KEY LICENSURE ASSESSMENT #4: Clinical Practice*

ADOLESCENT TO YOUNG ADULT (AYA) SCIENCE: EDUC 625

Scoring Guide
Graduate Initial Teacher Preparation Program
Educator Preparation Unit
Muskingum University

* Please note that there are two Clinical Practice assessments: (1) Key Program Assessment #5 and (2) this Key Licensure Assessment.

<table>
<thead>
<tr>
<th>NSTA Element Statement</th>
<th>Meets Element (2)</th>
<th>Developing Element (1)</th>
<th>Unacceptable (0)</th>
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</thead>
<tbody>
<tr>
<td>NSTA Element 1c: Show an understanding of state and national curriculum standards and their impact on the content knowledge necessary for teaching P-12 students.</td>
<td>Consistently and successfully: • aligned content with state science standards; • used big ideas to link important science content into cohesive units of study; AND • pruned extraneous subtopics and technical vocabulary from the content taught. above 1, but below 2</td>
<td>Content was usually aligned with state science standards, but big ideas were not developed and/or extraneous subtopics and technical vocabulary were not pruned from content taught. above 0, but below 1</td>
<td>Content was consistently not aligned with state science standards.</td>
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| NSTA Element 2a: Plan multiple lessons using a variety of inquiry approaches that demonstrate their knowledge and understanding of how students learn science. | Consistently and successfully:  
- taught, modeled, practiced and emphasized the behaviors that are necessary to create a successful community of learners engaged in inquiry learning;  
- used such ideas as silent demos, discrepant events, KWL charts, and current events to introduce guided and open inquiries involving hands-on experiments, field observations and web resources to gather and interpret data;  
  **AND**  
- provided the scaffolding to link inquiry to big ideas. | above 1, but below 2 | Worked toward the tenets called for under “Meets Element”  
**AND**  
reflections in pre- and post-observation conferences indicated some learning and progress were taking place. | above 0, but below 1 | Guided and open inquiry was not attempted. |
<table>
<thead>
<tr>
<th>NSTA Element 2b:</th>
<th>Consistently and successfully:</th>
<th>above 1, but below 2</th>
<th>An attempt was made to design a creative and curious classroom environment AND open inquiry was used in some lessons.</th>
<th>above 0, but below 1</th>
<th>The classroom environment did not encourage creativity and curiosity AND open inquiry was not used in any lesson.</th>
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<tr>
<td>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.</td>
<td>• designed a creative and curious classroom environment <strong>AND</strong> • used open inquiry [i.e., time and opportunities for students to handle and observe the materials including science specific technology to be used in the inquiry, generate own questions, develop a plan for an experiment that answers their questions, perform the experiment and collect data, analyze data, interpret data, and present and discuss finding(s) with peers, <strong>AND</strong> link inquiry with big ideas] to address the most challenging unit concepts.</td>
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| NSTA Element 2c: Design instruction and assessment strategies that confront and address naïve concepts/preconceptions. | Consistently and successfully designed assessments in which:  
- content knowledge and preconceptions were determined by methods such as KWL, brainstorming, pre-writes, discrepant events, write everything you know activity, mind maps, word prompts, and direct questions;  
- evidence was gathered about the knowledge and preconceptions of students to help drive instruction;  
- evidence was gathered about the knowledge and preconceptions of students to help connect new ideas to pre-existing knowledge;  
- students were required to examine and then abandon any preconceptions that were not based on scientific thinking. | above 1, but below 2 | Worked toward the tenets called for under “Meets Element”  
**AND** reflections in pre- and post-observation conferences indicated some learning and progress were taking place. | above 0, but below 1 | Assessments neglected to fulfill all of the tenets called for under “Meets Element” |
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<tr>
<th>NSTA Element 3a:</th>
<th>Consistently and successfully:</th>
<th>above 1, but below 2</th>
<th>Worked toward the tenets called for under “Meets Element” AND reflections in pre- and post-observation conferences indicated some learning and progress were taking place.</th>
<th>above 0, but below 1</th>
<th>No effort was made to develop a learner-centered classroom environment.</th>
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<td>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.</td>
<td>• used all modalities to engage all students with science content; • used applicable instruments and/or technology, where appropriate, to enhance the learning of all students; • made modifications and/or accommodations in instructional activities to help all students learn; <strong>AND</strong> • provided feedback to help all students improve, create interesting and relevant tasks, reinforce progress and effort, help all students develop habits of mind that link effort with achievement, <strong>AND</strong> help all students construct new knowledge and monitor their own progress.</td>
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| NSTA Element 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. | Consistently and successfully designed inquiry lessons in which:  
- all students designed experiments and collected data using science specific technology;  
- all students interpreted data and drew conclusions in order to develop scientific understanding  
- all students were encouraged to share ideas, defend ideas using evidence, communicate data, be creative, and critique evidence;  
- experiences helped all students develop skills in scientific thinking;  
- the classroom climate was conducive to scientific thinking through collaboration;  

