Today on *Across the Fence* we’re getting into the nuts and bolts of the UVM Extension 4-H Program that gets children hands on to learn about science, engineering and math. Good afternoon and thanks for joining us, I am Keith Silva in for Judy Simpson. The 4-H National Robotics Program began in 2009 with a mission to inspire young people to become engineers and scientists. As a former 4-H member I am going to admit I'm a bit envious. We may think children nowadays are born tech savvy savant but there's a big difference between using technology and knowing how to create the next technology.  4-H believes that innovators are not born they are made. Better yet they can learn on their own. I was recently at the Lyndon Town School to visit an afterschool program where students are getting a hands-on look at the most scientific of principles. If at first you don't succeed, try, try again.

Lynsee Garfield and Autumn Shufelt are learning an important life lesson: building a robot is one thing, but making it walk and talk can be a bit trickier.

Lynsee Garfield: “Me and Autumn were making a humanoid which she really wanted to make like the hardest one. I was like no let’s start off with the basic one, but she’s like no I want to start off hard.”

Autumn Shufelt: “I actually haven’t done this before so, like I’m good with computers, but I didn’t expect to be doing this with them because I just like all the special little extra details so this just a step further.”

Garfield and Shufelt take part in 4-H Tech Wizards … an afterschool activity for students at the Lyndon Town School. This project is a partnership between UVM Extension 4-H and the Caledonia North Supervisory Union Kingdom Afterschool Program.

Diane Janukajtis: “If I had to pick a perfect match, the 4-H Tech Wizard Program would be a perfect match for our program. The kids really want robotics, they really want GPS, they like digital photography, these are expensive enrichments for me to find a certified instructor to teach and the equipment that goes with it is expensive. So to be able to have a partnership with UVM Extension with this is I can’t tell you how much it is worth to us.”

UVM Extension 4-H provides kits that allow the students to build and program their own robots to do a variety of things like move around a track, spin and shoot, and walk … or not.
Geoff Whitchurch is the UVM Extension 4-H AmeriCorps volunteer who works with these tech wizards.

Geoff Whitchurch: “I try to use fun. You get these robots into their hands and they’re instantly having fun. And I think when you integrate fun into a curriculum like that kids naturally grab on to it and it’s not school, it’s not learning, it’s doing, it’s fun, it’s building something that they want to build and having that thing do what they want it to do.”

The robotics project works off the 4-H principle of learning by doing … it’s a chance for students to go beyond the pages of a textbook and experience learning first hand.

Christopher Jamal ‘CJ’ Landry: “My book is in my locker down the hall. It’s just a whole new experience for me.’

Keith Silva: Do you like learning out of books or do you like this kind of thing?

Landry: “Honestly, this more, (laughs) honestly I don’t like to read but if it’s getting my grade up than yes if participating, yes, but this I like this more than reading out of books.”

Garfield: ‘You’re going to use your own force to make this like awesome creature. I think it is better putting things together because it’s like you have to have a lot of force with it.

Shufelt: I’m more of a hands-on person, not really a book person. […] For me when I’m actually doing the thing I can focus more on it like this way we’re actually learning that we can we’re building it, but we’re actually learning how to do that and it’s easier to get it in your brain if you’re actually physically doing it.

Whitchurch: “They may forget that they’re learning, and maybe it’s a more natural way of learning a way that maybe sticks more than say a textbook where you’re learning rote memorization rather than sort of the process of putting something together and having a good time. I think hands-on learning is the best way to do it, you get the knowledge, and you get the experience, the muscle memory of doing something.”

This project is part of the 4-H curriculum that promotes science, technology, engineering and mathematics or STEM for short. Working with afterschool programs allows 4-H to meet the needs of children who may not take part in traditional 4-H club activities.

Lindsay Jones: “It’s guided learning, but it’s hands-on learning and it’s letting kids ask questions and then answer their own questions. It’s informal, but it provides the formal approach because that instructor goes in there knowing exactly what life skill they’re going to be teaching that day or what goal they’re hoping to get from that individual and 4-H just provides groundwork for that.”

These students are learning how to work with others and how to socialize with both peers and adults.

Janukajtis: “Kids like this. It’s fun! They don’t want to go home and do nothing. They don’t want to go home and just hang out in front of the TV. A lot of parents work; they’re not available to be with the kids to take them places. […] and also this is the place where you can explore the interests that you have that maybe your parents don’t have the time or resources to help you with.”

Garfield and Shufelt’s robot has yet to walk or crawl for that matter. Either way, Shufelt is learning the way she knows best.
Shufelt: “I feel if I can see it and like touch it and like know what it is I can know more about it and get more with it and like insert all the information in my brain more somehow and it just kind of comes to me once I have it in my hands.”

For these tech wizards, this program is the first step in gaining experience and confidence in and out of the classroom.

I am joined in the studio now by Lindsay Jones 4-H Educator In Caledonia County And by Stephanie Atwood the coordinator of the 4-H Operation: Military Kids Program. Welcome to both of you. Lindsay it's been a little while since I've been up in Lyndon. Now what are they doing?

Lindsay.: They have completed the robotics session of 4-H Tech Wizards. After you left, they continued to do the program. The girls got their robots to walk a little further which was exciting for them. They continued for the next two weeks to program and get the feel for some other things that they could make the robots do.

Keith.: And the group has moved on to a different unit now you're not studying robots but what?

Lindsay.: They are studying GPS. Which stands for global positioning systems and they're spending time on the alert and using actual handheld GPS Devices marking in points and having fun with that.

