

Mecha Mules News

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Step into a Ballistic Sub

Published by the Wahkiakum Eagle/Written by Arwynn Haney

"Woah, it's like an airplane," one of my schoolmates said in awe. We all loaded onto the charter bus. The wood panel floor, the reclining seats, and on-board bathroom were fancier than the yellow school buses we were all used to. It was five in the morning, and we were headed to the Kitsap Naval Base in Bremerton for a tour of the U.S.S. Maine (S.S.B.N. 741), an Ohio-Class Ballistic Submarine, and the Trident Training Facility in Bangor.

The trip was arranged following the success of our school's robotics team, The Mecha Mules, at the 2023 international SeaPerch tournament, where they placed first. Many Wahkiakum High School and Naselle High School students, including several members of the robotics team, were given the opportunity to attend the field trip. I was one of them.

After nearly three hours, our bus finally arrived on base, and we started going through security. We passed through three security checkpoints before arriving at Delta Pier where the U.S.S. Maine was in dry dock.

The pier was in an industrial area, and we got a real glimpse of the varied jobs the Navy offers. There were mechanics, submarine painters, and people all over loading and unloading the submarine.

One of the coolest "employees" on the pier was a falcon. To combat the gulls crowding the pier, the Navy hired a falconer to walk around with his bird a few days a week to scare off the gulls.

We started the tour of the submarine, beginning on the deck. Beneath our feet lay 24 circular hatches, each about seven feet in diameter. Inside each was a nuclear armed Trident Ballistic Missile. As our tour guides explained that we were standing on top of missiles it occurred to me that I had an incorrect perception of how large missiles are. They are so big that the entire ship seemed to just be one big maze of missiles. They stretched past the three levels of the sub we were allowed to tour. The entire ship seemed to be built around them. We first entered the sub down a very tall ladder. I cannot personally recommend this to anyone with a fear of heights. The first area we toured was the main missile room, where we learned about all the factors that go into launching a missile. We learned there are always two guards watching over the missiles. They are called Camp and Roaming. It was clear that the Navy takes security precautions seriously.

Next, we toured the study areas-little rooms designated for sailors in the process of becoming submarine qualified. To become qualified, each submariner spends a

year becoming familiar with every system on the submarine. This is a huge task to undertake, and so the ship is designed to give them a specific place for extra research and studying.

Next to the studies lay the barracks. Each consists of a tiny room stuffed with nine bunks. When the ship is underway, only about half of the sailors assigned to a bunk are there at a time because of shift schedules. Even so, the rooms can seem crowded and cramped. It was strange to consider living on a sub, in a room that size, for months at a time.

We visited the torpedo room. There were no torpedoes onboard at the time. Nevertheless, we received a step by step explanation of onboard torpedo launches. We spoke with a sailor who specializes in sonar. He told us how different animals sound underwater. He said that shrimp sounded like thousands of people snapping at once. He asked us to eat shrimp once we got home, so he could have revenge.

At last, we toured the control room. We saw where the boat was steered and controlled. Our guide said that it is usually the two most junior sailors aboard who steer the boat, because they are more careful not to mess up. We looked through the periscopes and pretended we were at sea. For months at a time, that's the only glimpse of the outside world these sailors get.

The captain's chair sat in the middle of the room like something out of a movie.

Finally, we viewed the trident training facility where officers and enlisted personnel train to operate and maintain submarines. There we toured 3.D. models of a torpedo tube, a missile tube, and a 360 simulation of the control room. The simulation was especially vivid; it felt like we really were out at sea.

As I exited the room, some people complained that they felt seasick. Everyone agreed it was an awesome experience.

The trip opened my eyes to the level of pride sailors have and reaffirmed my choice to enlist in the Navy. As a sailor, everything I do will have meaning. Each person we met knew their job and took it seriously. The camaraderie among them was clear. I recall one of our tour guides saying, "You have to be able to look at every person on the ship and say you trust them with your life."

I enjoyed touring the U.S.S. Maine and getting a glimpse into life underway.

