



## 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

NSTA Performance Standards – Performance Evidence

**As part of the national recognition process for Stony Brook University's Science Teacher Preparation programs, the National Science Teaching Association (NSTA) requires that preservice teachers demonstrate proficiency in the areas of: content knowledge, content pedagogy, learning environments, safety, impact on student learning, and professional knowledge and skills. The Disciplinary Standards Form (DSF) is an assessment of these competencies.**

**Standard 1: Content Knowledge**

*Effective teachers of science understand and articulate the knowledge and practices of contemporary science and engineering. They connect important disciplinary core ideas, crosscutting concepts, and science and engineering practices for their fields of licensure.*

*Describe the extent to which the candidate has addressed each section of Standard 1:*

**1a.** Use and apply the major concepts, principles, theories, laws, and interrelationships of their fields of licensure and supporting fields. Explain the nature of science and the cultural norms and values inherent to the current and historical development of scientific knowledge.

Evidence in Planning	<ul style="list-style-type: none"> <li>• Exceeds Standards</li> <li>• Meets Standards</li> <li>• Minimally Meets Standards</li> <li>• Does Not Meet Standards</li> </ul>
Evidence in Teaching	<ul style="list-style-type: none"> <li>• Exceeds Standards</li> <li>• Meets Standards</li> <li>• Minimally Meets Standards</li> <li>• Does Not Meet Standards</li> </ul>

**1b.** Demonstrate knowledge of crosscutting concepts, disciplinary core ideas, practices of science and engineering, the supporting role of science-specific technologies, and contributions of diverse populations to science.

Evidence in Planning	<ul style="list-style-type: none"> <li>• Exceeds Standards</li> <li>• Meets Standards</li> <li>• Minimally Meets Standards</li> <li>• Does Not Meet Standards</li> </ul>
Evidence in Teaching	<ul style="list-style-type: none"> <li>• Exceeds Standards</li> <li>• Meets Standards</li> <li>• Minimally Meets Standards</li> <li>• Does Not Meet Standards</li> </ul>

**1c.** Demonstrate knowledge of how to implement science standards, learning progressions, and sequencing of science content for teaching their licensure level PK-12 students.

Evidence in Planning	<ul style="list-style-type: none"> <li>• Exceeds Standards</li> <li>• Meets Standards</li> <li>• Minimally Meets Standards</li> <li>• Does Not Meet Standards</li> </ul>
Evidence in Teaching	<ul style="list-style-type: none"> <li>• Exceeds Standards</li> <li>• Meets Standards</li> </ul>

	<ul style="list-style-type: none"> <li>Minimally Meets Standards</li> <li>Does Not Meet Standards</li> </ul>
Comments	
<b>Standard 2: Content Pedagogy</b>	
<p><i>Effective teachers of science plan learning units of study and equitable, culturally-responsive opportunities for <b>all</b> students based upon their understandings of how students learn and develop science knowledge, skills, and habits of mind. Effective teachers also include appropriate connections to science and engineering practices and crosscutting concepts in their instructional planning.</i></p>	
<p><i>Describe the extent to which the candidate has addressed each section of Standard 2:</i></p>	
<p><b>2a.</b> Using science standards and a variety of appropriate, student-centered, and culturally-relevant science disciplinary-based instructional approaches that follow safety procedures and incorporate science and engineering practices, disciplinary core ideas, and crosscutting concepts.</p>	
Evidence in Planning	<ul style="list-style-type: none"> <li>Exceeds Standards</li> <li>Meets Standards</li> <li>Minimally Meets Standards</li> <li>Does Not Meet Standards</li> </ul>
Evidence in Teaching	<ul style="list-style-type: none"> <li>Exceeds Standards</li> <li>Meets Standards</li> <li>Minimally Meets Standards</li> <li>Does Not Meet Standards</li> </ul>
<p><b>2b.</b> Incorporating appropriate differentiation strategies, wherein <b>all</b> students develop conceptual knowledge and an understanding of the nature of science. Lessons should engage students in applying science practices, clarifying relationships, and identifying natural patterns from empirical experiences.</p>	
Evidence in Planning	<ul style="list-style-type: none"> <li>Exceeds Standards</li> <li>Meets Standards</li> <li>Minimally Meets Standards</li> <li>Does Not Meet Standards</li> </ul>
Evidence in Teaching	<ul style="list-style-type: none"> <li>Exceeds Standards</li> <li>Meets Standards</li> <li>Minimally Meets Standards</li> <li>Does Not Meet Standards</li> </ul>
<p><b>2c.</b> Using engineering practices in support of science learning wherein <b>all</b> students design, construct, test, and optimize possible solutions to a problem.</p>	
Evidence in Planning	<ul style="list-style-type: none"> <li>Exceeds Standards</li> <li>Meets Standards</li> <li>Minimally Meets Standards</li> <li>Does Not Meet Standards</li> </ul>
Evidence in Teaching	<ul style="list-style-type: none"> <li>Exceeds Standards</li> </ul>

