MWEE Case Study example

Connecting Questions to Standards

MWEE Title: What does your river give to the Chesapeake Bay?
Audience: Grades 10-12, Biology
School: Conestoga Valley High School

Driving Question: How does agricultural land use impact the quality of the water in our watershed?

Supporting Questions	Standards

Supporting Questions related to Watersheds:
• How do we describe and define our local watershed?
• What are the abiotic and biotic factors within our local watershed and how do they interact?
• How does topography influence the flow of water in our local watershed?
• How does vegetation affect water runoff?
• What is meant by 'water quality?' How is it measured and interpreted?
• What factors related to land use impact the quality of water in watersheds in general? What about in our local watershed?
• How do human choices (personal and legislative) regarding land-use affect local wetlands?
	Environment & Ecology Standards: Watersheds & Wetlands 4.2.10.A, 4.2.10.B and 4.2.10.C (10th grade)
	• Examine the interactions between abiotic and biotic factors within a watershed.
	  ○ Describe how topography influences the flow of water in a watershed.
	  ○ Describe how vegetation affects water runoff. Investigate and analyze the effects of land use on the quality of water in a watershed
	• Examine how human interactions impact wetlands and their surrounding environments.
	  ○ Describe how land use decisions affect wetlands
	• Explain the relationship between water quality and the diversity of life in a freshwater ecosystem.
	  ○ Explain how limiting factors affect the growth and reproduction of freshwater organisms.

Supporting Questions	Standards

Supporting Questions related to Natural Resources:
• What are natural resources that farmers must manage to engage in agriculture?
• What are the environmental consequences of agricultural management and use of natural resources within our local watersheds?
• How does consumer demand influence decisions farmers make regarding the management of natural resources?
• What technologies are available for management of natural resources within agriculture? (e.g. what are "BMPs?")
• What are the local and state agencies that influence the management of natural resources within agriculture and how do they operate? What are the impacts?
	Environment & Ecology Standards: Natural Resources 4.3.10.A. and 4.3.10.B
	• Evaluate factors affecting the use of natural resources.
	  ○ Evaluate the effect of consumer demands on the use of natural resources.
	  ○ Analyze how technologies such as modern mining, harvesting, and transportation equipment affect the use of our natural resources.
	  ○ Describe how local and state agencies manage natural resources.
	• Analyze how humans manage and distribute natural resources.
	  ○ Describe the use of a natural resource with an emphasis on the environmental consequences of extracting, processing, transporting, using, and disposing of it.
	  ○ Analyze the impact of technology on the management, distribution, and disposal of natural resources.

Supporting Questions related to Agriculture: • What are some of the effects of agriculture on our local and national economy, out watershed and our standard of living? • What are agricultural sciences and technologies and how do they work to increase efficiency while balancing the needs of society with the conservation of our natural resources?	Environment & Ecology Standards: Agriculture & Society 4.4.10.B and 4.4.10.C. • Analyze the effects of agriculture on a society's economy, environment, standard of living, and foreign trade. • Analyze how agricultural sciences and technologies strive to increase efficiency while balancing the needs of society with the conservation of our natural resources.