Assessment 4 – Student Teaching Evaluation

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|  | **REVISED**  **Target** | | | **REVISED Met, but Developing Acceptable** | **REVISED**  **Not Met Unacceptable** | |
| **2a.1)** Use problem solving to develop conceptual understanding. | Mathematical activities and investigations provide students with opportunities to use problem solving to develop conceptual understanding | | | Mathematical activities and investigations use problem solving to develop conceptual understanding | Use of problem solving to develop conceptual understanding is limited or unclear | |
| **2a.2)** Use problem solving to ... make sense of a wide variety of problems and persevere in solving them. | Students are engaged in problem solving activities within the field of mathematics and making connections to real- world contexts | | | Students participate in problem solving activities within the field of mathematics. Candidate illustrates (provides) examples of connections to real-world contexts | Students are not engaged in problem solving activities or the activities only include context within the field of mathematics | |
| **2a.3)** Use problem solving to … …apply and adapt a variety of strategies in solving problems confronted within the field of mathematics and other contexts. | Candidate creates opportunities to showcase a variety of students’ problem-solving strategies and encourages students to make sense of problems and persevere in solving them | | | Candidate encourages a variety of probl­­­­­­­em solving strategies and encourages students to make sense of problems and persevere in solving them. Candidate showcases some student strategies | Communication of problem-solving strategies is limited or unclear. Does not encourage students to make sense of problems and persevere in solving them | |
| **2a.4)** Use problem solving to … …formulate and test conjectures in order to frame generalizations. | Mathematical activities and investigations allow for students to formulate and test conjectures in order to frame generalizations | | | Mathematical experiences allow for student discovery but lacks the proper foundation for students to frame generalizations | Does not design experiences that allow for students to formulate and test conjectures in order to frame generalizations | |
| **2b.1)** Reason abstractly, reflectively, and quantitatively with attention to units, constructing viable arguments and proofs, and critiquing the reasoning of others; | Reasons abstractly, reflectively and quantitatively with attention to units, constructing viable arguments and proofs | | | Communicates mathematical reasoning with clarity, precision, and logical order | Communicates mathematical reasoning using inappropriate strategies or flawed arguments that are vague or imprecise | |
| **2b.2)** Represent and model generalizations using mathematics. Recognize structure and express regularity in patterns of mathematical reasoning | Able to understand, critique, and respond coherently to the mathematical reasoning of others. Able to understand correct components of student thinking and offers guidance as needed. | | | Attempts to understand, critique, and respond coherently to the mathematical reasoning and strategies of others. Inconsistently understands correct components of student thinking or guidance offered does not encourage student perseverance | No evidence of understanding the mathematical reasoning and strategies of others. | |
| **2b.3)** Use multiple representations to model and describe mathematics; | Represents and models generalizations using mathematics while providing opportunities for students to recognize patterns of mathematical reasoning. | | | Represents and models generalizations using mathematics while recognizing patters of mathematical reasoning. | Neither represents nor models generalizations using mathematics. | |
| **2b.4)** Utilize appropriate mathematics to **communicate Mathematical ideas to others.** | Communicates mathematical ideas using a variety of representations and recognizes and clarifies the connections between the representations. | | | Communicates mathematical ideas using more than one type of representation but with minimal attempts to recognize the connections between the representations. | Communicates mathematical ideas using a single representation | |
| **2b. 5** Utilize appropriate mathematical **vocabulary and symbols** | Uses appropriate vocabulary and symbols to communicate mathematical ideas to others and clearly communicates to students that they are expected to communicate their reasoning precisely. | | | Uses appropriate vocabulary and symbols to communicate mathematical ideas to others | Does not use appropriate vocabulary and symbols to communicate mathematical ideas to others. | |
| 2c.1) Formulate and represent, mathematical models derived from real-­‐world contexts or mathematical problems. | Designs experiences that allow students to ***formulate*** and ***represent*** mathematical models derived from variety of real-world contexts to build mathematical understanding. | | | Motivates or illustrates the ***formulation*** and ***representation*** of mathematical models derived from variety of real-world contexts. | Does not recognize mathematical models derived from variety of real-world contexts. | |
| 2c.2) Analyze, and interpret mathematical models derived from real-­‐world  contexts or mathematical problems. | Designs experiencers that allow students to analyze and interpret mathematical models derived from variety of rea-world context to build mathematical understanding. | | | Motivates and illustrates the analysis and interpretation of mathematical models derived from a variety of real-world contexts. | Does not recognize mathematical models derived from variety of real-world contexts | |
