



Stony Brook University

Distributed Teacher and Leader Education

Disciplinary Standards Form – Science Education Program NSTA Thematic Standards – Performance Evidence

Teacher Candidate: _____

USBID:

Cooperating Teacher or
University Instructor: _____

Methods I Methods II Student Teaching Placement 7-9 10-12

DIRECTIONS:

The National Science Teachers Association (NSTA) requires all accredited education programs to provide performance evidence showing how well teacher candidates can plan and deliver instruction aligned with the ten NSTA Thematic Standards. This form is our basic means for gathering this information.

Stony Brook instructors use this form to evaluate lesson and unit planning in the methods courses, and it is also used to assess the classroom performance of our student teachers.

We ask that all cooperating teachers complete this form for their student teachers at the end of each placement. Feedback from cooperating teachers is especially important for the continued development of the student teacher since they are in the best position to assess the ability of student teachers to meet the various standards in an authentic classroom setting. This form also provides the Science Education Program with useful information on the strengths and weaknesses of our program.

FOR COOPERATING TEACHERS

On the following pages, please check the box that best reflects the ability of the teacher candidate to plan and deliver instruction pertaining to the individual standards (expanded descriptions are on the last pages of this document). It is expected that, in Methods I, most candidate scores will fall in the 1-2 range, in Methods II that they will fall in the 2-3 range, and in student teaching that they will fall in the 3-4 range. **Student teacher performance should be assessed in relation to standards for beginning teachers. We strongly encourage the use of narrative comments to elaborate on candidate strengths and weaknesses in the individual standards.**

1. Does not meet standards

2. Minimally meets standards
3. Meets standards
4. Exceeds standards

Standard 1 – Content

The teacher candidate understands the structure of science. S/he can articulate and interpret the important concepts, ideas, and relationships in the selected field(s) of licensure; and possess working skills to conduct scientific investigation.

	1	2	3	4
Evidence in planning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Evidence in teaching	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Comments:

Standard 2 – Nature of Science

The teacher candidate engages students effectively in studies of the history, philosophy, and practice of science. S/he enables students to distinguish science from non-science, understand the evolution and practice of science as a human endeavor, and critically analyze claims made in the name of science.

	1	2	3	4
Evidence in planning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Evidence in teaching	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Comments:

Standard 3 – Inquiry

The teacher candidate engages students both in studies of various methods of scientific inquiry and in active learning through scientific inquiry. S/he encourages students, individually and collaboratively, to observe, ask questions, design inquiries, and collect and interpret data in order to develop concepts and relationships from empirical experiences.

	1	2	3	4
Evidence in planning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Evidence in teaching	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Comments:

Standard 4 – Issues

The teacher candidate recognizes that informed citizens must be prepared to make decisions and take action on contemporary science and technology-related issues of interest to society in general. S/he requires students to conduct inquiries into the factual basis of such issues and to assess possible actions and outcomes based upon their goals and values.

	1	2	3	4
Evidence in planning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Evidence in teaching	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Comments:

Standard 5 – General Skills of Teaching

The teacher candidate creates a community of diverse learners who construct meaning from their science experiences and possesses a disposition for further exploration and learning. S/he uses, and can justify, a variety of classroom arrangements, groupings, actions, strategies, and methodologies.

	1	2	3	4
Evidence in planning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Evidence in teaching	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Comments:

Standard 6 – Curriculum

The teacher candidate plans and implements an active, coherent, and effective curriculum that is consistent with the goals and recommendations of the National Science Teachers Association. S/he begins with the end in mind and effectively incorporates contemporary practices and resources into planning lessons and teaching.

	1	2	3	4
Evidence in planning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Evidence in teaching	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Comments:

Standard 7 – Science in the Community

The teacher candidate relates the discipline to local and regional communities, involving stakeholders and uses the individual, institutional, and natural resources of the community in teaching. S/he actively engages students in science-related studies or activities related to locally important issues.