I can also confidently say that submarines are not for me.

October-December



Ranked 1st Going Into Interleague

By Ron Wright

In this year's competition, robots need to shoot a paper airplane outside the field to land in a scoring zone, hang from a chin-up bar, move "pixels" from one side of the field to place them on a "backdrop", and during autonomous mode, place more pixels in the correct locations based on where the robot sensors see a randomly placed team marker. Currently our robot does all of this better than any other team in SW WA.



We have completed our first two rounds of League matches in FTC with a record of 10-0-0 and tiebreaker points of 22.2. Two other teams (one from Olympia HS and one from Capitol HS) are also 10-0-0 but their tiebreaker points are less, thus we currently sit in first place in our 33-team Interleague. Our robot isn't the fastest or the most complex. We designed for simplicity and reliability and this design goal has paid off so far.



Our next set of matches is on Sunday January 14th in Olympia, and it will be tough to stay at #1 as some of the other teams work out the bugs in their designs. State, if we qualify, is in Seattle on February 3, 7am to 5pm.



Students Enroll in SkillsUSA

By Ron Wright

We currently have 5 students competing in SkillsUSA regionals this year: Cor Hoogendoorn and Kamden Scuito in "Mobile Robotics Technology", HarleyRay Popp in "Baking and Pastry", Isiah Pena in "T-Shirt Design", and Henri Kolditz in "Welding Sculpture" and "Precision Machining". This is Cor's second year. Everyone else is trying an event for their first time. SkillsUSA has over 100 possible events in which students can get involved, and a huge range of career fields as you can see. Other possible future events in which we hope to get our students involved include: house wiring, video production, nail care, job interview, plumbing, entrepreneurship, and more. Regional competition dates this year range from January 12 through January 27th. State, if we qualify, is in Tacoma March 21-23, 2024.

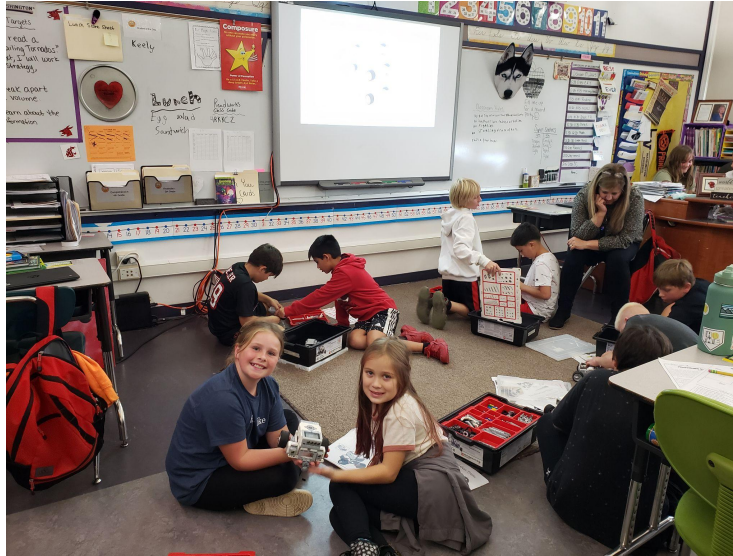


HAM Radio Team

By Ron Wright

Before covid our robotics club also participated in Amateur Radio activities, but we got away from that until this fall, when we restarted by again competing in the "School Club Roundup", where students in schools all across the USA talk to as many other schools, and other "hams", as they can in 24 hours. N7WAH Radio Club members from Wahkiakum county (Bob WB6AGE and Steve K7SH) brought up a trailer full of radio gear and led students in the competition. Peter Vik and Cor Hoogendoorn led our team. We spoke with others in many states, as far away as Georgia and Florida, while learning about the physics of electromagnetic propagation. This went so well that the N7WAH Club, county DEM, and the school district are engaged in a partnership

to explore the possibility of building a permanent, self-contained, emergency radio station on the school grounds adjacent to our big loop antenna near the baseball fields. Look for more on this in future Newsletter articles.



