Assessment 4: Student Teaching

a. Description of the Assessment:
Each candidate is assigned to a middle school (grade 7 or 8) for half of their internship and a high school (grade 9-12) for the remainder. The candidate is placed into a classroom under the direct supervision of a highly qualified mathematics teacher. Each candidate has a content supervisor and a clinical supervisor during his or her internship. The content supervisor is a highly qualified university supervisor with secondary mathematics teaching experience.

The content supervisor and the cooperating teacher assess the candidate using a formative and summative rubric aligned with the NCTM NCATE Standards (2012) – Secondary. The content supervisor will visit the intern a minimum of two times (once at each school: middle and high school). Prior to each visit by the content supervisor, the candidate will submit a lesson plan to be reviewed by the content supervisor. Upon arrival at the school, the content supervisor conducts a pre-observation interview with the candidate. After observing the candidate teaching for an entire class period, the supervisor meets with the cooperating teacher concerning the candidate's performance. Before leaving the site, the supervisor conducts a post-observation interview with the candidate, including a formative assessment.

It is expected that each candidate earn a score of acceptable or better for each rubric criteria over the course of the two observations. Given the extensiveness of the rubric, it is possible that behaviors associated to some rubric criteria might not be observed during both observations. This assessment reports the data associated to the second observation only.

b. Alignment of Assessment to the NCTM Standards and Elements:
Please see the Scoring Guide in Part f for a more detailed alignment.

Program Standard	**Elements Addressed**
Standard 2: Mathematical Practices	2a, 2b, 2c, 2d
Standard 3: Content Pedagogy	3a, 3c, 3f
Standard 4: Mathematical Learning Environment	4b, 4d, 4e
Standard 5: Impact on Student Learning	5b, 5c
Standard 7: Secondary Mathematics Field Experiences and Clinical Practice	7c

c. Analysis of the data findings:

This assessment was revised in the fall of 2013 to better align to the 2012 NCTM CAEP Standards. The program did not have any candidates enrolled in internship at that time. [redacted] candidates were enrolled in the spring of 2014, and [redacted] candidates were enrolled in the fall of 2014. So the data collected represents two administrations of the assessment and demonstrates the performance of a total of [redacted] candidates.

All [redacted] candidates demonstrated their ability to effectively plan, implement, assess, and reflect on instruction aligned to the Common Core Mathematics. Data table A summarizes the candidates' performance in each rubric criteria and provides evidence supporting proficiency in each of the NCTM CAEP standard sub-elements represented.

Data table B displays the mean score for each NCTM CAEP element aligned to this rubric. The minimum NCTM CAEP element mean score was 1.50 corresponding to NCTM CAEP element 2c and rubric criteria Mathematical Practices – Modeling. One candidate scored at the unacceptable level in both sub-elements associated to element 2c. In this case, it would be more accurate to say that the behaviors associated to criteria 2c.1 and 2c.2 were not observed. The post-observation interview with this candidate satisfied the content supervisor that the candidate understood how to modify the lesson to satisfy these rubric criteria. The same candidate performed at the acceptable level on these criteria for the first observation.

The data clearly provides evidence that the secondary candidates are proficient in each of the NCTM CAEP standard sub-elements represented in this assessment. See data table B for the complete data set.

d. Interpretation of how that data provides evidence for meeting standards:

All of the candidates successfully completed the internship semester supervised by a highly qualified cooperating teacher, a university clinical supervisor and a university content supervisor with secondary mathematics teaching experience. Doing so provides evidence that they are prepared to effectively assess and measure student learning, critically reflect on their own teaching, and make modifications when needed to meet the learning needs of their students. Data table A provides performance data for candidates in the two administrations (spring 2014, fall 2014) by displaying the mean

criteria score*, score range and percentage of completers meeting the minimum expectation of acceptable or target.