**AND**  
- the classroom climate was conducive to discussing and challenging ideas. | above 1, but below 2 | Worked toward the tenets called for under “Meets Element”  
**AND**  
reflections in pre- and post-observation conferences indicated some learning and progress were taking place. | above 0, but below 1 | Classroom environment was not conducive to collaboration  
**AND**  
scientific thinking was not taught **AND** was not encouraged. |
| **NSTA Element 3c:** Plan fair and equitable assessment strategies to analyze student learning and to evaluate if the learning goals are met. Assessment strategies are designed to continuously evaluate preconceptions and ideas that students hold and the understandings that students have formulated. | Consistently and successfully designed assessments:  
- to check for misconceptions and student knowledge;  
- to determine student understanding, not just recall of basic facts (*i.e.*, assessments that involved explaining, interpreting, applying and adapting knowledge, defending perspectives, asking relevant questions, problem solving in new situations, and metacognition);  
- to check for the development of student understanding as learning progresses;  
- aligned with learning goals and key concepts;  
**AND**  
- of important content that was cognitively complex, developmentally appropriate, fair to all students, **AND** provided ongoing evidence of student understanding. | above 1, but below 2 | Worked toward the tenets called for under “Meets Element” AND reflections in pre- and post-observation conferences indicated some learning and progress were taking place. | above 0, but below 1 | Assessments emphasized simple recall, were not fair, did not check for understanding, did not address key concepts, **AND** were not in alignment with learning goals. |
| NSTA Element 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(s). | Consistently and successfully planned a learning environment and learning experiences that: • provided a safe classroom environment for all students; • prominently displayed safety instructions; • used appropriate safety equipment; • used appropriate safety procedures; • gave attention to chemical safety as appropriate; • emphasized the ethical treatment of living organisms as appropriate;  
**AND**  
• used developmentally appropriate equipment and materials. | above 1, but below 2 | The safety of students was not compromised, but some elements of a truly safe environment were missing  
**AND**  
some of the tenets called for under “Meets Element” were not fully met. | above 0, but below 1 | Ignored safety issues  
**AND**  
the ethical treatment of living organisms. |
| NSTA Element 4a: Design activities in a P-12 classroom that demonstrates the safe and proper techniques for the preparation, storage, dispensing, supervision, and disposal of all materials used within their subject area science instruction. | Consistently and successfully: • identified appropriate materials, containers, and energy sources for lessons; • followed safe and proper techniques for the preparation, dispensing, and supervision of materials during lessons, and safe and proper techniques for the storage and disposal of materials following lessons; **AND** • followed the legal liabilities of the duty of instruction, the duty of supervision, and the duty of maintenance. | above 1, but below 2 | The safety of students was not compromised, but some elements of a truly safe environment were missing **AND** some of the tenets called for under “Meets Element” were not fully met. | above 0, but below 1 | Safety procedures were not followed; thus, the safety of students was compromised. |
| NSTA Element 4b: Design and demonstrate activities in a P-12 classroom that demonstrate an ability to implement emergency procedures and the maintenance of safety equipment, policies and procedures that comply with established state and/or national guidelines. Candidates ensure safe science practices appropriate for the abilities of all students. | Consistently and successfully:  
- provided a safe environment for all students;  
- taught safety procedures relevant to respective lessons;  
- maintained and used safe and safety equipment for respective lessons;  
- implemented emergency procedures as necessary;  
- modified and/or accommodated practices to ensure the safety of all students;  
  AND  
