
Presidential Awards for Excellence in Mathematics and Science Teaching



Recognizing and Rewarding Excellence in Teaching Since 1983

2021–2022 Application Packet K–6th Grade Teachers

Competition Opens:	August 1, 2021
Nomination Deadline:	January 7, 2022
Application Deadline:	February 6, 2022



NATIONAL SCIENCE FOUNDATION
DIRECTORATE FOR EDUCATION AND HUMAN RESOURCES

Presidential Awards for Excellence in Mathematics and Science Teaching

2021–2022 Application Packet for K-6th Grade Teachers

Each year, the President of the United States recognizes outstanding individuals who teach science, technology, engineering, mathematics (STEM), and computer science at either an elementary or secondary grade level and bestows upon them the Presidential Awards for Excellence in Mathematics and Science Teaching (PAEMST). Awards may be given to teachers in each of the 50 states, the Department of Defense Education Activity (DoDEA) schools, and the U.S. Jurisdictions including the District of Columbia, the Commonwealth of Puerto Rico, and as a group American Samoa, Guam, the Commonwealth of the Northern Mariana Islands, and the U.S. Virgin Islands.

The PAEMST program is administered by the National Science Foundation (NSF) on behalf of the White House Office of Science and Technology Policy (OSTP). **In 2021–2022, the PAEMST program will accept applications from Kindergarten through 6th grade science, technology, engineering, mathematics, and/or computer science teachers.** A separate application will open in the fall of 2022 for 7th–12th grade teachers.

The more than 5,100 awardees selected since the program’s inception in 1983 are a premier group of teachers who have both deep content knowledge of the subjects they teach and the ability to motivate and enable students to be successful in those areas. While many awardees return to their classrooms, others move on to positions in school administration, become involved in preparing future teachers at the university level, or work in teacher professional development. In addition to teaching, they contribute to the development of instructional and assessment resources, serve as mentors to students and other teachers, participate as writers and reviewers of state and local curricula, and compose books and publish articles, among other endeavors. Collectively, they reflect the expertise and dedication of the Nation’s teaching corps, and they demonstrate the positive impact of excellent teachers on student achievement. PAEMST is one of two awards that the Excellence Awards in Science and Engineering (EASE) Program at NSF manages on behalf of OSTP. The other award is the Presidential Awards for Excellence in Science, Mathematics, and Engineering Mentoring (www.paesmem.net).

2021–2022 Program Information

Nomination and Application

By completing the nomination form available on the [PAEMST website](http://www.paemst.org), anyone—principals, teachers, parents, students, members of the general public—may nominate exceptional individuals who teach science, technology, engineering, mathematics, and/or computer science. You can also self-nominate. There are two award categories: science and mathematics. The science category includes science and engineering. The mathematics category includes mathematics and computer science/technology.

To submit a nomination, complete the online form which requires the teacher’s name, email address, and school name. If a person knows more than one teacher worthy of this award, they may submit more than one nomination. All nominated teachers will receive an email inviting them to begin the application process. The invitation will include a username for accessing the online application system and directions for obtaining a password. Teachers may also self-nominate by beginning the application process themselves at www.paemst.org.

Nomination Deadline: January 7, 2022

Teachers should be nominated as soon as possible to give them ample time to prepare an application.

Application Deadline: February 6, 2022

The application deadline is **11:59 p.m. (Eastern Time)**

Eligibility

Any teacher who wants to begin an application must meet the following criteria:

- teach science, technology, engineering, mathematics, and/or computer science as part of their contracted teaching responsibilities at the K–6th grade level in a public (including charter) or private school
- hold at least a bachelor’s degree from an accredited institution
- be a full-time employee of their school or school district as determined by state and district policies, with responsibilities for teaching students no less than 50% of the school’s allotted instructional time
- have at least five years of full-time employment as a K–12 teacher prior to the 2021–2022 academic school year, with science, technology, engineering, mathematics, and/or computer science teaching duties during each of the past five years
- teach in one of the 50 states, the Department of Defense Education Activity schools, or the U.S. Jurisdictions of the District of Columbia, the Commonwealth of Puerto Rico, or as a group American Samoa, Guam, the Commonwealth of the Northern Mariana Islands, and the U.S. Virgin Islands
- be a U.S. citizen or permanent resident; and
- not have received the PAEMST award at the national level in any prior competition or category

NSF's mission calls for the broadening of opportunities and expanding participation of groups, institutions, and geographic regions that are underrepresented in STEM disciplines, which is essential to the health and vitality of STEM. NSF is committed to the principle of broadening participation and inclusion of all in activities and programs. The PAEMST program encourages applications from racial and ethnic groups that are underrepresented in STEM (African Americans, Native Americans, Hispanic Americans, Alaska Natives, Native Hawaiians, and other Pacific Islanders), all genders, teachers with disabilities, veterans, and teachers serving in high needs schools. For this competition high needs schools are defined as those that have 20% or more of the children served from low-income families.

State and Jurisdiction Level Mentoring

Applicants are provided opportunities for mentoring and are strongly encouraged to take advantage of these opportunities. All states/jurisdictions offer the opportunity for applicants to connect with a mentor during the application cycle. Applicants can request a mentor from their State/Jurisdiction Coordinator (SC) through the application portal by clicking on the Mentor Information tab. Once assigned a mentor, the applicant can enter the mentor’s information in this same tab to grant read-only access, enabling the mentor to review the application components and the video. Please note: Applicants who are unable to obtain a mentor from their SC should contact info@paemst.org for assistance in securing a mentor.

Review Criteria

Applications will be evaluated at the state, jurisdiction and national levels using the following *Five Dimensions of Outstanding Teaching* (more details of dimensions provided later in application). Up to six finalists per state and jurisdiction are then reviewed at the national level using the same criteria.