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| 2d) Organize mathematical thinking and use the language of mathematics to express ideas precisely, both orally and in writing to multiple audiences. | Organizes mathematical thinking and uses the language of mathematics to express ideas precisely to multiple audiences.  Evidence: Teacher candidate uses appropriate written language in pre-observation forms and verbally during debrief with supervisor. | | | Organizes mathematical thinking and uses the language of mathematics to express ideas precisely  Evidence: Teacher candidate uses appropriate written and oral language with students during the lesson. May use student-friendly learning objectives. | Mathematical thinking is not organized, and mathematical ideas are imprecise.  Evidence: You or the students find it difficult to follow the teacher candidate. | |
| **3a)** Apply knowledge of curriculum standards for secondary mathematics and their relationship to student learning within and across mathematical domains. | Instruction engages students in a developmentally appropriate mathematical *investigation* and clearly communicates student learning outcomes based on state standards.  Evidence: The student learning outcome(s) for the lesson include some element of exploration and/or range of cognitive levels. | | | Instruction is developmentally appropriate and clearly communicates student learning outcomes based on state standards.  Evidence: Students are told what they will be learning. | Goals of instruction vague, unclear or not quite appropriate.  Evidence: Students are told what they will be doing. | |
| 3b) Analyze and consider research in planning for and leading students in rich  mathematical learning \*experiences. | Instruction analyzes and considers research and planning for mathematics instruction and incorporates research-based methods when leading students in rich mathematical experiences and the cognitive complexity of the task is always maintained. | | | Instruction analyzes and considers research and planning for mathematics instruction. Attempts are made to lead students in rich mathematical experiences, but the cognitive complexity of the task is not always maintained. | Instruction analyzes and considers research and planning for mathematics instruction. Attempts are made to lead students in rich mathematical experiences, but the cognitive complexity of the task is not maintained and the teacher always gives the answer. | |
| **3c.1)** Plan lessons and units that incorporate a variety of strategies, differentiated instruction for diverse populations. | Lesson plan includes variety of instructional strategies differentiated for diverse populations. | | | Lesson plan includes more than one instructional strategy that could be differentiated for diverse populations. | Lesson plan does not include a variety of instructional strategies. | |
| **3c.2)** Plan lessons and units that incorporate mathematics-specific and instructional technologies in building all students’ conceptual understanding and procedural proficiency. | Lesson plan *appropriately* incorporate mathematics-specific technologies to effectively build ***all*** students’ conceptual understanding and procedural proficiency. | | | Lesson plan *appropriately* incorporate mathematics-specific technology in an attempt to build students’ conceptual understanding and procedural proficiency. | Lesson plan *inappropriately* incorporate mathematics- specific technology or fails to build students’ conceptual understanding and procedural proficiency. | |
| 3e.1) Implement techniques related to student engagement and communication including  selecting high quality tasks, guiding mathematical discussions, identifying key mathematical ideas, identifying and addressing student misconceptions. | Implements techniques for actively engaging students in learning and doing mathematics by selecting high quality tasks and guides productive mathematical discussions centered on key mathematical ideas and applies instructional techniques that assist in identifying and addressing student misconceptions. Uses students’ misconceptions as opportunities for learning. | | | Implements techniques for actively engaging students in learning and doing mathematics by selecting high quality tasks and attempts to guide productive mathematical discussions centered on key mathematical ideas and attempts to apply instructional techniques that assist in identifying and addressing student misconceptions. | Implements techniques for actively engaging students in learning and doing mathematics by selecting high quality tasks and attempting to apply instructional techniques that assist in identifying and addressing student misconceptions. | |
| 3e.2) Implement techniques related to student engagement and communication including and employing a range of questioning strategies. | Employs a variety of questioning strategies including accessing procedural proficiency and conceptual understanding and using both lower order and higher order questions, asking open-ended questions, and allowing students to explain their reasoning in their own words and re-voice the mathematical thinking of others. | | | Employs two questioning strategies including accessing procedural proficiency or conceptual understanding and using at least one of the following: both lower order and higher order questions, asking open-ended questions, and allowing students to explain their reasoning in their own words and re-voice the mathematical thinking of others. | Employs one questioning strategy including accessing procedural proficiency or conceptual understanding. | |
