



Youth Builders

Pre-Apprenticeship

White Paper

Youth Builders Pre-apprenticeship Programs

“A virtual workforce readiness pipeline”

Issued in August 2020





Executive Summary

As the maritime industry faces an aging workforce, the need to upscale current and future workforce development was recognized in the president's executive order for Expanding Apprenticeships in America to promote access to apprenticeship opportunities that help more Americans families secure sustaining jobs. On July 1, 2019, during its centennial celebration, The Apprentice School at Newport News Shipbuilding (NNS) launched Youth Builders: Pre-Apprenticeship Programs (YB-PreP). The program is part of NNS's FORWARD strategy proposes to utilize an innovative virtual pre-apprenticeship model centered around a workforce community triad of high school, industry, and community college to create a Generation Z workforce development pipeline for naval maritime careers. YB-PreP is an innovative program that operates at the intersection of Career and Technical Education (CTE) and STEM education to bridge learning gaps and equip high school graduates for high performance jobs in the naval shipbuilding industry. The YB-PreP model will implement four program pillars: 1) workplace learning, 2) e-Mentoring, 3) personal leadership, and 4) math enrichment to prepare high school graduates for maritime registered apprenticeship programs and/or immediate employment in shipbuilding and ship repair careers.





Program Purpose

The purpose of (YB-PreP) is to improve the employment outcomes for the youth of Virginia by fulfilling the labor needs of the naval supply chain. The Navy projected it would need to increase the naval industrial work base by 40 percent over the next five to ten years, and noted that “managing the growth and training of those new workforces while maintaining the current standard of quality and efficiency would represent the most significant industrywide challenge for Naval shipbuilding” (CRSR, 2017). Current challenges include two major issues: upskilling current employee’s knowledge, skills and abilities and ensuring that the K-12 education system can produce the output that can be developed into the high-performance workforce needed for the 21st century.

To meet this talent challenge, the naval industrial supply base will need to find and develop talent further down the educational supply chain by developing students before they graduate from high school. YB-PreP is one such pipeline utilizing pre-apprenticeship as a model for work-based learning and mentoring to develop future ready CTE high school graduates for shipbuilding careers. Given the virtual nature of the model, YB-PreP will be a scalable and replicable youth pre-apprenticeship model that can address the local and regional talent challenges for a highly skilled workforce in shipbuilding and repair. The model will provide best practice policies, proven protocols, and systems alignment between high school career pathways and employer sponsored youth pre-apprenticeships.



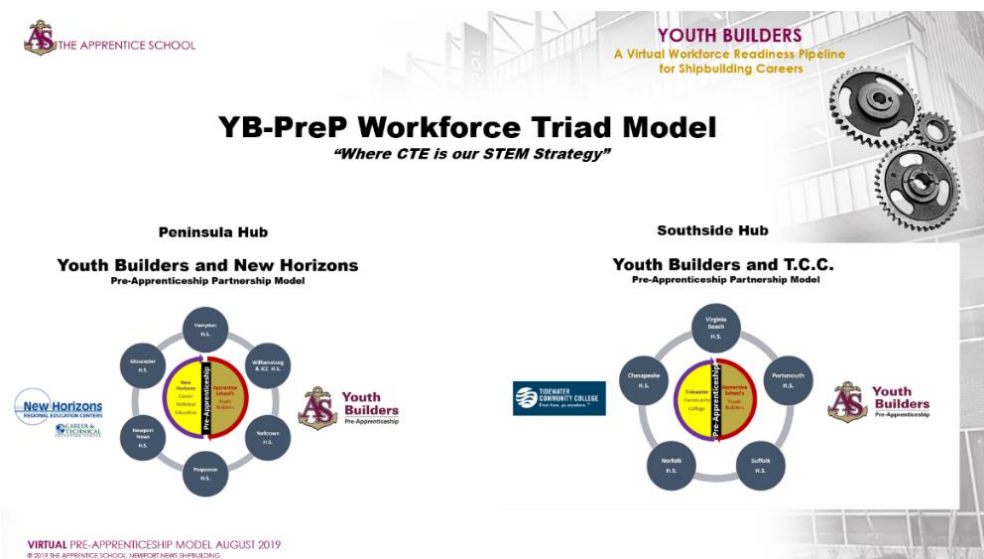
Target Population

YB-PreP is currently open to rising 11th and 12th graders at various CTE focused high schools throughout Hampton Roads who will complete Algebra 2 by the end of their senior year. Selections are based on students' current GPA, completed courses, and a written essay. As the program expands the target population will include 9th and 10th graders.