- Dimension One: Mastery of content appropriate for the grade level taught
- Dimension Two: Use of effective instructional methods and strategies that are appropriate for the students in the classroom and that support student learning
- Dimension Three: Effective use of student assessment to evaluate, monitor, and improve teaching and student learning
- Dimension Four: Reflective practice and lifelong learning to improve teaching and student learning
- Dimension Five: Leadership in education inside and outside of the classroom

The PAEMST program encourages applications that provide evidence of transdisciplinary or interdisciplinary STEM teaching. Research and discovery addressing grand challenges, such as climate change or pandemics, occur at the convergence of STEM disciplines, not within disciplinary silos. **Transdisciplinary** STEM teaching engages students in complex real-world problems at the convergence of STEM disciplines through activities that require initiative and creativity, such as: project-based learning, problem-based learning, and invention challenges, modeling, integrating mathematics and computational thinking into science, analyzing

and interpreting data, and designing solutions. **Interdisciplinary** STEM teaching is the pedagogical approach by which students learn the interconnectedness of the disciplines of science, technology, engineering, and mathematics.

State and Jurisdiction Level Review

At the state and jurisdiction level, coordinators convene selection committees, which include prominent mathematicians, scientists, mathematics/science education researchers, district-level personnel, and classroom teachers. These committees select up to six finalists (three from each award category) for recognition at the state and jurisdiction level. States and jurisdictions are strongly encouraged to forward finalists in each of the STEM areas.

Within the science category, states and jurisdictions are encouraged to include science and engineering finalists and in the mathematics category, they are encouraged to include mathematics and computer science/technology finalists. State and jurisdiction selection committees review applications using the criteria and scoring information presented in this application packet. The states and jurisdictions select up to six state finalists by **March 11, 2022**.

Application Addendum

State and jurisdiction finalists will have the opportunity to respond to state and jurisdiction level review feedback through an optional addendum to their original application. State and jurisdiction finalists can work with a mentor on this addendum, which is limited to five pages: three pages to respond on the five dimensions and two pages of additional supplemental materials. The optional addendum must be uploaded to the PAEMST portal between **March 12th to March 20, 2022**.

National Level Review

At the national level, NSF convenes a national selection committee composed of prominent mathematicians, scientists, mathematics/science education researchers, district-level personnel, and classroom teachers. The national committee reviews state and jurisdiction finalists' applications using the criteria and scoring information presented in this application packet. NSF then recommends up to two finalists (ideally one from each award category) per state and jurisdiction to the White House OSTP. All finalists are subject to a Federal Bureau of Investigation background check and good standing confirmation from their principal.

Recognition

Each Presidential Awardee receives a certificate signed by the President of the United States, a \$10,000 award from NSF, and an all-expenses paid trip for an award ceremony in Washington, D.C. In addition, awardees join a national cohort of award-winning teachers, providing opportunities to impact teaching on a national scale. The recognition events may include professional development opportunities and discussions with policy makers on how to improve science, technology, engineering, mathematics, and/or computer science education.

If COVID-19 travel restrictions are a concern a Virtual Announcement may be held. The purpose of the Virtual Announcement is for a timely celebration of awardees and is not intended to replace the live award ceremony.

Application Sections

The PAEMST application consists of three sections: Administrative, Narrative, and Video. All application components will be completed in the [PAEMST application portal](#). The application is designed to allow the applicant to provide evidence of deep content knowledge, exemplary pedagogical skills, student assessment expertise, reflective teaching, and leadership that results in improved student learning.

There is no single right way to teach and, therefore, this award is not limited to teachers with a specific teaching style, method, or philosophy. Rather, this award recognizes those teachers who develop and implement a high-quality instructional program that is informed by content knowledge, is appropriate for the students they teach, includes effective teaching practices, and enhances student learning.

I. ADMINISTRATIVE SECTION

The administrative section includes a Teacher Information Form, Employment Verification Form, Letters of Recommendation, and Résumé.

Teacher Information Form

After applicants have completed the first section of the application (confirming their eligibility, indicating how they heard about the program, and providing demographic information), they can proceed to the *Teacher Information Form*. On this form, applicants:

- provide information about themselves and their school
- indicate the award category to which they are applying
- describe their current teaching assignment, including
 - grade level(s) and courses taught;
 - whether they are teaching and assessing student learning through in-person, virtual, or in a hybrid model; and
 - a weekly teaching schedule (an incomplete description of an applicant's teaching assignments is cause for ineligibility).
- provide contact information on school leadership
- provide demographics of the students in their videotaped class and school
- give a brief description of the topic and concept featured in the lesson provided in the narrative and video components of the application

Employment Verification Form

The *Employment Verification Form* is completed online by a school principal or equivalent position at a private school. The form is used to determine eligibility for the award. First, the applicant provides the contact information for the principal or equivalent in the online application portal. The principal or equivalent then receives an email asking them to complete the *Employment Verification Form*. By completing the form, the principal or equivalent is confirming the applicant's video submission adheres to all school or district requirements regarding student recordings and sharing of student data, and that the applicant is in good standing within the school or school district. **This information is not disclosed to review committee members.**

Letters of Recommendation

Three letters of recommendation are required from persons who can describe how the applicant's work supports the *Five Dimensions of Outstanding Teaching*. Letters of recommendation can come from administrators, colleagues, parents, former students, or others. One of the three letters must come from the applicant's principal or person in an equivalent position. When this individual's contact information is entered in the Employment Verification Form, a request for a letter of recommendation will be sent to them.

Applicants provide contact information for second and third recommenders, who will then receive an email with instructions on completing the recommendation. **All letters of recommendation must be received in the PAEMST portal by the application deadline or the applicants will not be able to submit their applications.** If needed, applicants and recommenders may reopen letters of recommendation to make edits any time before the application period ends.

If NSF becomes aware that an applicant is no longer in good standing within the school or school district and/or a principal rescinds their letter of recommendation after an application has been submitted but before the time of award, NSF will consider this as grounds for disqualification from the PAEMST award.