Keith.: A little bit nicer to be upside down and look around.

Lindsay.: Absolutely.

Keith.: Tech Wizards isn't just some cool name you came up with its an important program. The designation in 4-H tell us about that?

Lindsay.: 4-H Tech Wizards is focused around different technologies such as robotics, GPS, videography, digital photography, it is an afterschool program for grades four through eight. The tech name comes from what the focus is on, and the objective was to teach youth basic life and work skills, work for skills so they can inspire, for post-secondary education, productive jobs or careers, and just a positive life. There's also a mentoring aspect to 4-H Tech Wizards which is different from afterschool programs. With mentors coming in from local colleges and high school organizations so that provides extra support to the youth.

Keith.: Excellent. Stephanie how is the 4-H Tech Wizards Program funded?

Stephanie.: It's actually a grant opportunity provided by OJJDP which is the Office of Juvenile Justice and Delinquency Prevention. It's administered through the National 4-H Council. The program was originally developed by Oregon State University nine years ago and its receiver mission has a program of distinction by National 4-H headquarters so we will strive for that.

Keith.: Where's the program available in Vermont?

Lindsay.: When it was developed in Oregon it was for culturally at-risk youth. In Vermont we have targeted the 4-H Tech Wizards program to communities with higher populations of military, higher populations of free and reduced lunches and at-risk youth. You can find 4-H Tech Wizards in Vermont in Caledonia County, Chittenden County, Windsor County and Franklin County.
Keith.: Stephanie speaking of military children, you work with them primarily in your role as a 4-H Educator. How does the tech wizards program benefit them?

Stephanie.: I coordinate a program called *Operation: Military Kids* and I think 4-H Tech Wizards is great for military kids in a number of ways. The first thing that comes to mind is that it's an opportunity for military kids to get together and make new friends maybe some who were going through similar experiences as a military child. It does not matter what phase of the deployment they are in it's an opportunity to recognize that their network is a lot broader than they think. Then the skills that they are learning and it's a chance for them to find something new that they're good at. Maybe it will develop into a hobby. A chance for them to say I’m really good at this, I can do it, it's really a positive outlet for them during potentially challenging times.

Keith.: I would think with a program like that they are focusing on special and GPS or even robotic stuff and might be something their mom or dad is doing and service law they're working on so there can be a connection?

Stephanie.: Absolutely. Also a connection to their community. Working with those mentors to facilitators again a broader network. It shows them they have role models and people who care about them.

Keith.: You have a summer program coming up for *Operation: Military Kids*, what's going on with that?

Stephanie.: We are excited about it, it is scheduled for July 9 through the 13th and it will be right at Camp Johnson at the canal and Air Force base in Colchester. What’s cool is that kids will be learning not only about GPS units as Lindsay said but also about digital photography. They will be conducting a service project. The skills that they are learning but those technologies will be able to go out into the trail systems I can touch on some and they'll be able to look for invasive species in more potentially hazardous areas. Maybe there is a bridge that needs repair or a tree that has fallen down or a walkway has washed out. They’ll be able to pop those points track them and also take pictures of them with the cameras. They will put everything together and present to the staff in that area. The chance for them to give back to the military community.

Keith.: This summer camp that you have, you have had events there before for *Operation: Military Kids* with this tech wizards program. Did you do the robots too?

Stephanie.: We did. We had April vacation camp and had such good results. We have roughly 15 kids who joined us and I’ve received e-mails back from the parents how much fun they had. It is the best camp they've been to in a long time. You would think if maybe but the fact that they can get hands on experience with something new. These are robotics how often you find robotics in schools across a state? They've just been having a great time.

Keith.: I think that was a really key point Lindsay in what I saw in Lyndon and you talked about that hands on-ness I think it's the robots but it's also the fact that the child gets to being in control of something when so much of their lives are controlled for them.

Lindsay.: Absolutely.

Keith.: Did you get to play with the robots too? Are they hard, they make it look easy?

Lindsay.: It is hard. I worked with robots before this and there's always a learning experience. There's always something different. You are working with a computer you're not working with a human. We're
trying to program a computer to go straight and then turn right it's different than saying hey Stephanie go straight 5 feet and turn right. It’s different and that's hard for the kids to get the feel of at first.

Keith.: Lindsay what's the plan now with one camp ending and summer camp starting up is there planned again a tech wizards group created in these different places?

Lindsay.: We hope to continue 4-H Tech Wizards throughout Vermont for as long as we can maintain funding. But if kids are really enjoying their time in Tech wizards and lot more of that we highly encourage them to contact their 4-H office. They can start their own 4-H club. There are also different kits available that clubs could use and we do have some staff available to go into afterschool programs and run for these special interest groups statewide and we'd be happy to provide that information to you if you're interested.

Keith.: Same thing for the military kids, they're not necessarily kids in 4-H clubs but if two or three want to get together they could start something like this?

Stephanie.: That's another one of our goals is to get military kids involved and into opportunities that stays locally in their communities in for each is one of those opportunities. We encourage military kids to start their own clubs or join one of one exists as well as getting involved and other organizations that serve youth locally.

Keith.: That is what we call a perfect segue. For more information about what opportunities in 4-H are available you can check UVM Extension’s website that's listed on your screen or call the toll free number to the State 4-H Office 1-800-571-0668 that's 800-571-0668. I want to thank you both very much this was a lot of fun and as always I want to thank you for stopping by Across the Fence. We will see you next time.

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