Our secondary mathematics candidates are in high demand upon graduation. They typically have multiple job offers. We continue to refine our program to best respond to the changes in mathematics education. We strive to be leaders in the area of training effective secondary mathematics teachers.

e. Assessment Tool:

The observation includes behaviors before, during, and after the lesson including, but not limited to, submitted lesson plans, pre-observation and post-observation conferences.

Documentation required for each observation:

- Pre-Observation Interview Form,
- Class Summary Form,
- Lesson Plan using the MTH Lesson Plan Template (submitted at least 2 days prior to the observation)
- Reflection (submitted within 2 days after to the observation)

The content supervisor observes each candidate a minimum of two times. It is possible that some rubric criteria will not be observed during the summative observation. In such a case, with the content supervisor's approval, additional artifacts or evidence may be submitted to inform ratings not evidenced during the summative observation. Possible evidence might include the video lesson or the initial content observation ratings. It is expected that each candidate earn a score of acceptable or better for each rubric criteria over the course of the two observations.

The assessment rubric appears in the scoring guide section f.

f. The Scoring Guide:

Appendix

A MTH Observation Rubric
B MTH Lesson Plan Template
C Pre-Observation Interview Form
D Class Summary Form

g. Data:

Data Table A
Secondary Mathematics Observation Rubric (Internship)
Undergraduate Program Completers

*Each indicator is rated as: target (3), acceptable (2), or unacceptable (1).

Rubric Criteria (NCTM CAEP Sub-Element Alignment)	Spring 2014			Fall 2014		
	Mean Criteria Score* and (Range)	Number of Completers	% of Completers Meeting Minimum Expectation (Acceptable better)	Mean Criteria Score* and (Range)	Number of Completers	% of Completers Meeting Minimum Expectation (Acceptable better)
Mathematical Practices – Problem Solving (2a.1)	2.0 (2-2)	[redacted]	100%	2.5 (2-3)	[redacted]	100%
Mathematical Practices – Problem Solving (2a.2)	2.0 (1-3)	[redacted]	50%	2.5 (2-3)	[redacted]	100%
Mathematical Practices – Problem Solving (2a.3)	2.5 (2-3)	[redacted]	100%	2.5 (2-3)	[redacted]	100%
Mathematical Practices – Problem Solving (2a.4)	3.0 (3-3)	[redacted]	100%	2.5 (2-3)	[redacted]	100%
Mathematical Practices – Reasoning (2b.1)	2.0 (2-2)	[redacted]	100%	2.0 (2-2)	[redacted]	100%
Mathematical Practices – Reasoning (2b.2)	2.5 (2-3)	[redacted]	100%	2.5 (2-3)	[redacted]	100%
Mathematical Practices – Reasoning (2b.3)	2.5 (2-3)	[redacted]	100%	3.0 (3-3)	[redacted]	100%
Mathematical Practices – Reasoning (2b.4)	3.0 (3-3)	[redacted]	100%	3.0 (3-3)	[redacted]	100%
Mathematical Practices – Reasoning (2b.5)	2.0 (2-2)	[redacted]	100%	2.5 (2-3)	[redacted]	100%

Data Table A continued *Each indicator is rated as: target (3), acceptable (2), or unacceptable (1).						
Rubric Criteria (NCTM CAEP Sub-Element Alignment)	**Spring 2014**			**Fall 2014**		
	Mean Criteria Score* and (Range)	**Number of Completers**	**% of Completers Meeting Minimum Expectation (Acceptable or Target)**	**Mean Criteria Score* and (Range)**	**Number of Completers**	**% of Completers Meeting Minimum Expectation (Acceptable or Target)**
Mathematical Practices – Modeling (2c.1)	1.5 (1-2)	[redacted]	50%	2.5 (2-3)	[redacted]	100%
Mathematical Practices – Modeling (2c.2)	1.5 (1-2)	[redacted]	50%	2.5 (2-3)	[redacted]	100%
Mathematical Practices – Communication (2d)	2.5 (2-3)	[redacted]	100%	2.5 (2-3)	[redacted]	100%
Content Pedagogy – Curriculum Standards (3a)	2.5 (2-3)	[redacted]	100%	2.5 (2-3)	[redacted]	100%
Content Pedagogy – Lesson Planning (3c.1)	2.5 (2-3)	[redacted]	100%	2.5 (2-3)	[redacted]	100%
Content Pedagogy – Lesson Planning (3c.2)	2.0 (2-2)	[redacted]	100%	2.5 (2-3)	[redacted]	100%
Content Pedagogy – Assessment Plan (3f.1)	2.0 (2-2)	[redacted]	100%	2.5 (2-3)	[redacted]	100%
Content Pedagogy – Assessment Plan (3f.2)	2.5 (2-3)	[redacted]	100%	2.5 (2-3)	[redacted]	100%

