

The National Career Clusters Framework Wheel

All learners deserve to participate in meaningful career exploration and preparation experiences through Career Technical Education (CTE) that prepare them for the changing and interconnected world of work.

This resource takes a look at how embedding the Cross-Cutting Clusters increases the impact and relevancy of the other Clusters, resulting in future-ready skills and careers.

To learn more about the framework, visit careertech.org or scan the QR code below.





C Advanced Manufacturing



Digital Technology

A learner develops a simplified predictive maintenance system for a small-scale manufacturing process, such as a school's 3D printer or a CNC machine at a local makerspace. They start by manually recording instances of print failures, machine errors, or tool wear in a spreadsheet. noting patterns over time. Using basic data analysis, they create a maintenance schedule that predicts when certain components may need cleaning or replacement. The final project includes them teaching their classmates the best way to take care of the machines.

FOR HIGH SCHOO

CURRENT CAREERS



CNC MACHINIS



INDUSTRIAL MAINTENANCE



UTOMATION TECHNICIAN

EMERGING CAREERS



ADDITIVE MANUFACTURING ENGINEER



SMART FACTORY
SYSTEMS ANALYST



DIGITAL TWIN ENGINEER



Marketing & Sales

A learner develops a marketing campaign for a school or community-based product that highlights sustainable manufacturing methods. For example, they could collaborate with a local eco-friendly brand that uses recycled plastics for 3D printing or bio-based materials in production. The learner creates digital marketing materials, including social media posts, a short promotional video, and a simple website or online store. They analyze engagement and customer interest using built-in social media analytics and present their findings to demonstrate the effectiveness of their marketing strategy.

> FOR MIDDLE SCHOO OR HIGH SCHOO

CURRENT CAREERS



B2B MARKETING SPECIALIST FOR INDUSTRIAL PRODUCT



MANUFACTURING PRODUCT MANAGER



TECHNICAL SALES

EMERGING CAREERS



ECO-PRODUCT MARKETING STRATEGIST



SUSTAINABILITY BRAND AMBASSADOR



DIGITAL AUTOMATION
MARKETING SPECIALIST



Management & Entrepreneurship

A learner creates a small business prototype offering customized 3D-printed keychains, phone stands, or school spirit merchandise for their classmates. They conduct a survey to identify popular product designs, calculate costs for materials and production, and establish pricing to make a small profit. Using free or low-cost design software, they prototype designs, market their products through social media or a school website, and develop a pitch for potential expansion, including ideas for a pop-up store and partnerships with local businesses or community organizations.

FOR MIDDLE SCHOOL

OR HIGH SCHOOL

CURRENT CAREERS



OPERATIONS



DEVELOPMENT MANAGER



SMALL-SCALE MANUFACTURING BUSINESS OWNER

EMERGING CAREERS



3D PRINTING BUSINESS STRATEGIST



LEAN MANUFACTURING CONSULTANT



INDUSTRIAL AI &
AUTOMATION
CONSULTANT





Digital Technology

A team of learners studies the required infrastructure to create smart housing. Through incentives and partnership with local businesses, they are provided with the necessary supplies and tools to build a "smart house of the future." To do this, they must learn about emerging technologies like heat pumps and geothermal, as well as the integration of the Internet of Things in a home. They then construct a tiny home physically (or digitally through an online module) that is engineered to be a home of the future. The business partnerships that make this project possible may lead to an apprenticeship for some of the participating learners, etc.

FOR HIGH SCHOO

CURRENT CAREERS



DRONE OPERATOR



CONSTRUCTION TECHNOLOGY MANAGER



BUILDING INFORMATION MODELING (BIM) SPECIALIST

EMERGING CAREERS



SMART BUILDING
SYSTEMS ENGINEER



AUTONOMOUS CONSTRUCTION EQUIPMENT OPERATOR



SMART INFRASTRUCTURE DESIGNER



Marketing & Sales

Learners take on the role of a construction sales estimator, working in teams to scope a small-scale construction service—like building raised garden beds, assembling storage sheds, or painting rooms. They gather measurements, price materials and labor, and create a formal bid or estimate to present to a mock client. Students practice negotiation, proposal writing, and cost breakdowns, developing skills in pricing strategy, upselling, and client relationship management.

FOR MIDDLE SCHOO OR HIGH SCHOO

CURRENT CAREERS



CONSTRUCTION SALES REPRESENTATIVE



CONSTRUCTION
MARKETING MANAGER



DEVELOPER MARKETING

EMERGING CAREERS



SUSTAINABLE CONSTRUCTION MARKETING STRATEGIST



SMART INFRASTRUCTURE SALES CONSULTANT

Management & Entrepreneurship

Learners develop a business plan for a sustainable tiny home company, focusing on affordable, eco-friendly housing solutions for urban areas, disaster relief, or minimalist living. They research and propose cost-effective materials such as reclaimed wood, solar panels, and rainwater collection systems. As part of the project, they design blueprints, estimate construction costs, identify target markets, and outline a marketing strategy aimed at potential buyers like young professionals, retirees, or eco-conscious consumers.

