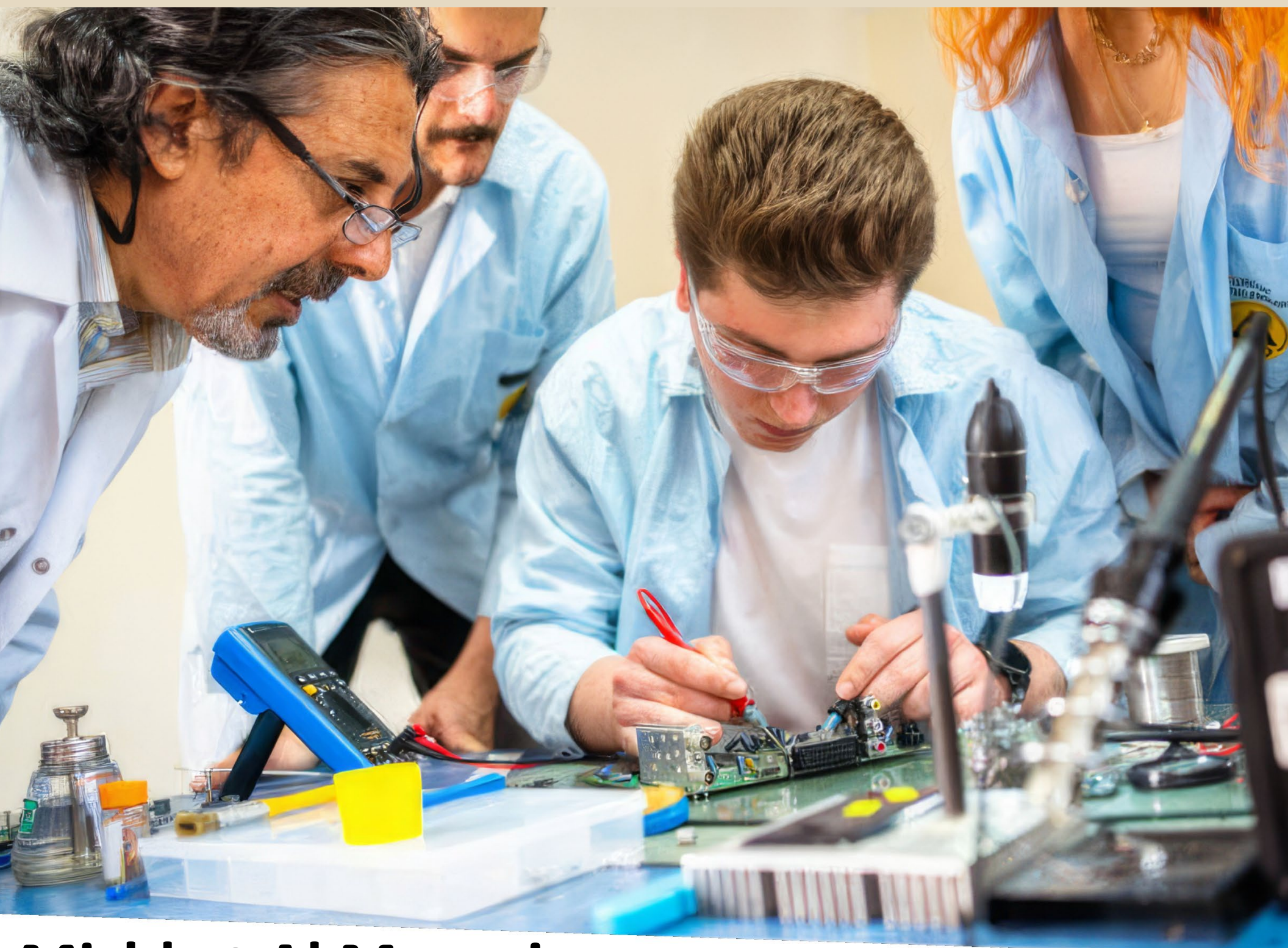


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**Empowering Nevada's High School Graduates:
Career Pathways for Immediate Employment**



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Empowering Nevada's High School Graduates: Career Pathways for Immediate Employment?

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Abstract

Nevada's economic landscape is evolving as sectors such as advanced manufacturing, renewable energy, finance, and healthcare gain momentum (University of Nevada, Las Vegas, 2024). According to IBISWorld (2024), the state's gross state product (GSP) reached \$198.4 billion in 2024, with an annualized growth rate of 2.4% over the previous five years. Data from the U.S. Census Bureau's 2022 American Community Survey indicates that approximately 27% of Nevada's adult population has attained a high school diploma as their highest level of education. While comprehensive state-level labor force participation rates by education level are not publicly available from the Nevada Department of Employment, Training, and Rehabilitation (DETR), national trends show that high school graduates without a college degree often enter the workforce immediately after graduation (Education Revolution Association, 2024).

