

## Patuxent River Naval Air Station STEM Tour Site Descriptions

### Naval Air Warfare Center Aircraft Division Patuxent River, MD

The NAWCAD Strategic Education Office coordinates Science, Technology, Engineering, and Mathematics (STEM) educational visits to Patuxent River Naval Air Station. The visits are developed, based on curriculum requirements, to provide real-world examples of STEM classroom lessons.

This document describes the laboratories and facilities which are available for visits. Before each site description is a recommended grade level. All sites are available for college level visits. One class per visit is the best number of students for each site. Larger groups can be accommodated on a limited basis.

Requests should be made no less 6 weeks in advance of the proposed visit date(s). If any of the participants attending are a foreign national, requests must be received a minimum of 6 weeks in advance.

No open toed shoes, cell phones or cameras are allowed on tours.

Visit requests may be sent to [crystal.r.krater.civ@us.navy.mil](mailto:crystal.r.krater.civ@us.navy.mil).

Site Name	Grade Level	STEM Related Subject	Description	Tour Site Notes - Limitations, Parameters, Requirements, Duration and Capacity
Air Operations Tower and Radar Room	6 - 12	Aerospace Science, Computer Science, Computer Engineering, and Electrical Engineering	The Air Operations Tower is the tallest building in Southern Maryland and oversees the world's busiest flight test center. Small groups of students (less than 12) can go to the tower observation deck.	This visit is 30 minutes. Occupant capacity limit is ideally 22 and at maximum 30 students/teachers/escorts if 2 groups of 15 students/teachers/escorts rotate between the sim room and the tower. Access is by an elevator and steps.
Air Test and Evaluation Squadron, F-35 JSF, Integrated Test Force (ITF)	4 - 12	Aerospace Engineering, Aerospace Science, Mechanical Engineering	Learn about the 3 variants of the F-35, Joint Strike Fighter aircrafts and the test and evaluation of the aircrafts at the Integrated Test Force at NAS Pax River. View the B and C variant.	This visit is 1 hour. Occupant capacity limit is 15 students/teachers. <b>*Foreign Nationals Prohibited*</b>
Air Test and Evaluation Squadron, HX-21	8-12	Mechanical Engineering, Aerospace Engineering, Aerospace Science	Explore the squadron which paves the future for rotary wing and tilt rotor aircraft. Students are guided through the hangar by active duty military personnel as they discuss the aircraft under their charge, ranging from the AH-1Z Viper to the MH-60R Sea Hawk.	This visit is 45 minutes. Occupant capacity limit is flexible.
Air Test and Evaluation Squadron, UX-24	4-12	Aerospace Engineering, Aerospace Science, Mechanical Engineering	Explore the Navy's first and only dedicated Unmanned Aircraft test squadron, testing both fixed wing and rotary wing systems. Students are guided through the hangar by active duty military personnel as they discuss the aircraft under their charge, ranging from a 5 lb drone to a several thousand pound MQ-8 FireScout.	Occupant capacity is flexible. This visit is 45 minutes.

