SECTION IV – EVIDENCE FOR MEETING STANDARDS

Assessment #3, Unit Plan

a. Description of the assessment

Assessment 3 is an instrument that examines the candidates' development of their ability to plan instruction in the science teaching programs. Candidates are evaluated with respect to demonstration of their ability to create effective lesson plans in their Clinical I practicum. Candidates create a Written Unit Plan that is used to assess the teacher candidates' knowledge, abilities, and skills to organize, plan, and implement a unit of study that addresses the New Jersey's Core Curriculum Content Standards.

The assessment is completed by the content professor (PHY390 professor) in the Clinical I Field Experience, which consists of three linked courses taken concurrently in the junior year: PHY 390 Science Methods of Teaching, SED 399 Pedagogy in the Secondary Classroom and RAL 328 Reading in Secondary Education. The science faculty instructor in PHY390 is responsible for completing the science-specific unit planning assessment for each candidate. This PHY390 Science Teaching Methods pedagogy course is a combined course for Biology, Chemistry, and Physics students, even though their practicum teaching is content-specific. During Clinical I, candidates complete a 189-hour field practicum in a public school classroom setting that matches their science content program. Cooperating teachers assign a topic for the unit plan and the candidates design their unit in both PHY and SED courses. The candidates teach the two-week unit during the last two weeks of their practicum. Before NJ State changes to require consecutive clinical semesters, this assessment was collected in fall of the candidates' junior year (2016); since this change the Clinical I Unit Planning is now assessed in spring of candidates' junior year.

b. Alignment with NSTA Standards

This assessment evaluates candidates with respect to the following specific elements within NSTA standards 1, 2, 3, and 5. The assessment instrument attached below specifies the standard element aligned with each assessment category.

NSTA2012.1a Understand the major concepts, principles, theories, laws, and interrelationships of their fields of licensure and supporting fields.

NSTA2012.1b Understand the central concepts of the supporting disciplines and the supporting role of science specific technology.

NSTA2012.1c Show an understanding of state and national curriculum standards and their impact on the content knowledge necessary for teaching P-12 students.

NSTA2012.2a Plan multiple lessons using a variety of inquiry approaches that demonstrate their knowledge and understanding of how all students learn science.

NSTA2012.2b Include active inquiry lessons where students collect and interpret data in order to develop and communicate concepts and understand scientific processes, relationships and natural patterns from empirical experiences. Applications of science specific technology are included in the lessons when appropriate.

NSTA2012.2c Design instruction and assessment strategies that confront and address naive concepts/preconceptions.
NSTA2012.3a Use a variety of strategies that demonstrate the candidates knowledge and understanding of how to select the appropriate teaching and learning activities including laboratory or field settings and applicable instruments and/or technology to allow access so that all students learn. These strategies are inclusive and motivating for all students.
NSTA2012.3b Develop lesson plans that include active inquiry lessons where students collect and interpret data using applicable science specific technology in order to develop concepts, understand scientific processes, relationships and natural patterns from empirical experiences. These plans provide for equitable achievement of science literacy for all students.
NSTA2012.3d Plan a learning environment and learning experiences for all students that demonstrate chemical safety, safety procedures, and the ethical treatment of living organisms within their licensure area.
NSTA2012.5c Engage students in developmentally appropriate inquiries that require them to develop concepts and relationships from their observations, data, and inferences in a scientific manner.

c. **Analysis of data**

The last three applications of this annual assessment capture data from 18 science students (Fall 2016: 9, Spring 2018: 5, Spring 2019: 4); . Nine of these students were in the Biology Licensure program, six in the Physics Licensure program, and three in the Chemistry program. No meaningful trend in year-by-year changes can be detected, primarily due to small statistics. Despite these relatively small numbers, these programs still represent one of the largest sources of highly qualified new science teachers in the region. The data show that no student was judged "Unacceptable" in any category of the unit plan assessment. Areas of relative strength included approximately half of students showing exceptional skill in these categories of unit planning: "Understanding of how students learn science", "Differentiation", and "Instructional Methods". An area for focused program is "Unit rationale central concepts and the supporting role of science-specific technology", where 10 of 18 candidates were still assessed as "developing".

d. **Evidence of meeting standards**

Data from this assessment demonstrate that our students routinely succeed in effective unit planning specific to science instruction. 90% of student item ratings were exceptional or proficient, 10% developing, and 0% unacceptable. The data on this assessment demonstrates that our students are meeting the following NSTA standard elements: NSTA 2012.1a-c, 2012.2 a-c., 2012.3 a-d., and 2012.5c

xxxScience Unit and Lesson Plan Rubric

by COE Administrator

Science Unit and Lesson Plan Rubric

Science Unit and Lesson Plan Rubric 2014

Science Lesson Plan Format

School of Education

The College of New Jersey

Planning lessons has two purposes: first, the process of lesson planning encourages deep thinking about the elements of a lesson; second, the plan guides you while delivering instruction. Experienced teachers may plan more informally, but novices need to create thorough plans that prevent them from delivering mediocre lessons or from forgetting crucial items. There is no one correct way to plan a lesson, but during your field experience your plans should contain the following elements:

1. Title or Topic of the lesson and Grade Level
2. Lesson Guiding Question(s): Write an overarching question that draws on unit question and best frames the understanding you want your students to develop in this lesson.
3. Standards: Identify the appropriate standards that you will *assess* in this lesson.
4. A. Learning Goals (Behavioral Objectives) and Assessments: Write a sentence for each of your desired learning outcomes. These must be written in observable terms and able to be assessed. They must correlate to the NJCCC Standards addressed above.
4. B. Assessments: Describe the assessments you will use to measure student progress towards or success in attaining the learning objectives. You may include homework assignments. .
5. Materials: List materials/resources you and the students will need to teach/learn this lesson.
6. Pre-lesson assignments and/or prior knowledge: Describe the prior knowledge that you believe your students bring to the lesson. This may include relevant background knowledge, possible misconceptions, or prior lesson content. Consider student readiness.

7. Lesson Beginning: Describe the activity you plan to use to focus the learners in this lesson. How will you engage and motivate them? This activity may serve as an informal assessment (examples include brainstorming, writing prompts, etc.)
8. Instructional Plan: Break down the activities by giving a detailed description of what you and the childre are going to do in each part of the lesson. Consider how you will engage students in the learning activities.
9. Closure: Describe how you will bring your lesson to a meaningful closure that summarizes the lesson and provides you with information on what your students have learned and need to learn in the future.

The following elements also need to be considered.

- Differentiation: Explain how you are going to make this lesson work for the range of students you have in your class. Describe the different ways that you will provide input and differentiate instruction so as to give students access to the content. Identify extra work that you will give to early finishers.
- Questions: List key open-ended questions you are going to pose in each activity. Consider Bloom's Taxonomy as you write your questions.
- Instructional Management: Consider strategies such as grouping, distributing materials, and/or identify potential behavioral problems.
- Transitions: Describe how you will transition and make connections between activities.

