

RUBRIC FOR SUPERVISOR OBSERVATIONS

ELEMENT	UNSATISFACTORY (0)	BASIC (2)	PROFICIENT (3)	DISTINGUISHED (4)
<p>KNOWLEDGE OF SUBJECT MATTER (as evidenced through advanced planning and during teaching)</p>	<p>The ST displays little content knowledge by giving several pieces of incorrect information or cannot consistently correct student errors. Several mistakes are made that are not caught.</p>	<p>The ST displays basic content knowledge by struggling to present the lesson in a clear and articulate manner, whether attempting to use traditional or reform methods. The ST does not appear to know much more than the content being taught by not being able to use multiple representations and connections, or struggles to get students actively involved. Largely a traditional lecture-style lesson. Mistakes are made that are not readily caught.</p>	<p>The ST displays solid content knowledge by using multiple representations and connections to mathematics and other subjects in a cursory manner, or struggles to do so. Learning experiences are created that include reform elements such as inquiry and questioning, but the ST often struggles to implement them. It is clear that the ST knows the mathematics being taught very well. If a mistake is made, it is usually caught right away.</p>	<p>The ST displays extensive content knowledge by using multiple representations, connections to mathematics and other subjects, and creating learning experiences where students are actively engaged using inquiry and critical thinking skills through activities and questioning. It is clear that concepts and reasoning are being taught as well as procedures. It is clear that the ST really knows the mathematics being taught, as well as higher levels.</p>
<p>INSTRUCTIONAL PLANNING SKILLS (as evidenced through advanced planning)</p>	<p>The lesson plan is either not present or so poorly written that it is nearly impossible to gain any beforehand understand of what is going to happen during the lesson. It does not appear that the ST is spending sufficient time trying to plan effective lessons.</p>	<p>The lesson plan is not very well-written, either not including the necessary information for a highly effective lesson or the information is written in an inappropriate manner. It is not clear that the ST has given serious consideration to those aspects listed to the right. While the lesson may be well-taught, the lesson plan does not provide the beforehand evidence.</p>	<p>The lesson plan is well-written and includes most of the necessary information for a highly effective lesson. It is clear that the ST has attempted to create a lesson containing those aspects mentioned to the right, but some aspects may be unclear to the reader. If carried out the way it is planned, the lesson should be effective.</p>	<p>The lesson plan is exceptionally well-written and includes all necessary information for a highly effective lesson. It is clear that the lesson plan has been created with student development, learning styles, innovative materials, active engagement, and exceptionalities (including IEP's) in mind. If carried out the way it is planned, the lesson should be effective. It is clear from the lesson plan what will happen during the lesson.</p>
<p>ADAPTING INSTRUCTION FOR INDIVIDUAL NEEDS (as evidenced during teaching)</p>	<p>The ST conveys a passive attitude towards students. The ST does not appear interested in helping students out as individuals. Few attempts are made to provide instruction that focuses on student needs. If IEP's are present, the ST does not appear interested in making the appropriate accommodations.</p>	<p>The ST has a positive attitude toward all students as individuals but is reluctant to assist some of them in the learning process. The recognition of diversity in learning is present, but nothing is done to address this need. Few attempts are made to vary instruction based on different approaches to learning, whether IEP's are present or not. If IEP's are present, the ST displays limited knowledge or how to make appropriate accommodations.</p>	<p>The ST has a positive attitude towards all students as individuals and does not shy away from assisting all of them. The ST is aware of the differences among students and attempts to use this awareness to help diverse students learn. Varied approaches to learning are attempted, taking into account the differences in how students learn, whether IEP's are present or not. If IEP's are present, the ST makes appropriate accommodations.</p>	<p>The ST makes all students feel valued, demonstrating a clear understanding of the diverse needs of students and how these needs have been affected through experience, talents, prior learning, language, culture, family, and community. Different approaches to learning are used for students who may learn differently, whether an IEP is available or not. If IEP's are present, the ST willingly makes high quality accommodations.</p>

