Program Report for the Preparation of Middle Grades Mathematics Teachers
National Council of Teachers of Mathematics (NCTM) 2012 Standards - Option 1

NCATE approved the 2012 NCTM Standards in 2012. Beginning in Spring 2015, programs submitting reports must use the 2012 Standards.

COVER SHEET

1. Institution Name

2. State

3. Date submitted
   MM DD YYYY

4. Report Preparer’s Information:
   Name of Preparer:
   Phone: Ext.
   E-mail:

5. CAEP Coordinator’s Information:
   Name:
   Phone: Ext.
   E-mail:

6. Name of institution’s program

7. CAEP Category

8. Grade levels(1) for which candidates are being prepared
   (1) e.g., 5 - 9, 7 - 9, 6 - 8

9. Program Type

Confidential
First teaching license
Non-licensure/non-certification degree

10. Degree or award level
    - Baccalaureate
    - Post Baccalaureate
    - Master's

11. Is this program offered at more than one site?
    - Yes
    - No

12. If your answer is "yes" to above question, list the sites at which the program is offered

13. Title of the state license for which candidates are prepared

14. Program report status:
    - Initial Review
    - Response to One of the Following Decisions: Further Development Required or Recognition with Probation
    - Response to National Recognition with Conditions

15. Is your Educator Preparation Provider (EPP) seeking
    - CAEP accreditation for the first time (initial accreditation)
    - Continuing CAEP accreditation

16. State Licensure data requirement on program completers disaggregated by specialty area with sub-area scores: CAEP requires programs to provide completer performance data on state licensure examinations for completers who take the examination for the content field, if the state has a licensure testing requirement. Test information and data must be reported in Section IV. Does your state require such a test?
    - Yes
    - No

SECTION I - CONTEXT

1. Description of any state or institutional policies that may influence the application of NCTM standards. (Response limited to 4,000 characters INCLUDING SPACES)

2. Description of the field and clinical experiences required for the program, including the number of hours for early field experiences and the number of hours/weeks for student teaching or internships. (Response limited to 8,000 characters INCLUDING SPACES)

3. A program of study that outlines the courses and experiences required for candidates to complete the program. The program of study must include course titles and numbers. (This information may be provided as an attachment from the college catalog or as a student advisement sheet.) For post baccalaureate or master’s programs include a graduate advising form or transcript analysis form showing undergraduate mathematics content course requirements aligned to NCTM Mathematics Content for Middle Grades.

4. This system will not permit you to include tables or graphics in text fields. Therefore any tables or charts must be attached as files here. The title of the file should clearly indicate the content of the file. Word documents, pdf files, and other commonly used file formats are acceptable.

5. Candidate Information
   Directions: Provide three years of data on candidates enrolled in the program and completing the program, beginning with the most recent academic year for which numbers have been tabulated. Report the data separately for the levels/tracks (e.g., baccalaureate, post-baccalaureate, alternate routes, master’s, doctorate) being addressed in this report. Data must also be reported separately for programs offered at multiple sites. Update academic years (column 1) as appropriate for your data span. Create additional tables as necessary.
(2) CAEP uses the Title II definition for program completers. Program completers are persons who have met all the requirements of a state-approved teacher preparation program. Program completers include all those who are documented as having met such requirements. Documentation may take the form of a degree, institutional certificate, program credential, transcript, or other written proof of having met the program’s requirements.

6. Faculty Information
Directions: Complete the following information for each faculty member responsible for professional coursework, clinical supervision, or administration in this program.

