



**Jones, Stephanie**

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**From:** Michelle Niedermeier <michelle.niedermeier@gmail.com>  
**Sent:** Thursday, June 17, 2021 8:42 PM  
**To:** ED, State Board of Ed  
**Subject:** [External] Public Comment on Proposed Amendments to 22 Pa. Code Chapter 4

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Dear Pennsylvania State Board of Education,

Thank you for supporting the process of revising the Pennsylvania Science and Technology, and Environment and Ecology standards. Based on the public information shared on the Pennsylvania Department of Education website, I have some serious concerns about the proposed Integrated Standards for Science, Environment, Ecology, Technology, and Engineering - especially at the secondary level (grades 6-12)- and how these revised standards will negatively impact current and future students' learning and job skills development opportunities in the Commonwealth.

Pennsylvania, with its rich history of conservation and its abundant natural resources, has long been known as a leader in environmental education. And, it is Pennsylvania State Law under the [Environmental Education Act of 1993](#), that the Commonwealth is to have environmental education standards for children to learn.

The 2002 approved Environment and Ecology standards are independent state standards that teachers are required to cover. They include these conceptual themes:

- Watersheds and Wetlands
- Renewable and Nonrenewable Resources
- Environmental Health
- Agriculture and Society
- Integrated Pest Management
- Ecosystems and their Interactions

- Threatened, Endangered and Extinct Species
- Humans and the Environment
- Environmental Laws and Regulations

However, the newly proposed Integrated Standards for Science, Environment, Ecology, Technology and Engineering do not explicitly include or adequately connect Environment, Ecology, and Agriculture.

Here is what is missing from the proposed standards:

- Watersheds and Wetlands – Cycles, Role of Watersheds, Physical Factors, Characteristics and Functions of Wetlands, Impacts of Watersheds and Wetlands
- Renewable and Nonrenewable Resources – Uses, Influential Factors
- Environmental Health – Biological Diversity
- Agriculture and Society – Society Needs, Agriculture Science, Agriculture Systems, Technology
- Integrated Pest Management – Effects Benefits and Impacts, Health Risks, Management Practices
- Ecosystems and their Interactions – Change Over Time
- Threatened, Endangered, and Extinct Species – Management Strategies
- Humans and the Environment – Society Needs, Sustainability, Supply and Demand
- Environmental Laws and Regulations – Environmental Laws and their Impacts

Additionally, the proposed standards do not include specific performance expectations. Furthermore, the proposed standards are all-encompassing and have a generic approach, and thus by making science standards so broad and lacking any specificity, they become meaningless and lack practical application. They flagrantly ignore the complexity, interdisciplinary nature, and real-world applications of the Environment and Ecology Standards and the Pennsylvania Environmental Education State Law. These are significant omissions and problems.

Lastly, the proposed standards do not address the following North American Association for Environmental Education ([NAAEE](#)) Guidelines:

- Human Systems – Individuals Groups and Societies, Culture, Political Systems, Economic Systems
- Decision-Making and Action Skills – Forming and Evaluating Personal Views, Evaluating Need for Action, Planning and Taking Action, Evaluating Results of Action
- Personal and Civic Responsibility – Recognizing Rights and Responsibilities, Recognizing Efficacy and Developing Agency, Accepting Personal Responsibility

The proposed integrated standards for grades 6-12 must include Environment, Ecology, and Agriculture as a separate, fifth domain. Also, watershed and wetlands, agriculture and society, and integrated pest management should be addressed through individual performance expectations. These three topics are critical to ensure that Pennsylvania students are informed citizens and prepared for the challenges and opportunities of the 21st century workforce. If approved as is, the proposed “integrated” standards may be in place for many years and thus these critical topics and themes will be left out of our students' education, which will result in a deficit of valuable learning and future workforce opportunities for our children.

Broad-based understanding, critical thinking, and problem-solving skills related to Environment, Ecology, and Agricultural topics clearly result in significantly improved quality of life implications and economic impacts that are a source of jobs and sustainability for future generations of Pennsylvanians. Again, please ensure that the Environment and Ecology standards are not lost. I implore you to create a fifth, separate domain for the three content topics of Environment, Ecology, and Agriculture, with

watershed and wetlands, agriculture and society, and integrated pest management addressed through individual performance expectations to ensure that these vital subject areas are not neglected, but instead, that Pennsylvania students are set up for success.

Thank you for supporting meaningful learning and impactful workforce development skills readiness for students across the Commonwealth.

Sincerely,  
Michelle Niedermeier  
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