



**National Science Teachers Association
Position Statement**

**Induction Programs for the Support and Development of
Beginning Teachers of Science**

Introduction

The National Science Teachers Association (NSTA) recommends that schools and teacher preparation programs provide new teachers of science with comprehensive induction programs. Research suggests these programs should address specifics for teachers of science, involve trained mentors, provide adequate time to support continual learning of new teachers of science, and support teachers during their induction period, defined as the first two to three years of teaching. Induction programs not only provide new teachers with the support they need during the critically important early years of teaching, these programs can set practices and beliefs that last throughout a teacher's career (Luft, Roehrig, and Patterson 2003).

To facilitate the on-going development of science educators, induction programs should focus on the unique nature of teaching science, including the role of inquiry (NSTA 2004) and other standards-based instructional approaches that promote learning of particular scientific concepts and skills, and an awareness of how to use materials and equipment safely and effectively in classroom, laboratory, and field settings. Induction programs also should promote collaboration among classroom teachers as such collaboration has been a key ingredient of long-standing induction programs in other countries (Britton et al. 2003).

Growing evidence suggests that new teachers of science who participate in comprehensive induction programs with a science-specific focus are more likely to remain in the teaching profession and continue to develop deeper pedagogical content knowledge and stronger abilities to enact standards-based science instruction (Smith and Ingersoll 2004; Lee et al. Forthcoming; Roehrig and Luft 2006). When these programs are coordinated with teacher preparation programs and mid-career professional development programs, teachers are likely to experience a continuum of professional development (Feinman-Nemser 1999).

Therefore, NSTA recognizes that induction programs with a science-specific focus are critical for the initial and on-going development of teachers of science. While the vision for these programs is focused on the induction period, NSTA recognizes that experienced teachers new to science or individuals coming to teaching from other professions also will benefit from such programs if they are configured adequately.

Declarations

NSTA supports the development of science-specific induction programs with a strong mentoring component for all preK–12 new teachers of science. Such a program focuses on the content of science, science teaching, and includes a robust mentoring component. The science-specific programs described in the following sections are structured and comprehensive and identify goals and desired outcomes.

Key Elements of a Comprehensive Induction Program

A variety of induction programs can provide much needed support for teachers of science. Programs with the following key elements, however, have been shown to increase teacher effectiveness:

- An articulated vision for the induction program that includes a science-specific focus and mentoring as key elements.
- An organized and ongoing training program for mentors to ensure they are prepared to work with new teachers of science.
- The use of appropriate materials and strategies so that new teachers of science (referred to as “mentees”) at each level—elementary, middle, and high-school—receive support for the science content they teach as well as reinforcement of appropriate pedagogical strategies and classroom management in the context of science classrooms.
- The inclusion of a planned and intentional set of learning activities for mentees during the course of the program. This “induction curriculum” anticipates what mentees want and need to learn, and identifies the resources and activities necessary to support each mentee’s growth and development. These resources and activities can take the form of modules, workshops, interactive group activities, tools for regular mentor/mentee collaboration, or combinations of these activities.
- The recognition of and commitment to the importance of creating a “culture of collaboration” within the school, as well as in the larger community of science educators, where new and experienced teachers are encouraged to share ideas, discuss problems, and support and learn from each other to improve their practice.
- The development of multiple pathways, including new technologies, for timely and effective communication.
- The ongoing collection of data about the development of the beginning teachers that can be used to interact with policy at different levels. Such data would assist policy makers, as well as induction program developments and the learning of students and teachers.

Roles and Responsibilities of Program Participants

For the mentoring program to be effective, mentors, mentees, principals, other administrators, and community members must be aware of their roles, which include:

Mentors and Mentees

- Mentors are committed to working with new teachers of science and are clear about their role in the program. Mentors should be aware that mentees have different needs and abilities than themselves and should strive to cultivate those unique skills. Mentors should be prepared to work with teachers at different levels and with different areas of expertise and understanding.
- Mentors help build the capacity of the new teacher of science by presenting science content accurately and effectively, reinforcing appropriate pedagogical practices, providing information pertaining to safety, and supporting essential instructional processes, including the use of inquiry in the classroom.
- Mentors support mentees by providing logistical assistance, such as showing the location of science supplies, helping the teacher acquire materials or resources, offering suggestions about science instruction, and orienting the new teacher of science to the environment of the school.
- Mentors are exemplary in their knowledge of science instruction, as well as in their ability to reflect upon their practice.
- Mentors should articulate and coordinate their own work with mentees with other people and programs that are serving them.
- Mentors are empathetic and concerned with the success of the new teacher of science.
- Both mentees and mentors show a willingness to explore their teaching and a desire to improve their teaching practices. As beginning teachers of science are prepared for elementary, middle, or high school settings, it is important that the beginning teachers demonstrate this willingness by participating in professional organizations or by seeking out support that is appropriate for their instruction setting and goals.
- As mentees become more comfortable in their role as teachers of science, they should be encouraged to take the initiative to express concerns, ask questions, and, if possible, initiate requests to attend professional meetings.

School, District, Higher Education, Local, State, and National Stakeholders

At the *building* level, it is essential for administrators (principals, assistant principals, and department chairs) to:

- Provide mentors and mentees with the time and resources they need to do the job adequately, which could include conferring in person or electronically during the school day.
- Support new teachers of science by assisting them in conducting laboratory-based instruction, which involves providing new teachers with their own classroom and the necessary materials and resources to achieve quality science instruction; limiting the number of different course preparations; assigning new teachers to classes that will ensure their success during their first years; and initiating a policy that encourages both mentors and mentees to meet with administrators regularly to keep them informed about the program.
- Ensure that mentoring and induction activities are clearly separated from procedures for evaluating new teachers or making decisions on retention and tenure.

At the *district* level, it is essential for administrators (science coordinators, assistant superintendents, and superintendents) to:

- Allocate the necessary funds for the program so that it can be executed as designed and completed in the agreed-upon time period.
- Ensure that funds and procedures for obtaining needed science supplies are clear and well defined for the mentee.
- Develop mechanisms for articulating and coordinating all people and programs that interact with beginning teachers.
- Advocate for the program in the school, district, and community.
- Ensure that mentoring and induction policies clearly articulate the difference between mentoring and evaluation.
- Develop and enact an evaluation plan that provides information about the impact of the induction program, as well as guides the ongoing development of the program. If appropriate, this should be developed with other partners (e.g., higher education, businesses) and shared with policymakers.

At the *higher education* level, it is essential that faculty and staff:

- Coordinate with the local schools to ensure that teachers have the abilities and skills to succeed in the schools.
- Work with local school personnel to provide additional support for new teachers.

- Provide resources to new teachers to ensure they have access to ideas and materials as they continue their professional development.

At the *local community* level, it is essential that parents, community leaders, businesses, and other stakeholders:

- Work in partnership with the school or district to give mentees opportunities to learn about the cultural fabric of the community, and to secure related resources to support mentee's teaching and the mentoring process.

At the *state and national levels*, it is essential that leaders (elected officials, Department of Education officials, professional teacher organization representatives, teacher union officials, and others):

- Recognize that science-specific induction programs with a strong mentoring component are vital and should be a formal part of every science educator's professional development plan.
- Articulate processes to develop and support induction programs and to provide necessary funding for such programs to exist.
- Support ongoing research on the benefits of mentoring on teacher retention rates, changes in classroom practice, possible effects on student outcomes, etc.
- Provide training for mentors, including frameworks to judge quality science teaching.

*Adopted by the
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References

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