



Math in the Garden

MBC Course ED617

June 28-July 2, 2010

8:30am-4:00pm Monday - Thursday

8:30am-noon Friday



In this course, educators will learn how to use the garden and local environment to teach standards-based math skills to students in grades K-8. Discussions will include the use of existing gardens to teach mathematical concepts, the building of gardens as an application of math skills in everyday life, and the use of garden design to aid explanation and practice of mathematical ideas. The course will cover math concepts from basic operations to geometry and data analysis. The course will include field trips to gardens and natural areas for implementation practice.

Instructors:

Dr. Verne E. Leininger, Mary Baldwin College MAT, Adjunct Mathematics Faculty
MBC Contact- Dr. Tamra Willis: 540-887-7333 or twillis@mbc.edu

Course Text:

White, B. et al. (2006). *Math in the Garden: Hands-On Activities that Bring Math to Life*. Burlington, VT: National Gardening Association.

Tentative Course Schedule:

Day 1: Overview- Outdoor Math

Topic: Sunshine and Shadows

Measurement Matters

Topic: The Basics- Soil and Water

Digging-Up Percentages

Day 2: Topic- Flowers and Vegetables

Counting, Multiplying, Dividing, Sets

Natural Fractions

Resource Sharing: Books and Teacher Guides

Day 3: Topic- Garden Planning and Preparation

Geometry: Nature by Design

Day 4: Topic- Patterns in Nature

Probability, Data Crunching, Graphing

Day 5: Topic- Bringing it all Together

Implementation Ideas: Reflections and Sharing.

Summer – Involvement in class discussions and activities via Blackboard

Tentative Assignments:

1. Develop a “Math in the Garden” implementation plan for teaching math to students. This will include a one-two page overview to guide lessons/units and a graphic organizer of your plan.
2. Design a “Math Garden” to explain a particular mathematical concept of your choice. While this will certainly require layout design you may also want to use specific plants to aid in the explanation of your concept.
3. Create three “outdoor math” problems/activities for a particular grade level. What math skills would be necessary for students to understand and solve the problems/activities? What materials might you need? These will be compiled into a resource to share with everyone in the course.
4. Write reflective responses via blackboard (i.e. 3 to 4 one page reflections) and participate in discussion board activities. Some of these will involve outdoor math problems.
5. Anything else we decide (as a group) that would help you implement ideas learned in the course!

Note: You will submit all assignments via blackboard. We may work on them during the week in class, but they will not be due until after we meet.

Course Details:

1. Wear comfortable clothing and walking shoes. Bring rain coats. We will go outside.
2. Please bring a water bottle and coffee mug if possible.
3. Please bring a copy of grade-level math standards (for one or more grades). Also, bring year-long calendar/pacing guides you may use in your work (something that tells what you teach when).
4. Please bring any books or other resources (you happen to have handy) related to gardening with children or nature education. We will share resources with each other. You may also want to bring seed or plant catalogs to help with your “Math Garden” design.
5. We will go on field trips and hope to car pool as much as possible. You might want to bring a digital camera to record ideas on these trips.

Please review the MBC Honor Code- located in your student manual.

Grading Scale

96-100A 94-95A- B+93 89-92B 87-88 B- C+86 82-85C 80-81 C-

