication, and global connections.

The inspiration for the club began when our students participated in an Amateur Radio on the International Space Station (ARISS) contact and spoke live with Don Pettit, KD5MDT, an astronaut aboard the ISS. That unforgettable experience sparked tremendous interest in amateur radio throughout our school. To continue building upon that excitement, I attended multiple ARRL TI sessions, where I received the training, curriculum, equipment, and resources needed to establish a lasting amateur radio program for our students.

Our students have been fortunate to learn from some truly amazing people throughout this journey. Axiom Space astronaut John Shoffner, W7DU, worked directly with students and helped them learn how to communicate through amateur radio satellites. His encouragement is giving students an extraordinary opportunity to connect their classroom learning with real space communication.

The Okaw Valley Amateur Radio Club (OVARC) has also played an essential role in the growth and success of our program. OVARC members helped our students prepare for and earn their amateur radio licenses, and they have continued to mentor these young operators as they make radio contacts, participate in foxhunts, attend ARRL Field Day activities, and develop their operating skills. Their generosity, patience, technical knowledge, and willingness to invest in our students have helped turn curiosity into confidence.

The program truly took off last spring through the leadership of three outstanding eighth grade students who had earned their General-class amateur radio licenses. These young operators eagerly shared their knowledge by spending an hour a day teaching sixth-grade students about amateur radio.



OVARC members helping two General-class students practice making HF contacts on the 20-meter band. [Jackie Blumer, KC9LEH, photo]

During these daily sessions, the student mentors introduced proper operating techniques and radio etiquette. Their enthusiasm made challenging concepts approachable and enjoyable, and they created a welcoming environment where younger students felt comfortable asking questions, experimenting with equipment, and developing confidence in STEM.

One of the most exciting aspects of this mentoring model is how it supports the future of the club. The sixth-grade students who participated last spring are now seventh graders, and they are preparing to take on greater leadership responsibilities. They will eventually help welcome and mentor a new group of sixth-grade students, continuing a student-led tradition in which each group shares its knowledge with the next.

As KE9JAY gets on the air, we look forward to making contacts near and far, introducing more students to amateur radio, and building a strong community of knowledgeable, confident, and enthusiastic young radio operators. This is more than the launch of a school club – it is the beginning of a lasting tradition of student leadership, STEM exploration, community partnership, and global connection at Greenville Junior High.

SMA Prep Radio Club

by Dawn Sudbury, KR4HKP

My name is Dawn Sudbury, KR4HKP, and I am a teacher at Sarasota Military Academy (SMA) Prep, a public charter school in Sarasota, Florida. After attending the October 2026 ARRL Teachers Institute on Wireless Technology in Newington, Connecticut, I returned to campus eager to launch an amateur radio club of our own. Fortunately, our high school campus had already paved the way by starting the Radio 1 course under the guidance of John Geimer, K4GEI.

My passion for amateur radio began during the childhood hours spent with my grandfather at his shack in Sarasota. Wanting to share that excitement, I brought his equipment to school to start a radio club at the Prep campus. Although Sarasota Military Academy high school beat us to the punch, John Geimer connected me with George Becht, N2SQ, who had led the effort to create the high school club. George was instrumental in getting our Prep club off the ground. He even visited my eighth-grade Honors Physical Science class to present on the science behind radio communications (for more information on George's efforts to start a ham radio club at SMA, see the June 2026 issue of *Radio Waves*).

Last school year, in spring 2026, our SMA Prep Radio Club received its official call sign, WA4SMA. Our cadet club president made the very first contact using the new call sign, and with a bit of guidance, the students used a handmade antenna to contact a radio operator in Italy! Along the way, we had to learn about the Faraday cage effect in our building's classrooms in order to pinpoint the best locations on campus for sending and receiving signals.

This school year, all our eighth-grade students are using HamStudy (www.hamstudy.org) to prepare for the Technician license exam, and many are excited to take the next step toward becoming licensed ham radio operators.



George Becht, N2SQ (left), teaches SMA Prep students about electrical safety. [Dawn Sudbury, KR4HKP, photo]



Members of the SMA Prep Radio Club learning about magnetic loop antennas. Students used this homebrew antenna to contact a ham in Italy on the 10-meter band. [Dawn Sudbury, KR4HKP, photo]