

Section IV

Assessment 2: CONTENT KNOWLEDGE

Attachment C: Content Assessment Rubric for the Math Department Portfolio (part I)
Attachment D: Content Assessment Rubric for the Math Department Portfolio (part II)
Appendix A: Content Knowledge Portfolio Required Items

1. Description of the Assessment

All teacher candidates must prepare and submit a portfolio that includes content-based items from their required mathematics courses twice during their program. Prior to the beginning of each academic year, faculty members are given a list of required portfolio items to be assigned and collected within each designated course. The items are assigned as homework problems, group assignments, projects, or given as test questions. Then they are collected by the instructor and stored in each teacher candidate's mathematics file that is stored in a central location in the Mathematics Building.

During Math 225 (Introduction to Abstract Mathematics) teacher candidates are given all the materials from their mathematics file to compile into a portfolio. Since teacher candidates typically take this course during their second year, it contains items and materials from the teacher candidates' first two years in the program. At the completion of the academic year, the Mathematics Department members assess each portfolio using the rubric found in Attachment C. After the teacher candidate has submitted the content knowledge portfolio for its first evaluation, this same procedure of assigning work, collecting items, and storing the materials continues for two more years.

Math 475 (Issues and Trends in Mathematics Education) occurs during the fall semester of the teacher candidates' senior year and prior to their student teaching experience. Teacher candidates submit their content knowledge portfolios for a second time at the completion of this course. This portfolio contains content knowledge materials from upper level mathematics courses as well as from the senior-level mathematics education seminar and their teaching methods course. At the completion of the academic year, the Mathematics Department members assess each portfolio using the rubric found in Attachment D.

The items include mathematical problems, assignments, and/or presentations from the areas of calculus, linear algebra, abstract algebra, geometry, probability and statistics, mathematical modeling, modern algebra, measurement, and history of mathematics.

Assessment Administration: Each portfolio item is assessed in its individual course and collectively evaluated during the Mathematics Department Portfolio Assessment.

2. Alignment of NCTM Standards and Indicators with this Assessment

Each course has a specific set of required items for inclusion into the teacher candidates' portfolios. A description of each item and its alignment is located in Appendix A: Content Knowledge Portfolio. At the end of each item, a code appears which indicates its alignment with an NCTM indicator (NCATE) and/or an indicator from the New Hampshire Council of Teacher Education (NHCTE).

As noted in Appendix A, indicators from the standards were addressed as:
Mathematical Problem Solving: 1.1, 1.2, 1.3, 1.4 Technology: 6.1

Reasoning and Proof: 2.1, 2.2, 2.3, 2.4
 Mathematical Connections: 4.2, 4.3
 Calculus: 12.1, 12.2, 12.3, 12.4, 12.5
 Mathematical Representation: 5.1, 5.2, 5.3
 Algebra: 10.1, 10.2, 10.3, 10.4, 10.5, 10.6
 Geometry: 11.1, 11.2, 11.3, 11.4, 11.5, 11.6, 11.7, 11.8
 Number and Operation: 9.1, 9.7, 9.8, 9.9
 Discrete Mathematics: 13.1, 13.2, 13.3, 13.4,
 Statistics: 14.1, 14.2, 14.3, 14.4, 14.5, 14.7, 14.8
 Mathematical Communication: 3.1, 3.2, 3.3, 3.4

Number Theory: 9.5
 History of Mathematics: 9.10
 Measurement: 15.1, 15.2, 15.4

3. Data Findings

A committee of mathematics and mathematics education faculty assessed the teacher candidates' content knowledge portfolios using a common rubric (see Attachment C and Attachment D). All teacher candidates were able to meet expectations at the proficient level or higher. One teacher candidate's portfolio met expectations for the exemplary level for the second assessment and one candidate's portfolio met exemplary expectations for the first assessment.

Assessment #1

Number of Teacher Candidates	Not Proficient	Proficient	Exemplary
2	0	1	1

Assessment #2

Number of Teacher Candidates	Not Proficient	Proficient	Exemplary
4	0	3	1

4. Data Interpretation

The fact that all the teacher candidates met or exceeded the requirements for the Mathematics Department Portfolio indicates that the teacher candidates were successful in comprehending the content material within each specific course and in being able to successfully compile a thorough, effective portfolio. In addition, the candidates reported finding value in being able to review their work over a period of time from several courses and to reflect on the growth of their mathematical content knowledge.

Since all teacher candidates received an evaluation of proficient or exemplary on the Mathematical Content Knowledge Portfolio, the Mathematics Department found the assessment rubric to be adequate and was pleased with the mathematical content knowledge understanding of the teacher candidates.