	<ul style="list-style-type: none"> <li>• Meets Standards</li> <li>• Minimally Meets Standards</li> <li>• Does Not Meet Standards</li> </ul>
<b>2d.</b> Aligning instruction and assessment strategies to support instructional decision making that identifies and addresses student misunderstandings, prior knowledge, and naive conceptions.	
Evidence in Planning	<ul style="list-style-type: none"> <li>• Exceeds Standards</li> <li>• Meets Standards</li> <li>• Minimally Meets Standards</li> <li>• Does Not Meet Standards</li> </ul>
Evidence in Teaching	<ul style="list-style-type: none"> <li>• Exceeds Standards</li> <li>• Meets Standards</li> <li>• Minimally Meets Standards</li> <li>• Does Not Meet Standards</li> </ul>
<b>2e.</b> Integrating science-specific technologies to support <b>all</b> students' conceptual understanding of science and engineering.	
Evidence in Planning	<ul style="list-style-type: none"> <li>• Exceeds Standards</li> <li>• Meets Standards</li> <li>• Minimally Meets Standards</li> <li>• Does Not Meet Standards</li> </ul>
Evidence in Teaching	<ul style="list-style-type: none"> <li>• Exceeds Standards</li> <li>• Meets Standards</li> <li>• Minimally Meets Standards</li> <li>• Does Not Meet Standards</li> </ul>
Comments	
<b>Standard 3: Learning Environments</b>	
<i>Effective teachers of science are able to plan for engaging <b>all</b> students in science learning by identifying appropriate learning goals that are consistent with knowledge of how students learn science and are aligned with standards. Plans reflect the selection of phenomena appropriate to the social context of the classroom and community, and safety considerations, to engage students in the nature of science and science and engineering practices. Effective teachers create an anti-bias, multicultural, and social justice learning environment to achieve these goals.</i>	
<i>Describe the extent to which the candidate has addressed each section of Standard 3:</i>	
<b>3a.</b> Plan a variety of lesson plans based on science standards that employ strategies that demonstrate their knowledge and understanding of how to select appropriate teaching and motivating learning activities that foster an inclusive, equitable, and anti-bias environment.	
Evidence in Planning	<ul style="list-style-type: none"> <li>• Exceeds Standards</li> <li>• Meets Standards</li> </ul>

