



Science Teacher Training Grants

1. **Purpose:**

To provide grants to school districts and educational service districts (ESDs) and community-based organizations (CBOs) for science teaching training in the Washington State Science Learning Standards (WSSLS), Next Generation Science Standards, (NGSS), which includes climate science education standards (ClimeTime).

2. **Description of services provided:**

ESDs and CBOs collaborated to develop and deliver WSSLS/NGSS professional learning including climate science workshops and courses for science educators in Washington schools and districts, particularly those historically underserved by science education. Comprehensive schools and targeted comprehensive schools as identified by the Washington School Improvement Framework (WSIF) were given priority for service. During the 2020 legislative session, the proviso was amended to include Tribal Education Agencies as part of the community-based organizations section of the proviso language.

All professional learning materials and resources developed by the nine ESDs and six CBOs are shared as [Open Educational Resources \(OERs\)](#) on the Washington Commons OER website. In 2022, all 19 projects launched in 2021 received continuation funding.

3. **Criteria for receiving services and/or grants:**

Priority was given to populations of students, schools, districts, and communities historically underserved by science education including but not limited to Tribal Compact Schools), migrant students, schools with high free and reduced lunch populations, rural and remote schools, students in alternative learning environments, students of color, English learner students, and students receiving special education services. Comprehensive schools and targeted comprehensive schools as identified by the WSIF were also given priority.

The targeted elementary grade level for 2020-21 was fourth grade, although all elementary teachers were invited to participate in any training. This continued in 2021-22 school year. In secondary education, the focus was on middle and high

school teachers responsible for teaching earth and space science standards and their related performance expectations in life science, physical science, and engineering. Other high school educators, both general education educators in other content areas and career and technical education educators whose teaching assignments include forestry, agriculture, environmental science, etc., were also included. With COVID 19 return to school and post pandemic stressors in schools, project managers extended the invitation to professional learning events to all interested science/STEM educators and their colleagues.

Beneficiaries in 2021-22 School Year:

Number of School Districts: 852 – some participated >1 time
 Number of Schools: 1,847
 Number of Students: 177,257
 Number of Educators: 3,983
 Other: 378 - TOSAs, Administrators

Number of OSPI staff associated with this funding (FTEs): 0

Number of contractors/other staff associated with this funding: 1

FY22 Funding: State Appropriation: \$3,000,000
 Federal Appropriation: \$0
 Other Fund Sources: \$0
 TOTAL (FY22) \$3,000,000

4. Are federal or other funds contingent on state funding?

No

5. State funding history:

Fiscal Year	Amount Funded	Actual Expenditures
2022	\$3,000,000	\$2,734,112
2021	\$3,000,000	\$2,922,403
2020	\$3,000,000	\$2,957,305
2019	\$4,000,000	\$3,843,391

6. **Number of beneficiaries (e.g., school districts, schools, students, educators, other) history:**

Fiscal Year	Number of School Districts	Number of Schools	Number of Students	Number of Educators	Number of Other
FY 22**	852	1847	177,257	3983	378
FY 21*	>200	2021	284,488	6640	836
FY 20	>200**	1742	244,894	6058	745
FY 19	>200	0	0	7500	Included in educator total

**Attendance impacted by Covid Restrictions*

***Reflects changes in program length with return to Face-to-Face Professional Events*

7. **Programmatic changes since inception (if any):**

N/A

8. **Evaluations of program/major findings:**

- This year saw the addition of five new grantees to the ClimeTime network including three tribal schools. Projects served nearly 4000 educators across the state.
- The [ClimeTime website](#) continued to increase its reach, highlight active professional learning opportunities, showcase open education resources developed in the projects, provide short teacher video vignettes, and share [news articles and media releases](#).
- Program impact extended beyond the nine ESDs, seven CBOs, and three tribal schools. As in previous years, state and local agencies, and state-wide community-based organizations collaborated with the nineteen funded projects to conduct science and climate science related workshops and learning experiences as educators returned to school post pandemic. Notable this year is the inclusion of more [community and family engagement](#). Interested states have reached out to learn more about this project and the collaboration between formal and informal educators.
 - Statewide, elementary, and secondary teachers continued to receive and participate in standards-aligned science trainings, which were held face-to-face, virtual, and hybrid. The trainings represented a diverse range of topics, including ways to use [local resources for field studies and outdoor learning](#).
 - interpreting [climate science research](#) to design data visualizations, testable models, and deepen climate science understandings, learning to use the [Washington Tracking Health Network](#) data to [track health issues](#) and a changing climate,

- expanding [STEM Storylines](#) and [its library](#) of learning resources to continue its focus on phenomena-based learning which [integrates content and strategies](#) more inclusive of all students and the communities in which they live.
- developing [STEAM in the Field Studies](#) for students and teachers in partnership with local and regional agency scientists,
- Learning about hyperlocal issues such as [grouse and prairie preservation](#). Professional learning opportunities shifted to a variety of venues including [new virtual canvas courses](#) aligned to the WSSLS/NGSS climate science standards. These courses were both asynchronous and modified synchronous. New this year was a course on restorative agriculture for CTE teachers, which provided initial NGSS professional learning. Examples of course titles include Climate Science 3.0: Modeling and Student Explanations, and Crafting 3D Formative Assessment items for K-12 Teachers attended by 460 teachers. Courses for 2022-23 will upgrade existing courses but expand course offerings.
- Several projects [translated learning materials into Spanish](#) for use with English Language Learners and within the Migrant Education community. Projects held community cafes to introduce the learning materials and provide community learning. Another project titled [Voices of Hope Project Glad](#) expands learning opportunities for teachers of multilingual students.
- Four ESDs completed a three-year middle school open education learning curriculum in a project titled: [OpenSciEd](#). Upon conclusion of the pilot, ClimeTime professional learning communities organized to provide continued support for middle school teachers statewide while initiating year one of the high school science pilot. Notable about the high school curricula is the infusion of Earth and Space content. Pilot teachers report that students enjoy the Earth and Space topics integrated into traditional courses such as [chemistry](#) and physics.
- Several ESDs partnered with the Institute for Systems Biology (ISB) to offer multiple workshops but one workshop attended by 569 teachers in 110 districts entitled, "Systems are Everywhere." ISB scientists and education outreach staff interacted with participants providing insights into systems' theory and data analysis.
- The "[Climate Justice League](#)" project began more than three years ago as a partnership between a CBO and an ESD, the University of Washington's Climate Impact's group, and research scientists to provide teachers with opportunities to discuss how to help students understand that a changing climate has real world impacts. Teachers participated in monthly seminars and developed collaborative lessons to use in their classrooms. In 2021-2022, Climate Justice League continued its expansion to central and eastern Washington including one region exclusively run by participating students.