| **3f.1)** Plan, select, implement, interpret, and use formative and summative assessments to inform instruction by reflecting on mathematical proficiencies essential for all students. | Candidate uses both formative and summative assessments to effectively measure student proficiencies associated to all student learning outcomes.  Questioning strategies (written and verbal) include a variety of strategies focusing on understanding ways students think about mathematics as well as varying levels of thinking and difficulty. | | | Candidate uses both formative and summative assessments to effectively measure student proficiencies associated to all student learning outcomes.  Questioning strategies (written and verbal) focus on understanding the ways students think about mathematics, but with limited strategies or skewed with regard to level of thinking or difficulty. | Assessments do not measure proficiencies associated to the student learning outcomes.  Or  Questioning strategies (written and verbal) focus on student recall of facts and algorithms with no evidence of interest in understanding the ways students think about mathematics and skewed with regard to level of thinking and difficulty. | |
| **3f.2)** Implement, interpret, and use formative and summative assessments to inform instruction by reflecting on mathematical proficiencies essential for all students. | Post-observation conference:  Candidate is able to describe how assessment results were used to inform instruction by including specific examples. | | | Post-observation conference: Candidate is able to generically describe how assessment results were used to inform instruction. | Post-observation conference:  Candidate is unable to describe how assessment results were used to inform instruction. | |
| 3g) Monitor students’ progress, make instructional decisions, and measure students’ mathematical understanding and ability using formative and summative assessments. | Implements techniques that monitor all students’ progress using a variety of assessment tools, and makes effective instructional decisions that gauge advancement towards the learning outcomes, and demonstrates the ability to use, modify and/or design both formative and summative assessments, and design assessment processes that distinguish among developmental levels of students’ mathematical knowledge and skills. | | | Implements techniques that monitor all students’ progress using a variety of assessment tools and makes effective instructional decisions that gauge advancement towards the learning outcomes and uses both formative and summative assessments to measure students’ mathematical understanding and ability. | Implements techniques that monitor some students’ progress using one assessment tool and uses either formative or summative assessments to measure students’ mathematical understanding and ability. | |
| **4b.1)** Plan and create **sequential learning opportunities** grounded in mathematics education research in which students are actively engaged in building new knowledge from prior knowledge and experiences. | Lesson is sequenced to create challenging learning opportunities that are developmentally appropriate. | | | Lesson creates learning opportunities that are developmentally appropriate but either too challenging or not challenging enough | Lesson does not create challenging learning opportunities or not developmentally appropriate. | |
| **\*4b.2)** Plan and create developmentally appropriate, and **challenging learning opportunities** grounded in mathematics education research in which students are actively engaged in building new knowledge from prior knowledge and experiences. | Instructional strategies are grounded in mathematics education research in which students are actively engaged.  and    Lesson activity engages in building new knowledge from prior knowledge and experiences. | | | Instructional strategies are grounded in mathematics education research.  and  Lesson builds new knowledge from prior knowledge and experiences | Lesson plans are not grounded in mathematics education research  or  Lesson does not build new knowledge from prior knowledge and experiences. | |
| 4c.1) Incorporate knowledge of **individual differences** that exists within classrooms as a means to motivate and engage students. | Instruction incorporates knowledge of all individual differences that exists within the classroom to motivate and engage students, | | | Instruction incorporates knowledge of most of the individual differences in the cultural. | Instruction incorporates limited knowledge of the individual differences in the that exists within the classroom. | |
| 4c.2) Incorporate knowledge of the **language diversity** that exists within classrooms as a means to motivate and engage students. | Incorporates knowledge of all the language diversity that exists within the classroom to motivate and engage students.  Emphasis on the acquisition of academic language with the intent that all students are working towards using vocabulary orally and in writing in a meaningful context. | | | Incorporates knowledge of language diversity that exists within the classroom to motivate and engage students.  Emphasis on the acquisition of academic language with the intent that all students are working towards using vocabulary orally and in writing in a meaningful context. | Incorporates no knowledge of the language diversity that exists within the classroom to motivate and engage students.  Instruction does not emphasize the acquisition of academic language with the intent that only a few students are working towards using that vocabulary orally and in writing in a meaningful context. | |
| 4c.3) Incorporate **culturally relevant perspectives** as a means to motivate and engage students. | Incorporates knowledge of culturally relevant perspectives as means to motivate and engage students and incorporates resources related to cultural, ethnic, linguistic, gender, and learning differences in their teaching.  Explicitly models appreciation of cultural diversity.  Provides many contextual representations that represent a wide variety of cultures, ethnic groups, geographic regions, and social roles. | | | Incorporates knowledge of culturally relevant perspectives as means to motivate and engage students and incorporates resources related to cultural, ethnic, linguistic, gender, and learning differences in their teaching.  Models and teaches an appreciation for diversity  Provides contextual representations that represent various cultures, ethnic groups, geographic regions, and social roles. | Incorporates no knowledge of culturally relevant perspectives that exists within the classroom.  Pays no attention to culturally relevant perspectives. | |