Résumé

A résumé is required. It must outline the applicant's education, employment history (showing at least five years of K–12 teaching experience prior to the current school year), and participation in professional development activities. The applicant may elect to include in their résumé:

- memberships or leadership roles in professional organizations
- memberships or leadership roles in informal science/mathematics centers, groups, programs, and/or other similar efforts
- references to any articles they may have written for state and jurisdiction or national science/mathematics newsletters or journals
- grants that they may have received
- and/or previous honorific awards received

There are no specific formatting requirements, but the **document may not exceed two pages and must have a legible font size. Applications with a résumé longer than two pages are subject to disqualification.**

II. NARRATIVE SECTION

The narrative section consists of a written response that addresses the *Five Dimensions of Outstanding Teaching* and any optional supplemental materials and references that the applicant may wish to provide. The Five Dimensions are provided in the table at the end of this section.

Written Response

A key component of the written response is discussion of the video recorded lesson. The applicant must select a science, mathematics, engineering, or technology/computer science concept in the lesson that is both appropriate and important for students to understand at the grade level(s) taught and is related to more advanced concepts that will be learned later. The applicant needs to explain why they selected the concept and clarify that it is a concept and not a skill. The concept will be used in the narrative when responding to elements of Dimensions One, Two, Three, and Four related to the video recorded lesson. While the video may show only one lesson, the applicant’s written response may cover teaching strategies and assessments used in a series of related lessons.

Technical Specifications for the Written Response

The written response must not exceed 27,500 characters in total. Spaces are included in this total character count. It is important that each of the *Five Dimensions of Outstanding Teaching* prompts (for example, 1a, 1b, 1c) be discussed in the application and that each dimension prompt be answered separately.

It is recommended that applicants save responses outside of the portal to ensure work is not lost. Use of the *Dimensions of Outstanding Teaching* Template, which can be found in the applicant portal under the “Tools and Resources” tab, is helpful to capture Dimension responses. Responses can then be copied and pasted from the template into text boxes within the portal.

There are no formatting requirements for the written response. Once the written response has been entered into the text boxes, the system will automatically create a single document. The finished product will be automatically double-spaced, in the correct font size, and with the correct margins. It will also include the applicant’s Teacher ID and name in the footer of each page.

Any special characters or formatting such as bolding, underlining, and indenting will disappear when responses are pasted into the text boxes within the portal. If special characters such as formulas, diagrams, or charts are needed, they should be included in the supplemental materials and referenced in the applicant’s written response.

Supplemental Materials

Supplemental materials provide supporting evidence for the narrative responses to the *Five Dimensions of Outstanding Teaching*. This section of the application may include materials such as lesson plans, samples of student work, assessment items, or pictures of students engaged in activities. It is highly recommended that all Supplemental Materials be labeled and numbered (ex: SM1, SM2, etc.) and referenced in the Narrative section. **Supplemental materials are limited to a total of five pages. Applications with supplemental materials exceeding five pages are subject to disqualification.**

Technical Specifications for Supplemental Materials

Supplemental materials:

- must be submitted as one single file that does not exceed five 8.5 x 11 inch pages
- **must not be a continuation of the administrative or narrative component; it may not include additional letters of recommendations, narrative responses to the dimensions, or resume items**
- Hyperlinks are not to be included in the Supplemental Materials and reviewers will be instructed to not click on any hyperlinks
- must be submitted in one of the following formats: Adobe Portable Document Format (.pdf), Microsoft Word (.doc or .docx), or Rich Text Files (.rtf)

References Cited

Cited sources within the written responses to the *Five Dimensions of Outstanding Teaching* should be captured in a document **not exceeding one page**. References may include books, articles, and/or multimedia that supports the application.

While there is no specific format required for the References Cited section, applicants should follow accepted scholarly practices in providing citations for source materials. In general, each reference should include the names of all authors (in the same sequence in which they appear in the publication), the article and journal title, book title, volume number, page numbers, and year of publication.

If a website address is readily available, that information should be included in the citation. The references cited should not be used to list out the applicant's publications unless they relate to the application. **Applications with references longer than one page are subject to disqualification.**

Technical Specifications for References Cited

References:

- must be submitted as one single file that does not exceed one 8.5 x 11 inch page
- must include references or citations to attribute work to the correct sources
- must be submitted in one of the following formats: Adobe Portable Document Format (.pdf), Microsoft Word (.doc or .docx), or Rich Text Files (.rtf)

III. VIDEO SECTION

Applicants are required to submit a classroom video, which will be used as evidence by state and national selection committees when evaluating the applicant's performance on the *Five Dimensions of Outstanding Teaching*. The video must be consistent with the applicant's chosen lesson plan and written narrative and should convey the following:

- Dimension 1a, 1b: depth of content knowledge as demonstrated by the clarity, precision and appropriateness of the explanations provided
- Dimension 2a: ability to employ appropriate and effective instructional methods and strategies which may include the use of instructional technology, demonstrations, hands-on activities, and/or collaborative work
- Dimension 3a: ability to engage all students, maintain their interest in the lesson or activity, and assess student learning, as demonstrated by the applicant's and the students' asking and answering questions, giving demonstrations, and/or participating in discussions and/or small group work
- Dimension 4a: depth of reflection on lesson to improve student learning

Requirements for the Video

In order to provide in-depth evidence of the applicant's knowledge and abilities, the video:

- must correspond to the concept selected and discussed within the Written Response
- must be of a single class, lesson, or experience during the **2021–2022 school year**
- **must not be more than 30 minutes or one class period**, whichever is shorter
- **must be continuous footage with only one allowed break***
- **must come from a single camera or source**

- must adhere to all district or school requirements and guidelines for parental release or student

- permission related to classroom video recording and sharing of student data
- *should* not exceed three GB
- video must be of sufficient quality so that the applicant's face and the students' faces are visible, board work or seat work that is discussed in the narrative is visible
- voices must be audible; it is strongly recommended that applicants wear a microphone

Videos submitted as part of the application will be used throughout the PAEMST selection process and will be seen by reviewers, contractors managing the program, and NSF staff. The video will not be released to the public by NSF.

*Due to the **COVID-19 pandemic**, the PAEMST Team may consider exceptions to the single-break requirement for online videos on a case-by-case basis. Please contact info@paemst.org to request an exception to the video requirements.