<table>
<thead>
<tr>
<th>Faculty Member Name</th>
<th>Highest Degree, Field, &amp; University(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignment: Indicate the role of the faculty member(4)</td>
<td></td>
</tr>
<tr>
<td>Faculty Rank(5)</td>
<td></td>
</tr>
<tr>
<td>Tenure Track</td>
<td>YES</td>
</tr>
<tr>
<td>Scholarship(6), Leadership in Professional Associations, and Service(7): List up to 3 major contributions in the past 3 years(8)</td>
<td></td>
</tr>
<tr>
<td>Teaching or other professional experience in P-12 schools(9)</td>
<td></td>
</tr>
</tbody>
</table>

(3) For example, PhD in Curriculum & Instruction, University of Nebraska.
(4) For example, faculty, clinical supervisor, department chair, administrator
(5) For example, professor, associate professor, assistant professor, adjunct professor, instructor
(6) Scholarship is defined by CAEP as a systematic inquiry into the areas related to teaching, learning, and the education of teachers and other school personnel.
Scholarship includes traditional research and publication as well as the rigorous and systematic study of pedagogy, and the application of current research findings in new settings. Scholarship further presupposes submission of one’s work for professional review and evaluation.
(7) Service includes faculty contributions to college or university activities, schools, communities, and professional associations in ways that are consistent with the institution and unit’s mission.
(8) For example, officer of a state or national association, article published in a specific journal, and an evaluation of a local school program.
(9) Briefly describe the nature of recent experience in P-12 schools (e.g. clinical supervision, in-service training, teaching in a PDS) indicating the discipline and grade level of the assignment(s). List current P-12 licensure or certification(s) held, if any.

SECTION II - LIST OF ASSESSMENTS

In this section, list the 6-8 assessments that are being submitted as evidence for meeting the NCTM standards. All programs must provide a minimum of six assessments. If your state does not require a state licensure test in the content area, you must substitute an assessment that documents candidate attainment of content knowledge in #1 below. For each assessment, indicate the type or form of the assessment and when it is administered in the program.

1. Please provide following assessment information (Response limited to 250 characters each field)

<table>
<thead>
<tr>
<th>Type and Number of Assessment</th>
<th>Name of Assessment (10)</th>
<th>Type or Form of Assessment (11)</th>
<th>When the Assessment Is Administered (12)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment #1: Licensure assessment, or other content-based assessment aligned to NCTM Mathematics Content for Middle Grades (required)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment #2: Content knowledge in middle grades mathematics aligned to NCTM Mathematics Content for Middle</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
(10) Identify assessment by title used in the program; refer to Section IV for further information on appropriate assessment to include.

(11) Identify the type of assessment (e.g., essay, case study, project, comprehensive exam, reflection, state licensure test, portfolio).

(12) Indicate the point in the program when the assessment is administered (e.g., admission to the program, admission to student teaching/internship, required courses [specify course title and numbers], or completion of the program).

SECTION III - RELATIONSHIP OF ASSESSMENT TO STANDARDS

1. Standard 1: Content Knowledge

Effective teachers of middle grades mathematics demonstrate and apply knowledge of major mathematics concepts, algorithms, procedures, connections, and applications within and among mathematical content domains.

Preservice teacher candidates:
1a) Demonstrate and apply knowledge of major mathematics concepts, algorithms, procedures, applications in varied contexts, and connections within and among mathematical domains (Number, Algebra, Geometry, Trigonometry, Statistics, Probability, and Calculus) as outlined in the NCTM Mathematics Content for Middle Grades.

2. Standard 2: Mathematical Practices

Effective teachers of middle grades mathematics solve problems, represent mathematical ideas, reason, prove, use mathematical models, attend to precision, identify elements of structure, generalize, engage in mathematical communication, and make connections as essential mathematical practices. They understand that these practices intersect with mathematical content and that understanding relies on the ability to demonstrate these practices within and among mathematical domains and in their teaching.