Data Table A continued *Each indicator is rated as: target (3), acceptable (2), or unacceptable (1).						
Rubric Criteria (NCTM CAEP Sub-Element Alignment)	**Spring 2014**			**Fall 2014**		
	Mean Criteria Score* and (Range)	**Number of Completers**	**% of Completers Meeting Minimum Expectation (Acceptable or Target)**	**Mean Criteria Score* and (Range)**	**Number of Completers**	**% of Completers Meeting Minimum Expectation (Acceptable or Target)**
Mathematical Learning Environment – Lesson Planning (4b.1)	2.5 (2-3)	[redacted]	100%	2.5 (2-3)	[redacted]	100%
Mathematical Learning Environment – Lesson Planning (4b.2)	2.5 (2-3)	[redacted]	100%	2.5 (2-3)	[redacted]	100%
Mathematical Learning Environment – Lesson Planning (4b.3)	2.5 (2-3)	[redacted]	100%	2.5 (2-3)	[redacted]	100%
Mathematical Learning Environment (4d)	3.0 (3-3)	[redacted]	100%	3.0 (3-3)	[redacted]	100%
Mathematical Learning Environment – Instructional Tools and Mathematics-Specific Technologies (4e.1)	2.5 (2-3)	[redacted]	100%	2.5 (2-3)	[redacted]	100%
Mathematical Learning Environment – Instructional Tools and Mathematics-Specific Technologies (4e.2)	2.0 (2-2)	[redacted]	100%	2.0 (2-2)	[redacted]	100%
Impact on Student Learning – Student Engagement (5b.1)	2.0 (2-2)	[redacted]	100%	2.5 (2-3)	[redacted]	100%
Impact on Student Learning – Student Engagement (5b.2)	2.5 (2-3)	[redacted]	100%	2.5 (2-3)	[redacted]	100%

Data Table A continued *Each indicator is rated as: target (3), acceptable (2), or unacceptable (1).						
Rubric Criteria (NCTM CAEP Sub-Element Alignment)	**Spring 2014**			**Fall 2014**		
	Mean Criteria Score* and (Range)	**Number of Completers**	**% of Completers Meeting Minimum Expectation (Acceptable or Target)**	**Mean Criteria Score* and (Range)**	**Number of Completers**	**% of Completers Meeting Minimum Expectation (Acceptable or Target)**
Impact on Student Learning – Assessment Results (5c.1)	3.0 (3-3)	[redacted]	100%	2.5 (2-3)	[redacted]	100%
Impact on Student Learning – Assessment Results (5c.2)	2.0 (2-2)	[redacted]	100%	2.5 (2-3)	[redacted]	100%
Secondary Mathematics Clinical Practice (7c.1)	2.0 (2-2)	[redacted]	100%	2.0 (2-2)	[redacted]	100%
Secondary Mathematics Clinical Practice (7c.2)	2.0 (2-2)	[redacted]	100%	2.0 (2-2)	[redacted]	100%