The applicant uploads and submits the video online. Videos that exceed 30 minutes will automatically be edited after upload by the system to end at 30 minutes. The one break is allowed so that applicants can, if desired, provide evidence of different instructional strategies within the video recorded lesson. Whenever the video is referenced in the written responses, a specific time stamp (TS) in minutes and seconds should accompany the written reference for ease of observation (such as TS 13:40, TS 23:30, etc.). No other supplementary video materials may be submitted.

The application deadline is 11:59 pm (Eastern Time) on **February 6, 2022**. **Applicants are highly encouraged to upload the video well in advance of the application deadline to avoid high traffic and slow upload speeds at that time.** Applications cannot be submitted until video uploads have been processed and confirmed as complete within the application portal. Applicants should review the video in full to ensure video/audio quality and that it meets all of the requirements listed above. If applicants have questions, they should reference the FAQs at the end of the application or email info@paemst.org.

Program Officers: *Please note that the following information is current at the time of publishing. See program website for any updates to the points of contact.*

Robert Mayes, telephone: (703) 292-7267, email: rmayes@nsf.gov

The Five Dimensions of Outstanding Teaching – Written Response Prompts

Dimension One: Mastery of content appropriate for the grade level taught.

- 1a. Video Recorded Lesson: Identify a concept within the lesson you chose. Explain your understanding of the concept and why it is important for students to understand the concept. Be sure you select a concept and not a skill, process or procedure to discuss.
- 1b. Video Recorded Lesson: Discuss the misconceptions or misunderstandings that students have about this concept and explain how you address them in your chosen lesson.
- 1c. Beyond Chosen Lesson: Describe how this concept relates to future concepts that students will encounter in subsequent lessons, grades, or courses.

Dimension Two: Use of effective instructional methods and strategies that are appropriate for the students in the classroom and that support student learning.

- 2a. Video Recorded Lesson: Describe the instructional approaches you used in the lesson and why you chose them to help students understand the concept addressed in Dimension One. Explain how you identified and built on your students' prior knowledge.
- 2b. Beyond Chosen Lesson: Describe indirect, interactive, or experiential instructional approaches you use to engage your students that were not represented in your chosen lesson. Select up to three instructional approaches and discuss in more detail the rationale for why you choose a particular approach for a lesson.
- 2c. Diverse Learners: Discuss up to three additional instructional methods and strategies you use routinely to meet the learning needs of diverse learners. Wherever appropriate, describe what accommodations you provide for variability in gender, ethnicity/race, special needs, English language learners, economically-disadvantaged, or mixed ability levels. How do you incorporate culturally responsive teaching to provide a student-centered approach that acknowledges that the student's culture is central to learning?

Dimension Three: Effective use of student assessments to evaluate, monitor, and improve student learning.

- 3a. Video Recorded Lesson: Describe how you assessed student learning for the concept discussed in the chosen lesson. How do you use what you learned from the assessment to improve your teaching?
- 3b. Beyond Chosen Lesson: Discuss your rationale for your overall cohesive assessment plan.
- 3c. External Indicators: Provide evidence that substantiates your teaching effectiveness using external indicators of student learning and/or achievement. These indicators may be quantitative (state or national assessments) or qualitative (testimonials on your teaching or student outcomes), but not teacher evaluation data.

Dimension Four: Reflective practice and life-long learning to improve teaching and student learning.

- 4a. Video Recorded Lesson: Discuss the more successful and less successful aspects of the instructional activities shown in the video and describe what you might do differently to improve student learning.
- 4b. Beyond Chosen Lesson: Describe how reflection on your teaching practices helps you improve your classroom instruction and therefore your students learning.
- 4c. External to School: Using a professional development experience cited in your résumé, describe how your participation in this activity has improved your teaching and enhanced your students' learning.

Dimension Five: Leadership in education inside and outside of the classroom.

- 5a. School Level and Beyond School: The Administration is committed to advancing educational equity for every student, to ensure that every student—including those from underserved and under-resourced communities—can learn and thrive. Describe the actions you have taken in and out of the classroom to improve educational equity. Elaborate on the quality, not the quantity, of your contributions. Discuss the impact this has had on you, your students, school, district, community, state/jurisdiction, and or nation.
- 5b. School Level: Describe how you have supported other teachers, student teachers or interns through activities such as induction, mentoring, leading professional development activities, or co-teaching. Discuss the impact this mentoring has had on your teaching practice. Elaborate on the quality, not the quantity, of your contributions.
- 5c. Beyond School: Describe how you contribute to educational excellence at the district, state/jurisdiction, and/or national level. Elaborate on the quality, not the quantity, of your contributions. Discuss the impact this has had on your teaching practice.

Dimensions Clarifications

Dimension 1: Mastery of Content. The purpose of this dimension is to provide evidence of the teacher's understanding of a STEM concept, so focus on explaining your understanding of the concept and how it relates to other concepts in your subject area. If your lesson involves interdisciplinary STEM then you may discuss: 1a. integrating practices such as modeling, integration of mathematics and technology, or engineering design; 1b. discussion of practices promoting understanding at the convergence of STEM subjects, and 1c. impact on understanding across STEM disciplines.

Dimension 2: Instructional Methods. Ensure that you provide the three separate sets of instructional methods requested: 2a. those used in lesson; 2b. up to 3 indirect, interactive, or experiential instructional methods not used in your lesson; 2c. up to 3 additional strategies focused on diverse learners beyond those discussed in 2a and 2b. For 2b provide teaching strategies that actively engage students in any of the three instructional methods classifications: **indirect instruction methods** such as inquiry, problem solving, reflective discussion, concept mapping, or case studies; **interactive instruction methods** such as cooperative learning, debates, laboratories, peer practice, or role playing; or **experiential instruction methods** such as field trips, model building, simulations, games, or engineering design. If your lesson involves interdisciplinary STEM then you may discuss strategies such as project-based or place-based learning. If you are teaching in a high-needs school than you may discuss instructional methods that target the high-needs students in your classes.