ELEMENT	UNSATISFACTORY (0)	BASIC (2)	PROFICIENT (3)	DISTINGUISHED (4)
<p align="center">MULTIPLE INSTRUCTIONAL STRATEGIES (as evidenced during teaching)</p>	<p>The ST provides activities and assignments that are inappropriate for students, whether in terms of their age or backgrounds. The strategy selected does not actively engage the students internally or externally. When students give feedback, the ST makes no attempt to acknowledge the feedback and make any changes is apparent.</p>	<p>The ST selects one instructional strategy that is appropriate to provide students with an opportunity to construct a correct mathematical understanding of the concepts but cannot seem to adjust the strategy based on student feedback, although an attempt is made. OR, The ST selects multiple instructional strategy but it is questionable as to whether they are appropriate and/or used wisely.</p>	<p>The ST selects appropriate instructional strategies that provide students with the opportunities to construct a correct mathematical understanding of the concepts. Based on student feedback, the ST adapts the strategy but does not take the initiative to provide different instructional strategies.</p>	<p>The ST selects appropriate instructional strategies that provide students with the opportunities to construct a correct mathematical understanding of the concepts. Different instructional strategies are used to enhance student understanding. Based on student feedback, the ST shows confidence in adapting instructional strategies.</p>
<p align="center">ASSESSMENT OF STUDENT LEARNING (as evidenced during teaching)</p>	<p>The ST makes no attempt to assess student achievement or the assessments are completely unmatched with the stated objectives.</p>	<p>The assessment strategies of the ST were unclear from the lesson observed. It appeared as if an attempt at assessment was made, but it was simply unclear or not useful information. The assessments do not clearly match the stated objectives.</p>	<p>The ST uses appropriate assessments as indicated to the right, but it is not clear that the ST is fully aware of what they were doing. Assessment is inadvertent and unplanned, however, it does match the stated objectives.</p>	<p>The ST uses appropriate assessments, both before and after the lesson, to evaluate student achievement of the stated objectives. The ST is aware of the strategies used and uses them purposefully. The ST uses formative assessment throughout the lesson to assess their teaching and summative assessment at the end to determine student achievement.</p>
<p align="center">COMMUNICATION SKILLS (as evidenced during teaching)</p>	<p>The ST's oral and/or written language contains many errors or is not understandable. Statements are unclear or vague and seems to leave the students confused. Questions are of poor quality, either not inviting a response or requiring only a single-word response. Discussions are non-existence.</p>	<p>The ST's oral and/or written language correct, but limited or is not appropriate to students' levels. Few questions are used and discussion is kept to a minimum or it appears as if questions and/or discussions are directed only towards certain students. Little else is used besides oral and written communication.</p>	<p>The ST appropriately uses the communication techniques chosen for the lesson. Oral and written language is clear and correct, but not expressive. Questioning and discussion techniques are used appropriately.</p>	<p>The ST appropriately uses a variety of communication techniques such as oral, written, computers, overheads, calculators, questions, discussion, etc. The ST's oral and written language is appropriate, clear, correct, and expressive. Appropriate and thought-provoking questions are used and adequate wait time is given with an expectation that students will respond. Discussion techniques are utilized, with the students contributing to the discussions appropriately.</p>

ELEMENT	UNSATISFACTORY (0)	BASIC (2)	PROFICIENT (3)	DISTINGUISHED (4)
<p>PROFESSIONAL COMMITMENT AND RESPONSIBILITY (as evidences through observation and during teaching)</p>	<p>The ST's appearance is inappropriate. The ST's actions and interactions with students and others are negative or self-serving. The ST cannot seem to adapt to unexpected changes that occurred during the lesson. School policies seem to be circumvented.</p>	<p>The ST's appearance may be questionable in a professional setting or for the school atmosphere. The ST's actions and interactions with students and others are questionable and should be rethought. The ST had trouble adapting to unexpected changes that occurred during the lesson, needing direction and prompting from others. School policies seem to be downplayed.</p>	<p>The ST's appearance is professional and appropriate for the school atmosphere. The ST's actions and interactions with students and others are professional and friendly. The ST had a little trouble adapting to unexpected changes that occurred during the lesson, needing direction or prompting from someone else. School policies seem to be closely followed.</p>	<p>The ST's appearance is professional and appropriate for the school atmosphere. The ST's actions and interactions with students and others are professional and friendly. The ST adapts to any unexpected changes that occurred during the lesson with absolute self-confidence, without direction or prompting from anyone. School policies seem to be closely followed.</p>
<p>REFLECTION (as evidenced through reflection journal and post-observation conference)</p>	<p>The ST does not seem interested in reflecting on the effectiveness of the lesson. OR, No reflection journal is provided to the observer.</p>	<p>The ST does little to provide insights into assessing the lesson's effectiveness, needing to be shown examples that stimulate reflection. OR, The ST provides the observer with a reflection journal that is simply a list of daily activities. No evidence is provided that the ST is attempting to make adjustments, where needed, based on reflection.</p>	<p>The ST provides insights into assessing the lesson's effectiveness and cites specific examples. The ST provides the observer with a reflection journal showing consistent reflection (not a list) on the daily activities. Evidence exists that the ST is attempting to make adjustments, where needed, based on reflection.</p>	<p>The ST provides thoughtful and accurate insights into assessing the lesson's effectiveness by citing specific examples of what happened during the lesson. The ST provides the observer with a reflection journal showing consistent reflection (not a list) on the daily activities and the teaching process in general. Evidence exists that the ST is making adjustments, where needed, based on reflection.</p>
<p>CLASSROOM MOTIVATION AND MANAGEMENT SKILLS (as evidenced during teaching)</p>	<p>The classroom is replete with disrespect and an uncaring attitude. A negative learning environment exists. The students do not listen to the ST or the ST ignores student misbehavior on a consistent basis. The ST is highly disorganized and is unable to manage the resources and tasks of the day. Students are mostly off task. ST is mostly unaware of what students are doing.</p>	<p>A neutral learning environment exists. While mutual respect and trust is not necessarily evident, neither are consistent signs of disrespect and animosity. The classroom feels like it is simply a place where the ST and students meet for a period of time. The ST seems disorganized and has difficulty managing instructional activities or groups. There is no attempt to prevent misbehavior or the ST seems quite unaware of what students are doing.</p>	<p>A positive learning environment exists in the class. There is mutual respect and trust between students and ST, with no general excitement existing about learning together from either party. The ST is well organized. Most students are engaged in the learning process. The ST is alert to student behavior the majority of time and monitors this behavior subtly, with preventative measures taken.</p>	<p>The ST maintains a constant positive learning environment. There appears to be mutual respect and a high level of trust between students and the ST. The students appear to enjoy learning with the ST, and the ST shares this joy. The ST appears to be extremely well organized and is productive at managing all resources and tasks. Management of any groups or individuals is done so properly. Monitoring of student behavior is subtle and preventative. Student behavior issues are dealt with.</p>

