The Applications and Research Laboratory (ARL) is the Career and Technology High School for Howard County Public Schools. The philosophy behind the Career Academy Program is to prepare students for careers, rather than jobs or employment. The program offers students an opportunity to meet and work with professionals from career fields while building an academic foundation and skill base to be college and career ready. Business partnerships and advisory boards are pivotal in the success of these programs. Students from all 12 high schools and Homewood are able to enroll in programs at the ARL. Students use industry standard software and technology through project-based instruction. Students have the opportunity to earn industry certifications and college credits while attending the ARL, preparing them for success in college and careers.

“Extraordinary Learning Through Experience”

The centralized academies at the ARL will engage students through real-world experiences and 21st century industry standards to be college and career ready, empowering lifelong learners and qualified professionals who will thrive in a dynamic world.

Administrator: Karl J. Schindler, Principal, ARL

Career Academies

- Academy of Finance
- Academy of Health Professions
- Aerospace Engineering: Project Lead the Way (PLTW) Academy
- Agricultural Science Academy
- Animation & Interactive Media Academy
- Apprenticeship Maryland Academy
- Architectural Design Academy
- Automotive Technology Academy
- Biotechnology Academy
- Construction Technology
- CyberSecurity Networking Academy
- Graphic Design Academy
- Heating, Ventilation and Air Conditioning Academy
- Systems and Project Engineering Academy

Note: The following are offered at each high school, instead of the ARL:
- Accounting Academy
- Career Research and Development Academy
- Computer Programming Academy
- Culinary Science Academy
- Engineering: Project Lead the Way, Marketing Academy
- Teacher Academy of Maryland

Special Programs

- Early College Program-CyberSecurity
- FFA (Formerly--Future Farmers of America)
- Nontraditional careers female student support group
- BrightMinds Foundation financial literacy program for 8th grade students.
- Discover for Synchronous Video, teaching financial literacy to 10th grade American Government students across the county.
- Intergenerational program through Health Professions and Cybersecurity Networking Academies

Updated January 2021
Accomplishments

Academy of Finance
- 2 students placed 1st in Fall 2019 and Spring 2020 for the State for national Investwrite competitions.
- Student placed 1st in region for FBLA financial literacy test.

Academy of Health Professions
- 30 students received certified nursing assistant (CNA) certification
- 150 juniors received National Safety Council 1st aid certification
- 100 seniors received HIPAA certification
- 100 seniors received National Safety Council Bloodborne and Airborne Pathogen course certification

Agricultural Sciences
- 1st place Maryland FFA Livestock Evaluation contest, Summer 2019
- Students gave a lunchtime lecture at the Maryland Science Center, Summer 2019
- 6th place National FFA Livestock Evaluation Contest, Fall 2019
- Testified at Md. legislative sessions – 2019, 2020
- Several winners at the Regional Public Speaking contest including Employability skills and Extemporaneous Speaking 2019 and 2020
- Students awarded National and State FFA Scholarships as well as community scholarships totaling over $10,000 in 2020

Animation and Interactive Media Academy
- First and 2nd Place Place, SkillsUSA – State Competition 3D, Animation & Visualization 2nd Place, 3D Animation & Visualization.
- Students participated in the Howard County Library System’s first Comic Con.

Apprenticeship Maryland Academy
- Electrical students earned OSHA 10 certification and completed 1st year of registered apprenticeship at IEC
- Direct Support students earned DSP level 1 certification
- All students offered full-time employment

Architectural Design Academy
- Students presented projects at American Institute of Architects Baltimore Design Excellence Awards.
- Students earned Autodesk AutoCAD user certifications.

Automotive Technology Academy
- Students hosted an inspection clinic for the community. Students inspected and consulted with vehicle owners on the brakes, engine, and electrical condition of their vehicle with repair and maintenance recommendations.

Biotechnology Academy
- Students participated in the Howard County Brain Bee (Neurobiology).
- Several mentored students completed experiments likely to be included in peer-reviewed scientific journals.
- Biotechnology II students had their annotated cDNA sequences published in the internationally available GenBank database.

Construction Technology
- All students certified through National Center for Construction Education and Research in Core Skills and Carpentry. Students also CPR certified through instruction by Academy of Health Professions staff and students.

CyberSecurity Networking Academy
- Seniors participated in Air Force Association’s CyberPatriot VII competition, Fall 2019. They progressed through 3 rounds of day-long challenges and advanced to Platinum Tier State Round. Two of five teams placed 8th and 9th out of 40+ teams.

Early College Program – CyberSecurity
- Students participate in Passport to the Future, a conference where students are interviewed and attend job readiness workshops
- Students participate in local and national cyber competitions
- Junior team placed 2nd in Parsons
- Senior team placed 3rd in Parsons
- Students participate in end-of-year Capture the Flag event sponsored by EnRich Minds
- Students run a business to apply soft skills to turn a profit and use tech skills to simplify supply chain management, communication tools, social media analytics and website design
- Students earn their Net+ and Sec+ certifications

Graphic Design Academy
- Designed Bright Minds Foundation Golf Promotional materials.
- First place SkillsUSA Regional Competition in Advertising Design.
- Third place SkillsUSA MD State Competition in Advertising Design.

Heating, Ventilation and Air Conditioning
- The HVAC Career Academy is a National Center for Construction Education & Research accredited program.
- Students develop and practice entry level skills which are both knowledge based and practical in nature by accomplishing the work of the business.
- Students are able to earn NCCER Core, NCCER HVAC L1, Section 608 EPA, and OSHA 10 certifications.
- HVAC industry professionals from diverse backgrounds share their knowledge and experience on a variety of topics monthly with the HVAC Career Academy student.

Systems and Project Engineering
- Systems Management Solutions GT class consulted with the Cedar Lane School to design and develop adaptive PE equipment for students with disabilities.

Aerospace Engineering
- The Aerospace Academy: Project Lead the Way (PLTW) provides students with the opportunity to apply the engineering design process through coursework and hands-on learning.