	1	2	3	4
Evidence in planning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Evidence in teaching	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Comments:

Standard 8 – Assessment

The teacher candidate constructs and uses effective assessment strategies to determine the backgrounds and achievements of learners and facilitate their intellectual, social, and personal development. S/he assesses students fairly and equitably, and requires that students engage in ongoing self-assessment.

	1	2	3	4
Evidence in planning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Evidence in teaching	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Comments:

Standard 9 – Safety and Welfare (The Environment for Learning)

The teacher candidate organizes safe and effective learning environments that promote the success of students and the welfare of all living things. S/he requires and promotes knowledge and respect for safety, and ensures the welfare of all living things used in the classroom or found in the field.

	1	2	3	4
Evidence in planning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Evidence in teaching	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Comments:

Standard 10 – Professional Growth

The teacher candidate strives continuously to grow and change, personally and professionally, to meet the diverse needs of the students, school, community, and profession. S/he has a desire and disposition for growth and betterment.

	1	2	3	4
Evidence in planning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Evidence in teaching	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Comments:

National Science Teachers Association Thematic Standards – Performance Evidence

Standard 1 – Content

The teacher candidate understands the structure of science. S/he can articulate and interpret the important concepts, ideas, and relationships in the selected field(s) of licensure; and possess working skills to conduct scientific investigation.

Description:

To show that they are prepared in content, teachers of science must demonstrate that they:

- a. Understand and can successfully convey to students the major concepts, principles, theories, laws, and interrelationships of their fields of licensure and supporting fields as recommended by the National Science Teachers Association.
- b. Understand and can successfully convey to students the unifying concepts of science delineated by the National Science Teachers Association.
- c. Understand and can successfully convey to students important personal and technological applications of science in their fields of licensure.
- d. Understand research and can successfully design, conduct, report and evaluate investigations in science.
- e. Understand and can successfully use mathematics to process and report data, and solve problems, in their field(s) of licensure.

Standard 2 –Nature of Science

The teacher candidate engages students effectively in studies of the history, philosophy, and practice of science. S/he enables students to distinguish science from non-science, understand the evolution and practice of science as a human endeavor, and critically analyze claims made in the name of science.

Description:

To show they are prepared to teach the nature of science, teachers of science must demonstrate that they:

- a. Understand the historical and cultural development of science and the evolution of knowledge in their discipline(s).
- b. Understand the philosophical tenets, assumptions, goals, and values that distinguish science from technology and from other ways of knowing the world.
- c. Engage students successfully in studies of the nature of science including, when possible, the critical analysis of false or doubtful assertions made in the name of science.

Standard 3 – Inquiry

The teacher candidate engages students both in studies of various methods of scientific inquiry and in active learning through scientific inquiry. S/he encourages students, individually and collaboratively, to observe, ask questions, design inquiries, and collect and interpret data in order to develop concepts and relationships from empirical experiences.

Description:

To show that they are prepared to teach through inquiry, teachers of science must demonstrate that they:

- a. Understand the processes, tenets, and assumptions of multiple methods of inquiry leading to scientific knowledge.
- b. Engage students successfully in developmentally appropriate inquiries that require them to develop concepts and relationships from their observations, data, and inferences in a scientific manner.

Standard 4 – Issues

The teacher candidate recognizes that informed citizens must be prepared to make decisions and take action on contemporary science and technology-related issues of interest to society in general. S/he requires students to conduct inquiries into the factual basis of such issues and to assess possible actions and outcomes based upon their goals and values.

Description:

To show that they are prepared to engage students in studies of issues related to science, teachers of science must demonstrate that they:

- a. Understand socially important issues related to science and technology in their field of licensure, as well as processes used to analyze and make decisions on such issues.
- b. Engage students successfully in the analysis of problems, including considerations of risks, costs, and benefits of alternative solutions; relating these to the knowledge, goals and values of the students.

Standard 5 – General Skills of Teaching

The teacher candidate creates a community of diverse learners who construct meaning from their science experiences and possesses a disposition for further exploration and learning. S/he uses, and can justify, a variety of classroom arrangements, groupings, actions, strategies, and methodologies.