FOR HIGH SCHOO

CURRENT CAREERS



CONTRACTOR



CONSTRUCTION PROJECT MANAGER



OPERATIONS
MANAGER FOR
CONSTRUCTION FIRMS

EMERGING CAREERS



MODULAR &
PREFABRICATED
HOUSING DEVELOPER

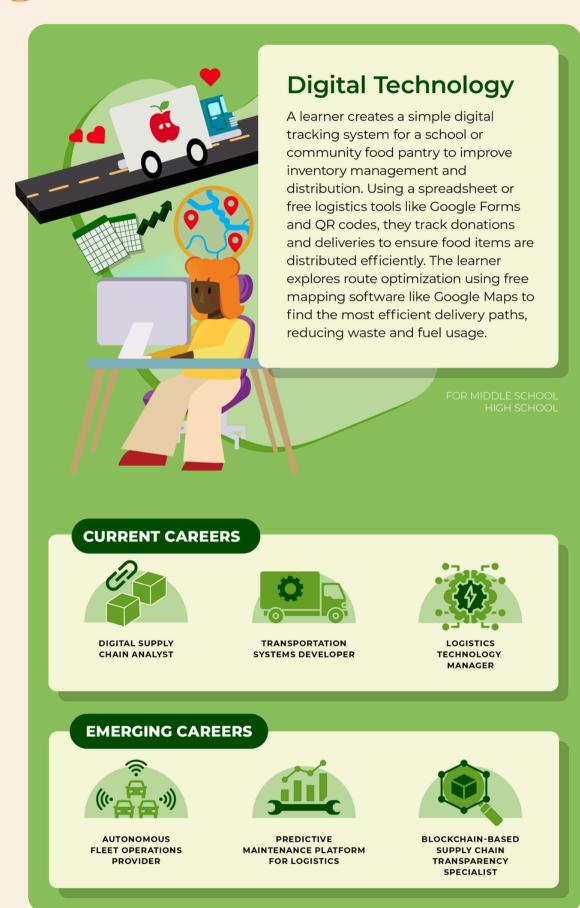


3D-PRINTED HOUSING ENTREPRENEUR

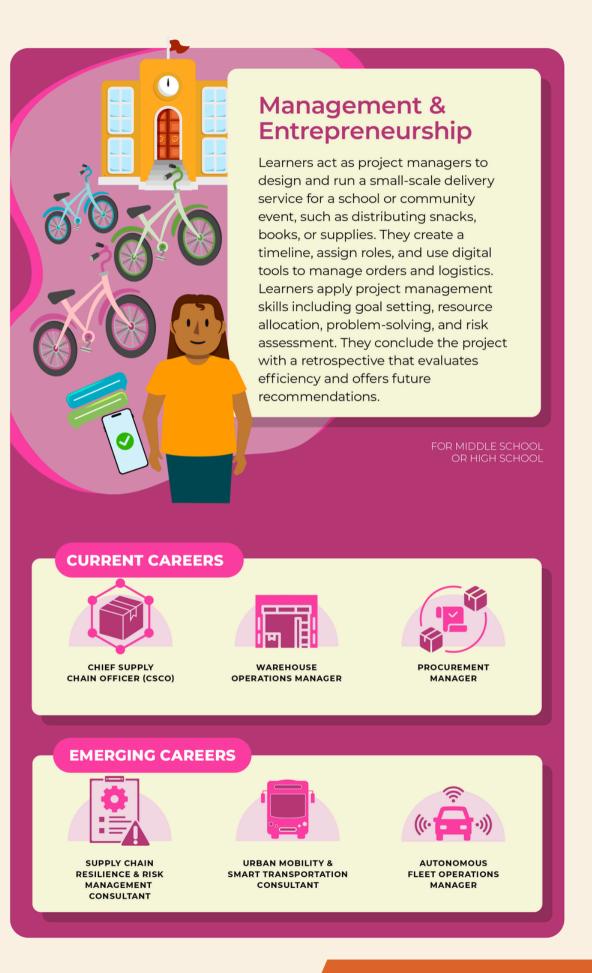


CONSTRUCTION WASTE MANAGER

© Supply Chain & Transportation

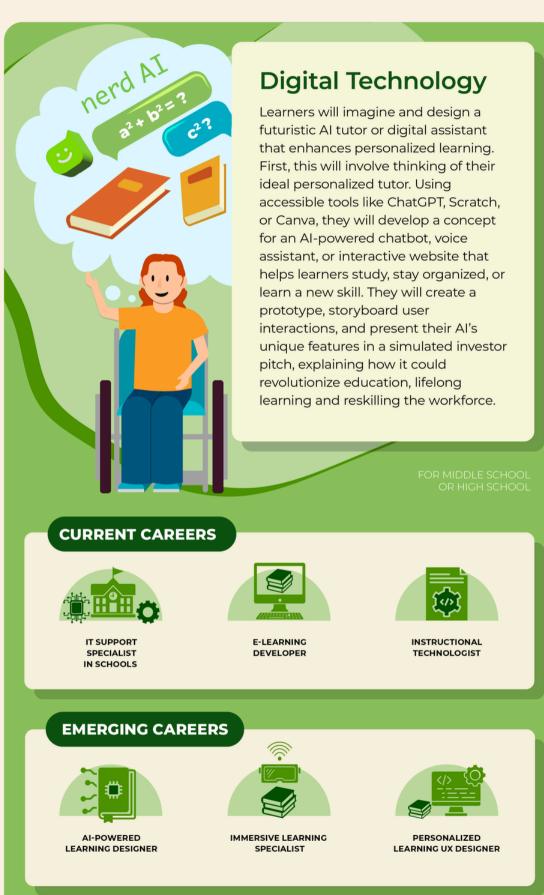


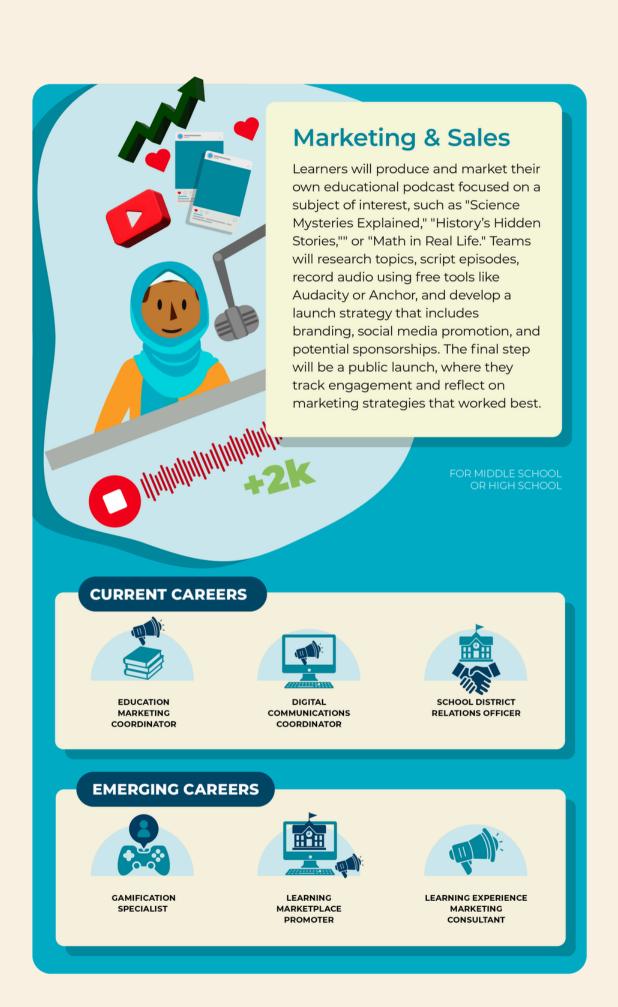


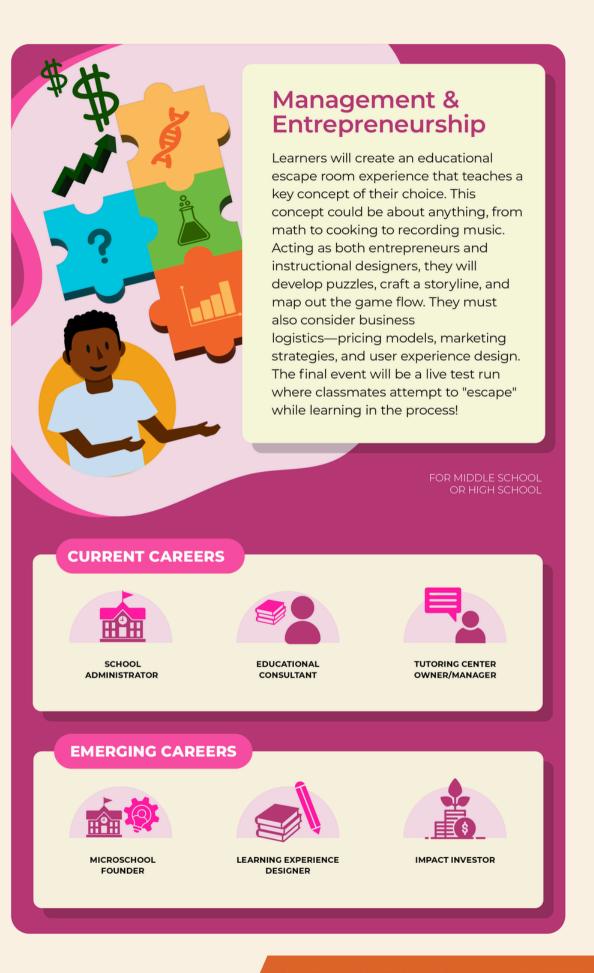




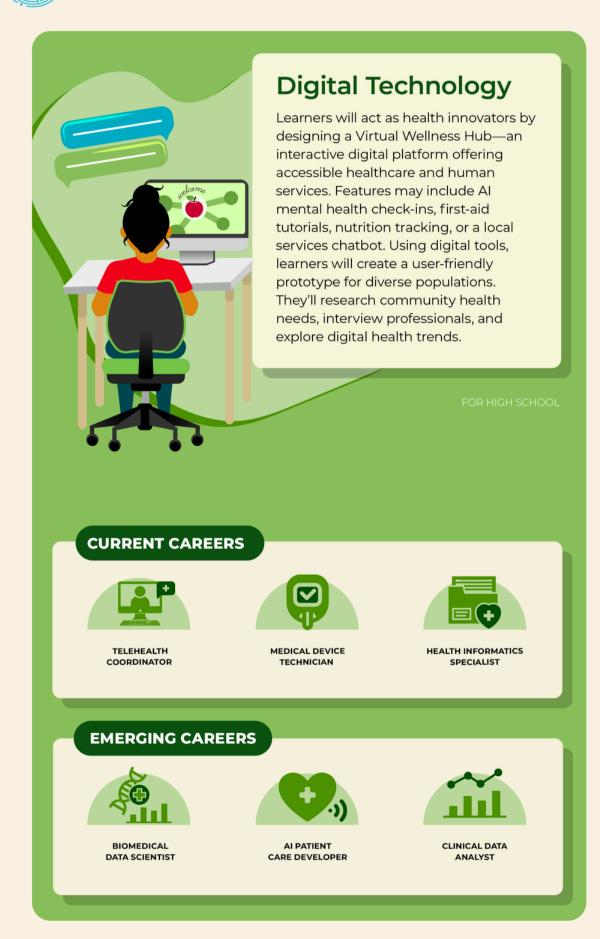








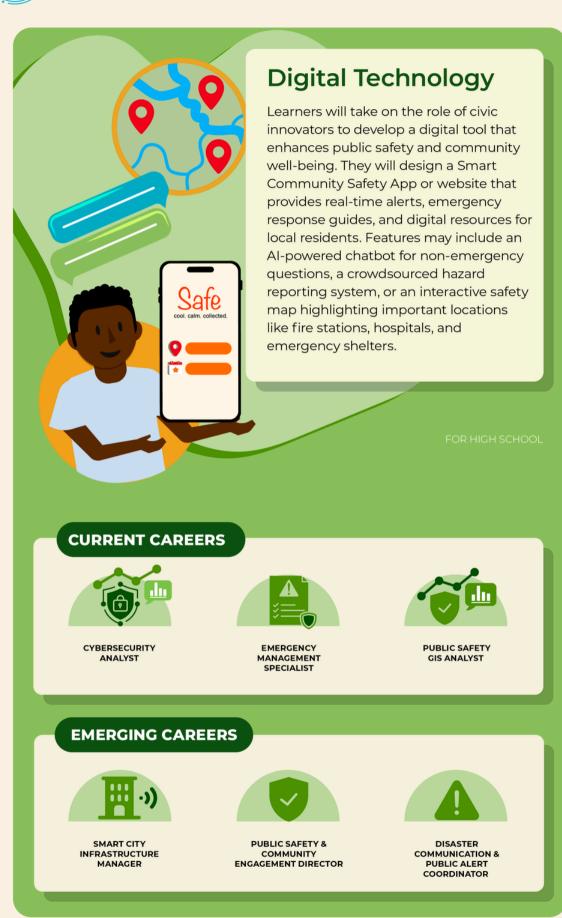
© Healthcare & Human Services

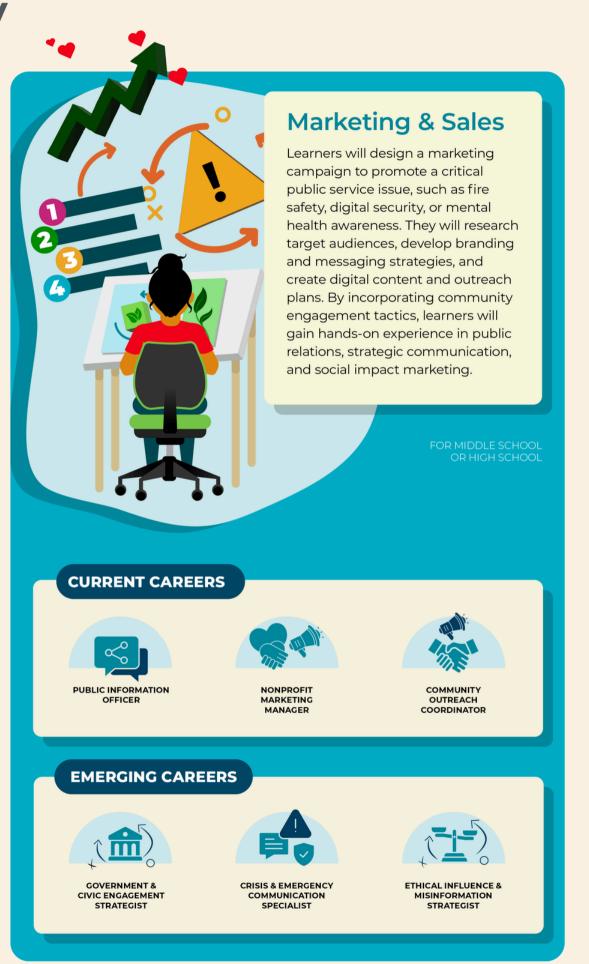