| **4d)** Demonstrate equitable and ethical treatment of and high expectations for all students during observation and by host teacher. | Equitable and ethical treatment of and high expectations for all students is demonstrated during lesson and observed by cooperating teacher during placement (field experience) | | | Equitable and ethical treatment of and high expectations for all students is demonstrated during lesson or observed by cooperating teacher during placement (field experience). | No evidence of equitable and ethical treatment of and high expectations for all students. | |
| **4e.1)** Apply mathematical content and pedagogical knowledge to select and use instructional tools such as manipulatives and physical models, drawings, virtual environments, spreadsheets, presentation tools, and mathematics-specific technologies (e.g., graphing tools, interactive geometry software, computer algebra systems, and statistical packages). | Instructional tools are used to enhance teaching and lesson, lesson plan clarifies both the insights to be gained and possible limitations of such tools. | | | Instructional tools are used to enhance teaching and learning | No attempt to use instructional tools and no reasonable explanation why the limitations of the tools do not enhance learning,. | |
| **4e.2)** Apply mathematical content and pedagogical knowledge to make sound decisions about when such tools in (4e.1) to enhance teaching and learning, recognizing both the insights to be gained and possible limitations of such tools. | Mathematics-specific technologies are used to enhance teaching and learning, lesson plan clarifies the insights to be gained. | | | Mathematics-specific technologies are used to enhance teaching and learning,  OR lesson plan explains possible limitations of technologies. | No attempt to use mathematics-specific technologies and no reasonable explanation regarding the possible limitations of technologies. | |
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| 5a.1) Verify that secondary students demonstrate conceptual understanding; procedural fluency. | Instruction includes multiple pieces of evidence that students demonstrate conceptual understanding and procedural fluency. | | | Instruction includes one piece of evidence that students demonstrate conceptual understanding and procedural fluency. | Instruction includes one piece of evidence that students demonstrate conceptual understanding or procedural fluency. | |
| 5a.2) Verify that secondary students demonstrate the ability to formulate, represent, and solve problems; logical reasoning and continuous reflection on that reasoning. | Instruction includes multiple pieces of evidence that students demonstrate the ability to formulate, represent, and solve problems and that related logical reasoning and continued reflection on that reasoning is appropriate. | | | Instruction includes one piece of evidence that students demonstrate the ability to formulate, represent, and solve problems, and that the students exhibit some continued reflection on that reasoning. | Instruction includes one piece of evidence that the students demonstrate the ability to formulate or represent or solve problems, but that students do not reflect on that reasoning. | |
| 5a.3) Verify that secondary students demonstrate productive disposition toward mathematics; and the application of mathematics in a variety of contexts within major mathematical domains. | Instruction includes evidence that secondary students demonstrate productive disposition towards mathematics and that they are able to apply mathematics in a variety of contexts within major mathematical domains and students can articulate on their own how to apply the mathematics. | | | Instruction includes evidence that secondary students demonstrate productive disposition towards mathematics and that they are able to apply mathematics in two contexts within major mathematical domains, and students can articulate with the candidates help how to apply the mathematics. | Instruction includes one piece of evidence that secondary students demonstrate productive disposition towards mathematics. | |
| **5c)** Collect, organize, analyze, and reflect on diagnostic, formative, and summative assessment evidence and determine the extent to which students’ mathematical proficiencies have increased as a result of their instruction. | Instruction and post observation interviews provide evidence that the candidate collected, organized, analyzed and reflected on diagnostic, formative and summative assessments and determined the extent to which all students’ mathematical proficiencies have increased as a result of their instruction. Assessment results are accurately interpreted and described how the assessment evidence will inform future instruction.  Data on student learning is clearly displayed and organized by student learning outcomes. Data analysis determines the extent to which students’ mathematical proficiencies have increased as a result of their instruction including an oral or written reflection on how the assessment evidence will inform future instruction. | | | Instruction and post observation interviews provide evidence that the candidate collected, organized, analyzed and reflected on diagnostic, formative and summative assessments and determined the extent to which most students’ mathematical proficiencies have increased as a result of their instruction. Assessment results are accurately interpreted.  Data on student learning is displayed. Data analysis determines the extent to which most students’ mathematical proficiencies have increased as a result of their instruction. | Instruction and post observation interviews provide weak evidence that the candidate collected, organized, analyzed and reflected on diagnostic, formative and summative assessments but the candidate did not reflect upon and determine the extent to which students’ mathematical proficiencies have increased as a result of their instruction. Assessment results are inaccurately or incompletely interpreted. | |
