



From: [Kacey Rice](#)
To: [ED, State Board of Ed](#)
Subject: [External] Pennsylvania Science Standards
Date: Monday, July 5, 2021 1:29:48 PM

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Karen Molchanow
Executive Director
Pennsylvania State Board of Education
333 Market Street, 1st Floor
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Ms. Molchanow,

Thank you for supporting the process of revising the Pennsylvania Science, Technology, and Environment and Ecology standards. After reviewing the proposed standards as a Secondary Agricultural Science teacher at Oley Valley School District I have concerns about the proposed Integrated Standards for Science, Environment and Ecology at the secondary level (grades 6-12).

1. The new proposed standards do not explicitly include Environment, Ecology and Agriculture as performance expectations (i.e. Sections 4.4. and 4.5 from the 2002 Standards). After review of the proposed standards, I have found that the following areas are weakly connected or NOT CONNECTED at all to the proposed standards. These topics should be included and potentially aligned to the National Agriculture, Food, and Natural Resources Standards if possible.

- 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

2. There was not an attempt to directly crosswalk the proposed standards to the National Agriculture, Food, and Natural Resources (AFNR) standards. Many states have adopted the National AFNR Standards to assist school-based Agricultural Education programs deliver technical agriculture knowledge and career-readiness skills. I believe there should be a deliberate crosswalk in the proposed Integrated Standards for Science, Environment, and Ecology at the secondary level (6-12) to the National AFNR standards. This inclusion will provide clarity and guidance to Pennsylvania Agricultural Science teachers. Further conversations are encouraged to address this issue.

3. As a Secondary Agricultural Educator, I want to bring forward how the proposed standards

do not clearly identify standards related to general knowledge about agricultural and environmental science (i.e. agricultural literacy) and career preparation skills necessary for students in secondary Agricultural Education programs who intend to enter the agricultural workforce. In short, further conversations are needed with practitioners and context experts to develop recommendations for this issue.

4. The 2002 Academic Standards for Health, Safety, and Physical Education contain a great deal of information on human development, the human body, and nutrition (Standard 10.1 Concepts of Health). Additionally, 2002 Academic Standards for Family & Consumer Science has an important section on developing informed food consumers (Section 11.3 Food Science & Nutrition). By inclusion or reference, these standards should be brought into the proposed Integrated Standards for Science, Environment, and Ecology and be updated where needed with the National AFNR Standards.

These topics are critical to ensure that Pennsylvania students are informed about agriculture, food and natural resources and are prepared for the challenges and opportunities of the 21st century economy. The new standards may be in place for several years. Leaving these critical topics out of a student's education will result in a deficit of valuable learning.

Thank you for supporting meaningful learning for students across the Commonwealth.

Sincerely,

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