

Environmental Science and Technology Course List (Technical Strand)

9th Grade 1st Semester - Introduction to Environmental Science

By the end of this course, students will have a better appreciation of the importance and beauty of Nature. They will be able to describe the basic natural cycles that sustain life. They will understand the environmental problems that we are facing in the areas of energy, water, climate, soils and biodiversity as well as sustainable solutions to those problems. Students will participate in a series of project based learning opportunities to develop their understanding of Environmental Science and help them become aware of job opportunities in this very broad field of study.

9th Grade 2nd Semester - Ecology and Earth Science

Students in the Environmental Science CTE (Career and Technical Education) track will take this class designed to help them develop an appreciation for the interconnected nature of the biosphere. In this laboratory and field experiment based class, students will study the physical processes that create different biomes and use wildlife sampling techniques to understand how we measure populations.

10th Grade 1st Semester - Energy and The Environment

Students in the Environmental Science CTE track will take this course helping them to understand that the world runs on energy. Every plant, animal and person depends on energy. We need energy to power our homes, schools, businesses, transportation systems and farms. This course will cover the energy sources we currently use as well as their impacts on the environment. We will look at more sustainable alternatives and examine how our society can make the transition to a clean energy economy. Students will get a hands on introduction to the basics of photovoltaic systems, bio-fuels, solar thermal systems and wind power. Students will undergo an audit of their family's energy use and examine ways they can reduce their family's eco-footprint. Career opportunities in the energy field will be explored.

10th Grade 2nd Semester - Natural Resources and The Environment

Students in the Environmental Science CTE cohort will take this course designed to encourage a positive attitude and concern regarding natural resources and our environment. We will learn about our natural resources in Massachusetts and New England. Students will also be shown that concern for the environment and action to preserve the environment must start on the local level and at home. We will undertake a look at the life cycle of a series of everyday products to examine how we can reduce our natural resource use so as to preserve the environment for future generations.

11th Grade, 1st Semester - Methods in Environmental Science: Water

Students will begin by refining their ability to accurately measure water quality in the aquaponics systems of our school and use this information to make decisions on how to maximize fish and plant health. This

class will also feature an intensive exploration into measuring and analyzing the WQI (Water Quality Index) of the Charles River Watershed. Additionally, students will develop their GIS mapping skills by incorporating their WQI field work on the Muddy and Charles River into GIS maps. Students will spend the second half of this course studying how Boston treats its drinking water and wastewater. Students will learn about the organizations involved in managing Boston's water systems and explore job opportunities in water management.

11th Grade, 2nd Semester - Methods in Environmental Science: Soil

Students will develop the ability to accurately interpret the type of soil present on a given plot of land and use this knowledge to create GIS maps that accurately depict soil types in a given area. Students will also work to develop plans to amend soils in an effort to create ideal growing conditions for a variety of native plants. Additionally, students will develop an understanding of solid waste management by developing and maintaining the school's composting program. Our composting program will allow students to create a sustainable garden on site using permaculture principles. Students will explore career options in land use management and GIS.

12th Grade, 1st Semester - USGBC LEED Green Associate Prep

This course is designed to prepare to students to pass the test to earn their LEED Green Associate credential. This credential allows students to demonstrate that they have an understanding of the most current green-building principles and practices. The course will cover the LEED system and the principles of sustainability on which it is based. The course will cover all aspects of green-building including net-zero design, indoor air quality, sustainable materials, water conservation, rainwater management and green roofs.

12th Grade, 2nd Semester - Credentialing Course

Students will complete coursework that will allow them to earn a variety of credentials that will make them competitive in the work market after high school. The credentials that students will have the opportunity to earn are listed below.

- OSHA 40 HAZWOPER
- CPR and First Aid
- Massachusetts Class II Municipal Wastewater Treatment Plant Operator
- Massachusetts Grade I Drinking Water Treatment