#### Adapted from Burton, Spring 2008

# PROJECT STRUCTURE / COMPONENTS / ASSESSMENT

### A. Written Paper

Formal lesson plan for school children on a geometric topic (see below). Lesson plan contains at least one activity for school children

B. Class Presentation

Each presentation will be scheduled for about 20 minutes; half of the class will present on Wednesday, June 2 and half will present on Monday, June 7.

Each presentation must have the following:

- ✓ Formal Presentation on PowerPoint (5 10 minutes) where you describe your lesson ideas.
- ✓ Brief Hands-On Interactive Sharing with Class (5 10 minutes) where the class gets to see your activity ideas.
- C. Assessment

See the included Lesson Project Assessment Criteria Scoring Rubric

## WRITTEN PAPER

- 1. Select a topic from the general areas of:
  - A. Measurement
  - B. Geometric work with two-dimensional shapes
  - C. Geometric work with three-dimensional shapes

**DEADLINE for topic** choice—get verbal approval by Wednesday, May 12: It is recommended that you research your ideas (see item #2), at least briefly, before having your topic approved.

2. Research your topic

To prepare to write your paper, you must find, read and use at least the following resources:

a. Two state adopted K – 8 textbooks (topic relevant portions only); two different grade levels.

Hamersly Library, 2nd floor, you will find the (labeled) state adopted textbooks. Ask for help if you can't find the books you need.

b. One article, preferably from the NCTM's *Teaching Children Mathematics*. The NCTM's *Mathematics Teaching in the Middle School* journal is also acceptable.
Start at <u>www.nctm.org</u> and look under *JOURNALS* under *PUBLICATIONS* to find the correct journal homepage. Each journal has a topic index/search engine associated with it. If you do not subscribe to the journal, you will not be able to download the article. Use the journal resources at the Hamersly Library to find the complete versions of the articles you are interested in.

*Note*: Online versions of NCTM articles available through the Hamersly Library databases will be text-only. In general, this will render the article useless as a resource as the diagrams and pictures in the NCTM articles are integral to the content of the articles. Use the Hamersly Library resources to find the full version of the articles.

- c. The NCTM Standards or Standards Summary (start at <u>www.nctm.org/standards</u>) The Hamersly Library also has at least one copy of the NCTM Principles and Standards for School Mathematics.
- 3. Using the outline components starting on the following page, write a lesson plan for and an activity for children centered on your topic.

**WRITTEN PAPER ASSIGNMENT** – to be turned in the day of your presentation on either Wednesday, June 2 or Monday, June 7

### I. LESSON PLAN COMPONENT

## Include all of the following, not necessarily in this precise outline format

### i. Topic and Purpose

Identify the topic and the purpose of the lesson; what do you want the children to learn? What do you want students to understand and be able to do by the end of the lesson?

### ii. Materials

List the materials needed to teach the lesson.

### iii. Lesson Plan Body (this Is the main portion of your Lesson Plan)

- a. Introduction: Start with an introduction; how will you start the class and lesson?
- b. Main Lesson: Explain how you will teach the lesson, how you will interact with the class, how will the children be working, etc.?
- c. Closing: End with a closing; how will you end the lesson?

### iv. The Mathematics in the Lesson

Describe in detail what you will be teaching, where you use the mathematics and the techniques from class and from your research sources and how you will connect these ideas to your lesson.

#### **II. ASSESSMENT COMPONENT**

Think about some ways you might know (check?) if any of the students retained/learned the material that you covered.

Present at least one descriptive paragraph about your assessment ideas at the end of your lesson plan.

#### **III.ACTIVITY COMPONENT**

Your lesson project must include an activity for the children. This activity may be incorporated into the body of the lesson plan or may be written separately from the lesson plan.

Your activity must be active and fun and have the children do real math. This activity should be written for children—not for adults.

Your activity should include some hands-on manipulative work.

# **IV. (USING YOUR) RESOURCES COMPONENT**

You must quote each of your research resources at least one time each in your written paper. You must list the associated Grade Level, Standard and Expectation of the NCTM Standards that support your lesson ideas You are welcome and encouraged to use ideas from your research resources in your lesson plan and activity. You should be pulling together and integrating ideas, all of the ideas in your work do not have to be your ideas. Be sure to reference every idea that you use that is not your own.

## V. REFERENCE LIST

Include a detailed reference list at the end of your written paper; use the citation style of the NCTM journals as shown in the following.

While quoting a book, I might say: "Attribute blocks consist of various shapes, colors, sizes, and sometimes thicknesses, with exactly one piece of every possible combination of attributes" (Kutz 1991).

While quoting the NCTM standards I might say: "Middle School Students continue to rely on concrete experiences to construct knowledge but are starting to develop the ability to think abstractly" (NCTM 1989, p. 68).

While quoting an article, I might say: "Students should reflect on the actions performed on algebra tiles in relation to previous ideas established by the teacher and to the constraints of the algebraic tasks" (Thompson 1994).

When referring to a website, I include the website URL like this: "Special emphasis is placed on problem solving assessment and gaining proficiency with the official Oregon Problem Solving Scoring Guide" (<u>http://www.ode.state.or.us</u>).

# References

- Kutz, R., Teaching Elementary Mathematics. Needham Heights, Mass.: Allyn & Bacon, 1991.
- National Council of Teachers of Mathematics (NCTM). Curriculum and Evaluation Standards for School Mathematics. Reston, Va.: NCTM, 1989.
- Thompson, P., "Concrete Materials and Teaching for Mathematical Understanding." *Arithmetic Teacher* 41 (May 1994): 556–58.

# WRITTEN PAPER LENGTH, FORMAT AND SPELLING

- The *Written Paper* portion of your lesson project should be 3 4 pages long, not including the reference list.
- Your paper must be typed, Times font size 12, 1.5-line spacing, 1 inch margins.
- These pages may include class activity pages that you have created for your own class but should also include at least 2 pages of direct lesson plan material.
- Check your spelling, papers with 3 or more spelling errors receive at most 50% credit

# **PROJECT PRESENTATION ASSIGNMENT**

### I. FORMAL PRESENTATION COMPONENT

Prepare a PowerPoint presentation to share with the class, check in advance if you can use your data transfer devise in the MNB 103 computer. You can always store your PowerPoint in your network My Documents folder on the WOU network.

Your formal presentation should be an outline of all of the ideas in your written paper. Outline means—don't just paste in the entire lesson.

You may project up activity sheets for children using the document camera. If you use images or ideas from your resource documents, be sure to reference them appropriately during the presentation.

Be sure to carefully practice the timing of your presentation.

Your presentation should be five - ten minutes; time yourself and practice!

#### **II. ACTIVITY SHARING COMPONENT**

#### You are the teacher!

Briefly share the *Activity Portion* of your *Written Paper* with the class by having the class work through the activity—as it is designed for children.

If your activity ideas will take longer than 5 - 10 minutes, choose a portion of your ideas for this part of your presentation.

Laurie Burton will supply manipulatives and copies of any needed materials for the class; just ask!

This part of your presentation should be fun!

Your sharing component should be five - ten minutes; time yourself and practice!

#### SCORING

Outline	25 points
Written Paper / Activity	75 points
Class Presentation / Activity	75 points
Attend other presentations	25 points