Statement of Need

It has become increasingly difficult for businesses to find high school and college graduates with the advanced technical skills necessary to fill the need for a high-performance workforce. The Manufacturing Institute (2018) concluded that the skills gap has continued to swell and is projected to negatively impact future economic growth. Preparing tomorrow's workforce for naval shipbuilding demands is a paramount challenge for Hampton Roads, the world's largest naval installation.

CTE programs across the country have made substantial improvements by developing students' employable skills and career options. However, keeping up with the accelerating changes in labor markets due to automation, technology, and artificial intelligence (the future of work called the Fourth Industrial Revolution) will require industry's direct engagement within the K-12 educational system to meet its high-performance workforce requirements. To prepare students for high tech jobs of the future, they will need exposure to STEM training. STEM education disparities threaten school systems' ability to meet the demands of technology in our economy. These disparities mean that some students do not have access to the needed teachers and training.





Program Description

YB-PreP began in Fall 2019 at The Apprentice School in Newport News, Virginia. Eleven seniors who attend a local CTE school in Hampton Roads, Virginia were accepted as pre-apprentices. Successful completion of the YB-PreP apprenticeship program may either lead to acceptance at The Apprentice School or to direct employment at Newport News Shipbuilding. The Apprentice School is a degree-granting, private, post-secondary educational institution, founded, and operated by Newport News Shipbuilding. The school trains apprentices for leadership careers in the shipbuilding industry. Though The Apprentice School teaches trades in the shipbuilding industry, students who are accepted into the pre-apprenticeship program can be enrolled in any synergistic career pathway at their CTE centers.

YB-PreP consists of two 15-week semesters; fall and spring. Each engagement event meets online for two hours, once a week, four times per month. Each week, pre-apprentices participate online in one of four areas:

Weekly Online Engagement Topics

- **Workplace Learning**—Real world trade experiences and activities
- **e-Mentoring**—Online career guidance and coaching activities
- **Personal Leadership**—Habits of highly effective shipbuilders, along with team building activities
- **Math Enrichment**— Online student-centered math enrichment

Workplace Learning

Workplace learning promotes student engagement with trades persons from the shipyard and allows students to develop relationships with the 19 different trade areas at NNS. Workplace learning content varies and includes trade related demonstrations and virtual simulations using digital technologies.

e-Mentoring

Volunteers from The Apprentice School Student Association (ASSA), along with volunteers from The Apprentice School Alumni Association (ASAA), serve as mentors during the program. Mentors provide students with industry-specific support, general career and education guidance, personal and professional insight, and caring interactions that helps foster a sense of community that facilitates the need to belong.



Personal Leadership

The YB-PreP leadership model begins with the premise “Know Thyself”! YB-PreP directs pre-apprentices through various online assessments to help them discover their personality traits and character strengths. Pre-apprentices then learn key concepts for building effective teams.

Math Enrichment

YB-PreP currently uses My Open Math (MOM), an online student-centered math enrichment application. Each weekly online engagement event starts with a “math muscle workout” session for one hour, with two hours on the 4th week of each month. The Center for American Progress, in an article entitled Math Pathways: The Way Forward (2019), suggests that whatever career pathway a high school student is pursuing, math proficiency is a gateway to success, especially for STEM-related workforce opportunities. YB-PreP is dedicated to helping educators remediate math deficiencies by associating math proficiency to situated learning in the workplace that is connected to career success and advancement.





Program Benefits

- Attracts and develops high school students for the naval supply chain by preparing them to meet the industry demands for a more skilled workforce in shipbuilding and repairs.
- Integrates workplace learning and classroom instruction with coaching and mentoring activities that enhance students' employability skills for improved workforce retention.
- Helps students discover the 19 different shipbuilding trades while in high school and explore the benefits of pursuing industry stackable credentials so that they are ready for hire at graduation, as well as, an improved opportunity for a paid registered apprenticeship at The Apprentice School.