In Nevada, many of these graduates find employment in the state's prominent service and hospitality sectors, underscoring a broader challenge: a substantial segment of young adults joins the workforce without the technical training necessary for emerging, higher-skill industries.

This piece suggests the development of three distinct pathways—Finance and Accounting, Engineering and Technology, and Science and Biology—each designed to culminate in an industry-recognized certification. These pathways will begin in 9th grade, offering students progressive exposure to technical skills, hands-on projects, and work-based learning, equipping students with the technical skills required to secure an entry-level position in a related field.



Literature Review

Early Workforce Development (EWD) refers to structured programs designed to equip secondary school students with the technical, professional, and soft skills necessary for immediate employment after graduation. Academically, EWD is defined as "a deliberate integration of education and workforce training efforts to prepare youth for specific career pathways by combining academic instruction, skills-based learning, and exposure to real-world work environments" (Jacobs & Hawley, 2009). Such programs aim to bridge the gap between classroom learning and labor market demands, particularly in STEM fields where skill shortages are pronounced.

The theoretical foundation supporting EWD is rooted in Kolb's Experiential Learning Theory, which posits that learning is a cyclical process where knowledge is created through the transformation of experience. Students engage in concrete experiences, reflect on those experiences, conceptualize their learning, and apply it in new contexts (Kolb, 2014). This theory emphasizes the active participation of learners, making it particularly relevant to workforce readiness programs that integrate academic learning with practical experiences.

A direct parallel can be drawn between this theory and experiential activities in high school science curricula. For instance, a common ninth-grade biology activity—flower dissection—mirrors Kolb's learning cycle. In this exercise, students engage in concrete experience by dissecting a flower and identifying its reproductive structures. They move to reflective observation by considering how each part contributes to the plant's reproduction. Through abstract conceptualization, they connect these observations to broader biological concepts such as pollination and genetic diversity. Finally, in active experimentation, students might design experiments examining environmental impacts on pollination or compare reproductive structures across species. Such activities go beyond rote memorization, fostering critical thinking, reflection, and the application of knowledge—key skills emphasized in EWD (Kolb, 2014).

Complementing Kolb’s theory, the ICAP Framework (Interactive, Constructive, Active, Passive) provides a cognitive engagement model that underscores the importance of active and constructive learning for effective knowledge acquisition (Chi & Wylie, 2014). Interactive and constructive activities, such as internships and hands-on training, are shown to produce deeper learning outcomes essential for workforce readiness.

Globally, countries like Germany and Switzerland exemplify the success of Work-Based Learning (WBL) models. Germany’s dual education system, blending classroom instruction with apprenticeships, results in a 92% employment rate among graduates (World Economic Forum, 2024). Similarly, Switzerland enrolls 70% of its students in dual-track vocational education, where participants gain career-specific skills starting at age 15 (Organisation for Economic Co-operation and Development [OECD], 2023).

Singapore’s SkillsFuture initiative further illustrates the impact of continuous WBL and upskilling. The program offers government-funded credits for individuals to pursue industry-relevant certifications, fostering adaptability and lifelong learning in response to evolving labor market demands (Ng, 2021).

In the United States, industry collaboration is a critical component of effective EWD programs. Mann and DiPrete (2022) emphasize that engaging employers in curriculum design, mentorship, and training significantly enhances student employability and better aligns educational outcomes with market needs. Similarly, the National Science Foundation (2024) highlights the importance of early and sustained workforce engagement to address the growing STEM skills gap and secure a robust talent pipeline.

In Nevada, workforce shortages in STEM-related fields such as advanced manufacturing, information technology, and energy are projected to intensify, with STEM job demand expected to grow by 14%, outpacing the 10% growth rate of non-STEM occupations (Nevada STEM Hub, n.d.). This growing demand underscores the importance of connecting education directly with industry needs through experiential learning models, such as paid internships and hands-on training, which the state is beginning to address through initiatives like the Nevada STEM Workforce Internship Program (University of Nevada, Reno, 2022).

These international and domestic examples demonstrate that effective EWD programs rely on robust industry partnerships, experiential learning opportunities, and clear pathways from education to employment. Integrating WBL into Nevada’s high school curricula, guided by experiential learning principles, can significantly enhance students’ readiness for the workforce and reduce dependence on low-wage service jobs.

