

Sect IV Optional Assessment #7 - Content Portfolio Performance Task

1. Description of Assessment: Secondary Mathematics Content Portfolio Performance Task

The Secondary Mathematics Content Portfolio is completed by undergraduate teacher candidates. The portfolio contains artifacts in six categories of mathematics in which candidates showcase their knowledge of and best work in mathematics from their undergraduate program and a reflective essay through which candidates describe how the artifacts demonstrate their growth over time. The Performance Task is one section in the Secondary Mathematics Content Portfolio and is the only section that MAT candidates complete, as they completed their undergraduate coursework elsewhere. The Portfolio is submitted to the instructor during SED 410 Practicum in the semester prior to student teaching. The Performance Task is an extended problem solving task that is completed during a class session of SED 410 Practicum.

2. Alignment of Secondary Mathematics Content Portfolio Performance Task with NCTM Standards and Indicators

Program Standard	Indicators Addressed
Standard 1: Knowledge of Mathematical Problem Solving	1.1, 1.2, 1.4
Standard 3: Knowledge of Mathematical Communication	3.1, 3.2, 3.3
Standard 4: Knowledge of Mathematical Connections	4.1, 4.2, 4.3
Standard 5: Knowledge of Mathematical Representation	5.1, 5.2

3. Data Results

Only 1 MAT candidates (n = 4) completed this task at a level 3 out of 4 on the 0 – 4 scale; the other candidates earned a 4.

4. Data Interpretation

Candidates who earn a score of 4 on this task do so because both their work and communication are exceptional.

5. Assessment Documentation

a. Mathematics Content Portfolio: Performance Task

Instruction for Performance Task. A performance (extended problem solving) task that is completed during a Practicum session.

NCTM Indicators

- 1.1 Apply and adapt a variety of appropriate strategies to solve problems.
- 1.2 Solve problems that arise in mathematics and those involving mathematics contexts.
- 1.4 Monitor and reflect on the process of mathematical problem solving.
- 3.1 Communicate their mathematical thinking coherently and clearly to peers, faculty, and others.
- 3.2 Use the language of mathematics to express ideas precisely.
- 3.3 Organize mathematical thinking through communication.

- 4.1 Recognize and use connections among mathematical ideas.
- 4.2 Recognize and apply mathematics in contexts outside of mathematics.
- 4.3 Demonstrate how mathematical ideas interconnect and build on one another to produce a coherent whole.
- 5.1 Use representations to model and interpret physical, social, and mathematical phenomena.
- 5.2 Create and use representations to organize, record, and communicate mathematical ideas.

Sample Tasks

Tasks and rubrics that accompany them released by the New Standards Project for high school students continue to serve the goals of the program. Two are described briefly.

1. “Snark Soda”

The task requires using geometric shapes to model as closely as possible the volume of the liquid in the bottle illustrated. (Two pictures are provided: 1) a filled bottle of soda and 2) a view from the top of the bottle). Candidates are given two directions:

- a) Use geometric shapes to figure out as accurately as you can a good approximation for the volume of the liquid in the bottle.
- b) Discuss the accuracy of your model by talking about where it gives overestimates or underestimates.

The task specifies that candidates will be assessed on how clearly they show what they did using diagrams, formulas, and words; and how easy it would be for someone not present in class when the lesson was taught to repeat what the candidate did and check the approximation for the volume.

2. “Shoelaces”

The task requires candidates to develop a rule that predicts the length of shoelaces needed from the number of lace holes in the sneakers (up to ten pair of lace holes). They are expected to develop a table, graph and formula based on pictures that are provided. They are expected to design three signs to guide consumers purchase the correct length of shoelaces if they know the number of pair of lace holes in the sneakers; one using a table, a second using a graph, and a third using a formula.

b. Scoring Guide for Mathematics Content Portfolio Performance Task

The scoring guide, a 0 – 4 scale, that is used for the Performance Task is supplied by the New Standards Project.

c. Data for Completers

Secondary Education – Mathematics MAT Program Completers for years 2008 – 2010; Mathematics Content Portfolio Performance Task																
Years	Section 1 212, 314		Section 2 315, 324		Section 3 213, 314, 315, 324		Section 4 418, 431, 432, 436, 441, 458		Section 5 300		Section 6 Performance		Essay		Overall	
	#	score	#	score	#	score	#	score	#	score	#	score	#	score	#	score
2007-2008 n = 14											2	4				
2008-2009 n = 1											1	4				
2009-2010 n=1											1	3				