Science Advocacy Starts Here: Power in the Hands of Educators

Foreword

Educators, particularly members of science education associations within NSTA's Alliance of Affiliates (AoA), are not only instructors but also powerful advocates who can amplify the voices of students, teachers, and the broader scientific community. By championing adequate funding, resources, and recognition for science education, educators can ensure that all students have the opportunity to develop the scientific knowledge and skills necessary to thrive in the 21st century. As a leading voice in science education, NSTA provides a vital framework and support network to advance this work.

This guide is crafted by NSTA's AoA committee for AoA members and those in science education. It is in close alignment with NSTA's mission and aims to equip you with practical strategies to advocate for science education at various levels—from simple actions like thanking a teacher to leveraging social media and engaging with policymakers. By sharing your stories, highlighting the work of fellow educators, and staying informed about critical issues, you can contribute to a more inclusive and scientifically literate society, all while leveraging the resources and network provided by NSTA.

Dr. Alicia S. Conerly

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Introduction

Each and every day, science teachers do the essential work of preparing students for making science-based decisions to ensure we have a scientifically-literate society. A basic understanding of science and scientific practices is necessary because so many decisions our society faces will involve science (NASEM, 2021). Issues such as diseases and medicines, planetary health, the production of food, and energy use will be priority areas.

This booklet was designed by NSTA's Alliance of Affiliates (AoA) to provide suggestions for affiliate and NSTA members to enhance and increase the profile of science in our society. The suggestions provided in this booklet are meant to be a starting point for a movement that encourages science education leaders, science teachers, and science educators to be advocates for high-quality science education. Regardless of the ideas that are used, it is important to become an advocate for science and to consider new ways to ensure all students have the opportunity to learn science.

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Link to AoA page on NSTA website: https://www.nsta.org/overview/alliance-affiliates

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Powerful Actions to Advocate for Science Education

It is important that we, as educators, are voices for high-quality science education. This entails sharing both the good work of educators and the need for science education. As you become familiar with the group or person you are talking to, you can become more selective and nuanced in your message. For example, you can advocate for:

- Adequate funding for science educators
- Adequate time for high quality professional learning opportunities
- Adequate time for students to learn science
- Adequate instructional supplies for the teaching of science
- High-quality laboratory materials for real-world applications
- Recognition that all students do not have access to high-quality science education
- Recognition that equity in science education is valid and necessary in order to advance society
- Recognition of science education as relevant to society

There are many ways to get involved in science education advocacy.

Simple First Steps

Join a science education group. Join a science education association or a similar community that keeps you informed about important issues in science education. Many associations have connections to policymakers. By joining an association, you enhance the voice of a group that speaks on behalf of science education.

Thank an educator. Just like we thank our veterans, we should thank our teachers and other educators. As you meet educators in stores, planes, restaurants, etc., thank them for their work over the years. They don't hear this enough.

Be able to tell a story about a teacher(s) or educator(s). We all have a powerful story about a teacher or educator. These stories are rarely told. We each must learn to tell a short story (1-2 minutes) highlighting the importance of that person in terms of science education. These stories should emphasize the importance of science education and be relatable to the general public, policymakers, and our neighbors.

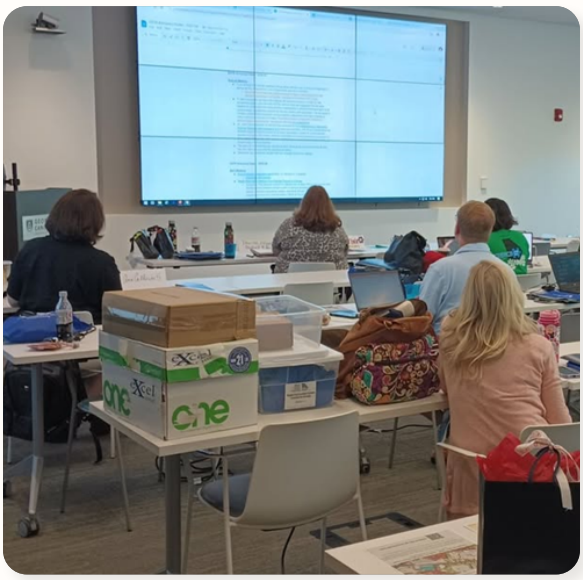
> Example: I was at a neighborhood gathering and we started to talk about education. It was my moment to share just exactly what teachers did during the COVID-19 pandemic: they created science kits and dropped them at the houses of students, they called and checked in on students who didn't come to class, and they worked with other colleagues to think about how to best create online lessons. I emphasized that teachers stepped up and often didn't get recognized for their extensive outreach to students at this time. *-Julie A. Luft*