Wahkiakum Wohbot Wohundup (WWW)

By Jessica Vik, 4-H Liaison to Wahkiakum School District

How do you say this?? What??? This is how Scooby-Doo talks: Wahkiakum Wohbot Wohundup! This is a school wide showcase event that is being brought back to the school this year after a few years' break. Grades K-12 can show off the robots they have been working with in class.

WSU Wahkiakum County Extension's 4-H Liaison Jessica Vik has been working in the classroom with teachers and students since the beginning of school to get each classroom K-5 started in robotics. From here, teachers have continued to make lesson connections with new projects.

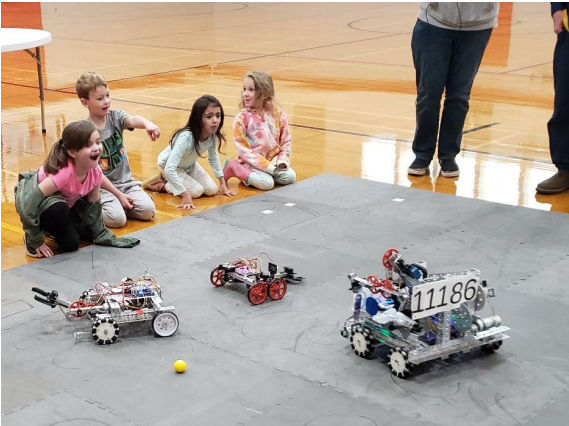


Wahkiakum School Districts Tech Advisor Ron Wright works with the middle and high school teachers and students doing robotics. WWW is an event that allows these students to share with family and other students their hands-on engineering via robotics projects. All classes were invited to spectate even if they didn't have robots to demonstrate.

The middle school robotics class (left) with their robots ready to rumble.



Together with help from retired school board member Paula Culbertson and Mecha Mule Mentor Mark Sutton, a fun afternoon was held in the middle school gym on December 15th. Students dressed in red and green (color war day for spirit week) came and showed off their robots. Some demonstrations from grades 2nd through 5th showed delivery robots delivering packages at Christmas time to a town that kids created on paper. Other classes brought Christmas decorated bots with trees, Santa and reindeer and shared their programs. Another class had a village at the North Pole drawn on paper that their robots drove down Main Street. Sleighs also drove across the field with Santa and Mrs. Claus riding along.



Their energy and excitement brought giggles from the younger students who had never seen robots move before and cheers from the older students as "battle bots" duked it out.



The Robo Rascals 4-H Club was well represented at WWW. The members shared their latest projects. They talked about how they built ornaments in Tinkercad and hand painted them. Puget Island Garden Center offered to sell their ornaments at their store and give 100% proceeds to support them. They were told that many people bought the ornament and put it back on the tree to let someone else have a chance to purchase it and raise more funds. These students also just finished making light up Christmas cards, learning how to complete circuits.



Middle school and highschool students worked together showing kids how their robots work and helping kids learn how to drive them. The FTC competition robot showed off how it can hang and fly paper airplanes which was a hit. These students built all the big robots that added the entertainment factor to the event.



All students K-12 did a great job and it was a fun way to spend the last full Friday before Christmas Break playing. In reality, these students demonstrated how to engineer and code, useful skills that can be used in their future.

Video Links

SeaPerch 2023 Season

<https://www.youtube.com/playlist?list=PLDDqvq0s50qJWG-5zc-pH2yHX81dDFkNU>

FTC 2021-2022 Season

<https://www.youtube.com/playlist?list=PLDDqvq0s50qKfNVywWIPBOxclH907dnS>

Coaches Corner

By Ron Wright- SkillsUSA Advisor, Mecha Mules Coach, and Robotics Tech Club Advisor

This is a busy time of year for us. We are in the middle of the FTC competition season, and beginning the SkillsUSA and Seaperch competition seasons. We are always open to adding new student club members, new mentors, and new coaches. Contact the school for information as to how to get involved. This coming Seaperch season, we are planning to have several smaller teams of 3 to 4 students each, and we are really looking for adult coaches to "get their feet wet" (not literally) coaching robotics in a fun and engaging event.