	<ul style="list-style-type: none"> <li>Minimally Meets Standards</li> <li>Does Not Meet Standards</li> </ul>
Evidence in Teaching	<ul style="list-style-type: none"> <li>Exceeds Standards</li> <li>Meets Standards</li> <li>Minimally Meets Standards</li> <li>Does Not Meet Standards</li> </ul>
<b>3b.</b> Plan learning experiences for <b>all</b> students in a variety of environments (e.g., the laboratory, field, and community) within their fields of licensure.	
Evidence in Planning	<ul style="list-style-type: none"> <li>Exceeds Standards</li> <li>Meets Standards</li> <li>Minimally Meets Standards</li> <li>Does Not Meet Standards</li> </ul>
Evidence in Teaching	<ul style="list-style-type: none"> <li>Exceeds Standards</li> <li>Meets Standards</li> <li>Minimally Meets Standards</li> <li>Does Not Meet Standards</li> </ul>
<b>3c.</b> Plan lessons in which <b>all</b> students have a variety of opportunities to investigate, collaborate, communicate, evaluate, learn from mistakes, and defend their own explanations of: scientific phenomena, observations, and data.	
Evidence in Planning	<ul style="list-style-type: none"> <li>Exceeds Standards</li> <li>Meets Standards</li> <li>Minimally Meets Standards</li> <li>Does Not Meet Standards</li> </ul>
Evidence in Teaching	<ul style="list-style-type: none"> <li>Exceeds Standards</li> <li>Meets Standards</li> <li>Minimally Meets Standards</li> <li>Does Not Meet Standards</li> </ul>
Comments	
<b>Standard 4: Safety</b>	
<i>Effective teachers of science demonstrate biological, chemical, and physical safety protocols in their classrooms and workspace. They also implement ethical treatment of living organisms and maintain equipment and chemicals as relevant to their fields of licensure.</i>	
<i>Describe the extent to which the candidate has addressed each section of Standard 4:</i>	
<b>4a.</b> Implement activities appropriate for the abilities of <b>all</b> students that demonstrate safe techniques for the procurement, preparation, use, storage, dispensing, supervision, and disposal of all chemicals/materials/equipment used within their fields of licensure.	
Evidence in Planning	<ul style="list-style-type: none"> <li>Exceeds Standards</li> <li>Meets Standards</li> </ul>

	<ul style="list-style-type: none"> <li>Minimally Meets Standards</li> <li>Does Not Meet Standards</li> </ul>
Evidence in Teaching	<ul style="list-style-type: none"> <li>Exceeds Standards</li> <li>Meets Standards</li> <li>Minimally Meets Standards</li> <li>Does Not Meet Standards</li> </ul>
<p><b>4b.</b> Demonstrate an ability to: recognize hazardous situations including overcrowding; implement emergency procedures; maintain safety equipment; provide adequate student instruction and supervision; and follow policies and procedures that comply with established state and national guidelines, appropriate legal state and national safety standards (e.g., OSHA, NFPA, EPA), and best professional practices (e.g., NSTA, NSELA).</p>	
Evidence in Planning	<ul style="list-style-type: none"> <li>Exceeds Standards</li> <li>Meets Standards</li> <li>Minimally Meets Standards</li> <li>Does Not Meet Standards</li> </ul>
Evidence in Teaching	<ul style="list-style-type: none"> <li>Exceeds Standards</li> <li>Meets Standards</li> <li>Minimally Meets Standards</li> <li>Does Not Meet Standards</li> </ul>
<p><b>4c.</b> Demonstrate ethical decision-making with respect to safe and humane treatment of all living organisms in and out of the classroom, and comply with the legal restrictions and best professional practices on the collection, care, and use of living organisms as relevant to their fields of licensure.</p>	
Evidence in Planning	<ul style="list-style-type: none"> <li>Exceeds Standards</li> <li>Meets Standards</li> <li>Minimally Meets Standards</li> <li>Does Not Meet Standards</li> </ul>
Evidence in Teaching	<ul style="list-style-type: none"> <li>Exceeds Standards</li> <li>Meets Standards</li> <li>Minimally Meets Standards</li> <li>Does Not Meet Standards</li> </ul>
Comments	
<p><b>Standard 5: Impact on Student Learning</b></p> <p><i>Effective teachers of science provide evidence that students have learned and can apply disciplinary core ideas, crosscutting concepts, and science and engineering practices as a result of instruction. Effective teachers analyze learning gains for individual students, the class as a whole, and subgroups of students disaggregated by demographic categories, and use these to inform planning and teaching.</i></p> <p><i>Describe the extent to which the candidate has addressed each section of Standard 5:</i></p>	