Always have a few facts about science education ready, just in case you need to talk about science teaching and learning. Most people's knowledge of science education (and education in general) resides within their own experience. Having a few facts about your school district, state, and national educational system can be useful to convey the actual state of schools and the need for additional educational funding. This might include facts such as that in the United States, the national average time of science instruction at the elementary level is 20 minutes per day (NASEM, 2021); 42% of high-minority high schools do not offer chemistry courses (NASEM, 2021); and 69% of elementary teachers do not feel well-prepared to teach science (NASEM, 2021).

Leverage Social Media

Create a personal post on social media about the work of teachers or educators. It is important to change the narrative about education. A weekly or monthly social media post about teachers and educators can help share information about their work. These short posts should be positive and insightful, and can include thanking teachers or educators.

Example: (Facebook post by Julie A. Luft, September 2024) The ongoing work of teachers is often invisible to many of us. Here are science teacher leaders from across the state of Georgia, working on a Saturday. While many people are enjoying their weekend, these teachers are working. This group of leaders is contemplating how they can better support science teachers statewide by considering new webinars that ensure teachers are knowledgeable about using AI. As I have always said, teachers do more than teach.



Create an association post on social media about the work of teachers or educators. Science education associations have many members who deserve a shout-out! A quick post about a teacher can elevate a teacher as well as give a principal or superintendent something to highlight in their district.

Example: (Arizona Science Teachers Association (ASTA)) A teacher is nominated and completes a short spotlight form. The form generates the teacher spotlight graphic and the teacher is notified of the posting window. ASTA tags the school, district, etc., when posted. The Teacher Spotlight is shared on social media and is also on the ASTA website.

Request that your association webpage and association social media highlight important educational changes or updates. Science education associations often follow local, regional, state, and national policy changes in education. To support their members, weekly or monthly posts can be made about the changing educational landscape and what members can do to affect emerging policies. In some instances, associations provide information about contacting elected officials and suggest talking points.

Example: The American Association for the Advancement of Science (AAAS) has frequent posts about the funding level of education and science, along with policy changes at the federal level. These posts keep AAAS members informed so they can reach out to their elected representatives regarding important issues.

Create a short video and post that focuses on the work of science teachers/educators. With the reach of cell phones and their ability to create videos, it is easy to make a video about the important work of an influential teacher or educator.

Example: At the University of Georgia, Marshall Shepherd and Julie Luft published a simple series of 2-minute videos in which scientists talked about science and mathematics educators who made a difference in their lives. This series was called "Thank a Science Teacher" and was posted on social media and the university YouTube account.

Example: Jenna Jambeck (Guggenheim Awardee)
Marshall Shepherd (Weather Geeks)

Tag your social media posts. While posting on social media is important, a post can only go so far by itself. By using tags, a post gets a wider viewership and thus more consideration. # and @ are essential to use in any post. # hashtags are for categorizing, while @ mentions another user's profile. Tag a colleague, an association, or a group of like-minded people. Expand your reach.

Example: Use #NSTA for posts about science education, @NSTA if it connects to NSTA.

Repost, repost, repost. Along with contributing to social media discussions, it is equally important to elevate sound ideas. This means reposting the positive, productive, or informative side of science education. Repost as much as you post. Elevate, contribute, and expand the science education narrative that is in line with the views of science education.

From the Classroom

Encourage students to advocate for science. Empower students to share their experiences and enthusiasm for science with their community, school board, and legislators. When students speak about how science education has impacted them, it resonates deeply with decision-makers.

Example: A group of middle school students who participated in a science fair program presented their projects to their local school board, emphasizing how hands-on, inquiry-based learning increased their interest in STEM careers. Their testimonials contributed to securing funding for additional science education resources in the district schools.

Invite elected officials to your class. Educators who are recognized for their instructional abilities are in a unique position to highlight their knowledge and skills. They can certainly open their classroom to visitors, but they can also open their classrooms to their local elected officials, including U.S. senators and representatives, state legislators, county commissioners, city councilors, and local school board members. Of course, don't reach out without first checking with appropriate administrators and leadership within your school, district, or organization.

