



Promoting Meaningful Action and Progress to Advance STEM and Workforce Development

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Department of Energy Tribal Working Groups

- State and Tribal Government Working Group (STGWG)
 - The State and Tribal Government Working Group (STGWG) brings together representatives from states and tribes that host or are otherwise affected by [U.S. Department of Energy \(DOE\) sites or facilities](#) associated with the production and cleanup of the nuclear weapons complex.
- Indian Country Energy and Infrastructure Working Group (ICEIWG)
 - The Indian Country Energy and Infrastructure Working Group (ICEIWG) works collaboratively with the U.S. Department of Energy (DOE) Office of Indian Energy Policy and Programs to assist in surveys, analysis, and recommendations related to program and policy initiatives that fulfill the DOE statutory authorizations and requirements of Title V of the Energy Policy Act of 2005.



Nuclear Energy Tribal Working Group (NETWG)

Office of Nuclear Energy

- Build close government-to-government relationships with Tribal Nations
- Focus on consulting, collaborating, and communicating with Tribal leaders and Tribal representatives who are technical and cultural subject matter experts (SMEs)

NETWG

- DOE-chartered working group
- Engage federally-recognized tribal governments in DOE-NE activities
- [STEM white paper](#)



NETWG STEM White Paper

- Identified gaps for STEM opportunities
 - Coordination on nuclear activities and utilization of subject matter expertise
 - Facilitation of STEM opportunities for youth in Tribes to generate interest in nuclear energy
 - National labs interactions with and response to Tribal communities and their concerns
- White Paper Priorities
 - Recommendations for increasing STEM education in Indian Country
 - STEM subcommittee
 - [STEM white paper](#)



NETWG STEM White Paper Priorities

- Nuclear Energy Education→ ANS/Discovery Education--
[“Navigating Nuclear”](#)
- Integration of place-based Traditional Ecological Knowledge (TEK) with DOE mission-focused STEM— partner with Tribal leaders and educators to highlight STEM in Indigenous stories and works ex.[Culturally-Situated Design Tools](#)
- Career Opportunities for Native Americans/Workforce Needs for DOE-- [Supporting STEM Education in Tribal Communities Project Team](#)
- Incorporation of strategy for tracking data from programs—
[Federal STEM Plan Interagency groups](#)



Tribal STEM Subcommittee

- The need for this subcommittee grew out of an expressed interest from all three DOE Tribal Working Groups to increase STEM opportunities for youth and the workforce in Indian Country.
- The focus is on improving access to STEM education and workforce development opportunities, while increasing site-specific tribal engagement.
- This collaborative effort will allow tribal working group members to identify and evaluate best practices to determine methods that suit individual tribal needs.
- Two virtual meetings have been held with members from all three working groups Nuclear Energy, State and Tribal Government, and Indian Country Energy and Infrastructure Working Groups.
- The subcommittee discussed framework for standing up this group including organizational structure, mission statement, and individual expectations.



Federal STEM Strategic Plan

Federal Alignment: Federal STEM Strategic Plan (2018-2023)

❖ Goals of Plan

- STEM-literate society
- STEM workforce of future
- Promote diversity and inclusion in STEM

❖ DOE Implementation Strategy

❖ Federal STEM Strategic Plan



Agency Support for the 2018 Federal STEM Education Strategic Plan

The Department of Energy (DOE) has an over 60 year history of educating and training U.S. scientists and engineers for jobs and careers that serve to advance national goals in science, energy, national security, and the environment. DOE currently supports a number of programs and efforts aligned with the goals of the 2018 Federal Strategic Plan for STEM Education.

- **Hosting Work-Based Learning at the DOE National Laboratories**
 - DOE is expanding the number of work-based learning and training opportunities available to undergraduate students at the DOE National Laboratories. Through internships for students from community colleges and four-year universities working on projects that span the DOE mission areas, participants gain hands-on experience in research and technology development under the mentorship of DOE laboratory staff. DOE will increase the number of internships available at the DOE laboratories and seek to attract more students from underrepresented populations to participate in these internships.
- **Building Stronger STEM Ecosystems**
 - Collectively, the DOE National Laboratories and DOE facilities engage over 250,000 K-12 students a year through programs that range from direct classroom instruction in STEM and instructional materials to STEM demonstrations and in-house tours of scientific facilities. The DOE Laboratories and facilities contribute to the STEM ecosystems within their regions by engaging students and educators in STEM learning opportunities, and are poised to serve a greater role in inspiring and preparing underrepresented populations to pursue STEM. DOE is committed to working with its National Laboratories and facilities to identify the fundamental barriers to participation by underrepresented groups and develop mechanisms to overcome those barriers.



DOE-NE Implementation Strategy

Providing DOE-NE specific committed objectives for implementation of the STEM strategy, assessing and scaling our work for sustainability

◆ **Objective 1: Foster STEM Ecosystems**

Action 1: Establish additional connections between Federal STEM professionals and Federal facilities and local and regional STEM ecosystems to provide additional opportunities for mentorship, educator professional development, curriculum material development, and other community engagement activities.