<b>5a.</b> Implement assessments that show <b>all</b> students have learned and can apply disciplinary knowledge, nature of science, science and engineering practices, and crosscutting concepts in practical, authentic, and real-world situations.	
Evidence in Planning	<ul style="list-style-type: none"> <li>• Exceeds Standards</li> <li>• Meets Standards</li> <li>• Minimally Meets Standards</li> <li>• Does Not Meet Standards</li> </ul>
Evidence in Teaching	<ul style="list-style-type: none"> <li>• Exceeds Standards</li> <li>• Meets Standards</li> <li>• Minimally Meets Standards</li> <li>• Does Not Meet Standards</li> </ul>
<b>5b.</b> Collect, organize, analyze, and reflect on formative and summative evidence and use those data to inform future planning and teaching.	
Evidence in Planning	<ul style="list-style-type: none"> <li>• Exceeds Standards</li> <li>• Meets Standards</li> <li>• Minimally Meets Standards</li> <li>• Does Not Meet Standards</li> </ul>
Evidence in Teaching	<ul style="list-style-type: none"> <li>• Exceeds Standards</li> <li>• Meets Standards</li> <li>• Minimally Meets Standards</li> <li>• Does Not Meet Standards</li> </ul>
<b>5c.</b> Analyze science-specific assessment data based upon student demographics, categorizing the levels of learner knowledge, and reflect on results for subsequent lesson plans.	
Evidence in Planning	<ul style="list-style-type: none"> <li>• Exceeds Standards</li> <li>• Meets Standards</li> <li>• Minimally Meets Standards</li> <li>• Does Not Meet Standards</li> </ul>
Evidence in Teaching	<ul style="list-style-type: none"> <li>• Exceeds Standards</li> <li>• Meets Standards</li> <li>• Minimally Meets Standards</li> <li>• Does Not Meet Standards</li> </ul>
Comments	
<b>Standard 6: Professional Knowledge and Skills</b>	
<i>Effective teachers of science strive to continuously improve their knowledge of both science content and pedagogy, including approaches for addressing inequities and inclusion for <b>all</b> students in science. They identify with and conduct themselves as part of the science education community.</i>	
<i>Describe the extent to which the candidate has addressed each section of Standard 6:</i>	
<b>6a.</b> Engage in critical reflection on their own science teaching to continually improve their instructional effectiveness.	



Evidence in Planning	<ul style="list-style-type: none"> <li>• Exceeds Standards</li> <li>• Meets Standards</li> <li>• Minimally Meets Standards</li> <li>• Does Not Meet Standards</li> </ul>
Evidence in Teaching	<ul style="list-style-type: none"> <li>• Exceeds Standards</li> <li>• Meets Standards</li> <li>• Minimally Meets Standards</li> <li>• Does Not Meet Standards</li> </ul>
<b>6b.</b> Participate in professional development opportunities to deepen their science content knowledge and practices.	
Evidence in Planning	<ul style="list-style-type: none"> <li>• Exceeds Standards</li> <li>• Meets Standards</li> <li>• Minimally Meets Standards</li> <li>• Does Not Meet Standards</li> </ul>
Evidence in Teaching	<ul style="list-style-type: none"> <li>• Exceeds Standards</li> <li>• Meets Standards</li> <li>• Minimally Meets Standards</li> <li>• Does Not Meet Standards</li> </ul>
<b>6c.</b> Participate in professional development opportunities to expand their science-specific pedagogical knowledge'	
Evidence in Planning	<ul style="list-style-type: none"> <li>• Exceeds Standards</li> <li>• Meets Standards</li> <li>• Minimally Meets Standards</li> <li>• Does Not Meet Standards</li> </ul>
Evidence in Teaching	<ul style="list-style-type: none"> <li>• Exceeds Standards</li> <li>• Meets Standards</li> <li>• Minimally Meets Standards</li> <li>• Does Not Meet Standards</li> </ul>
Comments	
Please provide us with narrative comments expanding upon the strengths and weaknesses of our teacher candidate in the space below.	