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**PA. STATE BOARD
OF EDUCATION**

June 17th, 2021

Karen Molchanow

State Board of Education

333 Market Street, 1st Floor

Harrisburg, PA 17126.

Ms. Molchanow,

I am a professor of Biology and parent of four children who are educated in Pennsylvania public schools. In both capacities, I am disappointed to see important learning outcomes omitted from the draft state science standards.

In particular the omission and/or reduction of the following from the 2002 Standards should be re-implemented with the 2020 revisions.

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

It is also upsetting to see the following suggested standards from the National Association of Environmental Educators missing from our proposed state standards.

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

Please feel free to contact me if you would like to discuss these omissions or need more information on why each is important for educating scientifically literate children in the 21st century.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ryan Kerney'.

Ryan Kerney Ph.D.

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Research Associate, American Museum of Natural History

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