ELEMENT	UNSATISFACTORY (0)	BASIC (2)	PROFICIENT (3)	DISTINGUISHED (4)
<p style="text-align: center;">FOSTERS RELATIONSHIPS (as evidenced by reflective journal)</p>	<p>The ST does not attempt to be cordial to other educators and certainly does not exchange ideas with them. The ST has not made any parent/guardian contact and avoids these situations. The ST does not use any of the available opportunities outside of the classroom to interact with parents or other members of the community.</p>	<p>The relationship between ST and other educators is a cordial one but not one in which an exchange of ideas usually takes place. The ST is reluctant to contact parents or guardians, but does so when told. The ST rarely uses the available opportunities outside of the classroom to interact with parents or other members of the community.</p>	<p>The ST maintains a cooperative relationship with other educators in which there is an occasional sharing of ideas to use in the classroom. The ST makes some contacts with parents or guardians. The ST uses some of the available opportunities outside of the classroom to interact with parents or other members of the community.</p>	<p>The ST shows evidence of actively seeking and sharing with other educators for ideas to use in the classroom. The ST shows evidence that they are consistently communicating with parents or guardians concerning student progress. The ST makes numerous contacts, in conjunction with cooperating teacher, or alone if allowed. The ST consistently uses available opportunities to get involved in the school outside of the classroom and to interact with parents or other members of the community.</p>

NOTE: For the evaluation of the mathematical process, pedagogical, and content standards on the following pages, N/A may be marked if the lesson, for good reason, did not afford the student-teacher the opportunity to demonstrate proficiency in the standard. Keep in mind that just because you may not be teaching a course labeled “geometry,” that doesn’t mean that the lesson didn’t contain (or shouldn’t have contained) geometric concepts. With respect to the process standards, most lessons will most likely involve most of them!

STANDARD	UNSATISFACTORY (0)	BASIC (2)	PROFICIENT (3)	DISTINGUISHED (4)
<p align="center">PROBLEM SOLVING (Candidates know, understand, and apply the process of mathematical problem solving.)</p>	<p>The ST displays little to no knowledge, understanding, and application of the process of mathematical problem solving by inadequately using a variety of strategies, problems in only math, inadequately building new knowledge through problem solving, or inadequately monitoring and reflecting on the problem solving process. The ST uses a deficient understanding of problem solving to teach the concepts at hand. Several mistakes are made or the ST struggles with the process.</p>	<p>The ST displays basic knowledge, understanding, and application of the process of mathematical problem solving by using a variety of strategies, problems in math and other contexts, building new knowledge through problem solving, or monitoring and reflecting on the problem solving process, doing so in a superficial manner. The ST uses a sufficient understanding of problem solving in order to teach the concepts at hand but does not appear to know much more than the content being taught.</p>	<p>The ST displays solid knowledge, understanding, and application of the process of mathematical problem solving by using a variety of strategies, problems in math and other contexts, building new knowledge through problem solving, or monitoring and reflecting on the problem solving process, doing so in a skillful manner. The ST uses a thorough understanding of problem solving in order to teach the concepts at hand.</p>	<p>The ST displays extensive knowledge, understanding, and application of the process of mathematical problem solving by using a variety of strategies, problems in math and other contexts, building new knowledge through problem solving, or monitoring and reflecting on the problem solving process, doing so in an insightful manner. The ST uses an advanced understanding of problem solving in order to teach the concepts at hand.</p>
<p align="center">REASONING AND PROOF (Candidates reason, construct, and evaluate mathematical arguments and develop an appreciation for mathematical rigor and inquiry.)</p>	<p>The ST displays little to no knowledge of reasoning and proof by inadequately recognizing it as fundamental, inadequately making and investigating conjectures, inadequately developing and evaluating arguments and proofs, or inadequately using various types of reasoning and proof. The ST uses a deficient understanding of reasoning and proof in order to teach the concepts at hand. Several mistakes are made or the ST struggles with the process.</p>	<p>The ST displays basic knowledge of reasoning and proof by recognizing it as fundamental, making and investigating conjectures, developing and evaluating arguments and proofs, or using various types of reasoning and proof, doing so in a superficial manner. The ST uses a sufficient understanding of reasoning and proof in order to teach the concepts at hand but does not appear to know much more than the content being taught.</p>	<p>The ST displays solid knowledge of reasoning and proof by recognizing it as fundamental, making and investigating conjectures, developing and evaluating arguments and proofs, or using various types of reasoning and proof, doing so in a skillful manner. The ST uses a thorough understanding of reasoning and proof in order to teach the concepts at hand.</p>	<p>The ST displays extensive knowledge of reasoning and proof by recognizing it as fundamental, making and investigating conjectures, developing and evaluating arguments and proofs, or using various types of reasoning and proof, doing so in an insightful manner. The ST uses an advanced understanding of reasoning and proof in order to teach the concepts at hand.</p>
<p align="center">MATHEMATICAL COMMUNICATION (Candidates communicate their mathematical thinking orally and in writing to peers, faculty, and others.)</p>	<p>The ST displays little to no knowledge of mathematical communication by inadequately communicating coherently, inadequately expressing ideas precisely, inadequately organizing thoughts, or inadequately analyzing and evaluating the thinking of others. The ST uses a deficient understanding of communication in order to teach the concepts at hand. Several mistakes are made or the ST struggles with the process.</p>	<p>The ST displays basic knowledge of mathematical communication by communicating coherently, expressing ideas precisely, organizing thoughts, or analyzing and evaluating the thinking of others, doing so in a superficial manner. The ST uses a sufficient understanding of communication in order to teach the concepts at hand but does not appear to know much more than the content being taught.</p>	<p>The ST displays solid knowledge of mathematical communication by communicating coherently, expressing ideas precisely, organizing thoughts, or analyzing and evaluating the thinking of others, doing so in a skillful manner. The ST uses a thorough understanding of communication in order to teach the concepts at hand.</p>	<p>The ST displays extensive knowledge of mathematical communication by communicating coherently, expressing ideas precisely, organizing thoughts, or analyzing and evaluating the thinking of others, doing so in an insightful manner. The ST uses an advanced understanding of communication in order to teach the concepts at hand.</p>

