



## University of Pittsburgh at Johnstown

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To whom it may concern;

Thank you for supporting the process of revising the Pennsylvania Science, Technology, and Environment and Ecology standards. I am an Associate Professor of Biology at the University of Pittsburgh of Johnstown. I have grave concerns about the proposed Integrated Standards for Science, Environment and Ecology at the secondary level (grades 6-12) and how it will impact current and future students in our state. My daughter is just now entering middle school and these standards will immediately impact her, as well as many of my future college students.

The new proposed standards should explicitly include Environment, Ecology and Agriculture as performance expectations. These were previously independent state standards that teachers were required to cover. The proposed integrated standards for grades 6-12 must include Environment, Ecology, and Agriculture as a separate, fifth domain. Furthermore, watershed and wetlands, agriculture and society, and integrated pest management should be addressed through individual performance expectations. We are entering a critical period for the planet in which the climate is changing rapidly and biodiversity is being lost. It is imperative that these topics be included in the curriculum to students, so they can become informed citizens and be prepared for the challenges they will be presented with.

Please ensure Environment, Ecology, and Agriculture standards are not lost. I implore you to create a fifth, separate domain for these three content topics, ensuring these vital subject areas are not neglected and that Pennsylvania students are set up for success.

Specifically, I ask you to include the following specific topics;

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

In addition, the guidelines should include the following NAAEE guidelines to better prepare students to make decisions and serve as good citizens.

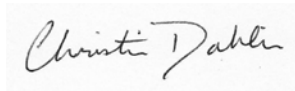
1. Human Systems – Individuals Groups and Societies, Culture, Political Systems, Economic Systems

2. Decision-Making and Action Skills – Forming and Evaluating Personal Views, Evaluating Need for Action, Planning and Taking Action, Evaluating Results of Action
3. Personal and Civic Responsibility – Recognizing Rights and Responsibilities, Recognizing Efficacy and Developing Agency, Accepting Personal Responsibility

I currently teach both major and non-major students in the areas of science that directly pertain to the areas that may be left out of the new standards. I am amazed by the number of students that currently come to me from PA schools lacking in knowledge in these key areas, and completely unprepared for the difficulties the 21<sup>st</sup> century will bring. Many students do not take my classes, and thus, if they do not receive some of this education during their secondary coursework, they will be poorly served by Pennsylvania. Thus, I implore you to include these standards.

Thank you for supporting education in students across Pennsylvania.

Sincerely,

A handwritten signature in cursive script that reads "Christine Dahlin". The signature is written in dark ink on a light-colored background.

Christine Dahlin, Ph.D