
Appendix III:

K-12 Environmental Education and Green Careers Awareness

Preparation for Green Careers of the Future

In the World Economic Forum's Future of Jobs Report 2020, employers estimate that four in ten workers will need to be reskilled. To prepare today's students for the green jobs of the future, here are six key skills that will be helpful.

1. Science skills: Key roles include environmental scientists, biologists, hydrologists, and biochemists. People in these jobs will monitor, manage and protect natural resources including land and valuable water supplies.
2. Architectural and planning skills: Buildings will become more energy efficient, with fewer resources used to construct and operate them. Architects and planners will design these buildings to comply with environmental regulations and client demands for green spaces.
3. Green engineering and tech skills: Helping to design and maintain solar panels, wind turbines, low emission vehicles and other green economy technology.
4. Agriculture skills: As farming and food supply becomes more sustainable, there'll be a growing number of green jobs in areas such as organic farming, urban farming and precision agriculture. The use of information technology and other tech-based programs to make farming more accurate and controlled.
5. Environmental justice skills: Workers will gain legal, social and historical awareness to ensure humanity does not repeat the mistakes of the past which led to racial and social injustice and poor environmental and social health.
6. Systems skills: Workers will need to assess systems against performance indicators and find ways to optimize and improve system operations. They will need skills in macroeconomics to build sustainability into long-term infrastructure projects.

An important foundation for these skills is an understanding of the natural environment cultivated in elementary, middle, and high school. Below are links to six K-12 environmental education and environmental careers curricula.

California Department of Education

The Education and the Environment Initiative was adopted by the State Board of Education in 2010 with the goal to increase environmental literacy for California's kindergarten through grade twelve (K-12) students. The curriculum can serve as a useful resource for teaching academic content standards within an environmental context.

San Francisco Unified School District

The SFUSD is working towards district-wide implementation of the Next Generation Science Standards (NGSS) through a core curriculum. The curriculum engages students in taking on real-life tasks that use San Francisco as the classroom. Students are led to build mastery and personalize their learning in their approaches to the real-life tasks. Their website has a breakdown of NGSS standards by grade level.

Roots of Success

An empowering environmental literacy and job training program that prepares youth and adults who have been failed by the education system to access jobs and career pathways in environmental fields and improve environmental and social conditions in their communities.

Centered around a federally registered Department of Labor (DOL) Apprenticeship and Pre-Apprenticeship, Roots of Success is offered in high schools, youth programs, job training programs, reentry programs, prisons, jails, juvenile facilities, and other workforce and education settings throughout the United States. Since 2009, over 26,000 youth and adults have gone through the program; with 12,000 taking the course while incarcerated.

Washington Office of Superintendent of Public Instruction

The K-12 Integrated Environmental and Sustainability Learning Standards were developed in collaboration with educators from across Washington and describe what all students should know and be able to do in the area of Environmental and Sustainability Education. Their website has a spreadsheet with examples of what the curriculum would look like based on grade and makes connections to themes of climate change, environmental justice, etc.

National Environmental Education Foundation (NEEF)

NEEF partners with organizations to reach a national audience of students with environmental education activities that develop a deeper sense of environmental stewardship. The foundation has two approaches: 1) Greening STEM: A collaboration between schools, nonprofits, and public spaces to create an immersive outdoor learning experience that enriches STEM learning and creates a sense of place for students. This utilizes place-based learning to bring the classroom outside. 2) Climate Superstars education guide: standards-aligned lessons that teach students about climate change, energy efficiency, and sustainability.

North American Association for Environmental Education (NAAEE)

The organization created K-12 Environmental Education: Guidelines for Excellence that provides students, parents, caregivers, educators, and others a roadmap to achieving environmental literacy by setting expectations for fourth (age 10), eighth (age 14) and twelfth grade (age 18) students and outlining a framework for effective and comprehensive environmental education programs and curricula. The guidelines set a standard for high quality education, based on what an environmentally literate person should know and be able to do by the time they graduate from high school.

U.S. Environmental Protection Agency

The EPA has a list of lesson plans, teacher guides and online environmental resources for educators that is separated by the grade it applies to and the type of resource it is.