Dimension 3: Assessment. For 3b provide a cohesive assessment plan and not just a list of assessment strategies. Your discussion should include what assessment suits a specific purpose and how assessment informs your instruction. Your assessment plan discussion may consider the four assessment goals of: identifying students at risk, monitoring student progress, collecting information on strengths and weaknesses to allow targeting needs, and assessing meeting standards or grade-level expectations. For 3c external indicators are to focus on student learning not on teacher evaluation. If your lesson involves interdisciplinary STEM than you may discuss assessment of interdisciplinary learning that occurs at the convergence of STEM subject areas. If you are teaching in a high-needs school than you may discuss assessments that provide quality feedback on the high-needs students in your class.

Dimension 4: Reflective Practice. If your lesson involves interdisciplinary STEM than you may discuss reflections on interdisciplinary learning that occurs at the convergence of STEM subject areas. If you are teaching in a high-needs school than you may discuss reflections that impact the high-needs students in your class.

Dimension 5: Leadership. Avoid responding to the leadership dimension with a list of activities or accomplishments. It is fine to provide an account of the number of accomplishments you have but select up to three on which you will expound on the impact they had on your professional practice.

Scoring of the Application

Reviewers at the state, jurisdiction and national levels will use the applicant's résumé, letters of recommendation, written response, supplemental materials, references cited, and video to score each of the *Five Dimensions of Outstanding Teaching*. The national selection committees will consider the addendum as well. Application components are not scored individually (i.e. the narrative and video do not receive separate scores), rather all components are holistically used to rate the five dimensions.

Each dimension will be rated using the four-point scale and multiplied by the weighting factors provided in the table below. Weighting factors help reflect criteria priorities. The sum of all the weighted Dimension scores is the total score. A committee of reviewers makes recommendations that are advisory to NSF.

The four-point scale is as follows:

- Excellent (4):** The applicant demonstrated outstanding knowledge, skills, or performance in this dimension with no significant errors or limitations.
- Very Good (3):** The applicant demonstrated strong knowledge, skills, or performance in this dimension with no significant errors or limitations.
- Good (2):** The applicant demonstrated limited knowledge, skills, or performance in this dimension or there were significant errors or weaknesses.
- Fair (1):** The applicant demonstrated limited knowledge, skills, or performance in this dimension and there were significant errors or weaknesses.

Maximum possible score for each Dimension:

Dimension One	Weighting factor = 7	$4 \times 7 = 28$ points
Dimension Two	Weighting factor = 6	$4 \times 6 = 24$ points
Dimension Three	Weighting factor = 5	$4 \times 5 = 20$ points
Dimension Four	Weighting factor = 4	$4 \times 4 = 16$ points
Dimension Five	Weighting factor = 3	$4 \times 3 = \underline{12}$ points

Maximum possible total score **100 points**

References supporting the Five Dimensions of Teaching

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Dimension 1

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Dimension 2

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Frequently Asked Questions

General Questions

1. How should I approach the application process? Is there a recommended timeline?

A: After you confirm your eligibility, you should read through the entire application packet and review the entire online application portal. We recommend contacting your State Coordinator for advice on a timeline for completing an application.

Plan the lesson or series of lessons you will be addressing in your video and your narrative. Once you have decided on the concept and corresponding lesson, you should work on the video and narrative in parallel, making sure to reflect on the video throughout your narrative response. Submission of the video well in advance of the deadline is highly encouraged to ensure there are no delays that prevent a timely submission of the application.

Lastly, you should strongly consider submitting your letter of recommendation and employment verification form requests through the application portal as soon as possible as those items tend to take longer to receive.

2. Do you offer informational webinars during the application process?

A: Yes. Please check the PAEMST website at www.paemst.org/webinar for a schedule of webinars offered throughout the year. Once scheduled, invitations to attend are also emailed to nominees and applicants.

3. I applied during the 2019–2020 cycle but did not receive the award. Can I resubmit any part of my application?

A: We encourage applicants that did not receive the award to consider reapplying. Many of our past awardees did not win the award when they first submitted. In the applicant portal, you will be able to access your prior application and can reuse some of the elements of your Narrative response. You are no longer able to reapply with the same video that you applied with previously. You are able to use the same letter of recommendation writers and can even download and share their prior letters with them. We do advise repeat applicants to take into consideration feedback from state and national review panels.

4. If I have questions, is there a local or state and jurisdiction contact I can reach?

A: State/Jurisdiction Coordinators (SCs) for the PAEMST program are available to answer questions about the awards program and provide assistance and mentoring to applicants. You can find your SC(s) on the PAEMST website (www.paemst.org/coordinator/find_coordinator). The contact information for your SC(s) is also provided within the application portal. If you have difficulty contacting them, please contact the PAEMST Team at info@paemst.org.

5. Is there a past awardee who might be able to help me with the application process?

A: [Contact your SC\(s\)](#) to find out if a mentor is available in your state or jurisdiction to assist you with the application process. Many mentors recommended by SCs are past awardees. Mentors may also be requested through the paemst.org application portal.

6. I have submitted my PAEMST application. When will state and jurisdiction finalists and Presidential Awardees be notified?
- A:** Each state and jurisdiction determine when their finalists are recognized. All applicants who complete an application should be informed of their state-level or jurisdiction-level status by March 11, 2022. Up to three candidates from each state and jurisdiction in each award category are forwarded to NSF for national consideration, at which point they will undergo an additional review process. The White House Office of Science and Technology Policy announces the awardees.
7. When will Presidential Awardees be honored in Washington, D.C.? Will there be a virtual award announcement event?
- A:** The White House Office of Science and Technology Policy is responsible for setting the dates for recognition activities, which depend on administrative scheduling. Awardees will be notified at the earliest possible date. If COVID-19 is a safety concern, then there may be a virtual Awards Announcement to announce the newest group of awardees.
8. When are applications due?
- A:** The application deadline is **11:59pm (EasternTime) on February 6, 2022.**

