NSTA/NCATE Science **Section IV**

Assessment #6

Safety Module†

1. A brief description of the assessment and its use in the program

The assessment is a paper that addresses safety, legal, and ethical issues in the science classroom for both candidates and students. It is an assignment in the Science Methods class (ESEC 384, Middle School and ESEC 385, Secondary) and candidates must receive a minimum of a 1 on each of the subscores and an overall of greater than a 2 in the rubric in order to pass the Science Methods class.

2. A description of how this assessment specifically aligns with the standards

This assessment is aligned with NSTA Safety Standards 9a-d (Safety and Welfare: Candidates 9a, 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; 9b, know and practice safe and proper techniques for the preparation, storage, dispending, supervision, and disposal of all materials used in science instruction; 9c, know and follow emergency procedures, maintain safety equipment, and ensure safety procedures appropriate for the activities and abilities of students; and 9d, 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). It also demonstrates 5d, candidates' successful use of technological tools, including but not limited to computer technology, to access resources, collect and process data, and facilitate the learning of science.

3. A brief analysis of the data findings

All four of the Methods students received a B or better on the Safety paper.

4. An interpretation of how that data provides evidence for meeting standards

The candidates were able to clearly demonstrate knowledge of student safety guidelines, teacher safety guidelines, and school safety guidelines. The assignment required candidates to identify legal and ethical responsibilities of science teachers for the safety of themselves, their students, and living organisms. Also required was demonstration of knowledge of preparation, storage, dispensing, supervising, and disposal of materials. Emergency procedures for students were developed and a maintenance schedule for equipment was created. More work needs to be done to have candidates be more aware of the school's safety guidelines.

†This assessment was modified with permission (Robert Cohen, East Stroudsburg University).

5. Assessment documentation

5A: Assessment Tool

Write a paper that addresses the following aspects of safety. Base your responses on your Field Experience, through observations made or lessons that you have taught. There is no page limit. Use the guidelines and scoring rubric as a guide.

- Student safety guidelines
  - List the safety regulations that your students must abide by (i.e. those regulations that your students must follow); if you intend to utilize animals as research subjects or pets in the classroom, be sure to include the guidelines for the ethical use of such animals (9a).
  - Describe how you intend to teach these safety regulations; if you intend to use safety contracts, provide an example (9c).
  - Describe how you intend to enforce these safety regulations (9c).
  - Provide an activity with student safety issues clearly stated and highlighted that uses technological tools, including but not limited to computer technology, to access resources, collect and process data (5d & 9c)
- Teacher safety guidelines
  - Identify your legal responsibilities as a teacher (9a)
  - Identify your ethical responsibilities as a teacher (9a)
  - Identify safety precautions (both maintenance and implementation) you should make in regard to (9b):
    - demonstrations and laboratories
    - preparation and storage
    - proper disposal of material
    - field trips and field study
    - the use and care of living things (biology teachers should also provide a dissection alternative plan)
- School safety guidelines
  - Identify the safety materials/equipment and maintenance/set-up that the classroom should have (9c)

Include an annotated bibliography using the above areas of published materials that support what you write. The more references the better.

5B: Scoring guide

Candidates must receive a minimum of a 1 on each of the subscores and an overall of greater than a 2 in the rubric in order to pass the Science Methods class.

Rating	Description
0	Candidate did not meet the minimum requirements of the rubric
1	Candidate has met the minimum requirements in the rubric below, but has not expanded on any item in the rubric
2	Candidate has demonstrated good safety knowledge of students, teachers, and the school.
3	Exceptional work. Candidate has demonstrated knowledge beyond minimum requirements.

Student safety guidelines

1	2	3
1) Safety regulations that students must follow in your classroom are listed and appropriate; guidelines for the ethical use of such animals are included and maintenance and disposal of materials (if needed) (9a)	1) Choice of safety regulations are supported by external sources (like Flinn Scientific, PDE, etc.) and properly referenced	1) Safety regulations are detailed and complete. A clear and well-articulated rationale is provided in support of the choice of regulations.
2) A description is provided as to (a) how students will learn what the safety regulations are and (b) how the safety regulations will be enforced. (9c)	2) The descriptions are clear and appropriate to the task, with sample worksheets, posters, contracts, etc.	2) Additional information is provided as to how students will learn how to practice science in a safe manner.
3) Inquiry activity clearly states the safety issues and uses technological tools, including but not limited to computer technology, to access resources, collect and process data (5d & 9c)	3) Inquiry activity is challenging with clearly stated safety rules and regulations. Activity includes a high degree of student-directed activity as opposed to a candidate-directed lesson	3) Inquiry activity is totally student derived. Students must research safety issues. Additional information is provided for instrumentation, technology, etc.

Teacher safety guidelines

1	2	3

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1) Your legal and ethical responsibilities as a teacher are identified (9a)	1) List of responsibilities are supported by recommendations of others and properly referenced	1) Responsibilities are detailed and complete. A clear and well-articulated rationale is provided in support of the responsibilities.
2) Safety precautions that you must follow (for both maintenance and implementation) are listed and appropriate (9b): - demos and labs - preparation and storage - field trips and field study - the use and care of living things (biology teachers should also provide a dissection alternative plan)	2) Choice of safety regulations are supported by external sources and properly referenced	2) Safety precautions are detailed and complete. A clear and well-articulated rationale is provided in support of the choice of precautions.

School safety guidelines

1	2	3
1) Safety materials, equipment and general set-up that the classroom should have are identified (9c)	1) List of materials, equipment and general set-up guidelines supported by recommendations of others and properly referenced. Maintenance schedule adequate.	1) List is detailed and complete. A clear and well-articulated rationale is provided in support of the list. Maintenance schedule is provided, with details.

Scoring Sheet for Safety Module

Candidate's Name:			**Date:**
Licensure Field:			
Guidelines	**Rubric Description**	**Score**	**Comments**
Student Safety	**1)**		
	2)		
	3)		

Teacher Safety	**1)**		
	2)		
School Safety	**1)**		
	Overall Score		

5C: Candidate Data

Year		Student Safety Guidelines (9a, 9c, 5d)	Teacher Safety Guidelines (9a, 9b)	School Safety Guidelines (9c)	Overall Score
Spring 2006	Student Teacher #1	3	3	2	2.67
	Student Teacher #2	3	3	2	2.67
	Student Teacher #3	3	3	2	2.67
	Student Teacher #4	2	2	2	2