NSTA Standards

NSTA-2012.1a Understand the major concepts, principles, theories, laws, and interrelationships of their fields of licensure and supporting fields as recommended by the National Science Teachers Association.

NSTA-2012.1b Understand the central concepts of the supporting disciplines and the supporting role of science-specific technology.

NSTA-2012.1c Show an understanding of state and national curriculum standards and their impact on the content knowledge necessary for teaching P-12 students.

NSTA-2012.2a Plan multiple lessons using a variety of inquiry approaches that demonstrate their knowledge and understanding of how all students learn science.

NSTA-2012.2b Include active inquiry lessons where students collect and interpret data in order to develop and communicate concepts and understand scientific processes, relationships and natural patterns from empirical experiences. Applications of science-specific

technology are included in the lessons when appropriate.

NSTA-2012.2c Design instruction and assessment strategies that confront and address naÃ¯ve concepts/preconceptions.

NSTA-2012.3a Use a variety of strategies that demonstrate the candidatesâ knowledge and understanding of how to select the appropriate teaching and learning activities â including laboratory or field settings and applicable instruments and/or technology- to allow access so that all students learn. These strategies are inclusive and motivating for all students.

NSTA-2012.3b Develop lesson plans that include active inquiry lessons where students collect and interpret data using applicable science-specific technology in order to develop concepts, understand scientific processes, relationships and natural patterns from empirical experiences. These plans provide for equitable achievement of science literacy for all students.

NSTA-2012.3d Plan a learning environment and learning experiences for all students that demonstrate chemical safety, safety procedures, and the ethical treatment of living organisms within their licensure area.

NSTA-2012.5c Engage students in developmentally appropriate inquiries that require them to develop concepts and relationships from their observations, data, and inferences in a scientific manner.

Science Unit and Lesson Plan Rubric

	Exceptional (Target) (4.000 pts)	**Proficient (Acceptable)** (3.000 pts)	**Needs Improvement (Developing)** (2.000 pts)	**Unacceptable** (1.000 pt)
Unit rationale explains the major concepts, principles, theories, laws, and interrelationshi of unit topic (1.000, 11%) NSTA-2012.1a	Rationale explains and makes explicit connections between the major concepts, principles, theories, laws, and interrelationships of the respective fields of licensure,and supporting fields, as recommended by the National Science Teachers Association.	Rationale explains the major concepts, principles, theories, laws, and interrelationships of the respective fields of licensure, and supporting fields, as recommended by the National Science Teachers Association.	Rationale provides a weak understanding of the major concepts, principles, theories, laws, and interrelationships of the respective fields of licensure and supporting fields as recommended by the National Science Teachers Association.	Rationale does not provide connections to the major concepts, principles, theories, laws, and interrelationships of the respective fields of licensure as recommended by the National Science Teachers Association.
Unit rationale explains the topic's central concepts and the supporting role of science-specific	Rationale provides a comprehensive explanation of the topic's central concepts and makes connections to the supporting role of science-specific	Rationale provides a fairly detailed explanation of the topic's central concepts that includes the supporting role of science-specific	Rationale provides a general explanation of the topics central concepts that mentions the supporting role of science specific technology.	Rationale provides a vague explanation of the topics central concepts and/or fails to mentions the supporting role of science specific technology.

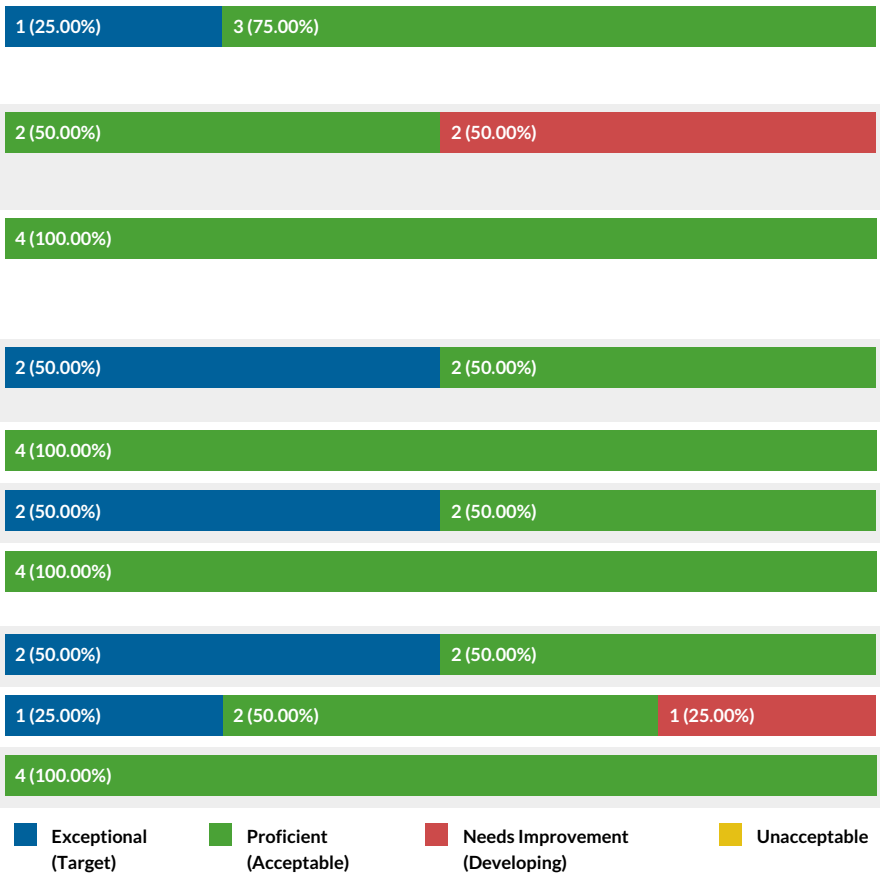
technology. (1.000, 11%) NSTA-2012.1b	technology.	technology.		
Candidate selects appropriate curriculum standards and thoroughly explains their impact on the content knowledge necessary for teaching P-12 students. (1.000, 11%) NSTA-2012.1c	Candidate selects the appropriate content standards and provides strong connections between the standards and the impact on the content knowledge students must learn.	Candidate selects the appropriate content standards and provides a valid discussion on the connection between the standards and the impact on the content knowledge students must learn.	Candidate selects the appropriate content standards and provides general discussion on the connections between the standards and the impact on the content knowledge students must learn.	Candidate selects the appropriate content standards and provides weak connections between the standards and the impact on the content knowledge students must learn.
Candidate understanding of how students learn science (1.000, 11%) NSTA-2012.2a	All of a candidate's lessons plans consistently incorporate a variety of inquiry approaches that demonstrate a knowledge and understanding of how all students learn science.	Candidate plans multiple lessons using a variety of inquiry approaches that demonstrate a knowledge and understanding of how all students learn science.	Candidate plans a few lessons using a variety of inquiry approaches that demonstrate some knowledge and understanding of how all students learn science.	Candidate plans mostly direct instruction and only one or two inquiry based lessons that do not demonstrate sufficient knowledge and understanding of how all students learn science.
Candidate develops inquiry based instruction (1.000, 11%) NSTA-2012.2b	All lessons are consistently inquiry-based where students collect and interpret data in order to develop and communicate concepts and understand scientific processes, relationships and natural patterns from empirical experiences. Applications of science-specific technology are included in the lessons when appropriate.	Most of the lessons draw on active inquiry where students collect and interpret data in order to develop and communicate concepts and understand scientific processes, relationships and natural patterns from empirical experiences. Applications of science-specific technology are included in the lessons when appropriate..	A few lessons incorporate active inquiry where students collect and interpret data in order to develop and communicate concepts and understand scientific processes, relationships and natural patterns from empirical experiences. Applications of science-specific technology are included in the lessons when appropriate.	Lessons are deficient in active inquiry where students collect and interpret data in order to develop and communicate concepts and understand scientific processes, relationships and natural patterns from empirical experiences. Applications of science-specific technology are sometimes included in the lessons when appropriate.
Candidate decision making (1.000, 11%) NSTA-2012.3a	Candidate consistently uses a variety of strategies that demonstrate understanding of how to select the appropriate teaching and learning activities – including laboratory or field settings and	Candidate draws on a few different strategies that demonstrate understanding of how to select the appropriate teaching and learning activities – including laboratory or field settings and	Candidate uses on only two or three strategies that demonstrate limited understanding of how to select the appropriate teaching and learning activities – including laboratory or field settings and	Candidate uses primarily direct instruction and does not demonstrate sufficient understanding of how to select the appropriate teaching and learning activities – including laboratory