Example: A Louisiana teacher who was nationally recognized for her science instruction invited her local member of congress to her class. The person visited and learned more about the importance of science instruction and the ways in which science instruction can support literacy skills. As an added bonus, local press attended the classroom visit.

Reaching Out to the Public

Write an op-ed for a local or national print or online paper. There are still newspapers that publish op-eds, which stands for opposite the editorial page. Science educators are in a unique position to write about their experiences and advocate for some aspect of teaching science. Before writing an op-ed, determine the guidelines for the text and examine a few published examples. Good op-eds have a clear point, give compelling examples, and strive to convince the reader. There are several resources on the web about op-eds — The Harvard Kennedy School of Government offers these simple guidelines.

Example: Op-ed by a New Jersey fifth-grade teacher

Participate in blogs (e.g., AAAS, NSTA) and reshare on your social media page. Many associations have blogs, and the editors are frequently looking for blog writers. If an opportunity comes up, consider raising your hand or recruit someone who would be a good blog writer.

Example: The AAAS ARISE Blogs

Write a letter to a legislator about your work as an educator, the good work of your colleague, or a teacher you saw. People don't know what is being done unless they are told. It doesn't need to be a long letter, but something short and to the point. There are also online submission portals that can take statements as well. Just make sure you address an important issue. Include your name and address, especially if you are a constituent. This type of outreach does matter, and policy makers do keep track of public comments.

Enhancing Your Science Education Community/Association

Offer an advocacy session at your association. Arrange to have a session on advocacy at a conference or online. It doesn't need to be long, just a way to make people aware of the importance of advocacy.

Example: In 2024, NSTA hosted its first-ever Advocacy in Action pathway that explored key policy issues confronting the teaching profession, and discussed strategies to engage with national, state, and local leaders to offer solutions. Presenters also delved into strategic communications focused on the use of digital and social media tools, and persuasive writing to reach broader audiences and share inspirational stories.

Find allies and help them advocate. Unify our voices. Show support for science education by organizing a meeting of people from different organizations. Collaborate and communicate around a topic or idea that can elevate the field.

Example: Different organizations have partnered with NSTA to write position statements and to issue statements about educational issues. Here is the link to the position statement written by NSTA and National Marine Educators Association (NMEA) about Ocean Literacy

In the Community

Participate in a science community event. Outreach is important. Participate in a science night at a local science center, library, community center, or school to engage families, policymakers, and business leaders in hands-on science experiences or discussions about the teaching and learning of science. Demonstrating the excitement and potential of science education can build public support and elevate science education.

Examples: A state teachers' association could partner with a community center to host a "STEM in Our Backyard" night, where families explore science activities related to their everyday lives. The event could include hands-on experiments, short presentations from educators, and a discussion on the importance of science funding.

A local coffee shop has a Science Cafe every few months, in which advancements in science are shared. Local education speakers have ranged from those doing science research to those who teach science using the *Framework or the NGSS*.

Be involved in local, state, and national committees or associations that involve communities other than NSTA and the affiliates. True advocacy for science education demands reaching beyond our familiar associations. It's important to actively seek out opportunities to participate on local, state, and national committees tackling wider community and education issues. These opportunities are emerging, and it is important to be on the look-out for collective efforts to have a unified voice. Most of these working associations or groups have some type of membership fee.

Work on a district or state science education committee and make sure you reference the *Framework* or *NGSS*. Volunteer for committees that you normally wouldn't participate in at the district or state level. As you work on the committee, make sure the science ideas presented are aligned with the *Framework for K-12 Science Education* or *Next Generation Science Standards (NGSS)*.

Point to NSTA position statements. Position statements help to provide credibility and support for decisions that will be made in a district, association, or community. Consider reviewing an NSTA position statement with your organization's board or committees and identify key pieces that resonate with your mission and vision. Provide these position statements to members to highlight cross-organizational alignment.

Develop professional learning programs for administrators. Work with allies or with members of your association to develop a professional learning session for school and district leaders. Focus on a topic of importance in science (e.g., 3D instruction). With busy schedules in mind, these should be focused sessions that are live and then recorded for later viewing.