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Air Test and Evaluation Squadron One, VX-1	4 - 12	Aerospace Engineering, Aerospace Science, Mechanical Engineering	VX-1 was commissioned to safely provide assets and services in support of program teams, the fleet and other customers associated with the operational test and evaluation of P-8 Poseidon, E-2 Hawkeye, C-2 Greyhound, C-130 Hercules, E-6B Mercury and MQ-4C Triton aircraft.	During this visit, we allow at least an hour to explore the various aircraft. Occupant capacity limit is flexible.
Air Test and Evaluation Squadron, VX-20	4 - 12	Aerospace Engineering, Aerospace Science, Mechanical Engineering	VX-20 was commissioned to safely provide assets and services in support of program teams, the fleet and other customers associated with research, development, test and evaluation of P-8 Poseidon, E-2 Hawkeye, C-2 Greyhound, C-130 Hercules, T-6 Texan, and E-6B Mercury, C-38 Courier, and MQ-4C Triton aircraft.	During this visit, we allow at least an hour to explore the various aircraft. Occupant capacity limit is flexible.
Air Test and Evaluation Squadron, VX-23	8-12	Aerospace Engineering, Aerospace Science, Mechanical Engineering	Flight test engineers and pilots teach students about the FA/18 Hornet, EA-18G, and T-45 Goshawks. These highly trained engineers and pilots conduct over 3,000 flight operations annually. This site is limited to 25 students and teachers on a tour.	This visit is 45 minutes. Occupant capacity limit is 25 students/teachers.
Aircraft Lighting and Transparency (ALT) Lab	6 - 12	Aerospace Science, Computer Science, Computer Engineering, and Electrical Engineering	This lab is responsible for component certification and engineering investigations, and primary display/lighting tests that measure luminance, Night Vision Imaging System radiance, colorimetry, contrast, daylight readability, spectral radiance and filter transmission.	This is a 20 minute visit. Occupant capacity limit is 15 student/teachers. <b>*Foreign Nationals Prohibited*</b>
Atlantic Ranges and Targets (ART)	9 - 12	Aeronautics, Aerospace Engineering, Mechanical Engineering, Electrical Engineering, Statistics	The Atlantic Test Range (ATR) controls fully-instrumented and integrated test ranges that provide full-service support for cradle-to-grave testing. Airspace and surface target areas are used for test and evaluation of aircraft and for war fighter training missions. The Telemetry Data Center provides real-time radio-link reception, translation, processing and display of test data using the Real-time Telemetry Processing System. This widely used system provides real-time test information from up to nine separate in-flight aircraft to ground engineering personnel. This is a great tour selection for aspiring engineers, computer scientists and mathematicians. Atlantic Targets & Marine Operations maintains and operates maritime vessels, as well as surface and aerial targets to support a wide range of RDT&E and training requirements. This facility is located at Patuxent River Naval Air Station. This visit is suitable for production engineering and technician students. This tour covers Atlantic Test Range (ATR) and Atlantic Targets and Marine Operations (ATMO) along with a department overview.	This visit is 2 hours. Occupant capacity limit is 20 students/teachers.

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Aviation Survival Training Center	5 - 12	Aeronautics, Aerospace Engineering	Being a pilot/aircrewman is challenging, both physically and mentally. To ensure aviators are prepared for the rigors of flight, ASTC Patuxent River provides and meets the aviation survival and safety requirements of all Naval Aviation and DoD activities through lectures, simulator devices, and a curriculum that emphasizes hands-on exposure to survival skills. We offer the best survival training available to the Fleet. The students will learn about the physical effects of flight and experience some of the challenges aviators face to include live demonstration of how survival equipment functions on the pool deck.	This is a 1 hour visit. Occupant capacity limit is 25 students/teachers.
Cargo Lab	4-12	Geometry, Physics, Mechanical Engineering	This unique facility ensures that cargo aboard aircraft fits securely during flight, and that cargo outside aircraft meets structural and airflow requirements. A general tour is available for 15 minutes to an hour, in addition to an extended half-day visit. For a half-day visit, students may participate in math and physics focused exercises to determine the correct cargo placement and tie down in an aircraft. Assets on site: CH-53K aircraft, MV-22 aircraft, H-1Y.	This is a 15 - 60 min visit or a half day event. The half day event must be requested no less than three weeks in advance. Occupant/capacity limit: Any groups bigger than ~25 will be split for the purposes of touring the aircraft.
Cost Department	6-12	Scheduling, Industrial Engineering, Operations Research	The Cost Department supports the Warfighter and Taxpayer by delivering timely, quality, forward-looking Cost Estimates, Schedules and Analyses that enable program success throughout the life cycle of Naval Aviation programs. This tour consists of an overview of these capabilities in the Departments Research Room while providing hands on examples/exercises.	This is a one hour visit. Occupant capacity limit is 32 students/teachers.
Digital Night Vision Goggle Lab (NVG) & Helmet Mounted Displays	6-12	Electrical Engineering, Human Biology	The human systems program at Patuxent River is rich and diverse in supporting classroom lessons in anatomy, physics, and more. The Digital Night Vision Lab is responsible for monocular and binocular night vision display evaluations and fully integrated helmet mounted display systems evaluations.	This is a 20 minute visit. Occupant capacity limit is 10 students/teachers. <b>*Foreign Nationals Prohibited*</b>
Electrical Power Systems and Environmental Evaluation Facility (EPSEF)	11 - 12	Computer Science, Computer Engineering, Electrical Engineering, Mechanical Engineering	This facility is part of the Propulsion and Power Department. This lab visit shows students the myriad of test equipment that simulates nearly every natural or induced environmental condition encountered by modern aircraft.	This is a 20 minute visit. Occupant capacity limit is 2 groups of 10 students/teachers. <b>*Foreign Nationals Prohibited*</b>