Career Pathway Model: Grades 9–12

Developing structured career pathways in high schools is critical to aligning education with labor market demands and enhancing students’ workforce readiness. This model proposes three targeted pathways—Finance and Accounting, Engineering and Technology, and Science and Biology—each culminating in industry-recognized certifications that provide students with tangible credentials for immediate employment. Beginning in ninth grade, these pathways offer progressive skill development, hands-on projects, and integrated work-based learning experiences designed to build both technical expertise and professional competencies.

Rationale for Pathway Selection

The selected pathways reflect Nevada’s economic priorities and address identified middle-skill workforce shortages in the state’s growing sectors. By embedding these tracks within the high school curriculum, particularly in Title I schools, students gain early exposure to viable career opportunities, reducing the gap between graduation and employment. This approach not only enhances student engagement but also fosters equity by providing access to high-demand careers for underrepresented populations.



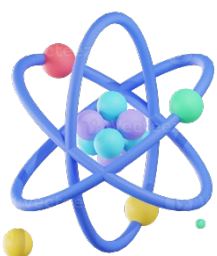
Finance and Accounting Pathway

The Finance and Accounting pathway introduces students to foundational accounting principles, payroll systems, and bookkeeping practices. Courses are designed to integrate financial software training, including tools such as QuickBooks, to ensure students develop practical, job-ready skills. By the twelfth grade, students will be prepared to earn the National Association of Certified Public Bookkeepers (NACPB) Certified Bookkeeper designation, qualifying them for positions as accounting clerks, payroll assistants, or bookkeepers in local businesses and financial institutions (See Table 1).



Engineering and Technology Pathway

Focusing on the needs of Nevada’s expanding advanced manufacturing sector, the Engineering and Technology pathway provides instruction in Computer-Aided Design (CAD), mechanical systems, safety protocols, and precision machining. The curriculum emphasizes hands-on learning and compliance with industry safety standards. Students will be eligible to earn the National Institute for Metalworking Skills (NIMS) Machining Level 1 certification and the Occupational Safety and Health Administration (OSHA-10) certificate. Upon completion, graduates will be equipped for employment as CNC machine operators, manufacturing technicians, or related technical roles (See Table 1).



Science and Biology Pathway

Aligned with the healthcare sector’s growing demand for skilled professionals, the Science and Biology pathway immerses students in human anatomy, medical terminology, and laboratory techniques. The pathway incorporates practical training that prepares students for certification as Certified Nursing Assistants (CNA) or Phlebotomy Technicians upon graduation. These industry-recognized credentials open pathways to immediate employment in hospitals, clinics, research labs, and healthcare facilities (See Table 1).

Table 1: Training Hours, Course Progression, and Entry-Level Salary Estimates by Pathway

Pathway	Estimated Training Hours	Sample Course Progression (Grades 9–12)	Entry-Level Salary Range (Nevada)
Finance and Accounting	150 hours: 90 bookkeeping 60 QuickBooks/payroll	Grade 9: Foundations of Personal Finance Grade 10: Introduction to Bookkeeping Grade 11: Payroll & Financial Software (QuickBooks) Grade 12: Advanced Bookkeeping + Certification Prep	\$33,000–\$42,000/year U.S. Bureau of Labor Statistics, 2023
Engineering and Technology	180 hours: 60 CAD 60 mechanical systems 60 safety/machining	Grade 9: Intro to Technical Drawing and CAD Grade 10: Mechanical Systems and Applied Physics Grade 11: Precision Machining and OSHA Standards Grade 12: CNC Operations & NIMS Certification Prep	\$39,000–\$50,000/year U.S. Bureau of Labor Statistics, 2023)
Science and Biology	160 hours: 80 anatomy/medical terminology 80 lab/cert prep	Grade 9: Human Biology and Lab Skills Grade 10: Medical Terminology and Ethics Grade 11: CNA/Phlebotomy Introduction and Practicum Grade 12: Certification Prep + Clinical Training	CNA: \$34,000–\$38,000/year Phlebotomist: \$36,000–\$44,000/year U.S. Bureau of Labor Statistics, 2023

Implementation Strategy and Industry Collaboration

Each pathway is designed for gradual skill acquisition beginning in the ninth grade, ensuring foundational competencies before advancing to specialized content. Dual-credit courses and industry certification preparation are embedded to maximize academic and career opportunities. Strategic partnerships with employers such as Tesla, Renown Health, and regional financial institutions will support internships, mentorships, and capstone projects, providing students with authentic work-based learning experiences.