Eligibility

1. If I am an engineering, technology, or computer science teacher, may I apply for the PAEMST award?
- A:** Yes. If you meet all the eligibility criteria, you may apply. Engineering teachers must apply to the science category. Technology and computer science teachers must apply to the mathematics category. Technology teachers include those who introduce basic computer, mobile, keyboard and Internet skills, teach students how to use design applications, computer-aided drafting or manufacturing. Computer science teachers instruct students on the development and operation of computers, fundamental principles of computer systems, algorithms, and programming.
2. I taught for two years in a private school and three in a public school. Am I eligible?
- A:** Yes. If you have five years of full time K–12 teaching experience prior to the current academic year, you are eligible. The five years of teaching does not need to be continuous. You do not need to be at the same school for five continuous years or at your current school for the last five years. **You do need to be teaching in the year you apply.**
3. I taught at the university for three years and two years in a public school. Am I eligible?
- A:** No. You must have completed five years of full time K–12 teaching experience to be eligible to apply.
4. I have taught full-time for seven years but have only taught STEM courses for the last two years. Am I eligible?
- A:** No. Based on the eligibility requirements, science, technology, engineering, mathematics, and/or computer science must have been a part of your contracted teaching duties *for at least five years.*
5. If I spend part of the day teaching 7th grade and part of the day teaching 6th grade, should I compete at

the elementary or secondary level?

A: You may choose the level at which to apply. However, you must select a lesson and video from the grade that matches the current level (if it is a secondary cycle, your video must be from a 7th grade class).

6. Does student teaching count toward the five-year teaching requirement?

A: No. Student teaching does not count toward the teaching requirement.

7. I teach my class in Spanish; can I submit my video and application in Spanish?

A: Yes, you may submit your video and your application in any language. The application will be reviewed by speakers of that language and/or translated for the reviewers.

8. I am a STEM interventionist and coach. Am I eligible?

A: Yes, as long as you can demonstrate that you are teaching students at least 50% of the school's allotted instructional time, you are eligible for PAEMST.

9. I team-teach. I do not have my own classroom of students. May I apply for this award?

A: Yes, as an individual, you may apply. Teachers who teach in teams are eligible as long as they are full-time school/district employees who teach K–12 grade students at least 50% of the school's allotted instructional time. You must be responsible for developing and delivering science, technology, engineering, mathematics, and/or computer science instruction on an on-going basis to the students, and you should be responsible for monitoring the students' progress throughout the school year.

Again, please note that teachers apply as individuals. The program does not accept team applications. Teachers who teach in teams may not submit identical narratives and/or videos.

10. I am a high school music teacher and I incorporate mathematics concepts into my music lessons. Am I eligible?

A: No. We expect science, technology, engineering, mathematics, and/or computer science instruction and/or the teaching of science, technology, engineering, mathematics, and/or computer science concepts to be a part of a teacher's contracted teaching responsibilities. If your primary responsibility is to teach music and you are the school's music teacher, then you are not eligible.

11. The majority of my day, I teach teachers. However, I do model lessons to students on occasion, and I also teach an afterschool robotics program. Does any of this count towards my 50% teaching (to students) time requirement?

A: No. Teachers who spend greater than 50% of their time teaching teachers, coaching teachers, or modeling lessons on behalf of teachers are not eligible. Likewise, activities outside of school hours such as afterschool projects, tutoring sessions, or extracurricular math or science-related activities are not part of the allotted 50%-time requirement.

1. What level of detail do I need to provide in the Teacher Information Form regarding my teaching assignment so that I meet eligibility requirements?

A: It should be clear from your description that you teach students at least 50% of the school's allotted instructional time. It should be clear what your teaching load is in given week, quarter, and/or year. It should be clear that you are responsible for developing and delivering science, technology, engineer, mathematics, and/or computer science instruction on an on-going basis to K–12 students. It also should be clear that you are responsible for assessing/monitoring their learning long-term as well.

If you have any responsibilities in addition to classroom teaching, either within or outside of the school, it should be clear you still meet the minimum requirement of providing classroom instruction at least 50% of the school's allocated instructional time.

2. My principal is new. Can I have my assistant principal, or the preceding principal write the first letter of recommendation?

A: The Employment Verification Form must be signed by your current principal. Likewise, you are required to have a letter of recommendation from your principal. However, your principal can defer the letter of recommendation to someone who formally supervises you instead. The letter *cannot* be reassigned to another teacher, coach, coordinator, or anyone who *informally* supervises, mentors, coaches, or supports you in your instruction at the school or district.

Narrative

1. Does the narrative need to be closely tied to the video?

A: Yes. The lesson captured in the video must correspond to the concept chosen in *Dimension One*. However, the narrative responses may address a series of related lessons beyond the single lesson, class, or experience seen in the video.

2. What are the formatting requirements for the narrative?

A: There are no formatting requirements, as the specific format will be automatically completed once you enter your responses for each dimension into the text boxes. Your finished product will be automatically double-spaced, in the correct font size, and with the correct margins. It will also include your teacher ID and name.

Please be advised that any special characters or formatting such as bolding, underlining, symbols, and indenting will disappear when you paste your responses into the text boxes.

3. What is the character limit for the narrative? Does the limit include spaces?

A: The character limit for your full written response is 27,500 characters, including spaces. Please note that the character counts listed for each dimension are only suggestions, and you are free to exceed those counts so long as the total number of characters in the full narrative submission does not exceed 27,500.

4. Should I focus my response to *Dimension One* on the concept itself or the method for teaching it.

A: Applicants should clearly explain the concept they have selected and the reason they chose that concept. Make sure that you are selecting a concept and not just a skill or procedure. The focus of your response to Dimension 1a should be why you selected the concept and why it is important, as well as

any connections to other areas of STEM. The response should not include how you will teach the section, what students will do, etc. Dimension Two should be used to explain different teaching strategies for your selected concept.

5. For *Dimension Three*, when I am asked to provide evidence of student learning and/or achievement, must I cite national, state, district, or school-mandated assessments?

A: No. Any form of assessment that helps you to evaluate student learning may be used and referenced in *Dimension 3a* and *3b*. *Dimension 3a* is asking for your assessment specific to the concept chosen for this application and *Dimension 3b* is asking about your overall cohesive assessments plan that you typically use in your classroom to assess student learning. However, for *Dimension 3c*, the assessments referenced are to be external to you. Please provide evidence or proof (external to something you generated or administered) that speaks to the impact you have had on your students' learning and achievement. Your evidence does not need to be limited to the concept initially shared in the application, to the course discussed, and/or to the current year.