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Electromagnetic Pulse (EMP)	11 - 12	Computer Engineering, Computer Science, Electrical Engineering	Many aircraft must be capable of functioning in a nuclear theater. The nuclear electro-magnetic threat is a fast rise-time, high-amplitude Electro-Magnetic Pulse (EMP) produced by a high-altitude nuclear detonation. The coupling of the EMP onto the aircraft produces skin currents, which in turn may be coupled onto cable bundles and wires inside the aircraft. These currents can upset or damage the aircraft or weapon systems electronics.	This is a 40 minute visit. Occupant capacity limit is 15 students/teachers. <b>*Foreign Nationals Prohibited*</b>
Environmental Education Center	K-12	Biology, Natural Science	Students and guests will enjoy up close and personal exposure to live and "stuffed" animals, learn about wildlife hazards to aircraft, outdoor recreation, hazards in nature, and wildlife management.	This is a 1 hour visit. Occupant capacity limit is 20 students/teachers indoors, or 30 students/teachers outdoors.
Environmental Physiology and Human Performance Lab	9-12	Human Biology, Human Factors Engineering, Psychology, Test and Evaluation	Lab scientists and technicians assess human performance and physiology in simulated and real world combat and training environments at the Environmental Physiology and Human Performance Lab. The Environmental Chamber in the laboratory can simulate both extreme hot and cold conditions with varying humidity. Immersion testing of personnel and equipment can be conducted in a temperature controlled water tank and simulated altitude can be investigated using a Reduced Oxygen Breathing Device (ROBD). These resources allow physical and cognitive tests to be conducted in extreme environments to evaluate changes in human physiology and performance on tasks. The lab researches, develops, tests and evaluates advanced technologies to mitigate these stressors.	This visit is 20 minutes. Occupant capacity limit is 20 students. <b>*Foreign Nationals Prohibited*</b>
Facilities for Antenna and RCS Measurements (FARM)	10 - 12	Computer Science, Electrical Engineering, Statistics	The FARM specializes in antenna technology research and development. The site has two anechoic chambers used for antenna systems evaluations in a free space environment or mounted on scale models; three outdoor ranges used for evaluation of antennas and avionics systems mounted on full-size airframes. The test sites are progressing towards computer automated data acquisition. This is an excellent stop for engineering and physics classes.	This is a 45 minute visit. Occupant capacity limit is 2 groups of 15 people each.