Preservice teacher candidates:
2a) 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, and formulate and test conjectures in order to frame generalizations.
2b) Reason abstractly, reflectively, and quantitatively with attention to units, constructing viable arguments and proofs, and critiquing the reasoning of others; represent and model generalizations using mathematics; recognize structure and express regularity in patterns of mathematical reasoning; use multiple representations to model and describe mathematics; and utilize appropriate mathematical vocabulary and symbols to communicate mathematical ideas to others.
2c) Formulate, represent, analyze, and interpret mathematical models derived from real-world contexts or mathematical problems.
2d) Organize mathematical thinking and use the language of mathematics to express ideas precisely, both orally and in writing to multiple audiences.
2e) Demonstrate the interconnectedness of mathematical ideas and how they build on one another and recognize and apply mathematical connections among mathematical ideas and across various content areas and real-world contexts.
2f) Model how the development of mathematical understanding within and among mathematical domains intersects with the mathematical practices of problem solving, reasoning, communicating, connecting, and representing.

3. Standard 3: Content Pedagogy

Effective teachers of middle grades mathematics apply knowledge of curriculum standards for mathematics and their relationship to student learning within and across mathematical domains. They incorporate research-based mathematical experiences and include multiple instructional strategies and mathematics-specific technological tools in their teaching to develop all students’ mathematical understanding and proficiency. They provide students with opportunities to do mathematics – talking about it and connecting it to both theoretical and real-world contexts. They plan, select, implement, interpret, and use formative and summative assessments for monitoring student learning, measuring student mathematical understanding, and informing practice.
Preservice teacher candidates:

3a) Apply knowledge of curriculum standards for middle grades mathematics and their relationship to student learning within and across mathematical domains.

3b) Analyze and consider research in planning for and leading students in rich mathematical learning experiences.

3c) Plan lessons and units that incorporate a variety of strategies, differentiated instruction for diverse populations, and mathematics-specific and instructional technologies in building all students’ conceptual understanding and procedural proficiency.

3d) Provide students with opportunities to communicate about mathematics and make connections among mathematics, other content areas, everyday life, and the workplace.

3e) 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, and employing a range of questioning strategies.

3f) Plan, select, implement, interpret, and use formative and summative assessments to inform instruction by reflecting on mathematical proficiencies essential for all students.

3g) Monitor students’ progress, make instructional decisions, and measure students’ mathematical understanding and ability using formative and summative assessments.

4. **Standard 4: Mathematical Learning Environment**

**Effective teachers of middle grades mathematics exhibit knowledge of pre-adolescent and adolescent learning, development, and behavior.** They use this knowledge to plan and create sequential learning opportunities grounded in mathematics education research where students are actively engaged in the mathematics they are learning and building from prior knowledge and skills. They demonstrate a positive disposition toward mathematical practices and learning, include culturally relevant perspectives in teaching, and demonstrate equitable and ethical treatment of and high expectations for all students. They use instructional tools such as manipulatives, digital tools, and virtual resources to enhance learning while recognizing the possible limitations of such tools.

Preservice teacher candidates:

4a) Exhibit knowledge of pre-adolescent and adolescent learning, development, and behavior and demonstrate a positive disposition toward mathematical processes and learning.

4b) Plan and create developmentally appropriate, sequential, and challenging learning opportunities grounded in mathematics education research in which students are actively engaged in building new knowledge from previous knowledge and experiences.

4c) Incorporate knowledge of individual differences and the cultural and language diversity that exists within classrooms and include culturally relevant perspectives as a means to motivate and engage students.

4d) Demonstrate equitable and ethical treatment of and high expectations for all students.

4e) 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 and interactive geometry software); 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.

5. **Standard 5: Impact on Student Learning**

**Effective teachers of middle grades mathematics provide evidence demonstrating that as a result of their instruction, middle grades students’ conceptual understanding, procedural fluency, strategic competence, adaptive reasoning, and application of major mathematics concepts in varied contexts have increased. These teachers support the continual development of a positive disposition toward mathematics.** They show that new student mathematical 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 in building new knowledge.

Preservice teacher candidates:

5a) Verify that middle grades students demonstrate conceptual understanding; procedural fluency; the ability to formulate, represent, and solve problems; logical reasoning and continuous reflection on that reasoning; productive disposition toward mathematics; and the application of mathematics in a variety of contexts within major mathematical domains.

