

Science Student Teaching Assessment Worksheet

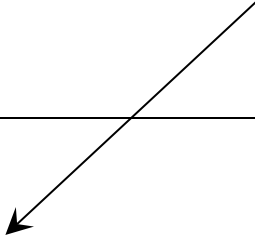
How to use this Rubric: Teaching is an extensive, iterative process. While it might be possible to “thin slice” the competency of a teacher and assess him or her during a 50 minute period; to effectively assess teaching, observations must be made over time. Listed below are various performance indicators of exemplary teaching of secondary science. During a period of not more than two weeks agreed upon by the cooperating teacher and the teacher candidate, various specific events should be recorded in the form below. At end of the week, count the number of events that were observed and translate the number of events into a final rubric score: Target, Acceptable High, Acceptable Low or Unacceptable

SCORING WORK SHEET (Long Form)

Students Name _____

Date Observation is started _____

Date Observation is completed _____

Standard	Performance Indicator	Observed Event
Standard 1: Content		
Teachers of science understand and can articulate the knowledge and practices of contemporary science. They can interrelate and interpret important concepts, ideas, and applications in their fields of licensure; and can conduct scientific investigations. 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.	<div style="border: 1px solid black; padding: 5px; display: inline-block;">A sample of what might be written</div> 
	b. Understand and can successfully convey to students the unifying concepts of science delineated by the National Science Education Standards and the PDE	
	c. Understand and can successfully convey to students important personal and technological applications of science in their fields of licensure.	Student asked use of general relativity, you related time difference between Earth's surface & satellite 5/23/2008
	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.	
		<p>SCORING KEY</p> <p>Number of Events: _____ Score _____</p> <p>8 = Exceptional, 6 = Acceptable High, 5 = Acceptable Low, 3 or less = Unacceptable</p>

Standard 2: Nature of Science		
Teachers of science engage students effectively in studies of the history, philosophy, and practice of science. They enable students to distinguish science from non-science, understand the evolution and practice of science as a human endeavor, and critically analyze assertions made in the name of science. 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.	
	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.	
		Number of Events: _____ Score _____ 5 = Exceptional, 4 = Acceptable High, 3 = Acceptable Low, 2 or less = Unacceptable

Standard 3: Inquiry		
Teachers of science engage students both in studies of various methods of scientific inquiry and in active learning through scientific inquiry. They encourage 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. 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.	
		Number of Events: _____ Score _____ 6 = Exceptional, 4 = Acceptable High, 3 = Acceptable Low, 2 or less = Unacceptable

Standard 4: Issues		
Teachers of science recognize that informed citizens must be prepared to make decisions and take action on contemporary science- and technology-related issues of interest to the general society. They require students to conduct inquiries into the factual basis of such issues and to assess possible actions and outcomes based upon their goals and values. 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.	
		Number of Events: _____ Score _____ 4 = Exceptional, 3 = Acceptable High, 2 = Acceptable Low, 1 or less = Unacceptable

Standard 5: General Skills of Teaching		
Teachers of science create a community of diverse learners who construct meaning from their science experiences and possess a disposition for further exploration and learning. They use, and can justify, a variety of classroom arrangements, groupings, actions, strategies, and methodologies. 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.	
		Number of Events: _____ Score _____ 8 = Exceptional, 6 = Acceptable High, 5 = Acceptable Low, 3 or less = Unacceptable

Standard 6: Curriculum		
Teachers of science plan and implement an active, coherent, and effective curriculum that is consistent with the goals and recommendations of the National Science Education Standards. They begin with the end in mind and effectively incorporate contemporary practices and resources into their planning and teaching. 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 Education Standards, 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 Education Standards as well as the Pennsylvania Department of Education	
		Number of Events: _____ Score _____ 4 = Exceptional, 3 = Acceptable High, 2 = Acceptable Low, 1 or less = Unacceptable