Data Table B Secondary Mathematics Observation Rubric (Internship) Undergraduate Program Completers *Each indicator is rated as: target (3), acceptable (2), or unacceptable (1).		
Rubric Criteria (NCTM CAEP Element Alignment)	**Spring 2014**	**Fall 2014**
	Mean Criteria Score*	Mean Criteria Score*
2a	2.38	2.50
2b	2.40	2.60
2c	1.50	2.50
2d	2.50	2.50
3a	2.50	2.50
3c	2.25	2.50
3f	2.25	2.50
4b	2.50	2.50
4d	3.00	3.00
4e	2.25	2.25
5b	2.25	2.50
5c	2.50	2.50
7c	2.00	2.00

MTH Observation Rubric

The observation includes behaviors before, during, and after the lesson including, but not limited to, submitted lesson plans, pre-observation and post-observation conferences.

Required Documentation for each observation:

- Pre-Observation Interview Form,
- Class Summary Form,
- Lesson Plan using the Mathematics Lesson Plan Template (Due at least 2 days prior to each observation)

The content supervisor observes the intern twice. It is possible, but unlikely, that some standard criteria will not be observed. In such a case, with the content supervisor's approval, artifacts associated to the internship may be submitted as part of the content internship portfolio. The content supervisor will rate such artifacts.
Possible Artifact might include: video Lesson: video, Class Summary Form, Instruction and Reflection Profile Summary, self-reflection and peer reviews.

MTH Observation Rubric

(NCTM CAEP Sub-Element Alignment)	Target (3)	Acceptable (2)	Unacceptable (1)
Mathematical Practices - Problem Solving. Effective teachers solve problems. Intern can design and use a variety of stimulating curricula that provide experiences that • Use problem solving to develop conceptual understanding, • Make sense of a wide variety of problems and persevere in solving them, • Apply and adapt a variety of strategies in solving problems confronted within the field of mathematics and other contexts. • Formulate and test conjectures in order to frame generalizations.			
2a.1	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	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	Creates opportunities to showcase a variety of students' problem solving strategies and encourages students to make sense of problems and persevere in solving them.	Encourages a variety of problem solving strategies and encourages students to make sense of problems and persevere in solving them but does not showcase students' 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	Mathematical activities and investigations allow for students to formulate and test conjectures in order to frame generalizations.	Includes experiences that 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.

MTH Observation Rubric

Mathematical Practices - Reasoning. Effective teachers reason abstractly. Intern can design and use a variety of stimulating curricula that provide experiences that require

- Abstract, reflective and quantitative reasoning with attention to units, constructing viable arguments and proofs and critiquing the reasoning of others;
- Representing and modeling generalizations using mathematics; recognizing structure and expressing regularity in patterns of mathematical reasoning;
- Using multiple representations to model and describe mathematics; and
- Utilizing appropriate mathematical vocabulary and symbols to communicate mathematical ideas to others.

2b.1	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	Able to understand, critique, and respond coherently to the mathematical reasoning and strategies 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 do not encourage student perseverance.	No evidence of understanding the mathematical reasoning and strategies of others.
2b.3	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 patterns of mathematical reasoning.	Neither represents nor models generalizations using mathematics.
2b.4	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 no attempt to recognize the connections between the representations.	Communicates mathematical ideas using a single representation.
2b.5	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.

MTH Observation Rubric

(NCTM CAEP Sub-Element Alignment)	Target (3)	Acceptable (2)	Unacceptable (1)
Mathematical Practices - Modeling. Effective teachers formulate, represent, analyze, and interpret mathematical models derived from real-world contexts or mathematical problems.			
2c.1	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	Designs experiences that allow students to ***analyze*** and ***interpret*** mathematical models derived from variety of real-world contexts to build mathematical understanding.	Motivates and illustrates the ***analysis*** and ***interpretation*** of mathematical models derived from variety of real-world contexts.	Does not recognize mathematical models derived from variety of real-world contexts.
Mathematical Practices – Communication. Effective teachers organize mathematical thinking and use the language of mathematics to express ideas precisely, both orally and in writing to multiple audiences.			
2d	Organizes mathematical thinking and uses the language of mathematics to express ideas precisely to multiple audiences.	Organizes mathematical thinking and uses the language of mathematics to express ideas precisely.	Mathematical thinking is not organized and mathematical ideas are imprecise.

