

Honors Biology: Concepts & Connections

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**Unit Name: Defending potential solutions to current societal issues:
The Chesapeake Bay Watershed & Non Point Source Pollution**

This unit outline is intended to accompany Cacapon Institute's annual Stream Cleaner Environmental Forum, an online Project Based Learning exercise where high school students hold an online virtual "tributary strategy" discussion. Participating students from several states and D.C. investigate the causes of, and solutions for, non-point source pollution in the context of the Chesapeake Bay Program, a regional effort to clean up the Bay. The SCE Forum is held in March each year. For more information click on "eForum Information & Sign Up" at www.cacaponinstitute.org/teachers.htm

WV Content Standards & Objectives *Biology.2.20, 2.21, 2.22*

At the completion of this unit, students will be able to:

1. evaluate environmental factors that affect succession, populations and communities
2. focusing on non-point sources develop an understanding of water quality science (especially the effect of excess nutrient loads in riverine water)
3. propose ecosystem models that incorporate interactions of biotic and abiotic environmental variables in biogeochemical cycles (we will be using the Chesapeake Bay Watershed Model)
4. learn the tools & best management practices that help to reduce pollution
5. analyze tributary strategies that each state developed to guide their clean-up efforts
6. research stake-holder issues
7. develop points of view for causes & create a consensus paper that suggests solutions to the regional clean-up for our watershed

Date(s)	Topic(s)	Assignment(s)
3/15	Take eForum online survey Read "Why You Matter" welcome letter from Jeff Lape Complete introduction worksheet.	Submit worksheet answers
3/16	Complete Essential Background worksheet View the slide show.	Submit worksheet answers
3/17	Complete Water Quality worksheet Complete Bay Model worksheet.	Submit worksheet answers
3/18	Complete Tributary Strategy worksheet Complete BMPs worksheet	Submit worksheet answers
3/19	Complete Stakeholder worksheet Form stakeholder teams & begin drafting Point Of View papers (POVs)	Submit worksheet answers
Week 2	Develop, complete & submit POVs	Submit POV & copy to Picard
Week 3	Respond to Thoughtful Questions (TDs) and write some of your own to other groups	Submit TD to challenge other groups & copy to Picard
Week 4	Final TD communications	
Week 5	Consensus building in the classroom	Write a class consensus paper

Vocabulary you will be able to use fluently by the end of the unit:

Watershed, point source vs non-point source pollution, stakeholder, best management practice, cover crops, riparian, hypoxia, dissolved oxygen, nutrient, load, tributary

Content standards also covered by this unit

SC.O.B.1.3 conduct and/or design investigations that incorporate the skills and attitudes and/or values of scientific inquiry

SC.O.B.1.7 given current science-technology-societal issues, construct and defend potential solutions.

SC.O.B.1.9 synthesize concepts across various science disciplines to better understand the natural world