

The Benefits of Running a Math Circle with College Students For Middle School Students.

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What is a Math Circle?

- A math circle is a group of people who get together regularly to do mathematics.
- Mathematics: solving puzzles, gaining number sense, generalizing results, looking for patterns, etc.
- This Math Circle was started with funding from an MAA Dolciani Enrichment Grant in 2010.

Format

- In the beginning, I did everything alone.
- Now, Fitchburg State University college students design and lead the activities. 1 to 3 college students help with the Math Circle each semester.
- Each day, we begin with snacks and then the activity for the day is introduced by the college student who designed it.

Demographics at McKay

- Low Income 74.2%
- African American 4.2%
- Asian 7.2%
- Hispanic 43.8%
- White 36.0%
- Multi-Race, Non-Hispanic 8.8%

Benefits for the Students

- A sense of belonging.
- More experience in exploring and solving problems.
- See themselves as good at math.
- See college students in action.
- View college as an option.
- Access to a college professor.

Benefits for College Students

- Increased confidence and experience in
 - Working with students.
 - Creating activities for middle school students.
- Elementary Education students become less afraid of Middle School students.
- Resume builder.

Survey Results– Future Plans

- This Math Circle experience definitely affected my future plans. My past education experience had only been with elementary school age. The Math Circle I participated in was for middle school age children. I quickly learned that I enjoyed working with children at this age level, and the level of mathematics for middle school.

Attitude

- Participating in Math Circle was giving me more experience toward helping others with mathematics. As for affecting my attitude, I feel it gave me a more positive, motivated, and relaxed attitude knowing that the children involved with Math Circle were there voluntarily. They liked math and wanted to be challenged. This makes the experience for all involved more enjoyable.

How you think about Mathematics

- ...This experience helped me think outside the box, to be more fun and creative when thinking and talking about math to children. It reminded me that math is very hands on, social, explorative, interactive, and also everywhere. So many times children get caught up in trying to memorize what they don't understand, and think math is impossible when they actually do so much of it in their daily lives.

Other Impacts

- I believe it taught me some leadership skills and to be more confident with myself and helping children. Each meeting we would be given a challenge. Then, took the time to discuss and explore it. Last, we would explain our findings or reasoning for our thinking.

Other impacts, continued

- We collaborated ideas, worked them out. It was ok to make mistakes, because eventually we would figure it out and learn from it. For me Math Circle was a great learning experience for me. It reminded me that math can be fun *and* challenging. I am still continuing down the path to be a middle school math teacher.

Activities

- What happens when the sides of squares and cubes are doubled? Tripled?
- Playing with Polydrons, including looking at Euler's Formula.
- Ken Ken puzzles— Like Sudoku, with numbers.
- AMC problems.
- Probability and “card arithmetic” games.
- Cribbage

Questions?

Thank you for attending this talk.
Enjoy the rest of the conference.

Thank you to the MAA Dolciani Enrichment
Grant that made the Math Circle possible.