MTH Observation Rubric

Content Pedagogy - Curriculum Standards. Effective teachers apply knowledge of curriculum standards for secondary mathematics and their relationship to student learning within and across mathematical domains.			
3a	Instruction engages students in developmentally appropriate mathematical *investigations* and clearly communicates student-learning outcomes based on common core standards.	Instruction is developmentally appropriate and clearly communicates student-learning outcomes based on common core standards.	Goals of instruction vague, unclear or not quite appropriate.
Content Pedagogy – Lesson Planning. Effective teachers plan lessons and units that incorporate a variety of strategies, differentiated for diverse populations, and mathematics-specific and instructional technologies in building all students' conceptual understanding and procedural proficiency.			
3c.1	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	Lesson plan *appropriately* incorporates mathematics-specific technologies to effectively build ***all*** students' conceptual understanding and procedural proficiency.	Lesson plan *appropriately* incorporates mathematics-specific technology in an attempt to build students' conceptual understanding and procedural proficiency.	Lesson plan *inappropriately* incorporates mathematics-specific technology or fails to build students' conceptual understanding and procedural proficiency.
Content Pedagogy – Assessment Plan. Effective teachers plan select, implement, interpret, and use formative and summative assessments to inform instruction by reflecting on mathematical proficiencies for all students. (All assessments should be intern-created and use precise language and notation.)			
3f.1	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 the 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 student think about mathematics but with limited strategies or skewed with regard to level of thinking or difficulty.	Assessments do not measure student 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	Post-observation conference: Candidate is able to describe how assessment results were used to inform instruction includes 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.

MTH Observation Rubric

Mathematical Learning Environment – Lesson Planning. Effective teachers plan and create developmentally appropriate sequential, and challenging learning opportunities grounded in mathematics education research in which students are actively engage in building new knowledge for prior knowledge experiences.			
4b.1	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 are not developmentally appropriate.
4b.2	Instructional strategies are grounded in mathematics education research in which students are actively engaged.	Instructional strategies are grounded in mathematics education research. (5E instruction model, Marzano's Best Practices, etc.)	Lesson plans are not grounded in mathematics education research.
4b.3	Lesson actively engages students in building new knowledge from prior knowledge and experiences.	Lesson builds new knowledge from prior knowledge and experiences.	Lesson does not build new knowledge from prior knowledge and experiences.
Mathematical Learning Environment. Effective teachers demonstrate equitable and ethical treatment of and high expectations for all students.			
4d	Equitable and ethical treatment of and high expectations for all students is demonstrated during lesson and observed by cooperating teacher during internship.	Equitable and ethical treatment of and high expectations for all students is demonstrated during lesson or observed by cooperating teacher during internship.	No evidence of equitable and ethical treatment of and high expectations for all students.
Mathematical Learning Environment – Instructional Tools and Mathematics-Specific Technologies. Effective teachers 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); and make sound decisions about when such tools enhance teaching and learning, recognizing both the insights to be gained and possible limitations of such tools.			
4e.1	***Instructional tools*** are used to enhance teaching and learning, lesson plan clarifies both the insights to be gained and possible limitations of such tools.	/***nstructional tools*** are used to enhance the 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	***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.

