



From: [Michelle Brown](#)
To: [ED, State Board of Ed](#)
Subject: [External] Public Comment Period on Proposed Science Standards
Date: Sunday, July 4, 2021 10:13:39 AM

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To Whom It May Concern:

Thank you for providing the public space to weigh in on the proposed science standards. I am a former science teacher and STEM coach, and am currently pursuing a PhD in elementary science education. I also work closely with K-2 teachers from two different school districts to engage them in science storylines to make space for rich English language learning and literacy.

Below are my main points of feedback. Given my deeper knowledge in the elementary science content area, that is where my feedback centers:

- Thank you for closely aligning your proposed standards **by grade** with NGSS. It has been frustrating to see science being taught that does not align with the NGSS, particularly because the core ideas and practices have been carefully chosen to align with learning progressions attuned to appropriate developmental levels of students. Ignoring this or choosing content and practices that veer from NGSS could lead to teaching practices that are developmentally inappropriate.
- I am concerned with the standards by **grade bands** since they veer from NGSS and thus can lead to teaching that veers from the research behind learning development, and more importantly create obstacles for teachers to leverage the rich national resources that are aligned tightly to NGSS. The language in the standards feels like it veers from the shifts in science education, moving away from engaging in appropriate science practices, and towards older, more traditional and less successful teaching. Including environmental ecology, technology and engineering may seem like a way to appease all parties involved, but it only confuses things. Also, many of these concepts (particularly environmental ecology and engineering) ARE already embedded in the NGSS standards in many ways.

I hope you recognize the problematic outcomes of having two different sets of standards by grade band and by grades. I was excited and hopeful that Pennsylvania would be moving towards a clear set of NGSS-aligned standards, leveraging the deep research on human development, as well as considering best practices to engage learners in equitable science teaching. Moreover, it would allow teachers to use all the resources across the country, saving time and effort to re-invent the wheel, and moving away from Teachers Pay Teachers, toward NSTA and research-backed resources. By including two different sets of standards through grade-bands and grade level, it is confusing, but also stymies the necessary move forward toward NGSS. I'm confused why a clean shift has not been made. Teachers will now need to make sense of these confusing dualities, and including technology and engineering standards the way they have been included is confusing and conflicts with NGSS.

Thank you for the opportunity to share my concerns.

Sincerely,
Michelle Brown