	applicable instruments and/or technology- to allow access so that all students learn. These strategies are inclusive and motivating for all students.	applicable instruments and/or technology- to allow access so that all students learn. These strategies are inclusive and motivating for most students.	applicable instruments and/or technology- to allow access so that all students learn. These strategies are inclusive and motivating for many students.	or field settings and applicable instruments and/or technology- to allow access so that all students learn. These strategies may not be inclusive or may motivate few students.
Candidate develops inquiry lessons that use scientific specific technology. (1.000, 11%) NSTA-2012.3b	Candidate consistently develops lesson plans that include active inquiry lessons where students collect and interpret data using applicable science-specific technology in order to develop concepts, understand scientific processes, relationships and natural patterns from empirical experiences. These plans provide for equitable achievement of science literacy for all students.	Candidate develops multiple lesson plans that include active inquiry lessons where students collect and interpret data using applicable science-specific technology in order to develop concepts, understand scientific processes, relationships and natural patterns from empirical experiences. These plans provide for equitable achievement of science literacy for most students.	Candidate develops a few lesson plans that include active inquiry lessons where students collect and interpret data using applicable science-specific technology in order to develop concepts, understand scientific processes, relationships and natural patterns from empirical experiences. These plans provide for equitable achievement of science literacy for some students.	Candidate develops a few lesson plans that include active inquiry lessons where students collect and interpret data using applicable science-specific technology in order to develop concepts, understand scientific processes, relationships and natural patterns from empirical experiences. However, these plans do not provide for equitable achievement of science literacy.
Differentiation (1.000, 11%) NSTA-2012.5c	Candidate plans lessons that consistently engage all students in developmentally appropriate inquiries that require them to develop concepts and relationships from their observations, data, and inferences in a scientific manner.	Candidate plans lessons that engage most students in developmentally appropriate inquiries that require them to develop concepts and relationships from their observations, data, and inferences in a scientific manner.	Candidate plans lessons that sometimes engage students in developmentally appropriate inquiries that require them to develop concepts and relationships from their observations, data, and inferences in a scientific manner.	Candidate plans lessons that sometimes engage students in developmentally appropriate inquiries, but lessons may not require students to develop concepts and relationships from their observations, data, and inferences in a scientific manner.
Assessment (1.000, 11%) NSTA-2012.2c	Candidate consistently designs instruction and assessment strategies that effectively confront and address naïve concepts/preconceptions.	Candidate designs instruction and assessment strategies that confront and address naïve concepts/preconceptions.	Candidate designs instruction and assessment strategies that are weak in confronting and addressing naïve concepts/preconceptions.	Candidate does not design instruction and assessment strategies that confront and address naïve concepts/preconceptions.

Term Name	2019 Spring
Course Code	PHY390
Section Code	1
Assignment Name	Unit and Lesson Plan Assessment
Created By	Richards , Alan (ajace)
Assessment Document Title	Science Unit and Lesson Plan Rubric 2015
Showing Deleted Students	No

Rubric View: Science Unit and Lesson Plan Rubric

	Exceptional (Target) (4 pts)	Proficient (Acceptable) (3 pts)	Needs Improvement (Developing) (2 pts)	Unacceptable (3 pts)	*Mean*	*Mode*	*Stdev*
Unit rationale explains the major concepts, principles, theories, laws, and interrelationships of unit topic	1	3	0	0	3.250	3.000	0.433
Unit rationale explains the topic central concepts and the supporting role of science-specific technology.	0	2	2	0	2.500	2.000	0.500
Candidate selects appropriate curriculum standards and thoroughly explains their impact on the content knowledge necessary for teaching P-12 students.	0	4	0	0	3.000	3.000	0.000
Candidate understanding of how students learn science	2	2	0	0	3.500	3.000	0.500
Candidate develops inquiry based instruction	0	4	0	0	3.000	3.000	0.000
Candidate decision making	2	2	0	0	3.500	3.000	0.500
Candidate develops inquiry lessons that use scientific specific technology.	0	4	0	0	3.000	3.000	0.000
Differentiation	2	2	0	0	3.500	3.000	0.500
Assessment	1	2	1	0	3.000	3.000	0.707
Instructional Methods	0	4	0	0	3.000	3.000	0.000