◆ **Objective 8: Digital Platforms**

Action 3: Identify and prioritize support for practices and learning models for distance learning that most effectively reach underserved and rural populations.

“Supporting STEM Education in Tribal Communities” Project Team : NE staff and NETWG Tribal member co-lead a project team that is exploring the need to integrate STEM education into formal and informal learning for Indigenous students.

Implementation Strategy Proposal

◆ Objective 5: Making Math a Magnet:

Action 2: Prioritize support for programs and partnerships that integrate mathematics and statistics education in meaningful and applied contexts, including for educator upskilling.

Action 3: Identify and share mathematics and statistics education practices shown to retain diverse learners.

◆ Objective 6: Transdisciplinary Learning:

Action 3: Ensure that Federal activities in support of the recruitment, preparation, retention, and upskilling of STEM educators incorporate or reflect transdisciplinary approaches featuring teaching that focuses on local and global community questions.

◆ Objective 7: Computational Thinking:

Action 3: Identify and share education practices and curriculum materials that are effective at developing computational thinking.

Navigating Nuclear: Energizing Our World -- Navigating Nuclear provides educators with the tools to dig deeper into the role of nuclear science, nuclear technology, and the mathematics that supports the science and engineering of the field. In addition, culturally-relevant curriculum will enable learners to engage with mathematics in a pertinent way. Resources include standards-aligned STEM project starters, digital lesson plans, nuclear industry career profiles, virtual field trips and culturally-responsive problem-based mathematics lessons.

STEM Engagement and Outreach

- **Expose, Engage, and Inspire** historically underrepresented and underserved populations in STEM fields for economic empowerment, especially in the nuclear energy fields
- Employ Navigating Nuclear, STEM Role Model Rounds, STEM Role Model Workshop, and the Smartphone Microscope as tangible tools to translate the science and technology of the DOE complex to educators, students, and communities in a relevant way



Navigating Nuclear STEM Resources

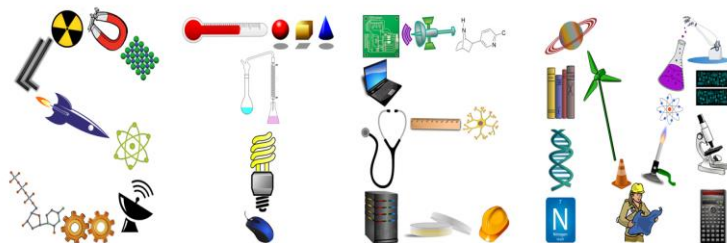
Middle School Resources:

- Digital Lesson Plans
- STEM Project Starters
- Career Profiles

DOE has partnered with American Nuclear Society (ANS) and Discovery Education (DE) to support High School Resources (2019-2020) and Elementary School Resources (2020-2021)



STEM Role Model Rounds



STEM Role Model Workshop

- The primary purpose of the STEM Role Model Workshop is to empower STEM professionals and STEM support colleagues from across the Department of Energy to effectively serve as confident role models, particularly for historically underrepresented students in STEM fields.
- It will also provide a space for building cross-Department connections and relationships that may be useful in future STEM outreach-related activities.
- Facilitators equip participants with research-based training, tools and strategies to take back and apply in their communities.



Tribal STEM Engagement

DOE staff and stakeholders facilitate energy activities at the Nez Perce Tribe during their summer “Preparing Students for Academic Success (PACE)” camp.



Culturally Responsive STEM Work in Alaska

Whale Bone (Village of Utqiagvik) using Smartphone Microscope (100X)

