



NSTA Position Statement

Science Education for Middle Level Students

Introduction

NSTA recommends a strong emphasis on middle level science education, which can be achieved by staffing middle schools with teachers who are qualified to teach science and are trained and dedicated to working with students at this important period in their lives. Science concepts must be presented in an age-appropriate, engaging way so that students can build on their prior knowledge and attain the necessary background to participate successfully and responsibly in our highly scientific and technological society.

The middle school years, grades 5 through 9, are a time of tremendous physical, emotional, and cognitive changes for students. It also is a pivotal time in their understanding of and enthusiasm for science. Research has shown that if educators don't capture students' interest and enthusiasm in science by grade 7, students may never find their way back to science.

Declarations

NSTA recommends that teachers of middle level science

- Be fully qualified to teach science in their state and have a strong knowledge of science content.
- Attain a high level of knowledge about educational research on how middle level students learn, best practices, and effective instructional strategies for middle level students, and be able to use this knowledge in the classroom.
- Deal positively with the variability of behavior patterns of emerging adolescents.
- Support diverse learners effectively, deal with gender/equity issues, model a multidisciplinary approach to learning, and exhibit a desire to be a lifelong learner.

- Create a safe environment in which students can engage in inquiry-based science instruction in the classroom, in the laboratory, and in field settings described in the NSTA position statement, *Safety and School Science Instruction*.

NSTA recommends that the curriculum of middle level science programs

- Be aligned with the science content and process skills outlined in the *National Science Education Standards*.
- Nurture curiosity about the natural world and include “hands-on, minds-on” inquiry-based science instruction.
- Engage students in laboratory investigations a minimum of 80 percent of the science instruction time as specified in the NSTA position statement *Laboratory Science*.
- Incorporate independent and cooperative group learning experiences during the study of science, and encourage informal learning experiences to support the curriculum.
- Integrate science with other curriculum subjects in a multidisciplinary approach, such as through theme-based learning.

NSTA recommends that the curriculum offer links to the real world by

- Applying content and skills learned in science class to students’ own experiences.
- Connecting the classroom to the community through field trips, speakers, and local partnerships.
- Providing students with real-life experiences, such as mentoring and apprenticeships, that enable them to develop an awareness of science-based careers and an understanding of how science is relevant to their lives.
- Providing opportunities for decision-making activities (e.g., debate or research papers) and for involvement in community-based problems.
- Promoting societal goals for scientific and technological literacy.

NSTA recommends that the assessment strategies used in middle level science programs

- Include a variety of assessment methods that can be used to evaluate overall student achievement and guide decisions about instruction and practices.

- Be continuous and embedded in the instructional materials.
- Capture the interest of students to better engage them in the assessment process.
- Occur frequently to allow for modification, enrichment, and remediation.
- Include questions that are sensitive to gender and varied cultures.

NSTA recommends that middle level administrators support the science program by

- Providing numerous opportunities for professional development experiences to bolster teachers' knowledge of science content and enhance their skills in working with the middle level age group.
- Setting aside time for teachers to plan and strategize with colleagues in their own school as well as with those at the elementary and high school levels.
- Cultivating a dedicated team of teachers with a demonstrated expertise and interest in students in this age group, placing these teachers in the school system's middle schools, and permitting them to remain in their assignments so that they can develop their expertise.
- Supporting the recommended time allotted for middle level laboratory investigations.
- Providing necessary funding for laboratory investigations and science materials and resources.

Adopted by the
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Additional Resources

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