Standards 7: Science in the Community		
Teachers of science relate their discipline to their local and regional communities, involving stakeholders and using the individual, institutional, and natural resources of the community in their teaching. They actively engage students in science-related studies or activities related to locally important issues. 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.	
		Number of Events: _____ Score _____ 4 = Exceptional, 3 = Acceptable High, 2 = Acceptable Low, 1 or less = Unacceptable

Standards 8: Assessment		
Teachers of science construct and use effective assessment strategies to determine the backgrounds and achievements of learners and facilitate their intellectual, social, and personal development. They assess students fairly and equitably, and require that students engage in ongoing self-assessment. 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.	
		Number of Events: _____ Score _____ 6 = Exceptional, 5 = Acceptable High, 4 = Acceptable Low, 2 or less = Unacceptable

Standard 9: Safety and Welfare		
Teachers of science organize safe and effective learning environments that promote the success of students and the welfare of all living things. They require and promote knowledge and respect for safety, and oversee the welfare of all living things used in the classroom or found in the field. 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.	
		Number of Events: _____ Score _____ 6 = Exceptional, 5 = Acceptable High, 4 = Acceptable Low, 2 or less = Unacceptable

Standard 10: Professional Growth		
Teachers of science strive continuously to grow and change, personally and professionally, to meet the diverse needs of their students, school, community, and profession. They have a desire and disposition for growth and betterment. 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.	
		Number of Events: _____ Score _____ 6 = Exceptional, 5 = Acceptable High, 4 = Acceptable Low, 2 or less = Unacceptable

**Science Student Teacher Assessment
SCORING WORK SHEET (Shorter Form)**

NOTE this is to be done during a during a period of not more than two weeks

Student's Name _____ **Date Observation started** _____ **Date Observation completed** _____

Performance Indicator	Observed Event
Standard 1: Content	
a. successfully convey to students the major concepts, principles, theories, laws, and interrelationships	
b. Understand and can successfully convey to students the unifying concepts of science	
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	

Number of Events: _____ Score _____
 8 = Exceptional, 6 = Acceptable High,
 5 = Acceptable Low, 3 or less = Unacceptable

Standard 2: Nature of Science	
a. Understand the historical and cultural development of science and the evolution of knowledge	
b. Understand the philosophical tenets, assumptions, goals, and values that distinguish science	
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.	

Number of Events: _____ Score _____
 5 = Exceptional, 4 = Acceptable High,
 3 = Acceptable Low, 2 or less = Unacceptable

Standard 3: Inquiry	
a. Understand the processes, tenets, and assumptions of multiple methods of inquiry leading to scientific knowledge.	
b. Engage students in developmentally appropriate inquiries that require them to develop concepts and relationships from their observations, data, and inferences in a scientific manner.	

Number of Events: _____ Score _____
6 = Exceptional, 4 = Acceptable High,
3 = Acceptable Low, 2 or less = Unacceptable

Standard 4: Issues	
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.	

Number of Events: _____ Score _____
4 = Exceptional, 3 = Acceptable High,
2 = Acceptable Low, 1 or less = Unacceptable

Standard 5: General Skills of Teaching	
a. Vary their teaching actions, strategies, and methods	
b. promote the learning of science by students with different abilities, needs, interests, and backgrounds.	
c. organize and engage students in collaborative learning using different student group learning strategies.	
d. use technological tools 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 students.	
f. Create and maintain a psychologically and socially safe and supportive learning environment.	

Number of Events: _____ Score _____
8 = Exceptional, 6 = Acceptable High,
5 = Acceptable Low, 3 or less = Unacceptable

Standard 6: Curriculum	
a. Understand the curricular recommendations of the National Science Education Standards, 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 Standards as well as the Pennsylvania Department of Education	

Number of Events: _____ Score _____
 4 = Exceptional, 3 = Acceptable High,
 2 = Acceptable Low, 1 or less = Unacceptable

Standards 7: Science in the Community	
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.	

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Standards 8: Assessment	
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.	

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Standard 9: Safety and Welfare	
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.	

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Standard 10: Professional Growth	
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.	

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