6. What is meant by “reflective practice” in *Dimension Four*?

A: Reflective practice happens after teaching a lesson when you look back and evaluate the effectiveness and success of the classroom experience. You should evaluate what worked particularly well and what did not go exactly as you expected. Consider what kinds of changes you could make to improve the lesson. Discuss what you might implement the next time you teach this same content material to better meet the needs of all students in the class.

7. In *Dimension Five*, can I just provide a list of my professional development experiences?

A: No, your résumé should provide this. Choose one of your professional development experiences and expand on how it specifically made an impact on your teaching, and how student learning was influenced as a result.

8. In *Dimension Five*, what if I don't have any national-level leadership experiences to note?

A: You should indicate what leadership experiences you have, noting those that are the most substantial and impactful, whether they are at the regional, state, or national level. This question is more about the quality of your contributions and not the quantity.

9. Is there a specific format that I need to follow when providing references?

A: Reference information is required and should be submitted in the Reference Cited section. Applicants should follow accepted scholarly practices in providing citations for source materials relied upon when preparing any portion of the application. In general, each reference should include the names of all authors (in the same sequence in which they appear in the publication), the article and journal title, book title, volume number, page numbers, and year of publication. If a website address is readily available, it should be included in the citation.

Video

1. My class period is only 20 minutes long. Can I use the remaining 10 minutes to provide supplemental material?

A: No. The video can capture one class (up to 30 minutes long). If the class is 20 minutes long, then the video can only be up to 20 minutes long. If you elect to only capture 15, 10, or only 5 minutes of that 20-minute class, that is at your discretion.

2. My class period is 45 minutes long. Does my video have to start right at the beginning of class or can I start 15 minutes into the class in order to show the last 30 minutes?

A: The video can capture one class (up to 30 minutes long). If your class period is longer than 30 minutes, you will need to decide when to start your video during the class. If the class is longer than 30 minutes and you end the video before the class ends, it is helpful to provide some context in the narrative about what occurred after the video ended. If you don't start the video at the very beginning of your class in an effort to capture the end of the class, it is helpful to give some context in the narrative about what occurred before the video started. You can also take advantage of the one allowable video break to capture the beginning and the end of the class.

3. Can I make edits to my video, or does it need to be continuous?

A: *Up to one break is allowed within the 30-minute video**. The video does not need to be continuous, but it also cannot have multiple edits. Intentional breaks could allow applicants to show the beginning and ending of a class, transitions from an indoor to outdoor lesson, or remove unintended disruptions from the class. Breaks that span across days or multiple class periods are not allowed.

When you have finished recording a video, review it to be sure the sound is clear and the image is steady. If you make a mistake during the lesson or realize later while watching the video you made a mistake during the lesson, you are welcome to remove that section of the video. You may want to consider completing your recording early in the application process/school year so that if you decide to record a brand-new lesson, you will have time to do so.

* If your classroom/school is impacted by COVID-19 and that has impacted your ability to create a video in compliance with the existing requirements, please reach out to info@paemst.org. The PAEMST Team is striving to be as flexible as possible during these unprecedented times. An applicant that may be conducting online instruction to their students and is not able to record a virtual lesson may be provided with an exception allowing them to have additional breaks within the video.

4. I recorded my video, but I think my camera stopped and restarted during the filming. Will this present a problem?

A: That is a common occurrence as many cameras have automatic shutoff features or save videos into multiple files. If there is an unintentional break between your video files of less than one second, you will need to combine the files prior to upload, so that it is one file of footage. Once combined, please upload it to your application and send us an email with the time at which the break occurs. We will check the video at the times of the break and let you know if the video break(s) count as your one allowable break. Please let us know as soon as possible if you experience video issues. Video issues reported after the application has closed may not be accepted.

If the break is longer than a few seconds, you may choose to use that as your one allowable break, or you may retake the video or only submit one of the video files. If the portion you submit does not start at the very beginning of class, it is helpful to give some context in the narrative about what occurred before the video started. Likewise, if the video does not show the end of the class, it's helpful to provide some context in the narrative about what occurred after the video ended.

5. Can I create graphics to use at the beginning or end of the video?

A: Graphics should not be added to the video.

6. Is there a preferred video format or a maximum video size?

A: We recommend an .mp3 or .mov file type. We also recommend a maximum video file size of three GB. Please be advised that uploading your video can take a long time depending on your internet connection. Please be prepared for the wait.

7. To record my video, do I need to hire a professional?

A: No, you do not need to hire a professional. Your videographer can be a professional, a colleague, a student from your class, a screen recording of your virtual classroom, or a tripod that you move about the classroom as needed. If someone does record the video, review the requirements of the video with the videographer. Make certain the videographer is familiar with the equipment and understands the kinds of interactions that should be captured. Remember the video should clearly show the students' faces and their actions and interactions during the lesson.

Historically, the greatest difficulty has been in hearing student-to-student interactions and students' responses to teachers' questions due to excessive background noise. Therefore, use the best technology available to maximize audio and video quality. Try to minimize the distance between the camera and the activities being taped. Consider using multiple microphones.

8. Since the video should include my students' responses, is there any way I can help them focus on me during the lesson and not the camera?

A: Consider videotaping a few classes prior to your application lesson to help you and your students get used to having the camera in the classroom. Videotaping your classroom a few times in advance of your application lesson can also help to identify the technical problems (e.g., lighting, sound) involved in capturing a lesson on video.

When capturing your application lesson, consider discussing with your students what you are doing with the lesson ahead of time, so they take some ownership for a successful videotaping session. Discuss cooperation.

9. Besides myself and my students, what else might a reviewer notice in the video?

A: Reviewers look to see if the correct safety precautions (for example, the use of safety goggles) were taken for all hands-on activities and demonstrations. Reviewers also notice the learning environment in general and whether the classroom environment is appropriate and supportive of student learning. If the recorded lesson is virtual, the reviewers look to see that engagement with the material is occurring.