Description:

To show that they are prepared to create a community of diverse learners, teachers of science must demonstrate that they:

- a. Vary their teaching actions, strategies, and methods to promote the development of multiple student skills and levels of understanding.
- b. Successfully promote the learning of science by students with different abilities, needs, interests, and backgrounds.
- c. Successfully organize and engage students in collaborative learning using different student group learning strategies.
- d. Successfully use technological tools, including but not limited to computer technology, to access resources, collect and process data, and facilitate the learning of science.
- e. Understand and build effectively upon the prior beliefs, knowledge, experiences, and interests of students.
- f. Create and maintain a psychologically and socially safe and supportive learning environment.

Standard 6 – Curriculum

The teacher candidate plans and implements an active, coherent, and effective curriculum that is consistent with the goals and recommendations of the National Science Teachers Association. S/he begins with the end in mind and effectively incorporates contemporary practices and resources into planning lessons and teaching.

Description:

To show that they are prepared to plan and implement an effective science curriculum, teachers of science must demonstrate that they:

- a. Understand the curricular recommendations of the National Science Teachers Association, and can identify, access, and/or create resources and activities for science education that are consistent with the standards.
- b. Plan and implement internally consistent units of study that address the diverse goals of the National Science Teachers Association Standards and the needs and abilities of students.

Standard 7 – Science in the Community

The teacher candidate relates the discipline to local and regional communities, involving stakeholders and uses the individual, institutional, and natural resources of the community in teaching. S/he actively engages students in science-related studies or activities related to locally important issues.

Description:

To show that they are prepared to relate science to the community, teachers of science must demonstrate that they:

- a. Identify ways to relate science to the community, involve stakeholders, and use community resources to promote the learning of science.
- b. Involve students successfully in activities that relate science to resources and stakeholders in the community or to the resolution of issues important to the community.

Standard 8 – Assessment

The teacher candidate constructs and uses effective assessment strategies to determine the backgrounds and achievements of learners and facilitate their intellectual, social, and personal development. S/he assesses students fairly and equitably, and requires that students engage in ongoing self-assessment.

Description:

To show that they are prepared to use assessment effectively, teachers of science must demonstrate that they:

- a. Use multiple assessment tools and strategies to achieve important goals for instruction that are aligned with methods of instruction and the needs of students.
- b. Use the results of multiple assessments to guide and modify instruction, the classroom environment, or the assessment process.
- c. Use the results of assessments as vehicles for students to analyze their own learning, engaging students in reflective self-analysis of their own work.

Standard 9 – Safety and Welfare

The teacher candidate organizes safe and effective learning environments that promote the success of students and the welfare of all living things. S/he requires and promotes knowledge and respect for safety, and ensures the welfare of all living things used in the classroom or found in the field.

Description:

To show that they are prepared, teachers of science must demonstrate that they:

- a. Understand the legal and ethical responsibilities of science teachers for the welfare of their students, the proper treatment of animals, and the maintenance and disposal of materials.
- b. Know and practice safe and proper techniques for the preparation, storage, dispensing, supervision, and disposal of all materials used in science instruction.
- c. Know and follow emergency procedures, maintain safety equipment, and ensure safety procedures appropriate for the activities and the abilities of students.
- d. Treat all living organisms used in the classroom or found in the field in a safe, humane, and ethical manner and respect legal restrictions on their collection, keeping, [and] use and potential release.

Standard 10 – Professional Growth

The teacher candidate strives continuously to grow and change, personally and professionally, to meet the diverse needs of the students, school, community, and profession. S/he has a desire and disposition for growth and betterment.

Description:

To show their disposition for growth, teachers of science must demonstrate that they:

- a. Engage actively and continuously in opportunities for professional learning and leadership that reach beyond minimum job requirements.
- b. Reflect constantly upon their teaching and identify ways and means through which they may grow professionally.
- c. Use information from students, supervisors, colleagues and others to improve their teaching and facilitate their professional growth.
- d. Interact effectively with colleagues, parents, and students; mentor new colleagues; and foster positive relationships with the community.