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Fleet Readiness Center Aviation Support Equipment Solomons, MD (FRCASE)	12	Electrical Engineering, Mechanical Engineering, Computer Science Engineering	This facility is responsible for the repair and overhaul of naval aviation ground support equipment. Students will see an extensive array of equipment and learn about the work performed by engineers, auto mechanics, machinists, electronics technicians and other specialists required to support this diverse operation.	This is a 45 minute visit. <b>*Foreign Nationals Prohibited*</b>
Fleet Readiness Center Mid Atlantic (FRCMA)	9-12	Electrical Engineering, Mechanical Engineering, Computer Science Engineering	FRCMA delivers effective and efficient flight-line readiness through a globally managed, responsive and integrated sustainment system to produce quality airframes, engines, components and support equipment, and provide service that meet the Naval Aviation Enterprise's aircraft ready-for-tasking goals with improved effectiveness and efficiency. The Fab (Fabrication) Lab increases aircraft readiness for the fleet by gathering engineers and sailors to come up with ideas to improve products using equipment such as 3D printers. The JITT/SITT (Junior/Senior Innovation Think Tank) Lab utilizes creative ideas to innovate.	The general facility tour lasts 45 minutes and accomodates 24 students. Fab Lab occupant capacity limit is 10 and JITT/SIT Lab occupant capacity limit is 20. Both Labs last 20 minutes.
Fuels and Lubricants Chemistry Lab and Test Rig Area	9-12	Chemical Engineering, Physics	The Fuels & Lubricants Chemistry Laboratory and Test Rig Area are the premier test facilities for the testing, evaluation, research, and development of Navy fuels (aviation turbine, aviation gasoline, liquid missile fuel, and shipboard propulsion) and lubricants (aviation turbine & gearbox). These facilities are within the Propulsion and Power building. The Fuels and Lubricants Chemistry Laboratory houses 65 specification, fit-for-purpose, and advanced analytical instruments. These instruments are utilized to provide fleet and program support and conduct specialized analyses focused on compositional analysis, additive and contamination detection, oil corrosion measurements, and qualification testing (e.g. synthetic fuels, turbine engine and gearbox lubricants). The Fuels and Lubricants Test Rig Area houses 15 specialized test rigs, the second largest fuel storage facility on base, and a fuel blending facility. This facility conducts specialized test events focused on fuel filtration, qualification testing (e.g. synthetic fuels, turbine engine and gearbox lubricants), and R&D work related to fuel quality surveillance equipment and new lubricants.	This visit is 45-60 minutes. Occupant capacity limit is 20 students/teachers, but this site can rotate 2 groups of 20 students/teachers. <b>*Foreign Nationals Prohibited*</b>

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Hearing/Auditory Performance Lab	6 - 12	Electrical Engineering, Mechanical Engineering, Human Biology	The Auditory Performance Laboratory (APL) quantitatively and qualitatively evaluates passive and active hearing protection devices, hearing enhancement and communication systems. Standardized testing for attenuation and speech intelligibility are conducted within the lab.	This is a 15-20 minute visit. Occupant capacity limit is 15 students/teachers. <b>*Foreign Nationals Prohibited*</b>
Horizontal Accelerator Lab	7-12	Mechanical Engineering, Electrical Engineering, Human Biology, Statistics	The Horizontal Accelerator is a high-speed test lab which creates accelerations up to 50 g to simulate occupant and equipment reactions during a crash. High speed digital video and instrumented Anthropomorphic Test Devices (crash test dummies) and are used in the testing of crashworthy seating, restraints and crew gear.	This is a 30 minute visit. Occupant capacity limit is 35 students/teachers. <b>*Foreign Nationals Prohibited*</b> <b>NOT AVAILABLE UNTIL OCTOBER 2022</b>
Human Computer Interaction Lab (HCIL)	9-12	Human-Machine Interface, Computer Science, Prototyping and Simulation, Electrical Engineering, Statistics	The Human Computer Interaction Lab provides the facilities and expertise to research, engineering, and acquisition program customers to help them quickly develop and assess product usability and effectiveness through the use of physical and software prototypes and mockups, and system behavior and mission scenario simulation. Emphasis of the HCIL services is to provide first-time quality to the fleet by supporting human-machine interface and human performance research and engineering projects relative to the Naval Air Enterprise (or any sea, air, or land program) to improve warfighter performance and integrated assets mission effectiveness.	This visit is 20 minutes. Occupant capacity limit is 20 students/teachers. <b>*Foreign Nationals Prohibited*</b>
IBST Facilities (Anechoic Chamber) (Hangar 144 Shielded Hangar)	9-12	Aerospace Science, Computer Science, Computer Engineering, and Electrical Engineering	The Integrated Battlespace Simulation and Test (IBST) facilities support test and evaluation of aircraft avionics and weapon systems. Suspending the aircraft in the anechoic chamber with the surrounding ACETEF labs providing simulated signals, places the aircraft in a realistic, yet simulated flight environment. Engineers can evaluate the aircraft's flight performance in a controlled ground test environment. This facility has two aircraft sized anechoic chambers (large, small) and a shielded hangar. Tours are very limited to the large anechoic chamber, but the small chamber and shielded hangar are typically available. A backup option would be the small anechoic chambers at the FARM that are used for antenna evaluations. Tours of the ACETEF labs are available (EO/IR, Radar, ECSTIM) upon request.	This is a 30 minute visit. Occupant capacity limit is 25 students/teachers. <b>*Foreign Nationals Prohibited if There is Active Aircraft Testing*</b>

