



From: [Kathleen Geist](#)
To: [ED, State Board of Ed](#)
Subject: [External] Keep strong science education standards in Pennsylvania!
Date: Friday, June 18, 2021 4:25:17 PM

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Dear Executive Director Karen Molchanow,

Good morning,

Thank you for overseeing the revising the Pennsylvania Science, Technology, and Environment and Ecology standards. Based on the public information shared on the PA Department of Education website, I am concerned 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.

The MOST ESSENTIAL of all science knowledge (and I am speaking as a science teacher) is to understand where humans fit in with all the cycles of nature - because without air, water, soil, food, we cannot survive. Thus it is essential to know the natural water cycle, and the human water cycle. Thus is is essential to understand how is water cleaned in wetlands, as well as the steps in our drinking and wastewater cycles. A person who does not know the source of their drinking water is not educated!

The same is true of air and how cycles create the weather and climate zones, and how there are fire cycles, drought cycles, ice ages, and human impacts on all the cycles. Soil and food are critical knowledge areas, for ultimately the soil supports all life on earth! It is worthless for a student to graduate knowing all the elements on the periodic table if they graduate knowing nothing about how the most essential elements for life cycle through the soil, and thus, into our food. Also, to understand how those elements cycle, they need to know the food cycle of the soil, and the vital importance of decomposer organisms.

A person lacking basic environmental knowledge is dangerous. They don't understand ground water pollution. They don't understand desertification. They don't understand keystone species. They don't understand sustainability, and without sustainability, we cannot survive.

The new proposed standards do not explicitly include Environment, Ecology and Agriculture as performance expectations. These were previously independent state standards that teachers were required to cover. Any 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.

These three topics are critical to ensure that Pennsylvania students are informed citizens 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 student's education will result in a deficit of valuable learning.

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.

Thank you for supporting meaningful learning for students across the Commonwealth

Sincerely,
Kathleen Geist
689 Garfield Avenue
West Point, PA 19486