

MATH 3262 Final Reflective Portfolio

The Conference Board of the Mathematical Sciences (CBMS) published a two-volume document entitled, *The Mathematical Education of Teachers*. (The document can be found at http://www.cbmsweb.org/MET_Document/index.htm.)

A summary of the content of a geometry and measurement course for preservice middle grades mathematics teachers as given in this document is listed below.

Summary of geometry and measurement content

1. Identify two- and three-dimensional shapes and know their properties:
 - make conjectures about shapes and offer justifications for conjectures.
 - understand similarity and congruence of shapes.
 - be familiar with currently available software that allows exploration of shapes.
2. Develop spatial reasoning through physical and mental activities:
 - manipulate mentally physical representations of two- and three-dimensional shapes.
 - determine the rotational and line symmetry for two- and three-dimensional shapes.
 - be familiar with interactive geometry software that allows movement of two- and three-dimensional drawings.
3. Connect geometry to other mathematical topics, e.g., to:
 - algebra via work with rectangular coordinate systems and with transformations.
 - proportional reasoning via the study of similarity.
4. Connect geometry to nature and to art.
5. Understand measurement processes:
 - quantification of attributes of objects or ideas.
 - role of choice of measurement instrument and its influence on accuracy.
 - selection of unit of measure.
6. Understand and use measurement techniques and formulas:
 - relate measurements within each of the two common systems of measure, English and metric.
 - estimate using common units of measurement.
 - develop and use formulas for measuring area and volume.
 - decompose and recompose non-regular shapes to find area or volume.
 - understand roles of π in measurement.
 - understand and use the Pythagorean Theorem.

Your portfolio should be constructed using the following guidelines:

1. Examine the 6 broad areas of geometry and measurement content listed above and reflect on the progress you have made in 3 of these 6 areas.
 - a. Describe how your understanding in each of these 3 areas has developed by discussing where you were at the beginning of the semester and where you are now. (You may find it helpful to read your mathography that was written at the beginning of the semester.)
 - b. For each area, select pieces of work from this semester that helped deepen your understanding in that area and explain how and why—what was your previous thinking or understanding, what did you learn, how did each piece help you learn. These pieces can include journal writing, homework assignments, test questions, reaction papers, class activities, or any other pieces of work you have produced in this class. Include a copy of the pieces selected.
2. Select your favorite two assignments/activities during the semester. Write about why these are your favorites. Include copies of each.
3. Describe one major issue concerning the connection between mathematical knowledge and teaching that you thought about this semester due to this course that you had not considered in the past.

The descriptions should be typewritten, double-spaced, and 12 pt font. These descriptions should be a total of 4 to 5 pages in length. Copies of the supporting pieces of work will not be included in the 4 to 5 page count. Showcase your portfolio in a file folder for 3-hole punch paper. Write your name and course section on the folder. Number the pages of the portfolio and include a table of contents.

Your portfolio is due on the last day of class. It will not be returned but will be kept for at least one year so you should make a copy for yourself.

Assessment:

In grading the reflective portfolio, I will first assess if you have given the descriptions as asked for in each question. Beyond that, I will be assessing the degree to which:

- Descriptions are focused, detailed, and precise
- Specific pieces of work from the class are given as requested and the pieces support your statements
- Descriptions are relevant to the point you are making and are relevant to the course
- You have communicated a self-awareness of your journey (where you started from, where you went, and where you are now)