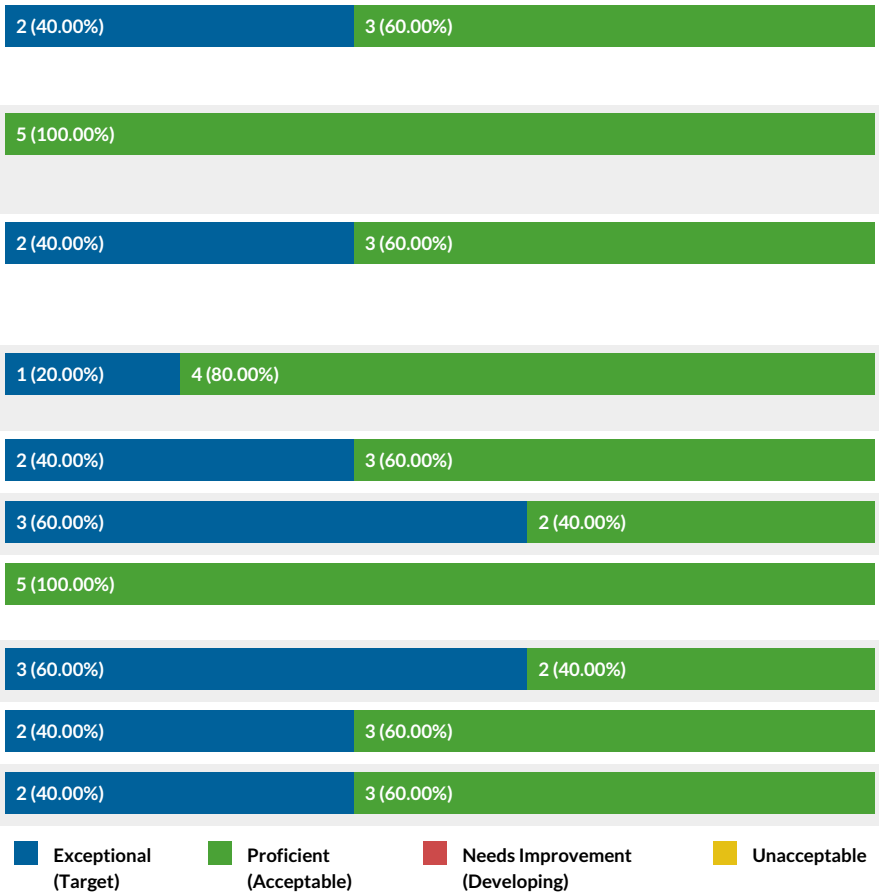
Roster View: Science Unit and Lesson Plan Rubric

Student	Assessor	Unit rationale explains the major concepts, principles, theories, laws, and interrelationships of unit topic	Unit rationale explains the topic central concepts and the supporting role of science-specific technology.	Candidate selects appropriate curriculum standards and thoroughly explains their impact on the content knowledge necessary for teaching P-12	Candidate understanding of how students learn science	Candidate develops inquiry based instruction	Candidate decision making	Candidate develops inquiry lessons that use scientific specific technology.	Differentiation	Assessment	Instructional Methods

Term Name	2018 Spring
Course Code	PHY390
Section Code	1
Assignment Name	Science Unit and Lesson Plan
Created By	Richards , Alan (ajace)
Assessment Document Title	Science Unit and Lesson Plan Rubric 2015
Showing Deleted Students	No

Rubric View: Science Unit and Lesson Plan Rubric

	Exceptional (Target) (4 pts)	Proficient (Acceptable) (3 pts)	Needs Improvement (Developing) (2 pts)	Unacceptable (3 pts)	*Mean*	*Mode*	*Stdev*
Unit rationale explains the major concepts, principles, theories, laws, and interrelationships of unit topic	2	3	0	0	3.400	3.000	0.490
Unit rationale explains the topic central concepts and the supporting role of science-specific technology.	0	5	0	0	3.000	3.000	0.000
Candidate selects appropriate curriculum standards and thoroughly explains their impact on the content knowledge necessary for teaching P-12 students.	2	3	0	0	3.400	3.000	0.490
Candidate understanding of how students learn science	1	4	0	0	3.200	3.000	0.400
Candidate develops inquiry based instruction	2	3	0	0	3.400	3.000	0.490
Candidate decision making	3	2	0	0	3.600	4.000	0.490
Candidate develops inquiry lessons that use scientific specific technology.	0	5	0	0	3.000	3.000	0.000
Differentiation	3	2	0	0	3.600	4.000	0.490
Assessment	2	3	0	0	3.400	3.000	0.490
Instructional Methods	2	3	0	0	3.400	3.000	0.490



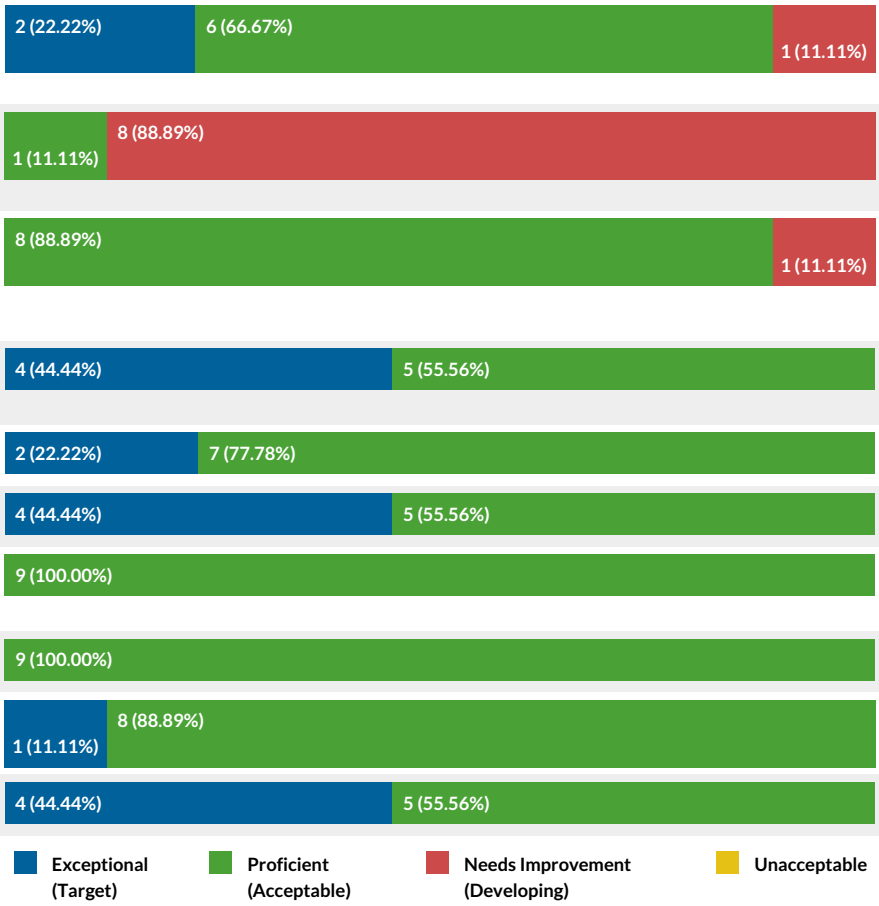
Roster View: Science Unit and Lesson Plan Rubric