Example: *Supporting Science Education Just Got Easier with Monthly Power Sessions*. The Arizona Science Teachers Association (ASTA) has introduced free monthly 30-Minute Power Sessions designed for administrators and instructional coaches.

Develop partnerships with local elected officials, policy makers, businesses, industries, and organizations. Science education benefits when local people and communities invest in schools through mentorship programs, internships, or donations of materials and equipment. Building relationships with science-related industries, influential individuals, and community groups can strengthen advocacy efforts and highlight the real-world applications of science education.

Example: Invite science professionals to your campus to speak to students, teachers and administrators. Connecting science education to industry and society provides relevance and paves the way for career exploration.

Example: A state affiliate of NSTA connected with a local biotech company to provide high school science teachers with summer externships, allowing them to bring industry-relevant skills and experiences back into the classroom.

Example: A science teacher reached out to a local science company about being a science partner. Several employees helped with science fair projects and judging, and then eventually made donations to the school to help purchase science equipment.

Example: Partnerships with local and national companies to recognize and reward outstanding science teachers for their hard work and effort.

What NSTA Affiliates Are Doing

AMSE

The Association for Multicultural Science Education (AMSE) seeks to serve our community of diverse science educators, practitioners, and leaders who promote a culture of equity and inclusion with access and opportunity for all students regardless of ability, race, ethnicity, gender, and socioeconomic status. To support our mission, we, as an organization, promote awareness, information, learning sessions, and celebrations through social media. Our strongest presence on social media is on Facebook. We also have accounts on LinkedIn and Instagram. With the evolution of technology, we recognize the need to explore more platforms including YouTube, for example. The benefits of advocating through social media include the ability to interact with a massive audience instantaneously. Information is current. And lastly, feedback can be obtained immediately.

Another opportunity to advocate for science education is through industry partnerships. AMSE has developed a strong bond with Shell USA, Inc. Through collaboration and systemic planning with NSTA as a conduit, teachers across the nation are recognized for their hard work and dedication in the science classroom. www.nsta.org/shell/teaching-award These individuals are honored at the annual Alice J. Moses Breakfast, hosted by AMSE. This prestigious event bridges celebration with service as the winners of the various Shell awards receive a free one-year membership into the Association for Multicultural Science Education, Without a doubt, it is of the utmost importance that all voices are heard and honored with respect. Educating all students is the equalizer of opportunity and access to success in our society.

ASTC

The Association of Science and Technology Centers (ASTC) is a network of nearly 600 science and technology centers and museums, and allied organizations, which regularly engage more than 100 million people annually across North America and in several dozen countries worldwide. With its members and partners, ASTC works toward a vision of increased understanding of and engagement with science and technology among all people.

ASTC works at the intersection of the scientific, educational, and museum sectors to elevate the way that science centers and museums are committed to serving their communities with engaging activities that enhance science learning, strengthen community participation, and work with a range of partners to tackle local and global challenges. We also work to empower our members to be stronger advocates for their own work, including with legislators, policymakers, funders, and community partners.

ASTE

The Association for Science Teacher Education (ASTE) is a non-profit professional organization with over 500 members worldwide, including teacher educators, scientists, science coordinators, supervisors, and informal science educators. ASTE supports high-quality science teacher preparation through targeted scholarship, collaboration, and innovation while advocating for inclusive policies that enhance science education at all levels.

To fulfill its mission, ASTE actively engages in advocacy efforts that shape science teacher preparation. This includes promoting research-informed policies, supporting access to high-quality science instruction for all students, and addressing challenges that impact science education.

By amplifying the voices of science teacher educators, ASTE influences curriculum development, teacher certification, and professional learning standards.

ASTE is committed to strengthening science teacher education by advancing best practices to develop effective educators who, in turn, advocate for both students and science itself. The organization supports preservice and in-service teacher preparation, inquiry-based instruction, and the integration of emerging technologies. Through mentorship, leadership development, and ongoing professional learning, ASTE equips educators with the skills to foster transformative educational practices.

CSSS

The Council of State Science Supervisors (CSSS) advocates for the vision of science education as laid out in the Framework for K-12 Science Education. Through its strategic plan, CSSS aims to, by 2028, enhance membership to better support state members, amplify the collective voice on national and systemic platforms, and strengthen organizational capacity, culture, and systems. CSSS seeks to lead systemic improvements in science education by informing statewide policy recommendations and fostering initiatives that advance the vision of the Framework, ensuring equitable and high-quality learning experiences for all students. Through strategic partnerships, CSSS develops and provides tools and resources that inspire educators and administrators to address the diverse needs of students, promoting inclusion, engagement, and a sense of belonging.

