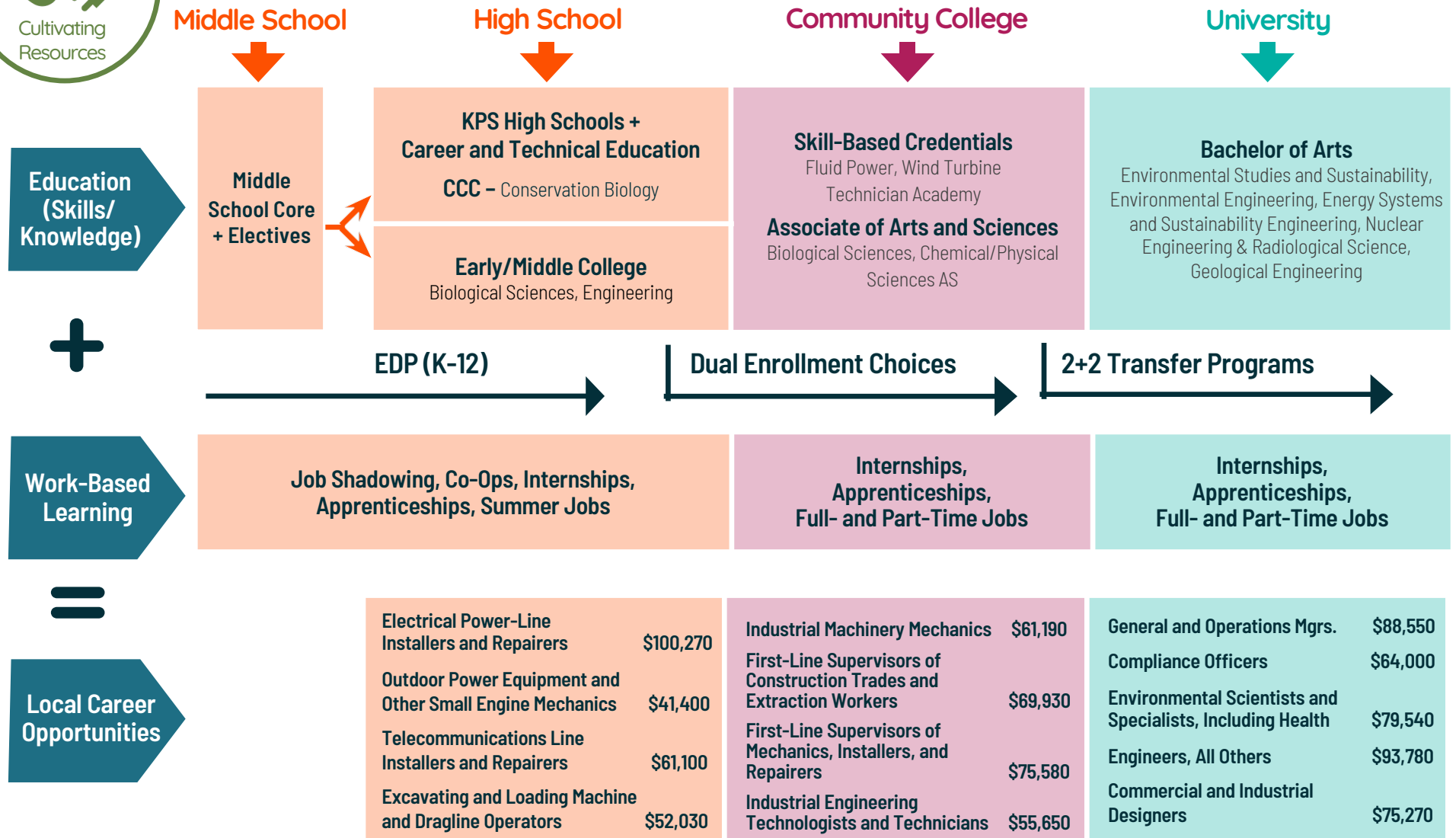


Energy & Natural Resources

Clean and Alternative Energy • Conservation & Land Management • Ecological Research & Development •
Environmental Protection • Resource Extraction • Utilities



Promising Progressive Career Pathways Map



Design Your Path to Your Promise
— Explore Where You Can Go.

Kalamazoo Public Schools

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PATHWAY 2 CAREERS



Energy & Natural Resources

Design Your Path to Your Promise — Here's How You Can Get There.