10. My video is not uploading. What do I do?

A: We understand that uploading videos can take a long time depending on your computer and internet speeds. If you have tried to upload your video multiple times and keep seeing an error message, please contact us at info@paemst.org.

11. Do I have to capture student participation in hands-on activities for my video?

A: While lecture may have its place in a classroom, for the application lesson, standing or sitting in front of the classroom and lecturing to students for the full 30 minutes is not recommended. You may not need hands-on activities per se, but you do need to demonstrate student engagement in the video. Be sure your students are actively involved and engaged in the lesson you are videotaping. Students should participate in the learning experience.* Examples of this could include:

- Showing one-to-one teacher-student interaction.

- Showing small group discussions.
- Communicating with students on their physical level.
- Questioning students about what they are doing.
- Providing evidence of student insights and discoveries.
- Showing your passion for teaching.
- Providing evidence of your communication skills and questioning strategies that are likely to engage student thinking.

* The PAEMST Team is striving to be as flexible as possible during these unprecedented times. We understand many teachers may be conducting virtual instruction in to the next academic year. While student interaction is highly encouraged, it is not mandatory this cycle.

Technical Questions

1. I am working on my *Teacher Information Form*. Even though it seems that everything is complete, the menu still shows this form as "in progress." Why is my form incomplete?

A: Open your form and check that all the fields have been filled in and are complete. Fields cannot be left blank. For example, in the percentage section, if a value is zero, you must enter "0". Also, check that percentages total to exactly 100 percent (you must round percentages to the nearest whole number). In addition, a red mark will appear next to fields containing errors. The related error message will provide information to help you complete the item correctly.

2. I have elected not to provide my information on the Demographic Information Form. What do I do to make sure that section of the application is labeled as complete in the application portal?

A: If you do not wish to provide this information, you may click the checkbox that is labeled "Check here if you do not wish to provide the below information" and then click on **Save**. This section will now be marked as complete.

3. Does my résumé need to follow the formatting guidelines for the *Written Response*?

A: No. The résumé, supplemental materials, and letters of recommendation may have different formatting. However, the font used must be easy for reviewers to read, and the materials cannot exceed the specified page limits.

4. My letters of recommendation are listed as "pending" on the PAEMST portal, but my writers told me they were uploaded. Are my letters complete?

A: If your letters are shown as pending, they are not complete. This means that your letter writers have not yet successfully uploaded their letters via the PAEMST portal. They may have forgotten to sign the letter and/or press the "Submit" button. Recommenders must click on the original link they received via email to complete the recommendation.

5. I noticed an issue with the submitted letter of recommendation. How can I fix it?

A: Your letter writers can click the same link that they used to complete the letter of recommendation to access a button to un-submit their letters and make updates to them. If you have changed your mind and no longer want that letter writer to submit a letter on your behalf, you are able to remove it and enter new information for a different letter writer.

6. I am having trouble uploading my file to my online application. What should I do?

A: If you are unable to upload files, please contact our technical support staff at info@paemst.org.

7. Can I upload five *files* or five *pages* of supplemental materials?

A: Supplemental materials must be uploaded as one single file and may not exceed five total pages.

8. Can I provide links to articles I have written or examples of student work in the Supplemental Materials or other areas of the application?

A: Reviewers will not click on any links provided in the application. It is recommended that you provide screenshots instead of providing links.

9. My *Supplemental Materials* section still says, "not started". How do I indicate that this section is complete?

A: Click on the *Supplemental Materials* section. Mark the checkbox at the bottom that says, "I do not intend to include any Supplemental Materials" and then click Save. This section should now be marked as complete.

10. I need technical help, whom can I contact?

A: Technical assistance is available between 9am and 5pm ET, Monday through Friday.

Email: info@paemst.org

Phone: (855) 723-6780

About the National Science Foundation

The National Science Foundation (NSF or the Foundation) is an independent Federal agency created by the National Science Foundation Act of 1950, as amended (42 USC 1861-75). The Act states the purpose of the NSF is "to promote the progress of science; [and] to advance the national health, prosperity, and welfare by supporting research and education in all fields of science and engineering."

NSF funds research and education in most fields of science and engineering. It does this through grants and cooperative agreements to more than 2,000 colleges, universities, K-12 school systems, businesses, informal science organizations, and other research organizations throughout the US. The Foundation accounts for about one-fourth of Federal support to academic institutions for basic research.

NSF receives approximately 55,000 proposals each year for research, education, and training projects, of which approximately 11,000 are funded. In addition, the Foundation receives thousands of applications for graduate and postdoctoral fellowships. The agency operates no laboratories itself but does support National Research Centers, user facilities, certain oceanographic vessels, and Arctic and Antarctic research stations. The Foundation also supports cooperative research between universities and industry, US participation in international scientific and engineering efforts, and educational activities at every academic level.

Privacy Act and Public Burden Statements

The information requested on the application materials is solicited under the authority of the National Science Foundation Act of 1950, as amended. It will be used in connection with the selection of qualified applicants and may be disclosed to qualified reviewers and staff assistants as part of the review process; to the institution the nominee, applicant or fellow is attending or is planning to attend or is employed by for the purpose of facilitating review or award decisions, or administering fellowships or awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies needing data regarding applicants or nominees as part of the proposal review process, or in order to coordinate programs; to congressional officials for the purpose of congratulating awardees; and to another Federal agency, court or party in a court or Federal administrative proceeding if the government is a party. Information from this system may be merged with other computer files to carry out statistical studies the results of which do not identify individuals. Notice of the agency's decision may be given to nominators, and disclosure may be made of awardees' names, home institutions, and fields of study for public information purposes. For fellows or awardees receiving stipends directly from the government, information is transmitted to the Department of the Treasury to make payments. See System of Records, NSF-12, "Fellowships and Other Awards," 79 Federal Register 245 (December 22, 2014). Submission of the information is voluntary; however, failure to provide full and complete information may reduce the possibility of your receiving an award.

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