

One Earth. Our Future. Sustainability Education for K-12 Audiences.

This past spring the National Earth Science Teachers Association (NESTA) adopted a new tagline, “*One Earth. Our Future.*” We did so for a variety of reasons, including the fact that we had not updated our tagline for over 30 years. Our old tagline was “*Serving the Earth Science educator community*” which, aside from being wordy and a bit dry, did not accurately convey our vision for the future. More importantly, as we discussed who we are and who we serve, we wanted to recognize the role of K-12 students along with teachers when it comes to Earth education.

I am particular proud and inspired by our website landing text below that the NESTA Board collectively crafted (<https://serc.carleton.edu/nesta/index.html>).

One Earth. Our Future. The National Earth Science Teachers Association (NESTA) seeks to inspire *all* students to be stewards of our one Earth and to encourage personal choices and public policies informed by scientific data. NESTA, a non-profit organization, supports K-12 educators in their efforts to mentor, guide, and instruct *all* students. **Our future depends on this.**

The website landing text and NESTA’s new tagline “*One Earth. Our Future.*” provides some framing thoughts while grappling with the workshop question, “*How can we design the future of Earth Education for sustainable societies?*”

One Earth

Earth’s systems are interconnected. Nations on Earth cannot live in isolation, not caring about each other’s environmental problems. Overfishing, slash and burn agriculture, increasing carbon emissions, mismanagement of our natural resources, and the perils of climate change are *global problems*. Furthermore, the air we breathe, the water we drink, the food we eat, and the Earth beneath our feet should be free from pollutants in all places on Earth. It should not be the case that lower socio-economic communities are disproportionately the most polluted places. This is a *social justice* issue as well as a scientific issue.

I recognize that dealing with the social aspects of scientific issues makes some of us uncomfortable, including some NESTA members. However, the reality is that issues of sustainability are much more complex than scientific hard facts and involve equity issues as well. Economic realities, attitudes, and beliefs are all intertwined.

So, recognizing that Earth is one interconnected system, how will we as Earth educators work collaboratively at a global level to address sustainability and environmental change issues? Thinking about this, helped me to break-down this broad theme.

We need to sustainably and equitably:

- Feed the world’s growing population

- Provide enough fresh water for the world's growing population
- Provide the renewable and nonrenewable resources needed to shelter and support individuals and societies on Earth (e.g. wood, minerals, energy)
- Protect places on Earth for their biological and geological contribution to ecosystems and for their inherent beauty
- Mitigate or sadly adapt to the global environmental changes brought on by policies that do not support sustainability (e.g. habitat destruction and loss, effects of climate change).

Looking over the items above, I see an outline for a course.....sorry, but many moons of curriculum development will do that to you.

Our Future

As another workshop participant wrote, many of us are inspired by the actions of 16-year-old Greta Thunberg and her passionate and compelling message at the United Nations Climate Action Summit. The fact that she referenced scientific data in the IPCC report should give us all hope for the future. Many dedicated, K-12 Earth educators are exposing students to sustainability issues and engaging them in data-based investigations through innovative, federally funded programs that have provided curricular materials and professional development to them. Programs like NOAA's Planet Stewards, GLOBE's Citizen Science and Teacher Ed programs, and many more are exemplary and NESTA is excited to promote them.

However, reaching students only in their classrooms is not enough. My personal goal as an educator has always been to empower K-12 students. We need to provide them with the critical thinking skills to analyze first-hand data sources. I believe it is time for us to reach out to youth beyond the traditional borders of K-12 classrooms.....so here is my crazy idea. I would like to create a "*Creating Sustainable Societies*" MOOC or something along those lines specifically directed at K-12 students, not their teachers. Of course, teachers could use the materials with students in their classrooms, but that would not be the primary target. We would not have "Teacher Guides."

"*Creating Sustainable Societies*" could be an easily accessible website but also a course if students wanted to engage with other students. The materials would prominently feature K-12 students in short YouTube videos. They would introduce topics and provide overviews. All materials would contain simple and powerful messages with accurate scientific content, but also personal stories from kids talking with community members and teachers. Maybe we would create zines (credit for this idea goes to the GLOBE Zika Zine <https://scied.ucar.edu/zikazine>). There would be links to relevant databases, but also the instructions to access, download, and analyze the data. There would be investigations, with appropriate pedagogical strategies, such as claim-evidence-reasoning, but instead of being presented as investigations they would be presented as sample scenarios, helping students to analyze and investigate the pros and cons of an issue. There could be local and global questions, such as "How can we plan a school or community garden to help feed folks in food deserts?" or "Can the oceans feed the world?" I am certain that content from InTeGrate

modules will be useful in this effort, but this would be a different audience and look and feel. Maybe this is the sort of effort that could be built, bit by bit, ultimately ending up as a course....not sure. I am looking for collaborators and would be grateful to chat with like-minded individuals at the workshop.