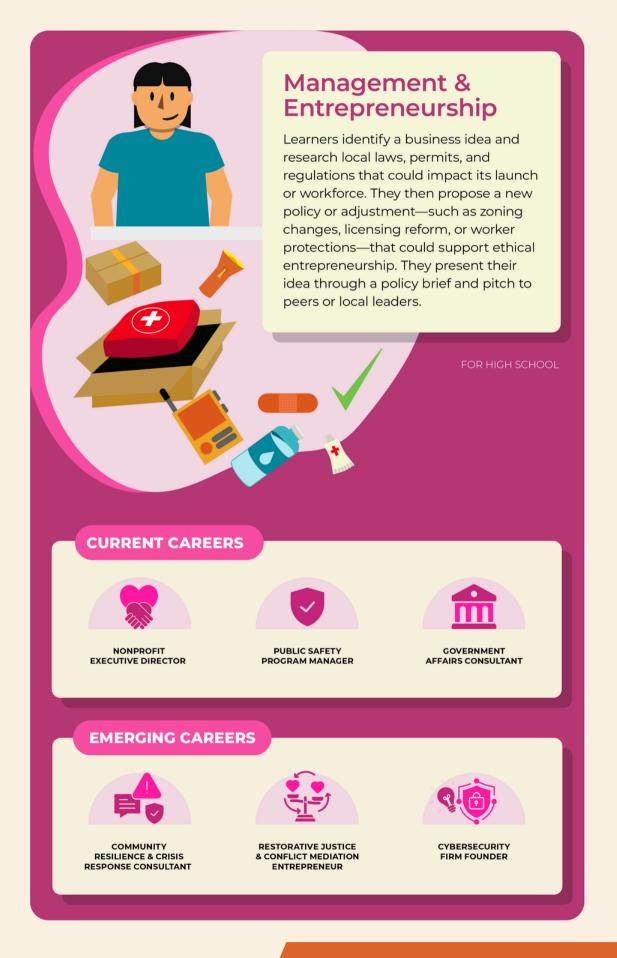




Public Service & Safety









Agriculture



Digital Technology

Learners explore cross-curricularly how drone technology supports food science and production. They investigate how drones help monitor crop conditions that affect nutritional quality, ripeness, or spoilage risks. Students track a local garden, observing plant health, soil conditions, and harvest timing. They collect weekly data and connect their findings to food quality or safety topics, such as when to harvest for peak nutrients. The project culminates in a video and brief report on how to improve food production and quality.

CURRENT CAREERS



DATA ANALYST



DIGITAL **PHOTOGRAPHER**



AGRICULTURAL

EMERGING CAREERS



FARMING SYSTEMS ENGINEER



AGTECH SOFTWARE DEVELOPER



DRONE TECH PILOT



Marketing & Sales

Learners research where their school or community food comes from and develop a campaign to promote local agriculture. They interview local farmers, take pictures, or create short videos showcasing their stories. They then design marketing materials such as posters, social media posts, or simple websites to encourage people to support local food businesses. They also explore how food access differs across communities and suggest ways to make fresh food more accessible.

CURRENT CAREERS



AGRICULTURAL SALES



FARMERS' MARKET COORDINATOR



FOOD PRODUCT **BRAND MANAGER**

EMERGING CAREERS



AGRICULTURE BRAND STRATEGIST



AGTECH SOLUTIONS SALES SPECIALIST



DEVELOPMENT MANAGER

freshy fruit

Management & Entrepreneurship

Learners start a small farm stand at school, growing or sourcing fresh produce and selling it at low cost to learners, teachers, and families. They develop a business plan, set pricing, and create outreach materials. They also explore barriers to fresh food access in their community and discuss ways to support food justice. Proceeds from the stand can be reinvested into school gardening projects or donated to local food banks.