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Laser Imaging Detection and Ranging (LIDAR)	5 - 12	Computer Science, Electrical Engineering,	The test tank is 26 ft in diameter and 14 ft deep and is used for in-water testing of optical oceanographic sensors including Laser-Radar, laser imaging, and wireless laser communications. In addition to state of the art laser sources and receivers, the facility also hosts a suite of sensors and methods for simulating real ocean conditions in the lab.	A desktop demonstration is also available if schools wish to request an engineer in the classroom visit. This is a 30 minute visit. Occupant capacity limit is 25 students/teachers. <b>*Foreign Nationals Prohibited*</b>
Manned Flight Simulator (MFS)	9-12	Aerospace Engineering, Computer Science Engineering, Computer Engineering, Electrical Engineering, Mechanical Engineering	The Manned Flight Simulator provides real-time, high fidelity flight simulation capabilities to support aircraft and system flight test and ground test activities such as flying qualities and performance evaluations, avionics integration testing, mission scenario rehearsal, accident investigations, prototype evaluations, installed systems testing, and prototype simulator design. If available, students may be afforded time in a simulator, but this is work-load dependent at the time of the tour.	This visit is 45 minutes. (This tour stop is only available to high school and college students. For elementary and middle school visits, we recommend using the simulators at the Naval Aviation Museum.) Occupant capacity limit is 20 students/teachers. <b>*Foreign Nationals Prohibited*</b>  <b>REQUIREMENT:</b> High School students must view the <b>MFS Virtual Tour</b> ( <a href="https://www.youtube.com/watch?v=sTHaSHkY10E&amp;t=617s">https://www.youtube.com/watch?v=sTHaSHkY10E&amp;t=617s</a> ) and provide a short summary of their expectations and/or questions they hope to get answered during the in-person tour. Sumaries must be provided to the tour coordinator no later than 72 business hours prior to the tour.
Materials Labs	6-12	Chemistry, Geometry, Materials Engineering, Physics	Students will see how various materials are composed, analyzed, and tested to best support aircraft and equipment for the fleet.	This is a 1 hour visit. Occupant capacity limit is 35 students/teachers. <b>*Foreign Nationals Prohibited*</b>
MQ-4 Triton Unmanned Aircraft	11-12 College	Aerospace engineering, flight test engineering, unmanned air systems, electrical engineering, radar	This facility is the hangar for the MQ-4C Triton Unmanned Air System (UAS). This hangar visit allows students to walk through the hangar and see the aircraft up close, while learning about the system and the part it plays in the Navy mission.	This is a 30 minute visit. Closed-toed shoes are required. Tour capacity limit is 10-12 students/teachers, depending on available escorts. <b>*Foreign Nationals Prohibited*</b>