STANDARD	UNSATISFACTORY (0)	BASIC (2)	PROFICIENT (3)	DISTINGUISHED (4)
<p>MATHEMATICAL CONNECTIONS (Candidates recognize, use, and make connections between and among mathematical ideas and in contexts outside of mathematics to build mathematical understanding.)</p>	<p>The ST displays little to no knowledge of mathematical connections by inadequately recognizing and using connections among ideas, inadequately recognizing and applying mathematics in other contexts, or inadequately demonstrating how ideas interconnect and build on each other. The ST uses a deficient understanding of mathematical connections in order to teach the concepts at hand. Several mistakes are made or the ST struggles with the process.</p>	<p>The ST displays basic knowledge of mathematical connections by recognizing and using connections among ideas, recognizing and applying mathematics in other contexts, or demonstrating how ideas interconnect and build on each other, doing so in a superficial manner. The ST uses a sufficient understanding of mathematical connections in order to teach the concepts at hand but does not appear to know much more than the content being taught.</p>	<p>The ST displays solid knowledge of mathematical connections by recognizing and using connections among ideas, recognizing and applying mathematics in other contexts, or demonstrating how ideas interconnect and build on each other, doing so in a skillful manner. The ST uses a thorough understanding of mathematical connections in order to teach the concepts at hand.</p>	<p>The ST displays extensive knowledge of mathematical connections by recognizing and using connections among ideas, recognizing and applying mathematics in other contexts, or demonstrating how ideas interconnect and build on each other, doing so in an insightful manner. The ST uses an advanced understanding of mathematical connections in order to teach the concepts at hand.</p>
<p>MATHEMATICAL REPRESENTATION (Candidates use varied representations of mathematical ideas to support and deepen students' mathematical understanding.)</p>	<p>The ST displays little to no knowledge of mathematical representation by inadequately using it to model and interpret, inadequately creating and using it to organize, record, and communicate, or inadequately selecting, applying, and translating among them to solve problems. The ST uses a deficient understanding of mathematical representations in order to teach the concepts at hand. Several mistakes are made or the ST struggles with the process.</p>	<p>The ST displays basic knowledge of mathematical representation by using it to model and interpret, creating and using it to organize, record, and communicate, or selecting, applying, and translating among them to solve problems, doing so in a superficial manner.. The ST uses a sufficient understanding of mathematical representations in order to teach the concepts at hand but does not appear to know much more than the content being taught.</p>	<p>The ST displays solid knowledge of mathematical representation by using it to model and interpret, creating and using it to organize, record, and communicate, and selecting, applying, or translating among them to solve problems, doing so in a skillful manner. The ST uses a thorough understanding of mathematical representations in order to teach the concepts at hand.</p>	<p>The ST displays extensive knowledge of mathematical representation by using it to model and interpret, creating and using it to organize, record, and communicate, and selecting, applying, or translating among them to solve problems, doing so in an insightful manner. The ST uses an advanced understanding of mathematical representations in order to teach the concepts at hand.</p>
<p>TECHNOLOGY (Candidates embrace technology as an essential tool for teaching and learning mathematics.)</p>	<p>The ST displays little to no knowledge of technology by inadequately selecting or using appropriate technological tools to enhance student learning. The ST uses a deficient understanding of technology order to teach the concepts at hand. Several mistakes are made or the ST struggles with the process.</p>	<p>The ST displays basic knowledge of technology by selecting and using appropriate technological tools to enhance student learning in a superficial manner. The ST uses a sufficient understanding of technology order to teach the concepts at hand but does not appear to know much more than the content being taught.</p>	<p>The ST displays solid knowledge of technology by selecting and using appropriate technological tools to enhance student learning, doing so in a skillful manner. The ST uses a thorough understanding of technology order to teach the concepts at hand.</p>	<p>The ST displays extensive knowledge of technology by selecting and using appropriate technological tools to enhance student learning, doing so in an insightful manner. The ST uses an advanced understanding of technology order to teach the concepts at hand.</p>