MTH Observation Rubric

(NCTM CAEP Sub-Element Alignment)	Target (3)	Acceptable (2)	Unacceptable (1)
Impact on Student Learning - Student Engagement. Effective teachers show that new student knowledge has been created as a consequence of their ability to engage students in mathematical experiences that are developmentally appropriate, require active engagement, and include mathematics-specific technology.			
5b.1	Students are engaged in developmentally appropriate mathematical investigations. Documentation includes evidence that • Pacing is appropriate, • Lesson captures perplexity, by following the Three-Act Math Tasks (Dan Meyer)or similar engagement methodology, and Students are given an opportunity for reflection.	Documentation that students are engaged in developmentally appropriate mathematical investigations. Documentation includes evidence that • Pacing is mostly appropriate, • Lesson attempts to capture perplexity but missing a key component, and Students are given an opportunity for reflection.	There is no documentation addressing the engagement of students in developmentally appropriate mathematical investigations.
5b.2	Students use mathematics-specific technologies appropriate to the learning objective.	Students use mathematics-specific technologies but it does not connect to the learning objectives in a meaningful way.	Students do not use mathematics-specific technology and explanation for lack of use not based in sound pedagogy.
Impact on Student Learning - Assessment Results. Effective teachers 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. At the conclusion of the lesson, students should be given the opportunity to reflect. Assessments might include an exit ticket, a concept of definition map or other graphic organizer, a quiz, etc.			
5c.1	Post-observation Interview: Candidate accurately interprets assessment results, and describes how the assessment evidence will inform future instruction.	Post-observation Interview: Candidate accurately interprets assessment results.	Post-observation Interview: Assessment is flawed or assessment results are inaccurately interpreted.
5c.2	Assessment evidence demonstrates a positive impact on student learning for each student-learning outcome of the lesson.	Assessment evidence demonstrates a positive impact on student learning on most of the lesson's student learning outcomes.	Assessment does not provide evidence demonstrating a positive impact on student learning on most of the student learning outcomes.

MTH Observation Rubric

Secondary Mathematics Field Experiences and Clinical Practice – Effective teachers develop a broad experiential base of knowledge, skills, effective approaches to mathematics teaching and learning, and professional behaviors across both middle and high school settings that involve a diverse range and varied groupings of students. Both ***content observations,*** conferences associated to the observation (with candidate and cooperating teacher), and all supporting documents will inform the below ratings. This rating will be scores only on the summative observation.			
7c.1	Observations provide evidence the teacher candidate has developed the knowledge, skills and professional behaviors necessary to examine the nature of mathematics, how mathematics should be taught, and how students learn mathematics. Evidence spans both middle and high school mathematics *and* documents specific ways in which candidate has drawn upon research in mathematics education and professional development to inform practice.	Observations provide evidence the teacher candidate has developed the knowledge, skills and professional behaviors necessary to examine the nature of mathematics, how mathematics should be taught, and how students learn mathematics. Evidence spans both middle and high school mathematics.	Observations do not provide evidence the teacher candidate has developed the knowledge, skills or professional behaviors necessary to examine the nature of mathematics, how mathematics should be taught, and how students learn mathematics.
7c.2	Observations provide evidence the teacher candidate has developed the knowledge, skills and professional behaviors necessary to analyze a range of approaches to mathematics teaching and learning, focusing on tasks, discourse, environment, and assessment. Candidate documents specific collaborations with cooperating teacher, peers, *and* university supervisors.	Observations provide evidence the teacher candidate has developed the knowledge, skills and professional behaviors necessary to analyze a range of approaches to mathematics teaching and learning, focusing on tasks, discourse, environment, and assessment.	Observations do not provide evidence that the candidate has developed the knowledge, skills or professional behaviors necessary to analyze approaches to mathematics teaching and learning, tasks, discourse, environment, or assessment.

MTH Lesson Plan

Intern _____ Cooperating Teacher _____

School _____ University Supervisor [redacted]

Grade _____Subject _____Date _____
(Month/Day/Year)

INSTRUCTION PLAN **Complete and submit 48 hours prior to observation.**

1. Place title of lesson here.

Student Learning Outcomes: After completing the unit, student will be able to…	Common Core Standards: Type the standard here using its appropriate reference. Cross out any portion not addressed in lesson plan.	Evidence: (Identify what part of the assessment plan will provide evidence of student proficiency.)