5b) Engage students in developmentally appropriate mathematical activities and investigations that require active engagement and include mathematics-specific technology in building new knowledge.

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.

6. **Standard 6: Professional Knowledge and Skills**

**Effective teachers of middle grades mathematics are lifelong learners and recognize that learning is often collaborative. They participate in professional development experiences specific to mathematics and mathematics education, draw upon mathematics education**
SECTION IV - EVIDENCE FOR MEETING STANDARDS

DIRECTIONS: The 6-8 key assessments listed in Section II must be documented and discussed in Section IV. Taken as a whole, the assessments must demonstrate candidate mastery of the SPA standards. The key assessments should be required of all candidates. Assessments, scoring guides/rubrics and data charts should be aligned with the SPA standards. This means that all the concepts in the SPA standards should be apparent in the assessments and in the scoring guides/rubrics to the same depth, breadth, and specificity as in the SPA standards. Data tables should also be aligned with the SPA standards. The data should be presented, in general, at the same level it is collected. For example, if a rubric collects data on 10 elements (each relating to specific SPA standard(s)), then the data chart should report the data on each of the elements rather than reporting a cumulative score.

In the description of each assessment below, the SPA has identified potential assessments that would be appropriate. Assessments have been organized into the following three areas to be aligned with the elements in CAEP Standard 1:

- Content knowledge (Assessments 1, 2, and 6)
- Pedagogical and professional knowledge, skills and dispositions (Assessments 3 and 4)
- Focus on student learning (Assessment 5)

Note that in some disciplines, content knowledge may include or be inextricable from professional knowledge. If this is the case, assessments that combine content and professional knowledge may be considered "content knowledge" assessments for the purpose of this report.

For each assessment, the compiler should prepare one document that includes the following items:

1. A two-page narrative that includes the following:
   a. A brief description of the assessment and its use in the program (one sentence may be sufficient);
   b. A description of how this assessment specifically aligns with the standards it is cited for in Section III. Cite SPA standards by number, title, and/or standard wording.
   c. A brief analysis of the data findings;
   d. An interpretation of how that data provide evidence for meeting standards, indicating the specific SPA standards by number, title, and/or standard wording; and

2. Assessment Documentation
   e. The assessment tool itself or a rich description of the assessment (often the directions given to candidates);
   f. The scoring guide/rubric for the assessment; and
   g. Charts that provide candidate data derived from the assessment.

The responses for e, f, and g should be limited to the equivalent of five text pages each, however in some cases assessment instruments or scoring guides/rubrics may go beyond five pages.

Note: As much as possible, combine all of the files for one assessment into a single file. That is, create one file for Assessment #4 that includes the two-page narrative (items a – d above), the assessment itself (item e above), the scoring guide (item f above), and the data chart (item g above). Each attachment should be no larger than 2 mb. Do not include candidate work or syllabi. There is a limit of 20 attachments for the entire report so it is crucial that you combine files as much as possible.

1. **State licensure test(s) or professional examinations of content knowledge. NCTM standards addressed in this entry could include Standards 1-2. If your state does not require licensure tests or professional examinations in the content area, data from another assessment aligned to NCTM Mathematics Content for Middle Grades must be presented to document candidate attainment of content knowledge. (Assessment Required)**

   Provide assessment information as outlined in the directions for Section IV

2. **Assessment of content knowledge in mathematics. NCTM standards addressed in this assessment that is aligned to NCTM Mathematics Content for Middle Grades could include but are not limited to Standards 1-2. Examples of assessments include comprehensive examinations, GPAs or grades, and portfolio tasks. For post-baccalaureate teacher preparation, include an assessment used to determine that candidates have adequate content background in the subject to be taught. (Assessment Required)**

   Provide assessment information as outlined in the directions for Section IV
(13) For program review purposes, there are two ways to list a portfolio as an assessment. In some programs a portfolio is considered a single assessment and scoring criteria (usually rubrics) have been developed for the contents of the portfolio as a whole. In this instance, the portfolio would be considered a single assessment. However, in many programs a portfolio is a collection of candidate work—and the artifacts included.