STANDARD	UNSATISFACTORY (0)	BASIC (2)	PROFICIENT (3)	DISTINGUISHED (4)
<p align="center">DISPOSITIONS (Candidates support a positive disposition toward mathematical processes and mathematical learning.)</p>	<p>The ST does not supports a positive disposition toward mathematical processes and mathematical learning by inadequately paying attention to equity, inadequately using stimulating curricula, inadequately effectively teaching, inadequately being committed to learning with understanding, inadequately using various assessments, or inadequately using various teaching tools including technology. The ST uses deficient dispositions in order to teach the concepts at hand.</p>	<p>The ST basically supports a positive disposition toward mathematical processes and mathematical learning by paying attention to equity, using stimulating curricula, effectively teaching, being committed to learning with understanding, using various assessments, or using various teaching tools including technology, doing so in a superficial manner. The ST uses sufficient dispositions in order to teach the concepts at hand.</p>	<p>The ST solidly supports a positive disposition toward mathematical processes and mathematical learning by paying attention to equity, using stimulating curricula, effectively teaching, being committed to learning with understanding, using various assessments, or using various teaching tools including technology, doing so in a skillful manner. The ST uses appropriate dispositions in order to teach the concepts at hand.</p>	<p>The ST extensively supports a positive disposition toward mathematical processes and mathematical learning by paying attention to equity, using stimulating curricula, effectively teaching, being committed to learning with understanding, using various assessments, or using various teaching tools including technology, doing so in an insightful manner. The ST uses outstanding dispositions in order to teach the concepts at hand.</p>
<p align="center">KNOWLEDGE OF MATHEMATICS PEDAGOGY (Candidates possess a deep understanding of how students learn mathematics and of the pedagogical knowledge specific to mathematics teaching and learning.)</p>	<p>The ST displays little to no knowledge of mathematics pedagogy by inadequately using a variety of curricula and materials for all students, inadequately using concrete material, inadequately using multiple strategies to assess students, inadequately planning a lesson that addresses appropriate goals and standards, inadequately participating in professional organizations, inadequately using research, inadequately using different instructional strategies, inadequately leading the class in in-depth conceptual understanding, or inadequately using technologies potential. The ST uses a deficient understanding of mathematics pedagogy in order to teach the concepts at hand.</p>	<p>The ST displays basic knowledge of mathematics pedagogy by using a variety of curricula and materials for all students, using concrete material, using multiple strategies to assess students, planning a lesson that addresses appropriate goals and standards, participating in professional organizations, using research, using different instructional strategies, leading the class in in-depth conceptual understanding, or using technologies potential, doing so in a superficial manner. The ST uses a sufficient understanding of mathematics pedagogy in order to teach the concepts at hand.</p>	<p>The ST displays solid knowledge of mathematics pedagogy by using a variety of curricula and materials for all students, using concrete material, using multiple strategies to assess students, planning a lesson that addresses appropriate goals and standards, participating in professional organizations, using research, using different instructional strategies, leading the class in in-depth conceptual understanding, or using technologies potential, doing so in a skillful manner. The ST uses a thorough understanding of mathematics pedagogy in order to teach the concepts at hand.</p>	<p>The ST displays extensive knowledge of mathematics pedagogy by using a variety of curricula and materials for all students, using concrete material, using multiple strategies to assess students, planning a lesson that addresses appropriate goals and standards, participating in professional organizations, using research, using different instructional strategies, leading the class in in-depth conceptual understanding, or using technologies potential, doing so in an insightful manner. The ST uses an advanced understanding of mathematics pedagogy in order to teach the concepts at hand.</p>