Site Name	Grade Level	STEM Related Subject	Description	Tour Site Notes - Limitations, Parameters, Requirements, Duration and Capacity
MQ-25 Systems Test Integration Lab (STIL)	9-12	Aerospace Engineering, Computer Science, Computer Engineering, Electrical Engineering, Systems Integration, Test and Evaluation	The STIL consists of Government developed software and hardware systems in support of Unmanned Carrier Aviation, specifically to include control stations, simulated air vehicles, and the Navy systems that route the communication traffic. The lab is designed for systems integration, testing of M&S program requirements, and to support flight test mission planning and rehearsal.	This visit is 30 minutes. Occupant capacity limit is 10 students/teachers. <b>*Foreign Nationals Prohibited*</b>
MWR Financial Department	9-12	Accounting, Business Finance	With 22,000 people working at Pax River, there is a tremendous network of non-technical businesses on the base that support the military and civilian workforce by providing food service, recreation, fitness and child development programs. The Morale, Welfare and Recreation Department is a cash business along with receiving some appropriated funds from Congress. At this stop, we will learn how their managers apply basic business principles such as return on investment models, cost of goods sold and other formulary processes to manage and monitor their operations.	This is a 45 minute visit. Occupant capacity limit is 30 students/teachers.
Oxygen and Altitude Systems Lab	9-12	Computer Engineering, Electrical Engineering, Human Biology, Statistics	This facility performs development, and test evaluation of aircrew breathing components and systems, including: Liquid oxygen converters, onboard oxygen generation systems, oxygen concentrators, oxygen monitors, personal-and-aircraft-mounted oxygen regulators, oxygen pressure reducers and manifold assemblies, oxygen cylinders, oxygen masks, oxygen hose assemblies.	This is a 20 minute visit. Occupant capacity limit is 15 students/teachers. <b>*Foreign Nationals Prohibited*</b>
Patuxent River Naval Air Museum	4-12	History, Aerospace Engineering, Aerospace Science, Mechanical Engineering	The Patuxent River Naval Air Museum aims to educate the public about the historic and social significance of the work of the U.S. Navy that is uniquely carried out in St. Mary's County. Exhibits include a Test and Evaluation hall with aircraft, and a flight line of 25 different Navy and Marine Corps aircraft.	Reccommended time for this visit is 1 hour 30 minutes. Occupant capacity limit is 35 students/teachers.
PMA 272 Weapons Testing	6-12	Computer Engineering, Electrical Engineering, Mechanical Engineering	Students will watch a video to learn about weapons testing and be able to hold disabled equipment while a speaker talks about what it is used for.	This visit is 30 minutes. Occupant capacity limit is 25 students/teachers. <b>*Foreign Nationals Prohibited*</b>



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Propulsion Systems Evaluation Facility (PSEF) or Propulsion and Power	10 - 12	Chemistry, Aerospace Engineering, Electrical Engineering, Mechanical Engineering	The Propulsion Systems Evaluation Facility (PSEF) tests every aspect of propulsion systems and contains 55 test and support areas including: Fuels and Lubricants Test and Laboratory areas, Rotor Spin Facility for Compressors and Turbines, Altitude Environmental Chamber, Helicopter Drive System Facility, Small Engine and Accessory Test Area, and the Central Computer Facility. The Aircraft Test and Evaluation Facility (ATEF), commonly called the Hush House, is a test cell for propulsion testing of Fighter and Attack sized aircraft. This is a great stop for aspiring chemists and engineers.	This visit is 45-60 minutes. Occupant capacity limit is flexible. <b>*Foreign Nationals Prohibited*</b>
Prototyping Instrumentation Experimentation (PIE)	8-12	Aerpspace Engineering, Electrical Engineering, Computer Science, Mechanical Engineering	Aircraft Prototype Systems Division (APSD) engineers and artisans design, build and install prototype aircraft and field system installations, providing customers with a fully-integrated engineering design, machining, sheet metal/composite fabrication, prototype modeling and installation capability. The Aircraft Instrumentation Division (AID) provides instrumentation systems and performs air vehicle modifications necessary to support the NAVAIR Test and Evaluation community. The Aircraft Instrumentation Division (AID) designs, develops, fabricates, installs, calibrates and provides operational support of flight test aircraft instrumentation and telemetry systems. AID also provides airborne video data support and performs structural laboratory testing at Patuxent River. This tour covers Aircraft Prototype Systems Division (APSD) and Aircraft Instrumentation Division (AID) along with a department overview.	This visit is 1 hour 30 minutes. Occupant capacity limit is 20 students/teachers.
Salt Fog Lab	6-12	Chemistry, Environmental Sciences, Materials EGINEERING	The Salt Fog Laboratory employs 10 accelerated corrosion chambers which aid in the development of new and environmentally friendly coatings for Naval and Marine Corp aircraft.	This is a 20 minute visit. Occupant capacity limit is 15 students/teachers. <b>*Foreign Nationals Prohibited*</b>