| 6a) Take an active role in their professional growth by participating in professional development experiences that directly relate to the learning and teaching of mathematics. | Teacher candidate takes a highly active role in their professional growth by participating in (and then implementing within lesson planning) a variety of professional development experiences that directly relate to the learning and teaching of mathematics such as a face-to-face conference or other professional development for mathematics teachers or STEM education, or a live webinar specifically related to mathematics education. | | | Teacher candidate takes a role in their professional growth by participating in (and then implementing within lesson planning) one professional development experience that directly relates to the learning and teaching of mathematics such as the replay of a webinar specifically related to mathematics education. | Teacher candidate takes a role in their professional growth by participating in (and then implementing within lesson planning) one professional development experience but the experience is not related to the learning and teaching of mathematics. | |
| **6b.1)** Engage in continuous and collaborative learning that draws upon research in mathematics education to inform practice; enhance learning opportunities for all students’ mathematical knowledge development. | Engages in continuous and collaborative learning (and then implemented within lesson planning) that draws heavily upon research and mathematics education through the use of multiple sources to inform practice and enhances learning opportunities for all students’ mathematical knowledge development. | | | Engages in continuous and collaborative learning (and then implemented within lesson planning) that draws upon research and mathematics education through the use of one source to inform practice and enhances learning opportunities for most students’ mathematical knowledge development. | Engages in intermittent learning (and then implemented within lesson planning) that draws upon some research in mathematics education through use of one source to inform practice attempts to enhance learning opportunities for students. | |
| **6b.2)** Engage in continuous and collaborative learning that enhances learning opportunities for all students’ mathematical knowledge development and advances their development as a reflective practitioner. | Engages in continuous and collaborative learning (and then implemented within lesson planning) that enhances multiple learning opportunities for all students’ mathematical knowledge development to advance their own development as a highly reflective practitioner. | | | Engages in continuous and collaborative learning (and then implemented within lesson planning) that enhances learning opportunities for most students’ mathematical knowledge development to advance their own development as a reflective practitioner. | Engages in some collaborative learning (and then implemented within lesson planning) that enhances some learning opportunities for less than half of the students’ mathematical knowledge development. | |
| **6b.3)** Engage in continuous and collaborative learning that involves colleagues, other school professionals, families, and various stakeholders. | Engages in continuous and collaborative learning that involves frequent contact with multiple colleagues, other school professionals, families, and various stakeholders. | | | Engages in continuous and collaborative learning that involves some contact with colleagues, other school professionals, families or various stakeholders. | Engages in intermittent collaborative learning that involves a few limited colleagues. | |
| **7c)** Develop knowledge, skills, and professional behaviors across both middle and high school settings; examine the nature of mathematics, how mathematics should be taught, and how students learn mathematics; and observe and analyze a range of approaches to mathematics teaching and learning, focusing on tasks, discourse, environment, and assessment. | Evidence documents the candidate’s ability to develop knowledge, skills and professional behaviors across both middle and high school settings.  Candidate articulates how mathematics should be taught and how students learn mathematics.  Evidence documents a wide range of approaches to mathematics teaching and learning focusing on tasks, questioning and assessment of student learning.  Evidence documents ways in which the candidate drew upon research and mathematics education and professional development in mathematics education to inform practice.  Transformative practices are in evidence. | | | Evidence documents the candidate’s ability to develop knowledge, skills and professional behaviors across both middle and high school settings.  Candidate articulates how mathematics should be taught and how students learn mathematics.  Evidence documents a wide range of approaches to mathematics teaching and learning focusing on tasks, questioning and assessment of student learning.  Evidence documents ways in which the candidate drew upon research and mathematics education and professional development in mathematics education to inform practice. | Observations provide no evidence that the teacher candidate has developed knowledge, skills, and professional behaviors in middle school or in high school. | |