

Environmental Studies Power Standards and Benchmarks

Standard 1: Understands and applies principles of scientific inquiry				
<i>Concepts: Scientific Reasoning, Conducting Scientific Investigations, Safety</i>				
Course Level Benchmarks	Vocabulary	Knowledge	Skills	Classroom Resources
A. Formulates and revises scientific explanations and models	<ul style="list-style-type: none"> • scientific explanation • scientific model • data • within tolerance • scientific method 	<ul style="list-style-type: none"> • Knows scientific explanations and models are based on data • Know new data may lead to the modification of scientific explanations and models 	<ul style="list-style-type: none"> • Analyzes data with respect to scientific explanations and models • Adjusts scientific explanations and models based on data 	Environmental Studies Curriculum Guide Emphasized throughout the entire curriculum
B. Understands how scientific knowledge changes with new evidence	<ul style="list-style-type: none"> • scientific knowledge • evidence • influence • ethics 	<ul style="list-style-type: none"> • Knows examples of scientific knowledge that changed when new evidence was presented • Knows that science is an ongoing process and is always open to new ideas 	<ul style="list-style-type: none"> • Describes how environmental science concepts have evolved with the discovery of new evidence • Hypothesizes how current environmental science concepts and practices will influence future societies 	
C. Uses technology and mathematics to perform accurate scientific investigations and communications	<ul style="list-style-type: none"> • technology • mathematics • probability • ratio • accuracy • scientific investigations • scientific communication 	<ul style="list-style-type: none"> • Knows mathematical computations and formulas are essential to scientific investigations • Knows tables, charts, and symbols are alternative ways of representing data and relationships, and can be translated from one to another 	<ul style="list-style-type: none"> • Determines technologies most appropriate to use given a particular situation • Uses the necessary mathematics for a particular situation • Calculates results with a given degree of accuracy 	
D. Demonstrates safe handling procedures	<ul style="list-style-type: none"> • OSHA • EPA • MSDS • Right to Know • hazardous • safety procedures 	<ul style="list-style-type: none"> • Knows appropriate safety procedures for a given situation • Knows where safety devices are located in the classroom • Understands the process of waste disposal 	<ul style="list-style-type: none"> • Follows required safety procedures • Recognizes, reports, and corrects safety problems • Follows waste disposal procedures 	

Environmental Studies Power Standards and Benchmarks

Standard 2: Understands and applies principles of life science

Concepts: Change, Patterns, Systems, Interactions

Course Level Benchmarks	Vocabulary	Knowledge	Skills	Classroom Resources
<p>A. Analyzes the diverse ecosystems of watersheds/wetlands</p>	<ul style="list-style-type: none"> • primary biome • ecological succession • watershed • wetland • water quality • runoff • stormwater • headwater • lotic system • lentic system 	<ul style="list-style-type: none"> • Understands the relationship between and flora/fauna present in a biome • Understands the human impact on biomes • Knows the ecosystems within and around watersheds/wetlands 	<ul style="list-style-type: none"> • Identifies areas in the world where primary biomes are found • Constructs and interprets a climatogram • Explains the water cycle as it relates to a watershed • Identifies the major watershed in the U.S. • Delineates the boundaries of a watershed • Explains factors that affect water quality and flow through a watershed • Analyzes a stream's physical characteristics • Explains how vegetation affects stormwater runoff • Examines and describes the ecosystems contained in a watershed • Identifies the order of watercourses within a major river's watershed • Compares and contrasts physical differences found in a stream continuum from headwater to mouth 	<p>Environmental Studies Curriculum Guide</p> <p>Nahant Marsh Wapsi Environmental Center North's Puddle Mississippi River City of Davenport ATEEC – Brownfields in a Box, Connected by a River Army Corps of Engineers Stormwater Management Water Treatment Plant Scott County Conservation Board</p>

Environmental Studies Power Standards and Benchmarks

Standard 2: Understands and applies principles of life science (con't)

Concepts: Change, Patterns, Systems, Interactions

Course Level Benchmarks	Vocabulary	Knowledge	Skills	Classroom Resources
<p>E. Explains how human activities change the environment (con't)</p> <p>3. Pollution</p>	<p>Pollution</p> <ul style="list-style-type: none"> • biological magnification • concentration • pollution • pollutant • endangered species • pesticide • DDT • conservation • soil mismanagement • soil profile • hazardous waste • biodegradable • pathogens • toxic chemical • thermal pollution • eutrophication • particulate • chlorofluorocarbon • acid precipitation • global warming • habitat destruction • biodiversity • alien species 	<p>Pollution</p> <ul style="list-style-type: none"> • Understands how pollutants have contributed to the endangered statuses of organisms • Understands methods for processing can have serious environmental impacts • Understands past and present methods of waste disposal and their impact on human health • Knows different types of hazardous wastes and their impact • Understands the global effect of local pollution • Knows the U.S. population uses far more resources per capita than any other population in the world 	<p>Pollution</p> <ul style="list-style-type: none"> • Demonstrates the relationship between pollutants taken in by a few organisms significantly affecting an entire food web • Identifies major pollutants in our community and what is being done to remediate these problems • Researches accidents involving hazardous wastes in students' homes • Predicts effects of pollution on growth of organisms • Quantifies individual water usage • Describes successes in pollution reduction • Describes human activities that lead to habitat destruction • Describes ways biodiversity benefits humans • Compares the current mass extinctions to earlier mass extinctions 	<p>Environmental Studies Curriculum Guide Local Newspapers and Environmental Groups</p>