- complied with national, state, district, and school policies and procedures. | above 1, but below 2 | The safety of students was not compromised, but some elements of a truly safe environment were missing  
*AND*  
some of the tenets called for under “Meets Element” were not fully met. | above 0, but below 1 | Safety procedures were not followed; thus, the safety of students was compromised. |
<p>| NSTA Element 4c: Design and demonstrate activities in a P-12 classroom that demonstrate ethical decision making with respect to the treatment of all living organisms in and out of the classroom. They emphasize safe, humane, and ethical treatment of animals as appropriate; and complied with the legal restrictions on the collection, keeping, and use of living organisms. | Consistently and successfully: • made ethical decisions with respect to the treatment of all living organisms in and out of the classroom as appropriate; • emphasized safe, humane, and ethical treatment of animals as appropriate; <strong>AND</strong> • complied with the legal restrictions on the collection, keeping, and use of living organisms. | above 1, but below 2 | Emphasized safe, humane, and ethical treatment of living organisms as appropriate. | above 0, but below 1 | Did not emphasize the safe, humane, and ethical treatment living organisms. |</p>
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<th>NSTA Element 5a:</th>
<th>Consistently and successfully:</th>
<th>above 1, but below 2</th>
<th>Designed diagnostic, formative, OR summative assessments to gather evidence regarding student gain in scientific knowledge and/or correction of preconceptions;</th>
<th>above 0, but below 1</th>
<th>No diagnostic, formative, and summative assessments were designed to gather evidence regarding student gain in scientific knowledge and/or correction of preconceptions.</th>
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<td>Pre-service teachers will collect, organize, analyze, and reflect on diagnostic, formative and summative evidence of a change in mental functioning demonstrating that scientific knowledge is gained and/or corrected.</td>
<td>• designed diagnostic, formative, and summative assessments to gather evidence regarding student gain in scientific knowledge and/or correction of preconceptions; • organized, analyzed, and reflected on the evidence gathered; <strong>AND</strong> • used what was learned from the data to drive future instruction.</td>
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<th>NSTA Element 5b:</th>
<th>Consistently and successfully collected data to determine whether students:</th>
<th>above 1, but below 2</th>
<th>Collected data to determine whether students could distinguish science from nonscience; understood the evolution and practice of science as a human endeavor; <strong>AND</strong> could critique conclusions.</th>
<th>above 0, but below 1</th>
<th>No attempt was made to help students distinguish science from nonscience, understand the evolution and practice of science as a human endeavor, <strong>AND</strong> critique conclusions.</th>
</tr>
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<td>Provide data to show that P–12 students are able to distinguish science from nonscience, understand the evolution and practice of science as a human endeavor, and critically analyze assertions made in the name of science.</td>
<td>• could distinguish science from nonscience; • understood the evolution and practice of science as a human endeavor; <strong>AND</strong> • could critique conclusions.</td>
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<td>NSTA Element 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.</td>
<td>Consistently and successfully engaged students in developmentally appropriate inquiry activities that: • provided the opportunity to gather meaningful data, • provided the opportunity to develop scientific concepts and relationships from the data they collect, • provided the opportunity to defend the data they collect, ( \text{AND} ) • defend their inferences through multiple means with peers.</td>
<td>above 1, but below 2</td>
<td>Engaged some students in developmentally appropriate inquiry activities that provided them with the opportunity to gather some data that provided them with the opportunity to develop some scientific concepts.</td>
<td>above 0, but below 1</td>
<td>Students were not given the opportunity to engage in any developmentally appropriate inquiry activity.</td>
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