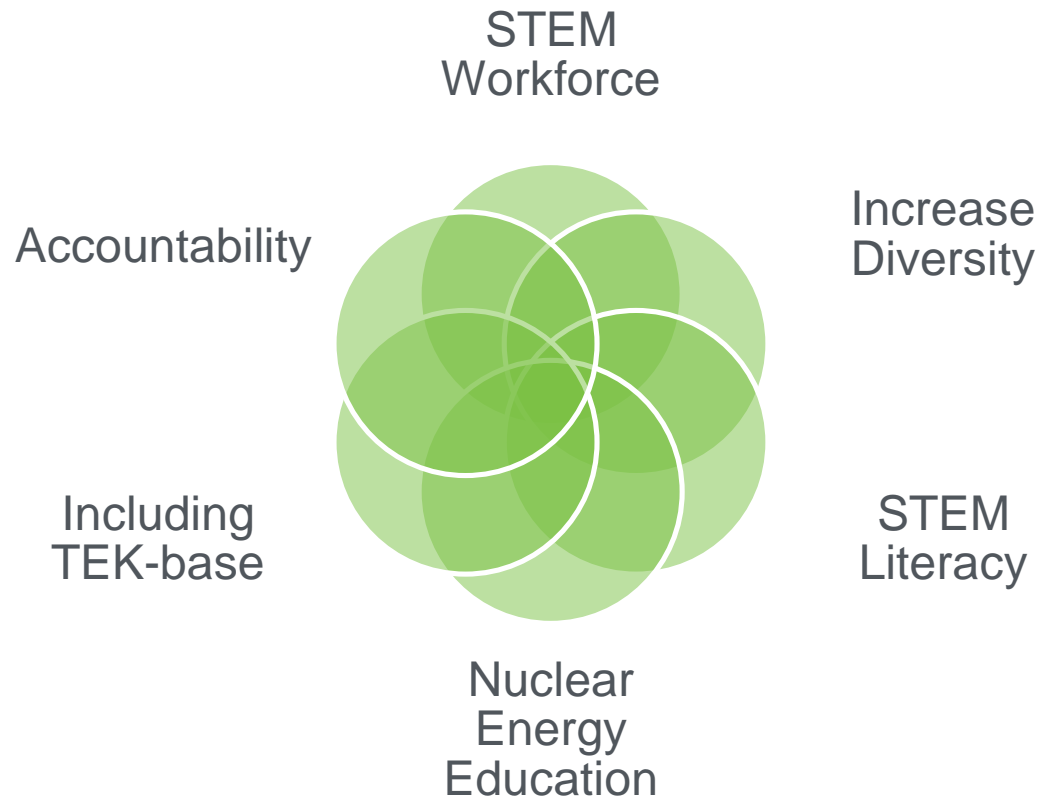


STEM in Formal Settings in Alaska

Students from Village of Tatilek and Chenega Bay using Smartphone Microscope (SM)



Building STEM Capacity



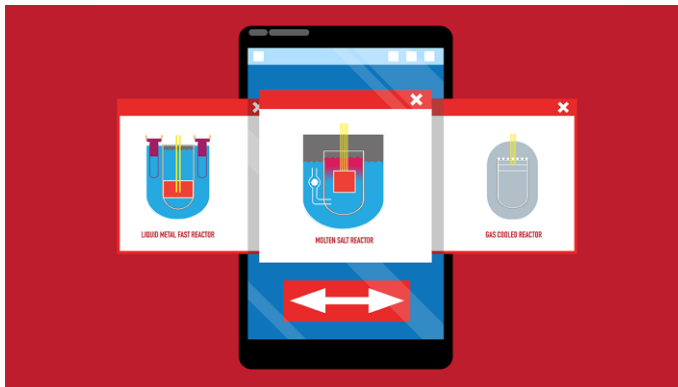
Office of Nuclear Energy Newsletter

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- Advanced Nuclear Matching Game:

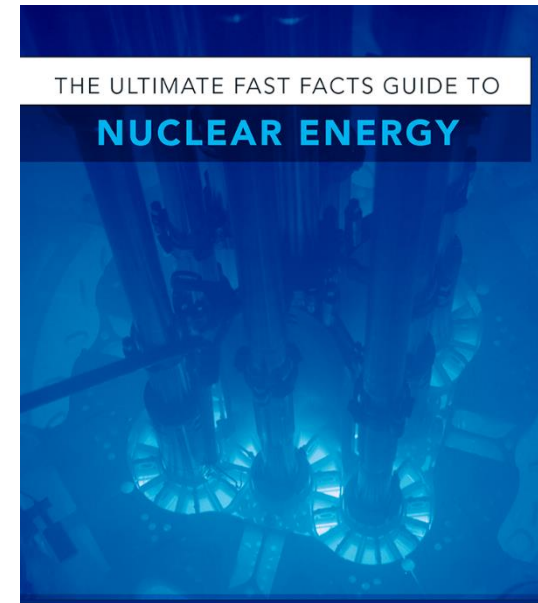


- Nuclear Reactor Swipe Right and Match Game



Nuclear Energy Resources

- [The Ultimate Fast Facts Guide to Nuclear Energy](#)
- [5 Fast Facts About Nuclear Waste](#)



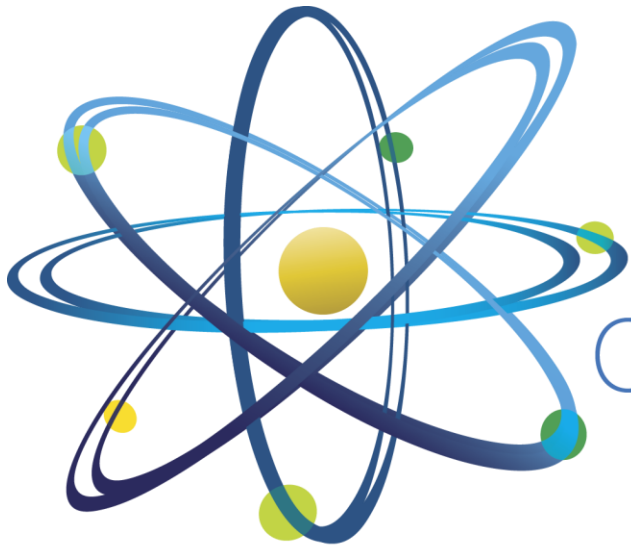
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5 Fast Facts about Nuclear Waste



Questions?



Clean. **Reliable. Nuclear.**

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