Flexibility is integral to the model, allowing students to explore multiple pathways or shift focus areas based on evolving interests or emerging labor market trends. By integrating these pathways into Nevada’s high school system, this model aims to strengthen early workforce development, promote equitable access to middle-skill careers, and support the state’s long-term economic vitality. Students may explore more than one track through elective mini-courses or summer sessions. For instance, a student initially enrolled in the Engineering pathway may complete a short finance elective and, based on interest, transition into the Finance and Accounting track. Cross-crediting will be allowed for overlapping foundational skills, such as digital literacy, safety protocols, or basic math, ensuring that students retain progress while adapting to a new direction.



Expected Outcomes

The implementation of structured career pathways is expected to create clear and direct routes from high school to middle-skill employment, enabling students to enter Nevada’s workforce with industry-recognized certifications. Graduates of these programs will be equipped with the technical skills and professional competencies required for positions in finance, advanced manufacturing, and healthcare—offering viable alternatives to minimum-wage employment and reducing the skills gap in critical sectors.

This model aligns with the strategic goals outlined by the Nevada Governor’s Office of Economic Development (n.d.) to strengthen the state’s workforce pipeline and meet the growing demand for skilled workers in priority industries. Additionally, the pathways intentionally focus on Title I schools to promote equity and expand access to high-demand career opportunities for underserved populations, thereby reducing economic disparities and supporting upward mobility.

Importantly, the model envisions active industry engagement not only in curriculum design and work-based learning but also in co-investment. Partner industries will be invited to contribute funding and resources to support certification programs, internships, equipment, and instructional capacity. This collaboration ensures that students gain relevant, market-driven skills while fostering sustainable partnerships that strengthen the state’s economic and educational ecosystems.

Limitations and Considerations

While the proposed career pathway model offers a structured and practical approach to early workforce development, several limitations and implementation considerations must be addressed to ensure its success and sustainability.



Teacher Preparation and Capacity

Implementing industry-aligned technical education requires teachers who are not only credentialed in core academic areas but also trained in specialized, career-focused content. Many high schools, particularly in rural or underfunded districts, may lack staff with the requisite experience or certification in fields such as CAD design, medical lab work, or financial software. Ongoing professional development and industry partnerships will be critical to address this gap.

Access and Opportunities

Although the model is designed with Title I schools in mind, disparities in access to equipment, dual-credit courses, and internships could widen existing opportunity gaps if not proactively mitigated. Students in remote areas may have limited access to partner institutions or on-site learning opportunities. Solutions such as mobile labs, virtual internships, and transportation stipends should be explored.

Scheduling and Integration

Integrating certification pathways into the traditional high school schedule may present logistical challenges, including the need for extended class periods, conflicts with graduation requirements, and limitations in elective course availability. Schools may need to adjust bell schedules, reallocate resources, or establish after-school and weekend programs to accommodate pathway requirements.

Industry Co-Investment and Sustainability

While initial interest from employers may be strong, sustained industry engagement and co-investment in the form of funding, mentorship, and in-kind support are essential. Long-term commitments from private-sector partners should be secured through formal agreements to avoid program disruptions due to fluctuating corporate priorities or economic shifts.

Trial Implementation and Student Engagement

To evaluate feasibility and effectiveness, a pilot summer program will be launched, allowing rising tenth-grade students to explore one of the three pathways—Finance and Accounting, Engineering and Technology, or Science and Biology. During this 6–8 week program, students will participate in hands-on workshops, guest lectures, and introductory coursework aligned with certification requirements. This trial phase will gather data on student interest, instructional logistics, and engagement levels, providing actionable insights for full-year implementation. The summer experience also allows students to make informed decisions about which track to pursue during the academic year.

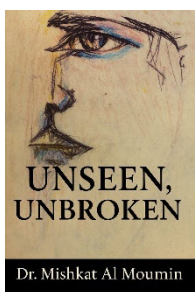
By anticipating these limitations and addressing them through targeted strategies and trial testing, Nevada’s high schools can adopt a scalable, equitable, and impactful workforce development model that prepares students for meaningful employment upon graduation.



Conclusion

Drawing inspiration from the historical model in which high schools prepared students to earn driver's licenses as a rite of passage, this proposal reimagines that approach by equipping Nevada students with industry-recognized professional certifications by graduation. Integrating finance, technology, and health science pathways beginning in ninth grade positions students for immediate entry into high-demand, middle-skill occupations. This strategic investment strengthens Nevada's workforce pipeline, promotes economic mobility for underserved populations, and supports the state's long-term economic growth and competitiveness.

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