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Steam Catapult and Arresting Gear Facility (TC-7)	8-12	Aeronautics, Electrical Engineering, Mechanical Engineering	Learn what it takes to launch an 85,000 pound aircraft off a flight deck with launch end speeds in excess of 200 mph. This underground installation accommodates structural tests and aircraft/catapult compatibility studies with all models of carrier aircraft in the US Navy. Despite its age (built in 1954), the TC-7 has gone through continuous upgrades and is representative of the steam catapults used on today's aircraft carriers. This is a great tour stop for physics classes and the ultimate F=MA experience.	This is a 45 minute visit. Part of this tour is outdoors. Occupant capacity limit is 25 students/teachers.
Structures Laboratory	9-12	Chemistry, Environmental Sciences, Materials Engineering	Ever wonder how strong materials are? The team at the Structures lab use sophisticated testing equipment to validate the strength and endurance of aircraft parts. From aircraft wings to small bolts, this lab ensures structural integrity. This is a great stop for aspiring engineers.	This visit is 20 minutes. Occupant capacity limit is flexible. <b>*Foreign Nationals Prohibited*</b>
Surface Aviation Interoperability Lab (SAIL)	6-12	Computer Engineering, Computer Science, Statistics	The Surface/Aviation Interoperability Laboratory (SAIL) is a unique, world-class facility that offers hardware-in-the-loop and operator-in-the-loop capabilities. Live evaluations and exercises are conducted in the Atlantic Test Range, virtually through local or distributed synthetic warfare environments, or in a hybrid of the two by working with aircraft in-flight, on the deck, and in the NAVAIR chambers. SAIL has three shipboard combat system suites, the FFG, DDG and CVN. These three platforms communicate through voice and data links with aircraft for test and evaluation of the aircraft systems, shipboard systems and the interface between them. The facility provides programs with an up front and early exposure to deployed naval systems and capabilities that foster risk reduction and cost efficiency for customers.	This visit is 20-30 minutes. Occupant capacity limit is 25 students/teachers. <b>*Foreign Nationals Prohibited*</b>
Targets - Atlantic Ranges and Targets (ART) and Atlantic Targets and Marine Operations (ATMO) in Solomons	10 - 12		Atlantic Targets & Marine Operations uses a low-cost, vacuum thermal-forming process to fabricate a variety of plastic armored vehicle targets. These simulated targets support a wide range of RDT&E and training requirements. This facility is located at the Solomons naval complex and is not aboard the main Patuxent River Naval Air Station. This visit is suitable for production engineering students.	This visit is 30 minutes and will demonstrate the production of a plastic target.