3. Assessment that demonstrates candidates can effectively plan classroom-based instruction. NCTM standards that could be addressed in this assessment include but are not limited to Standards 3, 4 and 6. Examples of assessments include the evaluation of candidates’ abilities to develop lesson or unit plans, individualized educational plans, needs assessments, or intervention plans. (Assessment Required)

Provide assessment information as outlined in the directions for Section IV
A LINK to upload or manage your uploaded file(s)

4. Assessment that demonstrates candidates’ knowledge, skills, and dispositions are applied effectively in practice. NCTM standards that could be addressed in this assessment include but are not limited to Standard 3, 4, 6 and 7. An assessment instrument used in student teaching or an internship should be submitted. (Assessment Required)

Provide assessment information as outlined in the directions for Section IV
A LINK to upload or manage your uploaded file(s)

5. Assessment that demonstrates candidate effect on student learning. NCTM standards that could be addressed in this assessment include but are not limited to Standard 5. Examples of assessments include those based on student work samples, portfolio tasks, case studies, follow-up studies, and employer surveys. (Assessment Required)

Provide assessment information as outlined in the directions for Section IV
A LINK to upload or manage your uploaded file(s)

6. Assessment of content knowledge in mathematics. NCTM standards addressed in this assessment that is aligned to NCTM NCATE Mathematics Content for Middle Grades could include but are not limited to Standards 1-2. Examples of assessments include comprehensive examinations, GPAs or grades, and portfolio tasks

Provide assessment information as outlined in the directions for Section IV
A LINK to upload or manage your uploaded file(s)

7. Additional assessment that addresses NCTM standards. Examples of assessments include evaluations of field experiences, case studies, portfolio tasks, licensure tests not reported in #1, and follow-up studies. (Optional)

Provide assessment information as outlined in the directions for Section IV
A LINK to upload or manage your uploaded file(s)

8. Additional assessment that addresses NCTM standards. Examples of assessments include evaluations of field experiences, case studies, portfolio tasks, licensure tests not reported in #1, and follow-up studies. (Optional)

Provide assessment information as outlined in the directions for Section IV
A LINK to upload or manage your uploaded file(s)

SECTION V - USE OF ASSESSMENT RESULTS TO IMPROVE PROGRAM

1. Evidence must be presented in this section that assessment results have been analyzed and have been or will be used to improve candidate performance and strengthen the program. This description should not link improvements to individual assessments but, rather, it should summarize principal findings from the evidence, the faculty’s interpretation of those findings, and changes made in (or planned for) the program as a result. Describe the steps program faculty have taken to use information from assessments for improvement of both candidate performance and the program. This information should be organized around (1) content knowledge, (2) professional and pedagogical knowledge, skill, and dispositions, and (3) student learning.

(Response limited to 12,000 characters INCLUDING SPACES)

SECTION VI - FOR REVISED REPORTS OR RESPONSE TO CONDITIONS REPORTS ONLY

1. For Revised Reports: Describe what changes or additions have been made to address the standards that were not met in the original submission. Provide new responses to questions and/or new documents to verify the changes
described in this section. Specific instructions for preparing a Revised Report are available on the CAEP website at http://caepnet.org/accreditation/caep-accreditation/spa-program-review-process

For Response to Conditions Reports: Describe what changes or additions have been made to address the conditions cited in the original recognition report. Provide new responses to questions and/or new documents to verify the changes described in this section. Specific instructions for preparing a Response to Conditions Report are available on the CAEP website at http://caepnet.org/accreditation/caep-accreditation/spa-program-review-process

(Response limited to 24,000 characters, including spaces)

Please click "Next"

This is the end of the report. Please click "Next" to proceed.