2. METHODS

Identify instructional strategies have you chosen for this lesson.

3. STUDENT GROUPING

How will you group students for instruction? Will student be working cooperatively in groups of 2, groups of 3, groups of 4, independently, etc.? If working in groups, ***specifically*** describe how the groups will be determined.

4. Vocabulary (Include definitions.)

5. Real World Applications that are explored during this lesson. (Capture perplexity.)

Explain what experiences allow students to formulate, represent, analyze and or interpret mathematical models derived from a variety of real-world contexts to build mathematical understanding.

6. Strategic Use of Tools/Technology

Explain how you and the students strategically use mathematics-specific tools during the lesson to enhance or extend the meaning of the mathematics. If no math-specific tools or technologies are used, explain how the limitations of such tools prohibited their use. Tools: Manipulatives, physical models, drawings, virtual manipulatives or representations, etc. Technologies: Graphing calculators, graphing software, interactive geometry software, computer algebra systems, statistical packages, etc.

7. Insert Activity Plan – use template (repeat for each activity)

Name of Activity:

8. ACCOMMODATIONS

What accommodations will be made for children with special needs (i.e. teaching, evaluation)?

9. RESOURCES

• Include a list of any resources used in the development of this lesson. This should be a proper citation of materials used to develop this lesson. Include internet resources, print material in books or journals, and community/school resources. • All resources should be modified in some way to improve them.

Activity Plan

Title of the Activity or Lesson:

Goals of the Activity or Lesson: (What mathematical content and processes do you hope students will learn from their work on this activity? Use correct common core labeling.)

Why do students need to learn this?

- This concept connects to future learning. It is important later in the study of …
- This understanding or skill will enable students to…
- This understanding or skill prepares students for real-work performance tasks of…
- The content enhances analytical or critical thinking skills by…
- The content enhances learning in other disciplines. (Include specifics.)

Setting Up the Mathematical Activity – Engage Phase

A. In what ways does the task build on students' previous knowledge? What definitions, concepts, or ideas do students need to know in order to begin work on the task?

   - Students will need a (geometrical, graphical, algebraic, numerical, …) understanding of ... Specifically, students will need to
     -
     -
     -
     -
   - Students will need to be familiar with ...
   -

B. What are all the ways the investigation can be completed? (What methods do you think your students use? What misconceptions might students have? What errors might students make?)

C. What are your expectations for students as they work on and complete this activity? (What resources will students use? How will students work – independently, small groups, pairs? How will students record and report their work?)

D. How will you introduce students to the activity so as not to reduce the demands of the task? How will you engage students?

➢ Include a narrative here that described what happens during the engage phase of the lesson.

Exploration Phase: As students are working independently or in small groups:

A. What questions will you ask to focus their thinking?

B. What will you see or hear that lets you know how students are thinking about the mathematical ideas?

C. What questions will you ask to assess students' understanding of key mathematical ideas, problem-solving strategies, or the representations? Attach all graphic organizers, exit ticket, …

D. What questions will you ask to advance students' understanding of the mathematical ideas?

E. What questions will you ask to encourage students to share their thinking with others or to assess their understanding of their peers' ideas?

- Include a narrative here that described what happens during the explore phase of the lesson.

Sharing and Discussing the Activity - Explain Phase

A. Which solution paths do you want to have shared during the class discussion in order to accomplish the goals for the lesson? Which will be shared first, second, etc? Why?

B. What will you see or hear that lets you know that students in the class understand the mathematical ideas or problem-solving strategies that are being shared?

C. How will you orchestrate the class discussion so that students:
   Make sense of the mathematical ideas being shared?
   Expand on, debate, and question the solutions being shared?
   Make connections between their solution strategy and the one shared?
   Look for patterns and form generalizations?

D. What extensions to the activity will you pose that will help students look for patterns, make connections, or form a generalization?

- Include a narrative here that described what happens during the explain phase of the lesson.