Student	Assessor	Unit rationale explains the major concepts, principles, theories, laws, and interrelationships of unit topic	Unit rationale explains the topic central concepts and the supporting role of science-	Candidate selects appropriate curriculum standards and thoroughly explains their impact on the content knowledge	Candidate understanding of how students learn science	Candidate develops inquiry based instruction	Candidate decision making	Candidate develops inquiry lessons that use scientific specific technology.	Differentiation	Assessment	Instructional Methods

Term Name	2016 Fall
Course Code	PHY390
Section Code	1
Assignment Name	Science Unit and Lesson Plan
Created By	Richards , Alan (ajace)
Assessment Document Title	Science Unit and Lesson Plan Rubric 2015
Showing Deleted Students	No

Rubric View: Science Unit and Lesson Plan Rubric

	Exceptional (Target) (4 pts)	Proficient (Acceptable) (3 pts)	Needs Improvement (Developing) (2 pts)	Unacceptable (3 pts)	*Mean*	*Mode*	*Stdev*
Unit rationale explains the major concepts, principles, theories, laws, and interrelationships of unit topic	2	6	1	0	3.111	3.000	0.567
Unit rationale explains the topic central concepts and the supporting role of science-specific technology.	0	1	8	0	2.111	2.000	0.314
Candidate selects appropriate curriculum standards and thoroughly explains their impact on the content knowledge necessary for teaching P-12 students.	0	8	1	0	2.889	3.000	0.314
Candidate understanding of how students learn science	4	5	0	0	3.444	3.000	0.497
Candidate develops inquiry based instruction	2	7	0	0	3.222	3.000	0.416
Candidate decision making	4	5	0	0	3.444	3.000	0.497
Candidate develops inquiry lessons that use scientific specific technology.	0	9	0	0	3.000	3.000	0.000
Differentiation	0	9	0	0	3.000	3.000	0.000
Assessment	1	8	0	0	3.111	3.000	0.314
Instructional Methods	4	5	0	0	3.444	3.000	0.497



Roster View: Science Unit and Lesson Plan Rubric

Student	Assessor	Unit rationale explains the major concepts, principles, theories, laws, and interrelationships of unit topic	Unit rationale explains the topic central concepts and the supporting role of science-specific	Candidate selects appropriate curriculum standards and thoroughly explains their impact on the content knowledge	Candidate understanding of how students learn science	Candidate develops inquiry based instruction	Candidate decision making	Candidate develops inquiry lessons that use scientific specific technology.	Differentiation	Assessment	Instructional Methods

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1. Title or Topic of the lesson and Grade Level
2. Lesson Guiding Question(s): Write an overarching question that draws on unit question and best frames the understanding you want your students to develop in this lesson.
3. Standards: Identify the appropriate standards that you will *assess* in this lesson.
4. A. Learning Goals (Behavioral Objectives) and Assessments: Write a sentence for each of your desired learning outcomes. These must be written in observable terms and able to be assessed. They must correlate to the NJCCC Standards addressed above.
4. B. Assessments: Describe the assessments you will use to measure student progress towards or success in attaining the learning objectives. You may include homework assignments. .
5. Materials: List materials/resources you and the students will need to teach/learn this lesson.
6. Pre-lesson assignments and/or prior knowledge: Describe the prior knowledge that you believe your students bring to the lesson. This may include relevant background knowledge, possible misconceptions, or prior lesson content. Consider student readiness.

7. Lesson Beginning: Describe the activity you plan to use to focus the learners in this lesson. How will you engage and motivate them? This activity may serve as an informal assessment (examples include brainstorming, writing prompts, etc.)
8. Instructional Plan: Break down the activities by giving a detailed description of what you and the childre are going to do in each part of the lesson. Consider how you will engage students in the learning activities.
9. Closure: Describe how you will bring your lesson to a meaningful closure that summarizes the lesson and provides you with information on what your students have learned and need to learn in the future.

The following elements also need to be considered.

- Differentiation: Explain how you are going to make this lesson work for the range of students you have in your class. Describe the different ways that you will provide input and differentiate instruction so as to give students access to the content. Identify extra work that you will give to early finishers.
- Questions: List key open-ended questions you are going to pose in each activity. Consider Bloom's Taxonomy as you write your questions.
- Instructional Management: Consider strategies such as grouping, distributing materials, and/or identify potential behavioral problems.
- Transitions: Describe how you will transition and make connections between activities.

NSTA Standards

NSTA-2012.1a Understand the major concepts, principles, theories, laws, and interrelationships of their fields of licensure and supporting fields as recommended by the National Science Teachers Association.

NSTA-2012.1b Understand the central concepts of the supporting disciplines and the supporting role of science-specific technology.

NSTA-2012.1c Show an understanding of state and national curriculum standards and their impact on the content knowledge necessary for teaching P-12 students.

NSTA-2012.2a Plan multiple lessons using a variety of inquiry approaches that demonstrate their knowledge and understanding of how all students learn science.

NSTA-2012.2b Include active inquiry lessons where students collect and interpret data in order to develop and communicate concepts and understand scientific processes, relationships and natural patterns from empirical experiences. Applications of science-specific

technology are included in the lessons when appropriate.

NSTA-2012.2c Design instruction and assessment strategies that confront and address naÃ¯ve concepts/preconceptions.

NSTA-2012.3a Use a variety of strategies that demonstrate the candidatesâ knowledge and understanding of how to select the appropriate teaching and learning activities â including laboratory or field settings and applicable instruments and/or technology- to allow access so that all students learn. These strategies are inclusive and motivating for all students.

NSTA-2012.3b Develop lesson plans that include active inquiry lessons where students collect and interpret data using applicable science-specific technology in order to develop concepts, understand scientific processes, relationships and natural patterns from empirical experiences. These plans provide for equitable achievement of science literacy for all students.

NSTA-2012.3d Plan a learning environment and learning experiences for all students that demonstrate chemical safety, safety procedures, and the ethical treatment of living organisms within their licensure area.

NSTA-2012.5c Engage students in developmentally appropriate inquiries that require them to develop concepts and relationships from their observations, data, and inferences in a scientific manner.