MIDDLE SCHOOL	English Language Arts	Math	Science	Social Studies	World Language	Enrichment	Career Readiness	Elective Focus
	English	6 th Grade Math or Accelerated Math	6 th Grade Science	Social Studies	Spanish for Beginners (Elective)	Physical Ed./Band, Orchestra, or Choir	Life Skills	Tech Smart
	English	7 th Grade Math or Accelerated Math	7 th Grade Science	Social Studies	Spanish Intermediate	Physical Ed./Band, Orchestra, or Choir	Life Skills	Tech Smart
	English	8 th Grade Math or Algebra	Science/Robotics	Social Studies	Spanish 1	Physical Ed./Band, Orchestra, or Choir	Life Skills	Tech Smart

HIGH SCHOOL	English Language Arts	Math	Science	Social Studies	World Language	Enrichment	Career Readiness	Elective Focus
	English 9 / Honors English	Algebra 1 or Geometry	Environ. Science & Biology (CEB)	World History	French	PE	Tech Smart	See career programs below.
	English 10 / Honors English	Geometry or Algebra II	Biology (DEE) and Chemistry	US History	French	Health	College/Career Readiness	
	English 11 A or Honors or AP	Algebra II or Statistics	Chemistry or Physics	Gov or AP Gov	French / (future Arabic)	Environmental Science	Economics	
	College Eng. 12 or Honors Eng.	AP Statistics or AP Pre-Calculus	AP Chemistry	Social Studies Elective	French / (future Arabic)	Fine Arts	Chemistry Foundations	

Grade	Possible Career-Connected Pathway Choices		Dual Enrollment Courses	Postsecondary Programs/Majors/Apprenticeships for Occupations in this Career Cluster	
9	Earth Science	Band, Orchestra, or Choir	<ul style="list-style-type: none"> Organismal Biology Chemistry Basics of Mechanical Sciences Basics of Fluid Power Cellular Biology Calculus 1 & Analytic Geometry 	Certificates, Associate's Degrees, and Apprenticeships <ul style="list-style-type: none"> Biological Sciences, AS Fluid Power, COA Wind Turbine Technician Academy Chemical/Physical Sciences, AS 	Bachelor's and Advanced Degrees <ul style="list-style-type: none"> Environmental Studies and Sustainability Environmental Engineering Energy Systems and Sustainability Engineering Nuclear Engineering & Radiological Science Geological Engineering Mining Engineering
10-12	Geology A&B	Chemistry Foundations			
10-12	Environmental Science	Honors Chemistry - Organic			
12	AP Physics				

Kalamazoo Public Schools

College and Career Awareness & Exploration Resources

Higher Education



Early/Middle College Programs

Kalamazoo County Early/Middle College (EMC) is an innovative early college program, which gives students the opportunity to earn an associate degree or certificate with an additional year of high school.



Kalamazoo Valley Community College

Kalamazoo Valley Community College seeks to provide every student with clear, flexible program options that provide a mix of educational skills and experiences that will prepare students for advanced coursework at top universities and meaningful opportunities for employment in a changing world.



Kalamazoo College

Kalamazoo College offers qualified high school students the opportunity to enroll in courses while concurrently enrolled in high school during the fall, winter, and spring terms.



Western Michigan University

Dual enrollment through Early College Programs at WMU provides eligible high school students with credits that may be applied toward high school graduation requirements, as well as a college or university program.



The Kalamazoo Promise

Choosing a career path is one of the biggest and most important decisions you'll ever make. The good news is that The Promise is here to help you find and pursue the career path that fits you best.

Local Career Training Programs



Career Launch Kalamazoo

This modernized Youth Apprenticeship Program that provides flexible occupational training programs that cultivate well-educated, highly skilled workers able to meet the demands of a competitive global economy in careers that are in high demand.



Kalamazoo RESA Career Connect Campus

New in the 2025-2026 school year, students will have the opportunity to participate in programs at the Career Connect Campus (CCC). The inaugural class of students at the CCC will learn from industry experts in a new, state-of-the-art facility.



Teach Kalamazoo

Kalamazoo's Grow Your Own (GYO) Teacher Residency program includes apprenticeships and numerous on-ramps into the teaching profession for undergraduate and graduate students, staff, parents, paraprofessionals, for anyone with an existing bachelor's degree, and/or anyone who is interested in entering the honorable and fulfilling profession of teaching.

Labor Market Tools



Michigan Pathfinder

Pathfinder uses current labor market, wage, and institutional data and metrics to help you create an individualized career roadmap. This free tool provides information to students, parents, and guidance staff to make informed choices about educational and career options.



Pure Michigan Talent Connect

Michigan's free online career exploration tool that provides information on in-demand careers and the degrees or credentials needed to pursue them.

College & Career Exploration and Resources



[Xello Career Exploration](#)

Kalamazoo Public Schools uses the Xello platform so students in grades K-12 can build self-knowledge and explore options beyond high school.