CURRENT CAREERS



AGRIBUSINESS MANAGER





SUSTAINABLE AGRICULTURE CONSULTANT



COMMUNITY **DEVELOPER**

EMERGING CAREERS



AGRICULTURE CONSULTANT



AGRI-TECH STARTUP FOUNDER

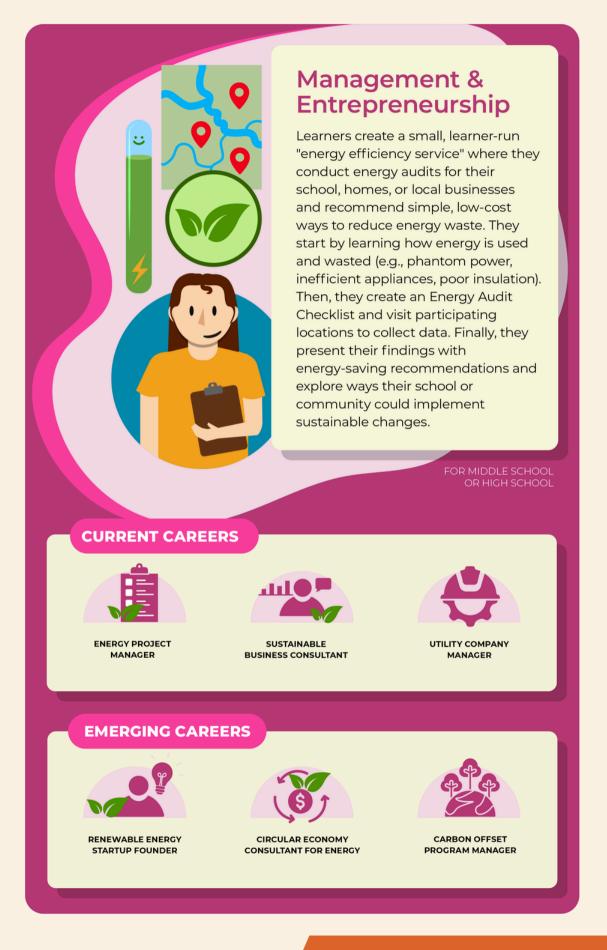


SYSTEMS DEVELOPER

© Energy & Natural Resources

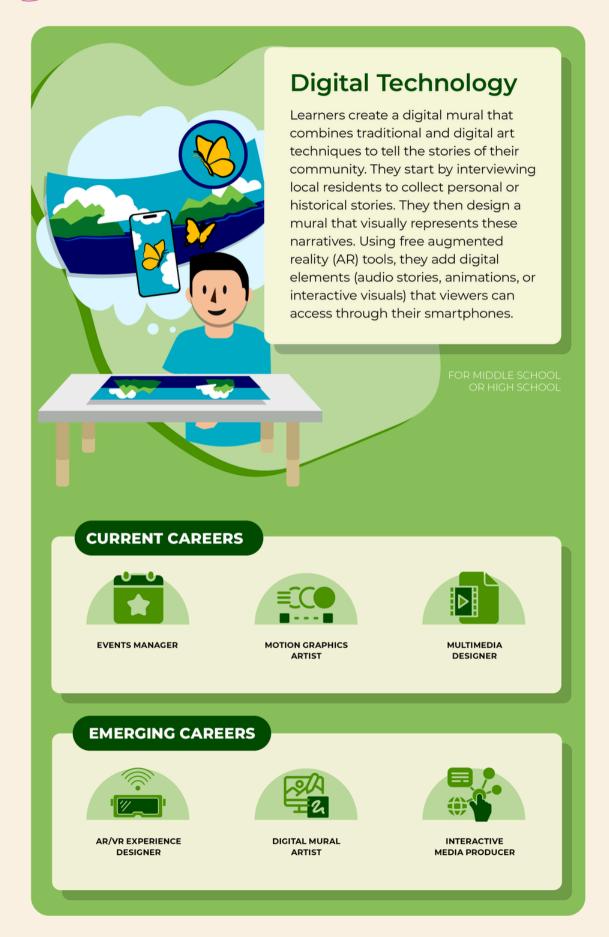




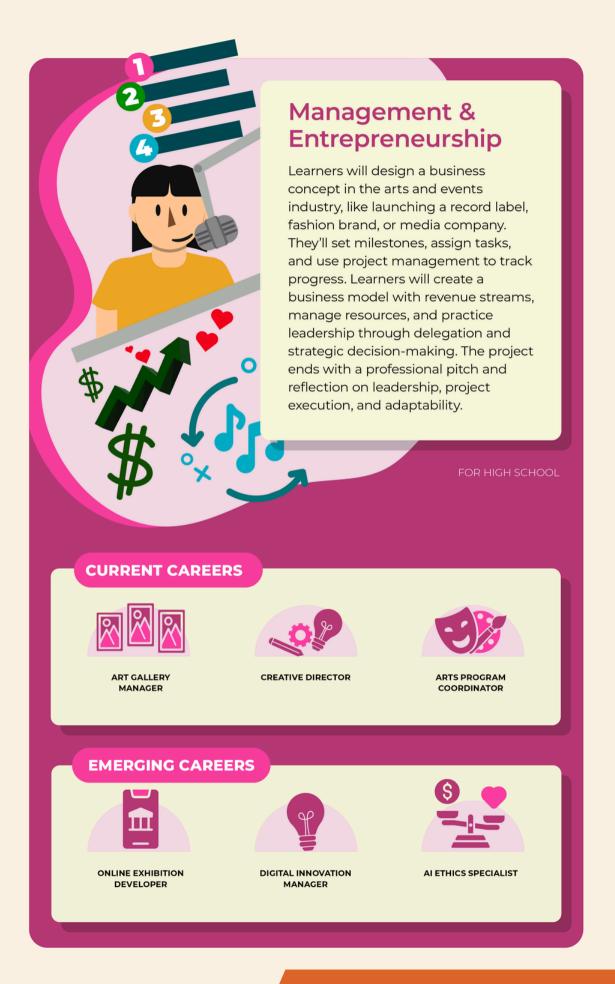




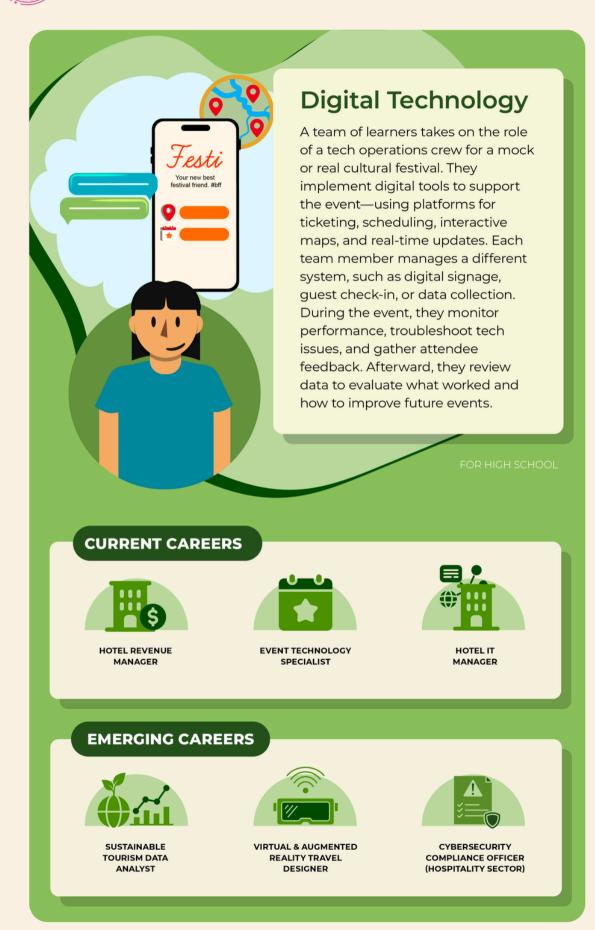
CArts, Entertainment, & Design

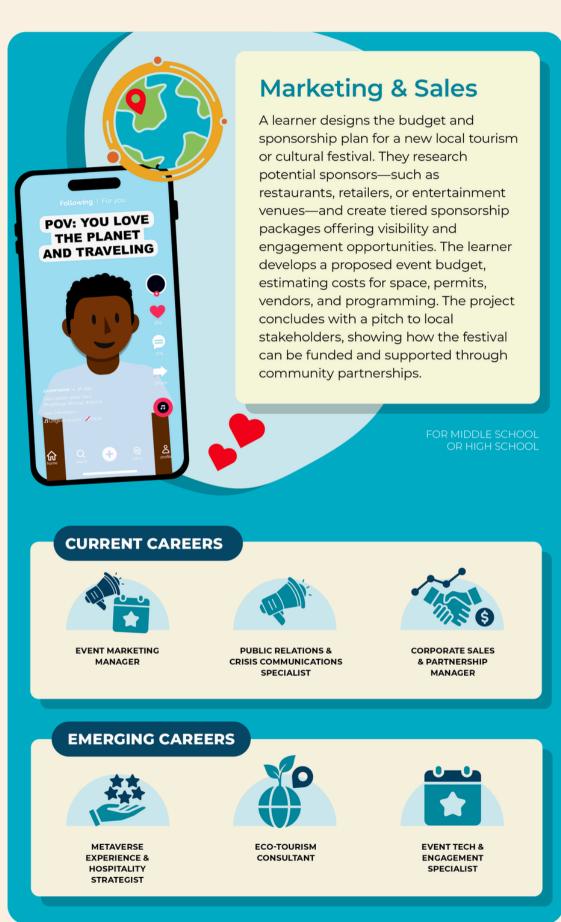


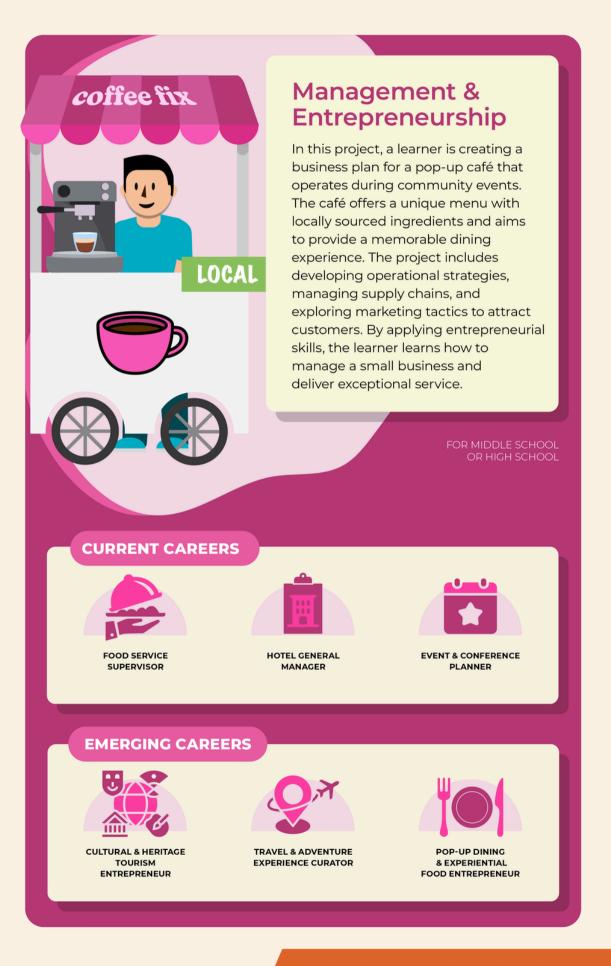




C Hospitality, Events, & Tourism









Digital Technology



Marketing and Sales

Learners design a digital tool to support community health—such as a mental wellness check-in, hydration tracker, or nutrition planner. In teams, they develop a plan to market and distribute the tool through partnerships with schools, clinics, or local nonprofits. They research potential tech partners and draft outreach materials to secure support, such as device donations or software access. The project ends with a simulated pitch to stakeholders, showcasing the tool's impact, value proposition, and path to implementation.