STANDARD	UNSATISFACTORY (0)	BASIC (2)	PROFICIENT (3)	DISTINGUISHED (4)
<p align="center">NUMBER AND OPERATIONS</p> <p>(Candidates demonstrate computational proficiency, including a conceptual understanding of numbers, ways of representing numbers, relationships among number and number systems, and meanings of operations.)</p>	<p>The ST displays little to no knowledge of number and operations by inadequately explaining procedures used for operations, inadequately using operations properties, mental computation and estimation, inadequately using equivalent representations, inadequately creating, solving, and applying proportions, inadequately using number theory, inadequately using scientific notation, inadequately comparing and contrasting properties, inadequately using complex numbers, inadequately recognizing matrices and vectors as systems, or inadequately demonstrating knowledge of historical development from diverse cultures. The ST uses a deficient understanding of number and operations in order to teach the concepts at hand. Several mistakes are made or the ST struggles with the content.</p>	<p>The ST displays basic knowledge of number and operations by explaining procedures used for operations, using operations properties, mental computation and estimation, using equivalent representations, creating, solving, and applying proportions, using number theory, using scientific notation, comparing and contrasting properties, using complex numbers, recognizing matrices and vectors as systems, or demonstrating knowledge of historical development from diverse cultures, doing so in a superficial manner. The ST uses a sufficient understanding of number and operations in order to teach the concepts at hand but does not appear to know much more than the content being taught.</p>	<p>The ST displays solid knowledge of number and operations by explaining procedures used for operations, using operations properties, mental computation and estimation, using equivalent representations, creating, solving, and applying proportions, using number theory, using scientific notation, comparing and contrasting properties, using complex numbers, recognizing matrices and vectors as systems, or demonstrating knowledge of historical development from diverse cultures, doing so in a skillful manner. The ST uses a thorough understanding of number and operations in order to teach the concepts at hand.</p>	<p>The ST displays extensive knowledge of number and operations by explaining procedures used for operations, using operations properties, mental computation and estimation, using equivalent representations, creating, solving, and applying proportions, using number theory, using scientific notation, comparing and contrasting properties, using complex numbers, recognizing matrices and vectors as systems, or demonstrating knowledge of historical development from diverse cultures, doing so in an insightful manner. The ST uses an advanced understanding of number and operations in order to teach the concepts at hand.</p>

STANDARD	UNSATISFACTORY (0)	BASIC (2)	PROFICIENT (3)	DISTINGUISHED (4)
<p style="text-align: center;">ALGEBRA (Candidates emphasize relationships among quantities including functions, ways of representing mathematical relationships, and the analysis of change.)</p>	<p>The ST displays little to no knowledge of algebra by inadequately analyzing patterns, relations, and functions, inadequately applying fundamental ideas of linear algebra, inadequately justifying algebraic operations and structures, inadequately using mathematical models, inadequately using technological tools, or inadequately demonstrating knowledge of historical development from diverse cultures. The ST uses a deficient understanding of algebra in order to teach the concepts at hand. Several mistakes are made or the ST struggles with the content.</p>	<p>The ST displays basic knowledge of algebra by analyzing patterns, relations, and functions, applying fundamental ideas of linear algebra, justifying algebraic operations and structures, using mathematical models, using technological tools, or demonstrating knowledge of historical development from diverse cultures, doing so in a superficial manner. The ST uses a sufficient understanding of algebra in order to teach the concepts at hand but does not seem to know much more than the content being taught.</p>	<p>The ST displays solid knowledge of algebra by analyzing patterns, relations, and functions, applying fundamental ideas of linear algebra, justifying algebraic operations and structures, using mathematical models, using technological tools, or demonstrating knowledge of historical development from diverse cultures, doing so in a skillful manner. The ST uses a thorough understanding of algebra in order to teach the concepts at hand.</p>	<p>The ST displays extensive knowledge of algebra by analyzing patterns, relations, and functions, applying fundamental ideas of linear algebra, justifying algebraic operations and structures, using mathematical models, using technological tools, or demonstrating knowledge of historical development from diverse cultures, doing so in an insightful manner. The ST uses an advanced understanding of algebra in order to teach the concepts at hand.</p>