[Michigan Career Development Model](#)

The Michigan Career Development Model (MCDM) is a framework, guided by legislation that engages school communities, students, and their support networks in intentional and meaningful career awareness, exploration, and preparation.



[Advance CTE National Career Clusters Framework](#)

The National Career Clusters® Framework provides a shared structure and language for CTE program design across the United States. The new framework provides meaningful career exploration and preparation experiences through Career Technical Education (CTE) that prepare students for the changing and interconnected world of work.



[Michigan Pathfinder](#)

Pathfinder provides valuable information to help students make informed choices about educational and career options.



[O*NET Online](#)

O*Net provides a collection of resources to inform students' college and career journeys: a Career Exploration Tool, O*NET Interest Profiler, My Next Move, Career One Stop, and Get My Future.



[SAT/PSAT – College Board](#)

The SAT and PSAT are standardized tests meant to show colleges and universities how prepared students are for college by measuring key skills like reading comprehension, computational ability, and clarity of expression.



[EBSCO Learning Express](#)

EBSCO LearningExpress provides online platforms for academic skill building, standardized test preparation, and career-oriented digital content. It helps students prepare for college, explore careers, and accelerate their journey into careers.



[Credential Center](#)

Certifications demonstrate for employers that job candidates have specific skills or knowledge in an occupation, industry, or technology. This site helps students explore training associated with certifications and credentials.



[Apprenticeship USA](#)

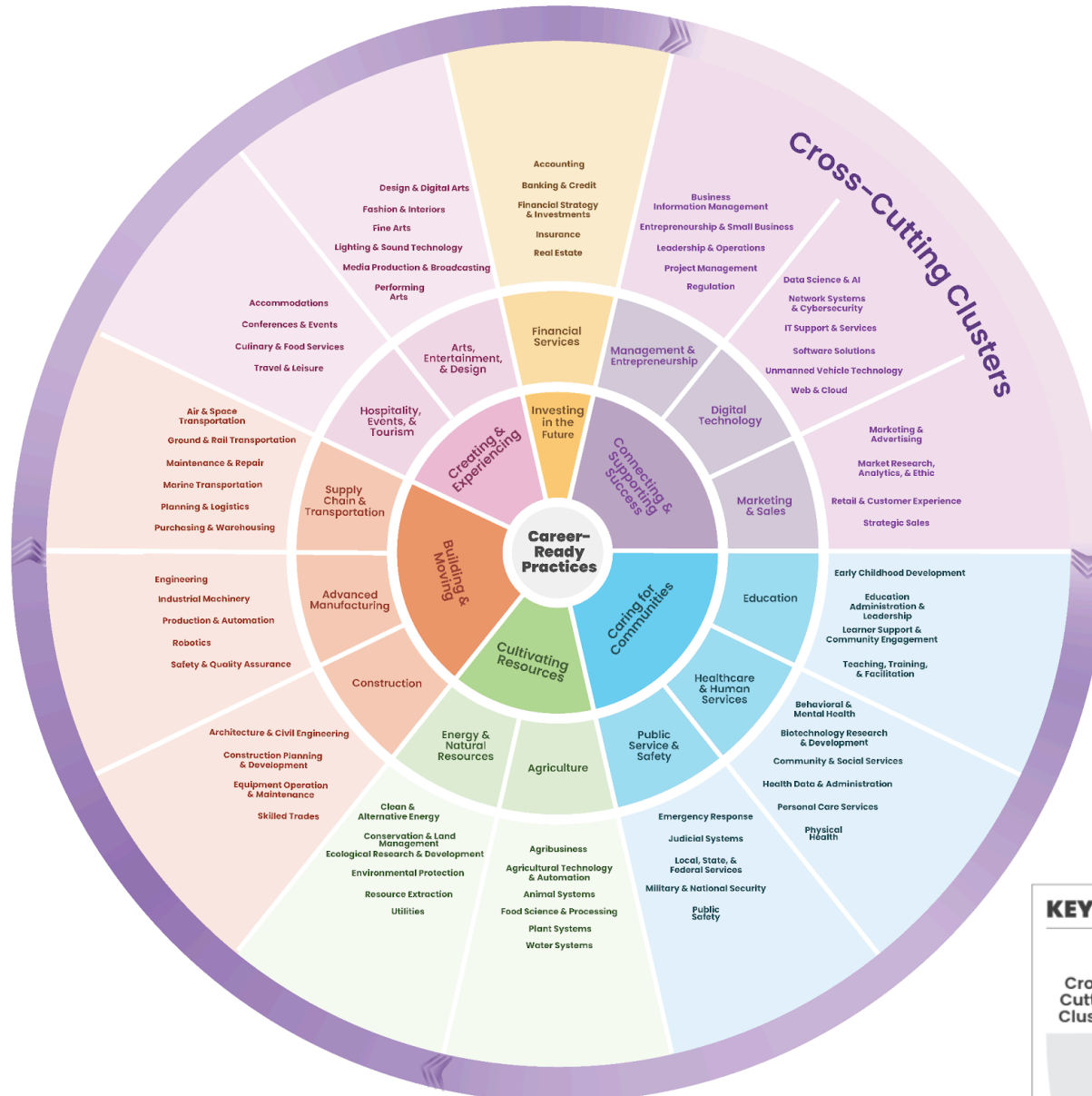
Discover apprenticeships across industries, how programs are started by employers, and how to become an apprentice.