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Textile Prototype Lab (formerly Fabrication and Prototype Lab)	9-12	Design Engineering, Prototype Development, Production, Test & Evaluation, Geometry, Human Biology, Human Factors Engineering	The Textile Systems Development & Prototype Lab provides the space, equipment and facilities for engineers and engineering technicians, working with the fabricator, to design and develop new life support equipment and improve designs of in-service equipment. The lab has been a continuous and significant part of the Human Systems Engineering group since the 1960s. The primary mission is to research, design, and prototype first article aircrew protective devices before simulated operational testing begins. To manufacture test aircrew protective items to evaluate performance in comparison to specification or similar document, proofing of drawings, and patterns before being released to NAVICP, and DLA.	This is a 20 minute visit. Occupant capacity limit is 25 students/teachers. <b>*Foreign Nationals Prohibited*</b>
Triton Unmanned Aircraft	11-12 and College	Aerospace engineering, flight test engineering, unmanned air systems, electrical engineering, radar	This facility is the hangar for the MQ-4C Triton Unmanned Air System (UAS). This hangar visit allows students to walk through the hangar and see the aircraft up close, while learning about the system and the part it plays in the Navy mission.	This is a 30 minute visit. Closed-toed shoes are required. Tour capacity limit is 10-12 students/teachers, depending on available escorts. <b>*Foreign Nationals Prohibited*</b>
United States Naval Test Pilot School (TPS)	6-12	Aerospace, Aeronautics, Engineering	Students and educators can't help but feel awed when entering the front doors at the US Naval Test Pilot School. Military aviators from around the world attend this school which has also produced some of our nation's astronauts.	This is an hour tour and includes a briefing on the school along with a hangar visit. Tour occupant capacity limit is 25 students/teachers.
V-22 Osprey Aircraft	4 - 12	Aerospace Engineering, Aerospace Science, Mechanical Engineering	This unique aircraft can fly in both vertical and horizontal modes making it one of the most unique planes at Patuxent River, if not the entire Navy. A briefing on the aircraft's unique capabilities followed by a hangar tour is scheduled.	This visit can be 30 minutes or 1 hour with a full PowerPoint presentation. Occupant capacity limit is flexible. <b>*COVID-19 Document Signature Required*</b>
Vision Lab	6-12	Human Biology, Human Factors Engineering	Student will be exposed to the vision lab which studies and develops new technologies to improve the vision capability for aviators through Research and Development programs, studies/investigations of environmental issues that effect eye protection, Test and Evaluate Program of Record Laser Eye Protection. The Vision Lab has been at part of Human Systems since the invention of the atomic bomb providing studies and designs for blast eye protection.	This is a 30 minute visit. Occupant capacity limit is 15 students/teachers. <b>*Foreign Nationals Prohibited*</b> <b>*Guests must wear a mask*</b>

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Weather Balloon Launch	4 - 5	Electrical Engineering, Environmental Science, Statistics	Before many test flights at Patuxent River, a weather balloon is launched to capture wind speed, direction and other data. For this activity, students will launch a weather balloon from the shoreline of the Chesapeake Bay. Data can be downloaded and sent back to the school for further mathematical inquiry exercises.	This activity is 45 minutes. Occupant capacity limit is 35 students/teachers.
Webster Outlying Field (WOLF) Cost Analysis Department	6-12	Accounting, Business Finance	The Z-Code educates & explains the business model of how the Rapid Capability Engineering & Integration uses business, financial, & programmatic best practices to ensure product development to the warfighter.	This is a 45 minute interactive presentation where students can be involved, including a video that shows an engineering product. Occupant capacity limit is 35 students/teachers.
Webster Outlying Field (WOLF) Rapid Capability Engineering Group Webster Field St. Inigoes, Maryland	6 - 12	Aerospace Engineering, Computer Engineering, Computer Science, Electrical Engineering, Mechanical Engineering, Robotics, Contracting, Business Finance	Located 12 miles southwest of Patuxent River, Webster Field is home to NAWC Webster Outlying Field (WOLF), Rapid Capability Engineering & Integration. There are seven main mission & operational components that make up NAWC WOLF: Airborne System Integration, Combat Integration & Identification, Ship & Air Integrated Warfare, Special Communications, Integrated Command & Control (C2) Intelligence, Air Traffic Control & Landing Systems. Sensor development and Integration, also a very robust and dynamic Rapid Acquisition Contracts/Procurement team. There is also an unmanned air vehicle operation at Webster Field associated with the UX-24 Command.	This is a 1.5 hour visit. Occupant capacity limit is flexible.
Wind Tunnel	9-12	Geometry, Physics	The Naval Aerodynamics Test Facility or "wind tunnel" specializes in aerodynamics testing of scaled and full-sized Naval models.	This visit is 20 minutes. Occupant capacity limit is 20 students/teachers.