Science Unit and Lesson Plan Rubric

	Exceptional (Target) (4.000 pts)	**Proficient (Acceptable)** (3.000 pts)	**Needs Improvement (Developing)** (2.000 pts)	**Unacceptable** (1.000 pt)
Unit rationale explains the major concepts, principles, theories, laws, and interrelationshi of unit topic (1.000, 11%) NSTA-2012.1a	Rationale explains and makes explicit connections between the major concepts, principles, theories, laws, and interrelationships of the respective fields of licensure,and supporting fields, as recommended by the National Science Teachers Association.	Rationale explains the major concepts, principles, theories, laws, and interrelationships of the respective fields of licensure, and supporting fields, as recommended by the National Science Teachers Association.	Rationale provides a weak understanding of the major concepts, principles, theories, laws, and interrelationships of the respective fields of licensure and supporting fields as recommended by the National Science Teachers Association.	Rationale does not provide connections to the major concepts, principles, theories, laws, and interrelationships of the respective fields of licensure as recommended by the National Science Teachers Association.
Unit rationale explains the topic's central concepts and the supporting role of science-specific	Rationale provides a comprehensive explanation of the topic's central concepts and makes connections to the supporting role of science-specific	Rationale provides a fairly detailed explanation of the topic's central concepts that includes the supporting role of science-specific	Rationale provides a general explanation of the topics central concepts that mentions the supporting role of science specific technology.	Rationale provides a vague explanation of the topics central concepts and/or fails to mentions the supporting role of science specific technology.

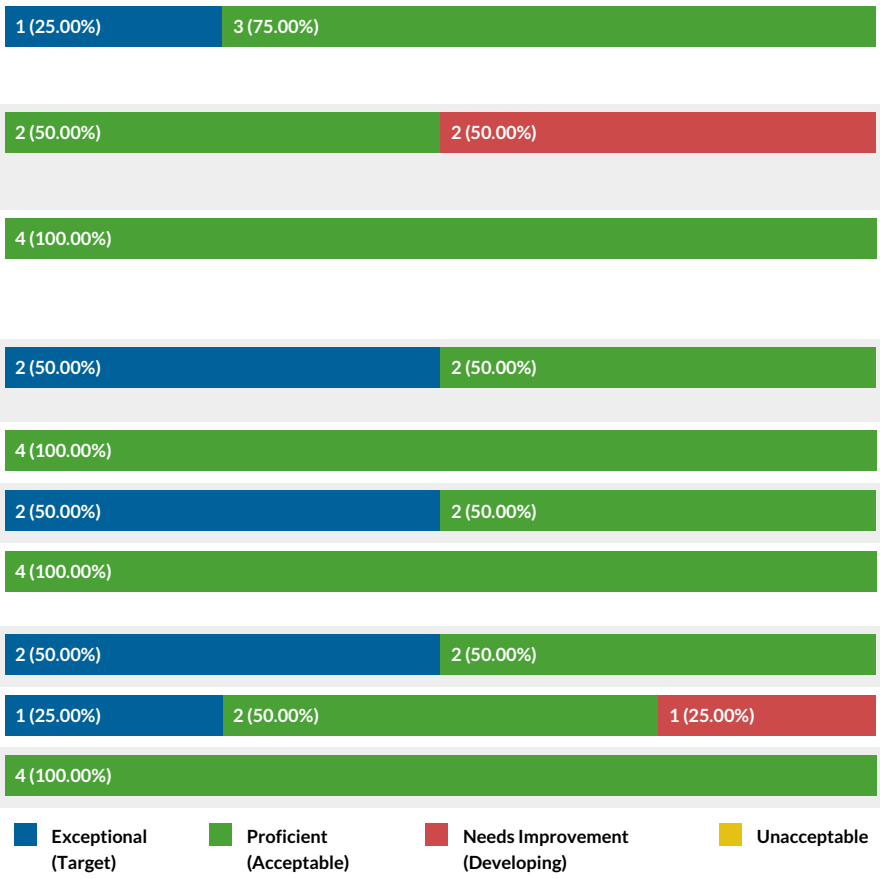
technology. (1.000, 11%) NSTA-2012.1b	technology.	technology.		
Candidate selects appropriate curriculum standards and thoroughly explains their impact on the content knowledge necessary for teaching P-12 students. (1.000, 11%) NSTA-2012.1c	Candidate selects the appropriate content standards and provides strong connections between the standards and the impact on the content knowledge students must learn.	Candidate selects the appropriate content standards and provides a valid discussion on the connection between the standards and the impact on the content knowledge students must learn.	Candidate selects the appropriate content standards and provides general discussion on the connections between the standards and the impact on the content knowledge students must learn.	Candidate selects the appropriate content standards and provides weak connections between the standards and the impact on the content knowledge students must learn.
Candidate understanding of how students learn science (1.000, 11%) NSTA-2012.2a	All of a candidate's lessons plans consistently incorporate a variety of inquiry approaches that demonstrate a knowledge and understanding of how all students learn science.	Candidate plans multiple lessons using a variety of inquiry approaches that demonstrate a knowledge and understanding of how all students learn science.	Candidate plans a few lessons using a variety of inquiry approaches that demonstrate some knowledge and understanding of how all students learn science.	Candidate plans mostly direct instruction and only one or two inquiry based lessons that do not demonstrate sufficient knowledge and understanding of how all students learn science.
Candidate develops inquiry based instruction (1.000, 11%) NSTA-2012.2b	All lessons are consistently inquiry-based where students collect and interpret data in order to develop and communicate concepts and understand scientific processes, relationships and natural patterns from empirical experiences. Applications of science-specific technology are included in the lessons when appropriate.	Most of the lessons draw on active inquiry where students collect and interpret data in order to develop and communicate concepts and understand scientific processes, relationships and natural patterns from empirical experiences. Applications of science-specific technology are included in the lessons when appropriate..	A few lessons incorporate active inquiry where students collect and interpret data in order to develop and communicate concepts and understand scientific processes, relationships and natural patterns from empirical experiences. Applications of science-specific technology are included in the lessons when appropriate.	Lessons are deficient in active inquiry where students collect and interpret data in order to develop and communicate concepts and understand scientific processes, relationships and natural patterns from empirical experiences. Applications of science-specific technology are sometimes included in the lessons when appropriate.
Candidate decision making (1.000, 11%) NSTA-2012.3a	Candidate consistently uses a variety of strategies that demonstrate understanding of how to select the appropriate teaching and learning activities – including laboratory or field settings and	Candidate draws on a few different strategies that demonstrate understanding of how to select the appropriate teaching and learning activities – including laboratory or field settings and	Candidate uses on only two or three strategies that demonstrate limited understanding of how to select the appropriate teaching and learning activities – including laboratory or field settings and	Candidate uses primarily direct instruction and does not demonstrate sufficient understanding of how to select the appropriate teaching and learning activities – including laboratory