NSELA

At the National Science Education Leadership Association (NSELA), we see advocacy as fundamental to our mission of advancing science education leadership. To effectively champion this cause, we engage in a range of strategic advocacy activities. We articulate our stance on critical issues through well-researched position statements, providing clear guidance for policymakers and the field. Recognizing the power of collaboration, partnering with other organizations is a cornerstone of our approach, amplifying our collective impact. To inform and empower science leaders, we offer platforms such as leadership-focused columns, our respected peer-reviewed journal, and our monthly newsletter which celebrates members with leadership spotlights and disseminates valuable resources. We also recognize excellence in the field through prestigious awards, inspiring innovation and leadership. Furthermore, investing in professional capacity is paramount; we offer comprehensive professional learning opportunities and actively support emerging leaders through targeted initiatives and valuable mentoring opportunities. These interconnected advocacy strategies are how we work to elevate the field of science education leadership and ensure equitable access to high-quality science learning for all students.

NMLSTA

For over 35 years, the National Middle-Level Science Teachers Association has supported middle school science educators by providing resources, recognition, and professional development. To expand our reach, we've strengthened our social media presence, including a private Facebook group where members access free Meet Me in the Middle webinars, share awards and recognitions, and explore valuable teaching opportunities.

We offer up to two $300 Classroom Teacher Awards twice a year to help educators enhance student learning through science activities and supplies. These Classroom Teacher Awards are sponsored in part by Woven Learning and Technology. Members also contribute to our Idea of the Month, featured on the Members-Only section of our website, providing innovative lesson ideas from across the country.

Additionally, we've launched a YouTube channel to share instructional videos and teaching resources. Every March, we present the Paul de Hart Hurd Award to a middle-level educator who exemplifies outstanding science teaching and leadership. Through these initiatives, we strive to empower and support middle school science teachers, ensuring they feel valued and equipped for success.

NARST

The National Association for Research in Science Teaching (NARST) is a global organization for improving science teaching and learning through research. Since its inception in 1928, NARST has promoted research in science education and the communication of knowledge generated by the research. In other words, advocacy for science education is integral to the mission of the organization.

NARST and NSTA are affiliated around the goal of leveraging research to inform science education-related practice, in addition to promoting the broader reach of science education research. The NARST–NSTA affiliation supports collaboration on research-practice initiatives, such as NARST sessions for educators at the annual conference of NSTA and The Science Teacher Briefs. The briefs are crafted by researchers honored with the Research Worth Reading Recognition for the applications of their work to practice.

NARST recognizes the essential role teachers play in supporting all learners to develop scientific literacy. Every three years NARST and NSTA conferences are scheduled back-to-back in the same city. This creates opportunities for researchers to attend and collaborate with NSTA members and vice versa. NARST has scholarships available for teachers who are involved in research and are presenting at the annual conference.

SCST

The Society for College Science Teaching (SCST) aims to improve college science teaching. We do this by facilitating interactions and relationships between interested parties, including faculty, both teaching and education research (including Early College High School, Dual Credit, and Advanced Placement); graduate students; other professional societies, especially NSTA; science writers and publishers; companies involved in science education; and laboratory coordinators and developers. We share our ideas at an SCST National Conference that coincides with the NSTA National Conference, promote the Journal of College Science Teaching, publish a blog and other writings, provide mini-grants for projects related to college science teaching, and present an annual Outstanding Undergraduate Science Teacher Award.

The purpose of the OUSTA is to recognize the achievements of our teaching colleagues who have enhanced the profession as outstanding teachers of science. Nominees do not have to be members of SCST but should have been actively involved in teaching undergraduate science for the previous five years. Nominations can be made by colleagues or students; self-nominations are also encouraged. Here is a link to past winners.

Conclusion

"Advocacy is how we amplify our voice for our passion."

It is the hope of the Alliance of Affiliates (AoA) that we aid in the effort to open minds to the opportunities, ideas, and actions that will support and enhance science education for all students.

Dr. Sharon Delesbore

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