Goals and Objectives

YB-PreP is a high-quality workforce readiness program that prepares individuals for entry into a registered apprenticeship program or a shipbuilding career upon graduation. Our approach to educational enrichment is to foster a productive future workforce; ready to perform on the job. Youth Builders prepares students for a full range of postsecondary options, including attending an apprenticeship, two- or four-year college or university, the military, and/or formal employment training. When pre-apprentices complete the program, they may apply for a paid apprenticeship, trade employment, or use the program enrichment towards other skilled career pathways.

Future Shipbuilders of America

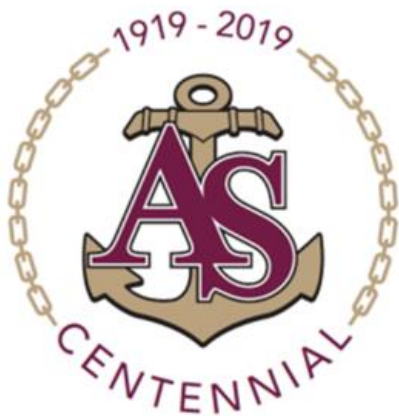
Another Youth Builders program would be the development of high school pre-apprenticeship club called the Future Shipbuilders of America (FSA). FSA would a national student club like [Skills USA](#) or [Future Business Leaders of America](#) (FBLA), but uniquely centered around shipbuilding and repair industry. FSA would be a virtual partnership of students, teachers, and industry, working together to ensure the maritime industry has a skilled workforce.



About The Apprentice School

The Apprentice School is a degree granting private post-secondary educational institution, founded, and operated by Newport News Shipbuilding. The school was established on July 1, 1919 by issue of Executive Order No. 24 at Newport News Shipbuilding & Dry Dock Company, signed by President Homer L. Ferguson. The school trains apprentices for leadership careers in the shipbuilding industry.

In July 2020, The Apprentice School was approved by the State Council of Higher Education for Virginia to operate as a degree granting postsecondary institution. The school plans to offer an associate of applied science degree in Maritime Technology that will encompass its 26 trade disciplines. The Apprentice School is currently preparing documentation for accreditation with The Council on Occupational Education.



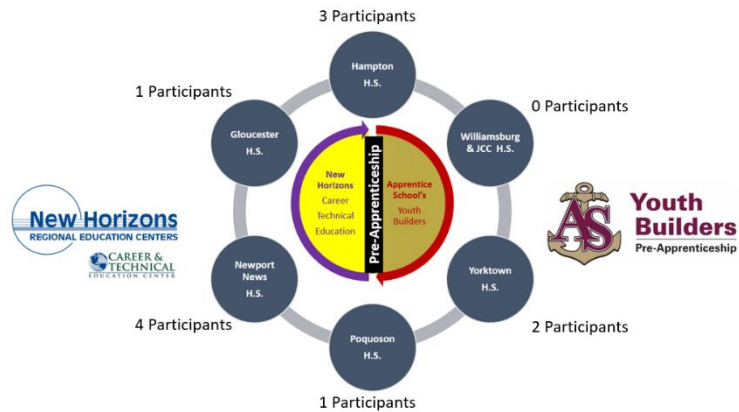
Celebrating a Legacy, Innovating for the Future



**Youth Builders July 1st, 2019
Centennial Inauguration**



Youth Builders and New Horizons Participation by Peninsula School Systems



2019-2020 Pilot Program Outcomes

Pilot Outcomes with 11 Participants

Accepted Apprentice School Offers	• 8 participants	73%
Accepted NNS Job Offers	• 2 participants	18%
Accepted College Admissions	• 1 participant	9%

Demographics

Women	3	Percentage 27%	Black	4	Percentage 36%
Men	8	Percentage 73%	White	7	Percentage 64%

Program Area Enrichment Hours

STEM Enrichment	30 hrs	Project base learning that promotes creativity and experimentation
Workplace Learning	10 hrs	Real world trade experiences and activities
Mentoring	10 hrs	Career guidance and coaching activities
Personal Leadership	10 hrs	Habits of highly effective shipbuilders along with team building activities





References

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