- This past year, incarcerated youth in Thurston and Lewis Counties participated in 24 learning experiences in climate science and environmental science topics including ocean acidification, salmon life cycle, composting, and carbon footprint analysis. Several CBOs and ESDs continued K12 [professional learning projects in consultation with tribal nations](#) to focus on Indigenous ways of knowing and understanding the natural and physical world, specifically focusing on climate science using the Since Time Immemorial curriculum. In one project, [Elders presented stories and experiences](#) as part of the professional development design.
- This year, teachers continued to appreciate and enjoy “[STEM Seminars](#),” a CBO partnership with the regional ESDs, local agencies and the University of Washington’s Climate Impacts Group. STEM Seminars provides K12 teachers with contemporary learning about climate science and climate impacts in several key Washington sectors such as air quality, health, and sea level rise. One seminar this year was on [Learning to Live with Rising Seas](#).
- [Formative assessments](#) related to climate concepts and locally adopted science curricula were developed and continue to be developed for teachers to use with classroom learning materials including teacher guidance and strategies for evaluating student learning during instruction.
- Data collected and reported in the [AESD Climate Science Survey Report](#) found that approximately 90% of teachers expressed that the professional learning events broadened and deepened their knowledge of the topics around climate science and their ability to use their new skills and knowledge with their students.

9. Major challenges faced by the program:

Post pandemic issues continued to impact professional learning this year. Projects tried to return to face-to-face professional learning but were often confronted with teachers unable to secure substitutes even when support was provided. Online trainings also faced challenges mostly because teachers expressed their exhaustion with schoolwork and trying to balance out-of-school PD workshops. That said, teachers continued to express their gratitude for the opportunities and for the flexibility that was provided in the session formats. Administrators need to be included in future trainings. Their support of teacher professional learning is critical to continued program success and expansion. Sustainable educational change requires time and commitment. Contextualized and localized professional development for climate science and science is successful but occurs over time. As in years past, infusing climate science career opportunities into CTE is an area of needed work. Adjusting science/CTE equivalency frameworks will continue and needs to include current career-related research, CTE educators, and industry partners.

10. Future opportunities:

Grantees are finding (1) that with “whiplash weather events, different communities are saying that it is time to begin to take climate science learning more seriously;” which indicates a stronger willingness to participate in professional learning for climate science education and a strengthening of NGSS content learning; (2) collaboration with other agencies and organizations is equivalent to “many hands make light work” but also more interesting and contextual work. Expanding partnerships beyond the grants will continue into the upcoming year; (3) ESD grantees are exploring a literacy series for teachers of our youngest students to improve teacher self-efficacy for science learning and engagement with young learners; (4) outdoor learning opportunities will be expanded to be more accessible to special needs students. Plans include the development of bridging opportunities for students from partial day experiences to full day experiences; (5) continued development of more solutions-oriented engineering professional learning; (6) expanding the network’s communications work to include more project success stories; (7) expanding opportunities to work more closely with Tribal community members on specific projects.; (8) a reflection on the last five years of work to identify best practices, most successful strategies for inclusion, and expansion of learning opportunities; (9) expanding Climate Literacy Fellows program, increase student voice, and expanding climate justice league to include positive actions students can implement; (10) scale particular elements of ClimeTime projects statewide, to whole-district or whole-grade band teams of teachers.

11. Statutory and/or budget language:

ESSB 5693, Sec. 522(4)(c) - \$3,000,000 of the general fund—state appropriation for fiscal year 2022 and \$5,000,000 of the general fund—state appropriation for fiscal year 2023 are provided solely for the office of the superintendent of public instruction to provide grants to school districts and educational service districts for science teacher training in the next generation science standards including training in the climate science standards. At a minimum, school districts shall ensure that teachers in one grade level in each elementary, middle, and high school participate in this science training. Of the amount appropriated \$1,000,000 is provided solely for community-based nonprofits including tribal education organizations to partner with public schools for next generation science standards.

12. Other relevant information:

As a result of the proviso funding and the program development it facilitated, teachers deepened their understanding of the Washington State Science Learning Standards including its climate science standards. Nearly 26,000 educators have been served through the ClimeTime proviso with the program gaining national recognition. Our [Washington State Open Educational Resources](#) hub continues to

house all learning materials and resources developed with grant funds. During a field trip for Othello middle school students, one young student washed some soil and found a fossilized piece of bone. He told the facilitator, "I will never forget this moment! This is so cool! Maybe I could be a scientist? I like this stuff."

13. Schools/districts receiving assistance:

See [OSPI's grantee list](#).

14. Program Contact Information:

Name: Ellen K. Ebert, Ph.D.
Title: Director, Secondary Education Content
Phone: 360-359-3767
Email: Ellen.Ebert@k12.wa.us