	applicable instruments and/or technology- to allow access so that all students learn. These strategies are inclusive and motivating for all students.	applicable instruments and/or technology- to allow access so that all students learn. These strategies are inclusive and motivating for most students.	applicable instruments and/or technology- to allow access so that all students learn. These strategies are inclusive and motivating for many students.	or field settings and applicable instruments and/or technology- to allow access so that all students learn. These strategies may not be inclusive or may motivate few students.
Candidate develops inquiry lessons that use scientific specific technology. (1.000, 11%) NSTA-2012.3b	Candidate consistently develops lesson plans that include active inquiry lessons where students collect and interpret data using applicable science-specific technology in order to develop concepts, understand scientific processes, relationships and natural patterns from empirical experiences. These plans provide for equitable achievement of science literacy for all students.	Candidate develops multiple lesson plans that include active inquiry lessons where students collect and interpret data using applicable science-specific technology in order to develop concepts, understand scientific processes, relationships and natural patterns from empirical experiences. These plans provide for equitable achievement of science literacy for most students.	Candidate develops a few lesson plans that include active inquiry lessons where students collect and interpret data using applicable science-specific technology in order to develop concepts, understand scientific processes, relationships and natural patterns from empirical experiences. These plans provide for equitable achievement of science literacy for some students.	Candidate develops a few lesson plans that include active inquiry lessons where students collect and interpret data using applicable science-specific technology in order to develop concepts, understand scientific processes, relationships and natural patterns from empirical experiences. However, these plans do not provide for equitable achievement of science literacy.
Differentiation (1.000, 11%) NSTA-2012.5c	Candidate plans lessons that consistently engage all students in developmentally appropriate inquiries that require them to develop concepts and relationships from their observations, data, and inferences in a scientific manner.	Candidate plans lessons that engage most students in developmentally appropriate inquiries that require them to develop concepts and relationships from their observations, data, and inferences in a scientific manner.	Candidate plans lessons that sometimes engage students in developmentally appropriate inquiries that require them to develop concepts and relationships from their observations, data, and inferences in a scientific manner.	Candidate plans lessons that sometimes engage students in developmentally appropriate inquiries, but lessons may not require students to develop concepts and relationships from their observations, data, and inferences in a scientific manner.
Assessment (1.000, 11%) NSTA-2012.2c	Candidate consistently designs instruction and assessment strategies that effectively confront and address naïve concepts/preconceptions.	Candidate designs instruction and assessment strategies that confront and address naïve concepts/preconceptions.	Candidate designs instruction and assessment strategies that are weak in confronting and addressing naïve concepts/preconceptions.	Candidate does not design instruction and assessment strategies that confront and address naïve concepts/preconceptions.

Term Name	2019 Spring
Course Code	PHY390
Section Code	1
Assignment Name	Unit and Lesson Plan Assessment
Created By	Richards , Alan (ajace)
Assessment Document Title	Science Unit and Lesson Plan Rubric 2015
Showing Deleted Students	No

Rubric View: Science Unit and Lesson Plan Rubric

	Exceptional (Target) (4 pts)	Proficient (Acceptable) (3 pts)	Needs Improvement (Developing) (2 pts)	Unacceptable (3 pts)	*Mean*	*Mode*	*Stdev*
Unit rationale explains the major concepts, principles, theories, laws, and interrelationships of unit topic	1	3	0	0	3.250	3.000	0.433
Unit rationale explains the topic central concepts and the supporting role of science-specific technology.	0	2	2	0	2.500	2.000	0.500
Candidate selects appropriate curriculum standards and thoroughly explains their impact on the content knowledge necessary for teaching P-12 students.	0	4	0	0	3.000	3.000	0.000
Candidate understanding of how students learn science	2	2	0	0	3.500	3.000	0.500
Candidate develops inquiry based instruction	0	4	0	0	3.000	3.000	0.000
Candidate decision making	2	2	0	0	3.500	3.000	0.500
Candidate develops inquiry lessons that use scientific specific technology.	0	4	0	0	3.000	3.000	0.000
Differentiation	2	2	0	0	3.500	3.000	0.500
Assessment	1	2	1	0	3.000	3.000	0.707
Instructional Methods	0	4	0	0	3.000	3.000	0.000



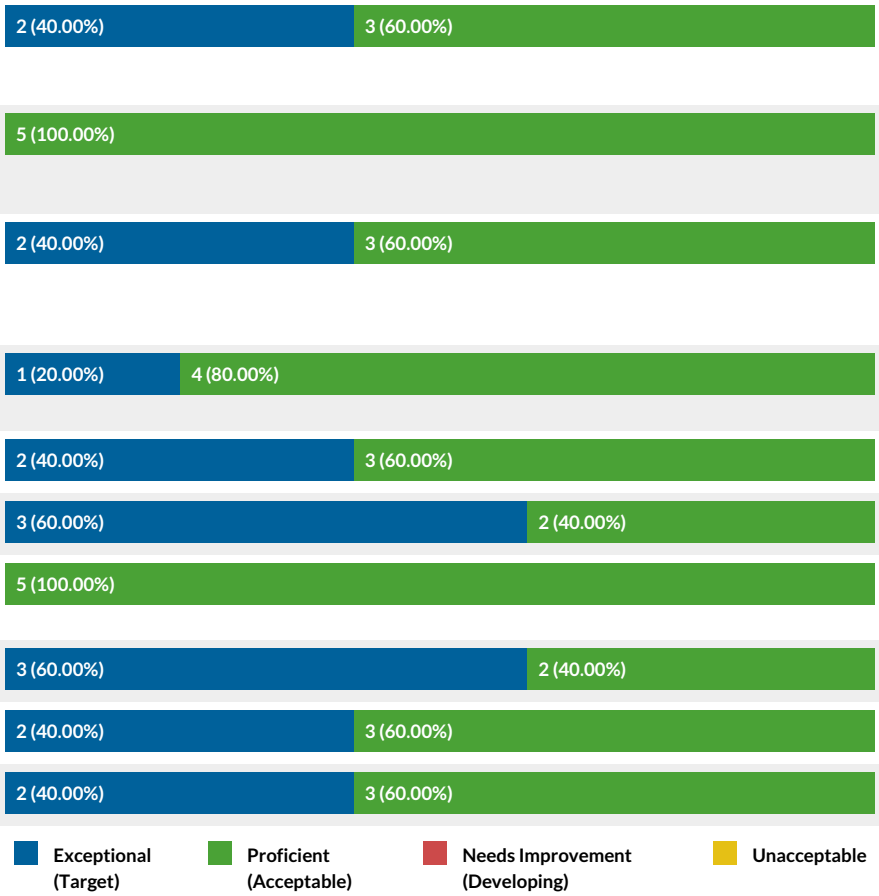
Roster View: Science Unit and Lesson Plan Rubric

Student	Assessor	Unit rationale explains the major concepts, principles, theories, laws, and interrelationships of unit topic	Unit rationale explains the topic central concepts and the supporting role of science-specific technology.	Candidate selects appropriate curriculum standards and thoroughly explains their impact on the content knowledge necessary for teaching P-12	Candidate understanding of how students learn science	Candidate develops inquiry based instruction	Candidate decision making	Candidate develops inquiry lessons that use scientific specific technology.	Differentiation	Assessment	Instructional Methods