STANDARD	UNSATISFACTORY (0)	BASIC (2)	PROFICIENT (3)	DISTINGUISHED (4)
<p>GEOMETRIES (Candidates use spatial visualization and geometric modeling to explore and analyze geometric shapes, structures, and their properties.)</p>	<p>The ST displays little to no knowledge of geometries by inadequately using knowledge of Euclidean and non-Euclidean geometry, inadequately using proofs, inadequately analyzing characteristics and relationships of shapes/structures, inadequately using representations, inadequately specifying locations using coordinate geometry, inadequately applying transformations and using symmetry, similarity, and congruence, inadequately using concrete models, drawings, and dynamic software, or inadequately demonstrating knowledge of historical development from diverse cultures. The ST uses a deficient understanding of geometries in order to teach the concepts at hand. Several mistakes are made or the ST struggles with the content.</p>	<p>The ST displays basic knowledge of geometries by using knowledge of Euclidean and non-Euclidean geometry, using proofs, analyzing characteristics and relationships of shapes/structures, using representations, specifying locations using coordinate geometry, applying transformations and using symmetry, similarity, and congruence, using concrete models, drawings, and dynamic software, or demonstrating knowledge of historical development from diverse cultures, doing so in a superficial manner. The ST uses a sufficient understanding of geometries in order to teach the concepts at hand but does not seem to know much more than the content being taught.</p>	<p>The ST displays solid knowledge of geometries by using knowledge of Euclidean and non-Euclidean geometry, using proofs, analyzing characteristics and relationships of shapes/structures, using representations, specifying locations using coordinate geometry, applying transformations and using symmetry, similarity, and congruence, using concrete models, drawings, and dynamic software, or demonstrating knowledge of historical development from diverse cultures, doing so in an skillful manner. The ST uses a thorough understanding of geometries in order to teach the concepts at hand.</p>	<p>The ST displays extensive knowledge of geometries by using knowledge of Euclidean and non-Euclidean geometry, using proofs, analyzing characteristics and relationships of shapes/structures, using representations, specifying locations using coordinate geometry, applying transformations and using symmetry, similarity, and congruence, using concrete models, drawings, and dynamic software, or demonstrating knowledge of historical development from diverse cultures, doing so in an insightful manner. The ST uses an advanced understanding of geometries in order to teach the concepts at hand.</p>
<p>CALCULUS (Candidates demonstrate a conceptual understanding of limit, continuity, differentiation, and integration and a thorough background in the techniques and applications of the calculus.)</p>	<p>The ST displays extensive knowledge of calculus by inadequately demonstrating conceptual understanding and procedural facility, inadequately applying concepts of function, geometry, and trigonometry, inadequately modeling to represent and solve problems from the real-world, inadequately using technological tools to explore and represent, or inadequately demonstrating knowledge of historical development from diverse cultures. The ST uses a deficient understanding of calculus in order to teach the concepts at hand. Several mistakes are made or the ST struggles with the content.</p>	<p>The ST displays basic knowledge of calculus by demonstrating conceptual understanding and procedural facility, applying concepts of function, geometry, and trigonometry, modeling to represent and solve problems from the real-world, using technological tools to explore and represent, or demonstrating knowledge of historical development from diverse cultures, doing so in a superficial manner. The ST uses a sufficient understanding of calculus in order to teach the concepts at hand but does not seem to know much more than the content being taught.</p>	<p>The ST displays solid knowledge of calculus by demonstrating conceptual understanding and procedural facility, applying concepts of function, geometry, and trigonometry, modeling to represent and solve problems from the real-world, using technological tools to explore and represent, or demonstrating knowledge of historical development from diverse cultures, doing so in a skillful manner. The ST uses a thorough understanding of calculus in order to teach the concepts at hand.</p>	<p>The ST displays extensive knowledge of calculus by demonstrating conceptual understanding and procedural facility, applying concepts of function, geometry, and trigonometry, modeling to represent and solve problems from the real-world, using technological tools to explore and represent, or demonstrating knowledge of historical development from diverse cultures, doing so in an insightful manner. The ST uses an advanced understanding of calculus in order to teach the concepts at hand.</p>

STANDARD	UNSATISFACTORY (0)	BASIC (2)	PROFICIENT (3)	DISTINGUISHED (4)
<p align="center">DISCRETE MATHEMATICS (Candidates apply the fundamental ideas of discrete mathematics in the formulation and solution of problems.)</p>	<p>The ST displays little to no knowledge of discrete mathematics by inadequately demonstrating knowledge of topics such as graph theory, recurrence relations, finite differences, linear programming, and combinatorics, inadequately solving real-world problems, inadequately using technological tools, or inadequately demonstrating knowledge of historical development from diverse cultures. The ST uses a deficient understanding of discrete mathematics in order to teach the concepts at hand. Several mistakes are made or the ST struggles with the content.</p>	<p>The ST displays basic knowledge of discrete mathematics by demonstrating knowledge of topics such as graph theory, recurrence relations, finite differences, linear programming, and combinatorics, solving real-world problems, using technological tools, or demonstrating knowledge of historical development from diverse cultures, doing so in a superficial manner. The ST uses a sufficient understanding of discrete mathematics in order to teach the concepts at hand but does not seem to know much more than the content being taught.</p>	<p>The ST displays solid knowledge of discrete mathematics by demonstrating knowledge of topics such as graph theory, recurrence relations, finite differences, linear programming, and combinatorics, solving real-world problems, using technological tools, or demonstrating knowledge of historical development from diverse cultures, doing so in a skillful manner. The ST uses a thorough understanding of discrete mathematics in order to teach the concepts at hand.</p>	<p>The ST displays extensive knowledge of discrete mathematics by demonstrating knowledge of topics such as graph theory, recurrence relations, finite differences, linear programming, and combinatorics, solving real-world problems, using technological tools, or demonstrating knowledge of historical development from diverse cultures, doing so in an insightful manner. The ST uses an advanced understanding of discrete mathematics in order to teach the concepts at hand.</p>