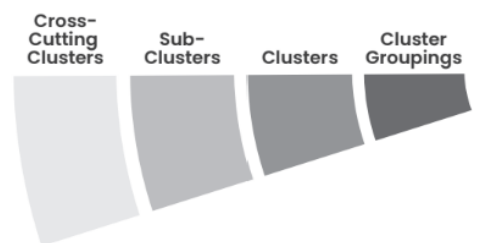
[ASVAB Career Exploration](#)

The Armed Services Vocational Aptitude Battery (ASVAB) is a multiple-aptitude battery that measures developed abilities and helps predict future academic and occupational success in the military.

The Framework: Wheel View



KEY



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Energy & Natural Resources: Powering Progress & Preserving Our Planet

Cluster Definition: The Energy & Natural Resources Career Cluster spans careers in traditional and renewable fuel production, power generation and energy conversion, utilities, environmental preservation, ecological research, and resource extraction. These industries focus on efficient and responsible resource management, including conservation, transmission, distribution and storage, to minimize environmental impacts and meet global energy needs. Careers in this Cluster are dedicated to creating a sustainable future, innovating cleaner energy solutions, and preserving our planet's natural resources for generations to come.

Sub-Clusters

Example Programs of Study

Clean & Alternative Energy: Careers focused on energy generation and infrastructure development from clean energy sources such as low carbon fuels, natural gas, nuclear, biofuels, hydrogen processes, and other alternative sources aimed at addressing climate change impacts. Professionals in this field develop and implement technologies that harness natural elements including solar, nuclear, wind, and hydro power, while advancing efforts in electrification and energy storage solutions. This Sub-Cluster also includes recycling of batteries and waste, carbon capture, and other energy and mineral reuse and reclamation.

Renewable Energy
Electric Vehicle Installation & Maintenance
Solar System Design & Installation
Wind Turbine Installation & Maintenance

Conservation & Land Management: Careers rooted in environmental and natural sciences, focusing on protecting and managing natural resources and landscapes. Professionals in this field operate local, state, and national parks; safeguard forests and waterways; maintain national lands and rangelands; and manage wildlife and marine life. This field merges ecological conservation with recreational spaces, aiming to preserve nature while enhancing community well-being and environmental stewardship through public accessibility.

GIS Mapping
Natural Resource Conservation
Wildlife Management

Ecological Research & Development: Careers emphasizing the scientific study of and research in ecological, geological, electrical, chemical, nuclear, biological, environmental engineering, and other sciences as they relate to energy production, sustainability, and the management of natural resources. Professionals in this field employ scientific methods to understand ecosystems, biodiversity, and the impacts of energy systems on the environment.

Environmental Engineering
Environmental Management
Environmental Science & Sustainability

Environmental Protection: Careers centered on regulating and managing the impacts of both natural processes and human activities, such as resource production and consumption. This Sub-Cluster involves developing and enforcing policies to protect all ecosystems, including space, air, land, and water, from natural disasters, pollution, and degradation. This field focuses on conserving natural habitats and biodiversity and applying scientific and engineering principles to solve environmental problems and improve climate resilience.

Climate Resilience
Sustainable Communities

Resource Extraction: Careers focused on the efficient extraction of natural materials including fossil fuels, minerals, natural gas, and geothermal resources that are essential for fuel production in energy and manufacturing. This Sub-Cluster includes careers in exploration, drilling, mining, fracking, mineral processing, geoscience, quarrying, and petroleum engineering.

Clean Energy System Design
Energy Transfer
Mining Technology

Utilities: Careers involving the transmission and maintenance of utility systems for clean and alternative energy, electricity, water, waste remediation, and telecom/broadband; distribution and infrastructure development; and storage. Professionals in this field ensure reliable connectivity to energy sources, energy efficiency, and other essential services. Opportunities exist in public utilities, as well as commercial and industrial companies, with a focus on operations, maintenance, and security of systems to guarantee uninterrupted access to vital resources.

Telecommunications
Water & Wastewater Systems
Plant Operations
Underground or Overhead Linework
Utility Maintenance and Repair