

Children's Mathematical Thinking

Math 128 Section 4577

Cuyamaca College

"Embrace others for their differences, for that makes you whole." Star Wars: The Clone Wars.

Welcome!

Introduction

In this class you will consider issues related to children's mathematical thinking. We will analyze these issues by viewing videotapes and working with children. We will also consider our own mathematical thinking while we solve mathematics problems together. The purpose of this course is to provide you with experience thinking about mathematics and issues related to teaching and learning mathematics early in your professional development. This course is different from a mathematics course, in which the focus is fundamentally on your learning of mathematics. This course is also different from a mathematics methodology course, in which the focus is fundamentally on your learning how to teach mathematics. Instead, this is a class about the issues that lie at the intersection of mathematics and children's thinking, and although at times we will focus on mathematics and at other times we will focus on issues of teaching mathematics, most of the time we will focus on issues related to children's mathematical thinking and learning. However, I hope that this course will help you not only think more deeply about the mathematics you know and about issues related to learning but also to begin to think about the complexity, challenges, and opportunities open to those who take seriously the idea of teaching mathematics to children in a way that supports children in developing rich mathematical understanding.

Contact Me

MY PREFERRED METHOD

Email: Shelly.Ruderman@gcccd.edu

Or

Canvas Inbox

If you contact me Monday-Friday, I will respond within 24 hours.

Student Hours:

Tuesdays ... 5:30pm to 7:00 pm H-128

Thursdays 4:00pm-5:00pm H-128

Both these office hours can be on zoom!

Or by Appointment

Pronouns: she, her, hers

Answers to: Shelly, Mrs. Shelly, Professor, Teacher, Instructor

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Course Outline

Catalog Description

Children's mathematical thinking and in-depth analyses of children's understand of operations (addition, subtraction, multiplication, division) and place value. Students will observe individual children solving mathematics problems.

Prerequisite

Math 125 or currently enrolled in Math 125

SLOs (Student Learning Objectives)

Student Learning Outcomes

- The student will be able to identify different strategies that children use to solve mathematics problems.
- The student will be able to analyze children's mathematical thinking by watching videos and conducting interviews

- A student will be able to communicate children's ways of solving mathematical problems.

Attendance

Attendance is critical in this class not only because we meet only 7 times but also much of our learning will take place during class discussions. If you are absent once, you may make up the homework without additional penalty. If you are absent more than once, your final course grade will be dropped one letter grade for every absence. I recognize that unforeseen events arise in our lives, and if this happens to you this semester, please speak with me. If a student's grade at the end of the semester is close to the next letter grade and that student has perfect attendance, then I will round the grade up to the next letter grade.

Grading

Unlike a mathematics course, in which your grade is based upon your ability to correctly solve mathematics problems, this course is about focusing upon children's mathematical thinking, and your grade will be based upon your homework/videotape reflections, your interview write-ups, and various other tasks. I hope that we all recognize that grades are designed to reflect what one knows and what one has learned, but they do so inadequately. All grading systems are subjective, even those that are based solely on objective tests. In general, I reserve the grade of A for students whose work indicates they are grappling with the important ideas and reasoning deeply. If you complete an assignment thoroughly and on time, you will earn a grade of B. If your responses indicate that you have taken the extra time to think carefully about what you are writing, then you will earn an A.

EVALUATION:

A. Homework/Videotape

Reflections, each 20 points 100 points

B. Interviews, each 50 points 100 points

Any students seeking an "I" (incomplete) for a grade must file a petition with me citing "unforeseeable, emergency, and justifiable" reasons for this grade.

Your final grade is based on the percentage of the number of points you have acquired to the total number of points possible. An A = 90% of total points, B = 80% of total points, C = 70% of total points, D = 60% of total points, F = below 60% of total points.

Final Note: Attendance, participation, and a subjective instructor impression of a student's work may be used in assigning a final grade to borderline cases.

Campus Code of Conduct

Cuyamaca College students are bound by the Student Code of Conduct. In this course, cheating, plagiarism, fraud and/or lying may result in a grade of “F” for the assignment/test with no make-up work permitted. Any of these infractions may also result in formal disciplinary action by the Dean of Student Affairs as described in the [Student Code of Conduct](#).

Accommodations

Accommodations are available to students with disabilities. If you suspect that you have a learning disability or any other type of disability, please contact the [DSPS office](#). DSPS students who need an academic accommodation or who may need evacuation assistance during a campus emergency should notify me within the first week of instruction.

Weekly Schedule

Week 1 (Thursday 4/10)

Welcome & Introductions, Group Activities/What our students can really do

Week 2 (Thursday 4/17)

Homework #1 due; Whole Number Word Problem Strategies with Addition & Subtraction; Whole Number Word Problem Classification; Plan for Interviews

Week 3 (Thursday 4/24)

Homework #2 due; Whole Number Word Problems with Multiplication & Division

Week 4 (Thursday 5/1)

Early Number Interview due; Whole Number Place Value

Week 5 (Thursday 5/8)

Homework #3 due; Whole Number Operational Sense; Fraction Sense

Week 6 (Thursday 5/15)

Homework #4 due; Fraction Sense; Fraction Operations

Week 7 (Thursday 5/22)

Fraction Assessment Interview due; Fraction Operations; Decimal Sense; Decimal Operations

Week 8 (Thursday 5/29)

Homework #5 due; Make up of work not finished; Overview of Course