Term Name	2018 Spring
Course Code	PHY390
Section Code	1
Assignment Name	Science Unit and Lesson Plan
Created By	Richards , Alan (ajace)
Assessment Document Title	Science Unit and Lesson Plan Rubric 2015
Showing Deleted Students	No

Rubric View: Science Unit and Lesson Plan Rubric

	Exceptional (Target) (4 pts)	Proficient (Acceptable) (3 pts)	Needs Improvement (Developing) (2 pts)	Unacceptable (3 pts)	*Mean*	*Mode*	*Stdev*
Unit rationale explains the major concepts, principles, theories, laws, and interrelationships of unit topic	2	3	0	0	3.400	3.000	0.490
Unit rationale explains the topic central concepts and the supporting role of science-specific technology.	0	5	0	0	3.000	3.000	0.000
Candidate selects appropriate curriculum standards and thoroughly explains their impact on the content knowledge necessary for teaching P-12 students.	2	3	0	0	3.400	3.000	0.490
Candidate understanding of how students learn science	1	4	0	0	3.200	3.000	0.400
Candidate develops inquiry based instruction	2	3	0	0	3.400	3.000	0.490
Candidate decision making	3	2	0	0	3.600	4.000	0.490
Candidate develops inquiry lessons that use scientific specific technology.	0	5	0	0	3.000	3.000	0.000
Differentiation	3	2	0	0	3.600	4.000	0.490
Assessment	2	3	0	0	3.400	3.000	0.490
Instructional Methods	2	3	0	0	3.400	3.000	0.490



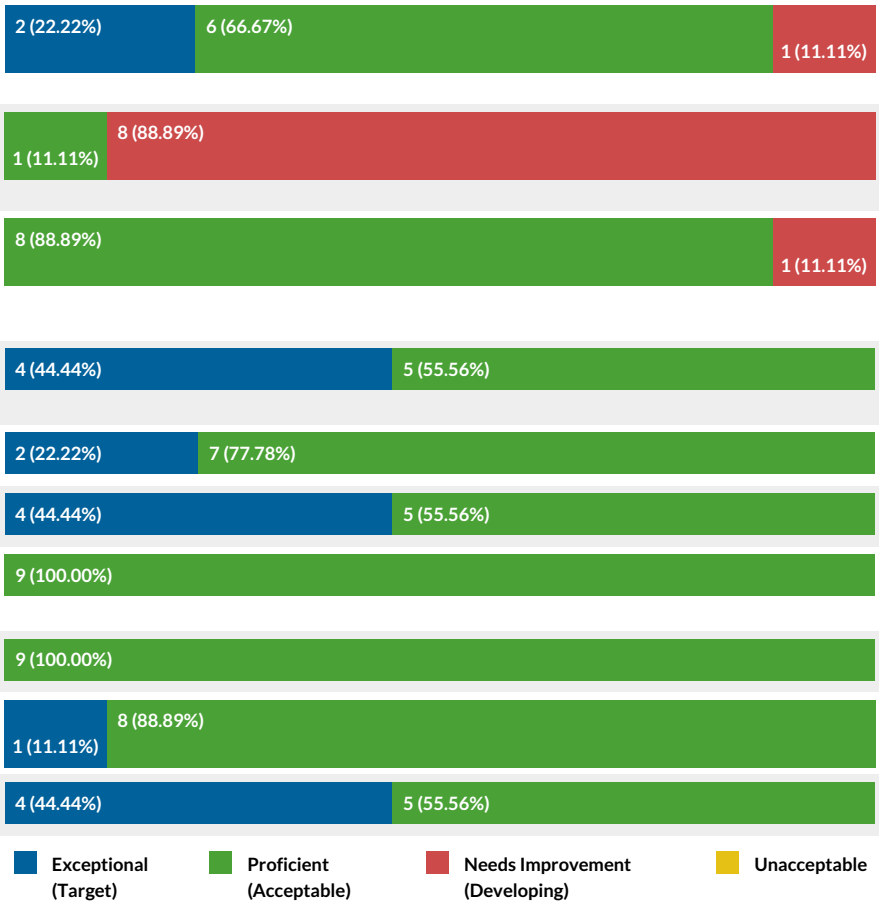
Roster View: Science Unit and Lesson Plan Rubric

Student	Assessor	Unit rationale explains the major concepts, principles, theories, laws, and interrelationships of unit topic	Unit rationale explains the topic central concepts and the supporting role of science-	Candidate selects appropriate curriculum standards and thoroughly explains their impact on the content knowledge	Candidate understanding of how students learn science	Candidate develops inquiry based instruction	Candidate decision making	Candidate develops inquiry lessons that use scientific specific technology.	Differentiation	Assessment	Instructional Methods

Term Name	2016 Fall
Course Code	PHY390
Section Code	1
Assignment Name	Science Unit and Lesson Plan
Created By	Richards , Alan (ajace)
Assessment Document Title	Science Unit and Lesson Plan Rubric 2015
Showing Deleted Students	No

Rubric View: Science Unit and Lesson Plan Rubric

	Exceptional (Target) (4 pts)	Proficient (Acceptable) (3 pts)	Needs Improvement (Developing) (2 pts)	Unacceptable (3 pts)	*Mean*	*Mode*	*Stdev*
Unit rationale explains the major concepts, principles, theories, laws, and interrelationships of unit topic	2	6	1	0	3.111	3.000	0.567
Unit rationale explains the topic central concepts and the supporting role of science-specific technology.	0	1	8	0	2.111	2.000	0.314
Candidate selects appropriate curriculum standards and thoroughly explains their impact on the content knowledge necessary for teaching P-12 students.	0	8	1	0	2.889	3.000	0.314
Candidate understanding of how students learn science	4	5	0	0	3.444	3.000	0.497
Candidate develops inquiry based instruction	2	7	0	0	3.222	3.000	0.416
Candidate decision making	4	5	0	0	3.444	3.000	0.497
Candidate develops inquiry lessons that use scientific specific technology.	0	9	0	0	3.000	3.000	0.000
Differentiation	0	9	0	0	3.000	3.000	0.000
Assessment	1	8	0	0	3.111	3.000	0.314
Instructional Methods	4	5	0	0	3.444	3.000	0.497



Roster View: Science Unit and Lesson Plan Rubric

Student	Assessor	Unit rationale explains the major concepts, principles, theories, laws, and interrelationships of unit topic	Unit rationale explains the topic central concepts and the supporting role of science-specific	Candidate selects appropriate curriculum standards and thoroughly explains their impact on the content knowledge	Candidate understanding of how students learn science	Candidate develops inquiry based instruction	Candidate decision making	Candidate develops inquiry lessons that use scientific specific technology.	Differentiation	Assessment	Instructional Methods