- Include a narrative here that described what happens during the elaborate phase of the lesson.

- Explain here how students will summarize their understanding.

REFLECTION AFTER THE OBSERVATION **Complete after observation, and submit with 48 hours after the observation.**
1. Did you depart from anything you planned for today? If so why?
2. If you were going to teach this class again to the same students, what would you do differently? What would you do the same? Why?
3. Based on what happened today, what do you plan to do next with this class?
4. Identify an individual or group of students who did well in today/s lesson. How do you account for this individual or group's performance? What might you try in the future to further challenge this (these) students?
5. In what specific ways did you assess the students understanding of this lesson?
6. What evidence can you provide to support your claims in the above question?
7. In what ways were the students active learners in todays lesson (as opposed to passive)?

DOMAIN 1: PLANNING AND PREPARATION
PRE-OBSERVATION INTERVIEW

Teacher Intern: _____ Cooperating Teacher: _____

Date of Observation: _____ Subject: _____ Grade: _____

University Supervisor: _____

Directions: Complete the form and submit to the University Supervisor via e-mail 48 hours prior to scheduled observation visit.

1.	Have there been any changes in your instruction plan or in the information on your class profile since you previously filled out the forms? If so, please explain.
2.	How does the content of this lesson build on what students have already studied?
3.	How does the content of this lesson relate to what the students will be learning in the near future?
4.	How do the connections between this lesson, past learning, and future learning reflect the organization of the subject or discipline as a whole?
5.	In all of you planning for this lesson, how have you addressed the individual needs of this group of students? (Responses might include differentiation instruction for specific a specific gender, culture, language proficiency, exceptionality, economic status, skill level, or more individual concerns)

HENDERSON STATE UNIVERSITY

CLASS SUMMARY FORM

Teacher Intern: _____ Cooperating Teacher/School: _____

Date of Observation: _____ Subject/Grade: _____ University Supervisor: _____

Please respond to all questions in the space provided.

1.	How many students will be observed?			
		Total Number		
		Male Students		
		Female Students		
2.	What is the students' age range?			
3.	Approximately how many students are in each of the following language categories?			
		English Language Proficient		Limited English Language Proficient
4.	Approximately how many students have the following exceptionalities?			
		Blind or visually impaired		Learning disabled
		Deaf or hearing impaired		Physically disabled
		Developmentally disabled		Autism
		Emotionally or behaviorally disabled		504 Accommodations _____
		Gifted		Other (please specify) _____
5.	Given the following categories, how many students are in each of these categories?			
		African American or Black, non-Hispanic		Asian, Asian American, or Pacific Islander
		Mexican American or Chicano		Native American, Inuit or Aleut
		Puerto Rican		Other Hispanic
		White, non-Hispanic		Other (please specify) _____

6.	How do you become familiar with your students' background knowledge in terms of both skills and the cultural resources they bring in the classroom?
7.	How do you communicate with the parents or guardians of students in the class? How and for what reasons?
8.	Is there anything about the learning environment that you think might affect your students or the scheduled observation (e.g. this is not your assigned classroom; there is a new display, pet, or equipment in the room; there is construction going on in the building)? If so, please note.

9.	What are the most important classroom routines that will be in operation during the observed lesson (e.g. collecting papers, reviewing homework, safety precautions)?
10.	Are there any special circumstances that the observer should be aware of in order to understand what will occur during the scheduled observation (e.g. school wide routines or policies, interruptions, behavior patterns or students)? If so, please explain.
11.	When you need assistance with your teaching skills or when you have difficulties with a student, whom do you talk with (e.g. mentor teachers, other teachers, cooperating teachers, clinical supervisor, principal, professors)?
12.	How do you coordinate learning activities with your cooperating teachers?
13.	In the space below, please provide a simple sketch of the instruction shape for this lesson (e.g. student desks, teacher desk, student work space, playing field, or laboratory). Please attach a seating chart with the students' names (if available) or a list of the students for the class to be observed.