FOR MIDDLE SCHOO

CURRENT CAREERS



PRODUCT



DIGITAL MARKETING ANALYST



COMMUNITY

EMERGING CAREERS



CRISIS RESPONS

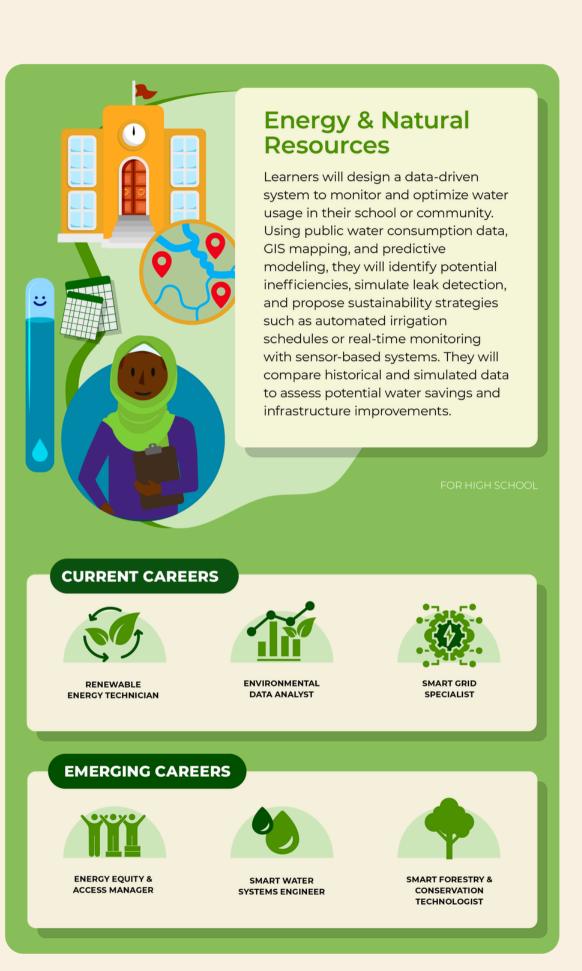


DIGITAL ACCESSIBILITY



SPECIALIST







Management & Entrepreneurship



Education

Middle school learners work in teams to redesign school to better meet learner needs. Each student is given discrete roles and oversees tasks delegated to their teammates. They explore models like project-based learning, outdoor education, or tech-driven classrooms, identifying changes to boost engagement and real-world learning. They create a blueprint with a daily schedule, subjects, learning spaces, and teaching methods. Learners also build a brand for their school, including a logo, motto, and promotional tools like a website mockup.

FOR MIDDLE SCHOO

CURRENT CAREERS



SCHOOL



EDUCATIONAL



TUTORING CENTER

EMERGING CAREERS



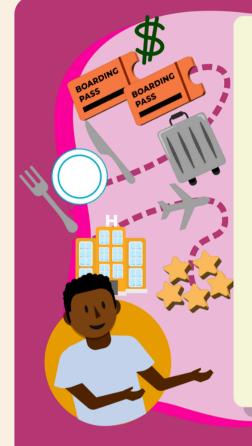
FOUNDER



SCHOOL NETWORK



EARNING EXPERIENCE DESIGNER



Digital Technology

Learners act as founders of a startup that builds custom micro-itineraries (1–3 day experiences) using AI and real-time data. They research how travel apps and platforms use APIs, crowd-sourced reviews, and digital maps to optimize travel routes, time, and budgets. Students build a prototype itinerary for a specific traveler persona—like a food lover, history buff, or thrill-seeker—using tools like AI itinerary generators, scheduling software, and interactive maps. They manage all logistics, including transit options, booking strategies, and time management, and propose how their service could scale through automation.

> OR MIDDLE SCHOOL OR HIGH SCHOOL

CURRENT CAREERS



HOTEL GENERAL MANAGER



EVENT & CONFERENCE PLANNER



BOUTIQUE TRAVEL
AGENCY OWNER

EMERGING CAREERS



CULTURAL & HERITAGE TOURISM ENTREPRENEUR



TRAVEL & ADVENTURE EXPERIENCE CURATOR



& EXPERIENTIAL FOOD
ENTREPRENEUR

Healthcare & Human Services

Middle school learners become young entrepreneurs by launching a pop-up health and wellness business for their school or community. Ideas may include a "Stress-Free Zone," a smoothie cart, or a family fitness challenge. With one student filling the role of project manager, they work efficiently in teams, create a business plan with pricing, location, and marketing strategies. Learners design a logo, posters, and social media ads, pitch their idea, and run a mini event. They collect feedback and refine their concept based on real-world responses.

FOR MIDDLE SCHOOL

CURRENT CAREERS

LOCAL

smooth



HEALTHCARE



NURSING HOME



MEDICAL OFFICE MANAGER

EMERGING CAREERS



HEALTH & WELLNESS



MEDICAL INNOVATION CONSULTANT



PERSONALIZED
HEALTHCARE
SUBSCRIPTION
MANAGER

Marketing & Sales



Financial Services

Learners rebrand a local wealth management firm to appeal to younger clients. They research Gen Z and Millennial financial habits and barriers to engaging with traditional advisors. Based on insights, they design a new logo, tagline, and social media strategy, plus sample content like TikToks, Instagram reels, and a user-friendly website. They test the brand with peers through surveys or focus groups, then present mockups, engagement data, and recommendations to reach younger investors.

FOR HIGH SCHOO

CURRENT CAREERS



FINANCIAL MARKETING MANAGER



WEALTH MANAGEMENT



INVESTOR RELATIONS

EMERGING CAREERS



CRYPTO & BLOCKCHAIN COMMUNICATIONS



FINANCIAL CRISIS
COMMUNICATIONS



REPUTATION RISK ANALYST