Welcome aboard a new Club Officer: Olivia Joyner, our secretary. She is also on the FTC team as one of our writers.

"What is the difference between a mentor and a coach" you ask? A coach is responsible for leading a team in design, planning, coding, and building of devices to solve problems. A mentor specializes in some aspect of the problem solving process, for example: wiring a robot, or coding a robot. A coach typically meets weekly with their team, while a mentor meets with individual or small groups of team members as needed, usually one day/week for three or four weeks, then awaits for the next time a team coach asks for specialized mentor assistance. Mentors usually meet in person with students, but can also "meet" remotely or via email. Coaches typically meet in person with their teams, and also engage their team members via email or other remote means.



Fundraising Notes: We were so busy with FTC, leadership changeover, and the other team activities that we chose not to hold our annual fall fundraiser among local businesses. So no new club tee shirts this year. We do anticipate holding our spring fundraisers: an early spring car wash in April and our Robot Expo in May. Donations are gratefully accepted anytime of the year.

Staff from WSD visited Columbia-Okura and Columbia Machine in Vancouver in early December. We were looking at building a connection between their company and our school for possible careers for our students. We learned that the company is looking to hire qualified workers, pays well, really cares about its employees, and is a very high quality company for which to work. Columbia Machine makes industrial robotics equipment from scratch materials for the concrete block industry and sells its robots worldwide. Columbia-Okura makes robotic palletizing systems and sells those worldwide. These are 500 jobs that cannot be outsourced! Mr. Mark Stanley was our most gracious host. Towards the end of the three-hour tour, we learned that they may have some mothballed robotics equipment that they could share with us. Hopefully nothing as big as in the photo below!



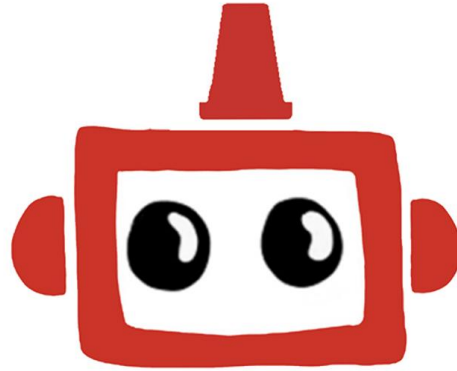
Look at the size of a sorting and packing robot arm! This does the same actions and uses the same kinds of sensors as our competition robot arms, but is much more reliable and capable of moving much bigger and heavier packages.

SeaPerch Update

By Amanda Heston-SeaPerch Mentor

Seaperch will be starting at the beginning of 2024. Oftentimes, our competitions and projects overlap, so some kids will be involved in more than one at a time. This can be taxing, especially for those who are also preparing to graduate high school. The kids have been learning time management and prioritization as they embark on new seasons of competition. We lost a number of our experienced kids from the World Champion Seaperch Team to graduation in 2023. Establishing new roles and taking on new responsibilities has been a learning experience for us all. Luckily, as with sports, as team members graduate or choose other activities, new kids come aboard. It's been so exciting to see the interest from more middle schoolers this year. Our Seaperch team was primarily high schoolers. A few of the more experienced kids in robotics have transitioned to be mentors to the newer, younger kids. We find that it is less time-intensive for those who are preparing to wrap up their high school career, and it teaches them the value of sharing their knowledge and expertise. We hope to see new Seaperch teams this year, and along with that, new coaches. Just like the rest of the town, we coaches and mentors in robotics wear many hats. We are lucky to have the support adults we have, and they aren't all engineering buffs! There are many areas of focus like writing, public speaking, CAD, physics, business, and more. If you enjoy working with kids and as part of a team, contact Ron Wright. You might be surprised at how valuable you are and how much fun you can have in robotics!





Donations can be made to: “Wahkiakum ASB” Memo: Mecha Mules
Wahkiakum School District
500 S 3rd St./P.O. Box 398
Cathlamet, WA 98612

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