STANDARD	UNSATISFACTORY (0)	BASIC (2)	PROFICIENT (3)	DISTINGUISHED (4)
<p>DATA ANALYSIS, STATISTICS, AND PROBABILITY (Candidates demonstrate an understanding of concepts and practices related to data analysis, statistics, and probability.)</p>	<p>The ST displays little to no knowledge of data analysis, statistics, and probability by inadequately designing investigations, collecting data, and displaying data, inadequately using appropriate methods to estimate population characteristics, test conjectures, and analyze data, inadequately using appropriate statistical methods and technological tools, inadequately using statistical inference to draw conclusions, inadequately identifying misuses and invalid conclusions, inadequately drawing confidence intervals, or inadequately demonstrating knowledge of historical development from diverse cultures. The ST uses a deficient understanding of data analysis, statistics, and probability in order to teach the concepts at hand. Several mistakes are made or the ST struggles with the content.</p>	<p>The ST displays basic knowledge of data analysis, statistics, and probability by designing investigations, collecting data, and displaying data, using appropriate methods to estimate population characteristics, test conjectures, and analyze data, using appropriate statistical methods and technological tools, using statistical inference to draw conclusions, identifying misuses and invalid conclusions, drawing conclusions, determining and interpreting confidence intervals, or demonstrating knowledge of historical development from diverse cultures, doing so in a superficial manner. The ST uses a sufficient understanding of data analysis, statistics, and probability in order to teach the concepts at hand but does not seem to know much more than the content being taught.</p>	<p>The ST displays solid knowledge of data analysis, statistics, and probability by designing investigations, collecting data, and displaying data, using appropriate methods to estimate population characteristics, test conjectures, and analyze data, using appropriate statistical methods and technological tools, using statistical inference to draw conclusions, identifying misuses and invalid conclusions, drawing conclusions, determining and interpreting confidence intervals, or demonstrating knowledge of historical development from diverse cultures, doing so in a skillful manner. The ST uses a thorough understanding of data analysis, statistics, and probability in order to teach the concepts at hand.</p>	<p>The ST displays extensive knowledge of data analysis, statistics, and probability by designing investigations, collecting data, and displaying data, using appropriate methods to estimate population characteristics, test conjectures, and analyze data, using appropriate statistical methods and technological tools, using statistical inference to draw conclusions, identifying misuses and invalid conclusions, drawing conclusions, determining and interpreting confidence intervals, or demonstrating knowledge of historical development from diverse cultures, doing so in an insightful manner. The ST uses an advanced understanding of data analysis, statistics, and probability in order to teach the concepts at hand.</p>

STANDARD	UNSATISFACTORY (0)	BASIC (2)	PROFICIENT (3)	DISTINGUISHED (4)
MEASUREMENT (Candidates apply and use measurement concepts and tools.)	The ST displays little to no knowledge of measurement by inadequately recognizing common representations and uses of measurement and choosing tools and units for measurement, inadequately applying appropriate techniques, tools, and formulas to determine measurements and their application in a variety of contexts, inadequately completing error analysis through determining the reliability of the numbers obtained from measures, or inadequately demonstrating knowledge of historical development from diverse cultures. The ST uses a deficient understanding of measurement in order to teach the concepts at hand. Several mistakes are made or the ST struggles with the content.	The ST displays basic knowledge of measurement by recognizing common representations and uses of measurement and choosing tools and units for measurement, applying appropriate techniques, tools, and formulas to determine measurements and their application in a variety of contexts, completing error analysis through determining the reliability of the numbers obtained from measures, or demonstrating knowledge of historical development from diverse cultures, doing so in a superficial manner. The ST uses a sufficient understanding of measurement in order to teach the concepts at hand but does not seem to know much more than the content being taught.	The ST displays solid knowledge of measurement by recognizing common representations and uses of measurement and choosing tools and units for measurement, applying appropriate techniques, tools, and formulas to determine measurements and their application in a variety of contexts, completing error analysis through determining the reliability of the numbers obtained from measures, or demonstrating knowledge of historical development from diverse cultures, doing so in a skillful manner. The ST uses a thorough understanding of measurement in order to teach the concepts at hand.	The ST displays extensive knowledge of measurement by recognizing common representations and uses of measurement and choosing tools and units for measurement, applying appropriate techniques, tools, and formulas to determine measurements and their application in a variety of contexts, completing error analysis through determining the reliability of the numbers obtained from measures, or demonstrating knowledge of historical development from diverse cultures, doing so in an insightful manner. The ST uses an advanced understanding of measurement in order to teach the concepts at hand.
ABILITY TO INCREASE STUDENTS' KNOWLEDGE (Candidates demonstrate the ability to increase students' knowledge of mathematics.)	The ST demonstrates little to no ability to increase students' knowledge of mathematics by inadequately using techniques discussed in classes and research. It was highly improbable that the lesson would give students the opportunity to learn the material presented. The ST uses an inadequate understanding of the teaching-learning process and it is unlikely that the lesson will increase students' knowledge of mathematics.	The ST demonstrates the ability to increase students' knowledge of mathematics by superficially using techniques discussed in classes and research. It was probable that the lesson would give students the opportunity to learn the material presented. The ST uses a sufficient understanding of the teaching-learning process in order to increase students' knowledge of mathematics.	The ST demonstrates the ability to increase students' knowledge of mathematics by skillfully using several techniques discussed in classes and research. It was probable that the lesson would give students the opportunity to learn the material presented. The ST uses a thorough understanding of the teaching-learning process in order to increase students' knowledge of mathematics.	The ST demonstrates the ability to increase students' knowledge of mathematics by insightfully using several techniques discussed in classes and research. It was highly probable that the lesson would give students the opportunity to learn the material presented. The ST uses an advanced understanding of the teaching-learning process in order to increase students' knowledge of mathematics.

NOTE: N/A may be marked if the lesson, for good reason, did not afford the student-teacher the opportunity to demonstrate proficiency in the standard.