Take the ON-R.A.M.P. for the Reed Academy Mathematics Project

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The Players

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An Overview

The MSU group - We need to be working with kids with fractions. Kids that have struggled with fractions.

My response
My Principal's response
Schedule
My classroom environment

The students of R.A.M.P.

Who Were the Students of RAMP?

Title 1 School
High Poverty
Low Parent Involvement
This class - 100% Free and Reduced Lunch
Obstacles - test scores and apathy

How we chose this particular class
“Ability” Grouped by BOY Test Scores
Some were testing on a K level. No one higher than 4-5 grade (check this)

Roles and Responsibilities

As the middle school teacher

- Restructuring curriculum
- Follow up support / instruction
- Principal / school support

As the University Faculty

- MTH 320 Collaboration / Curriculum Redesign
- Joann - Lead Instructor

Methods we used / Routines

Professors visited every Thursday. Reflection after every lesson. Discussion that occured after every lesson drove the next week's lesson. This was PD for all of us.

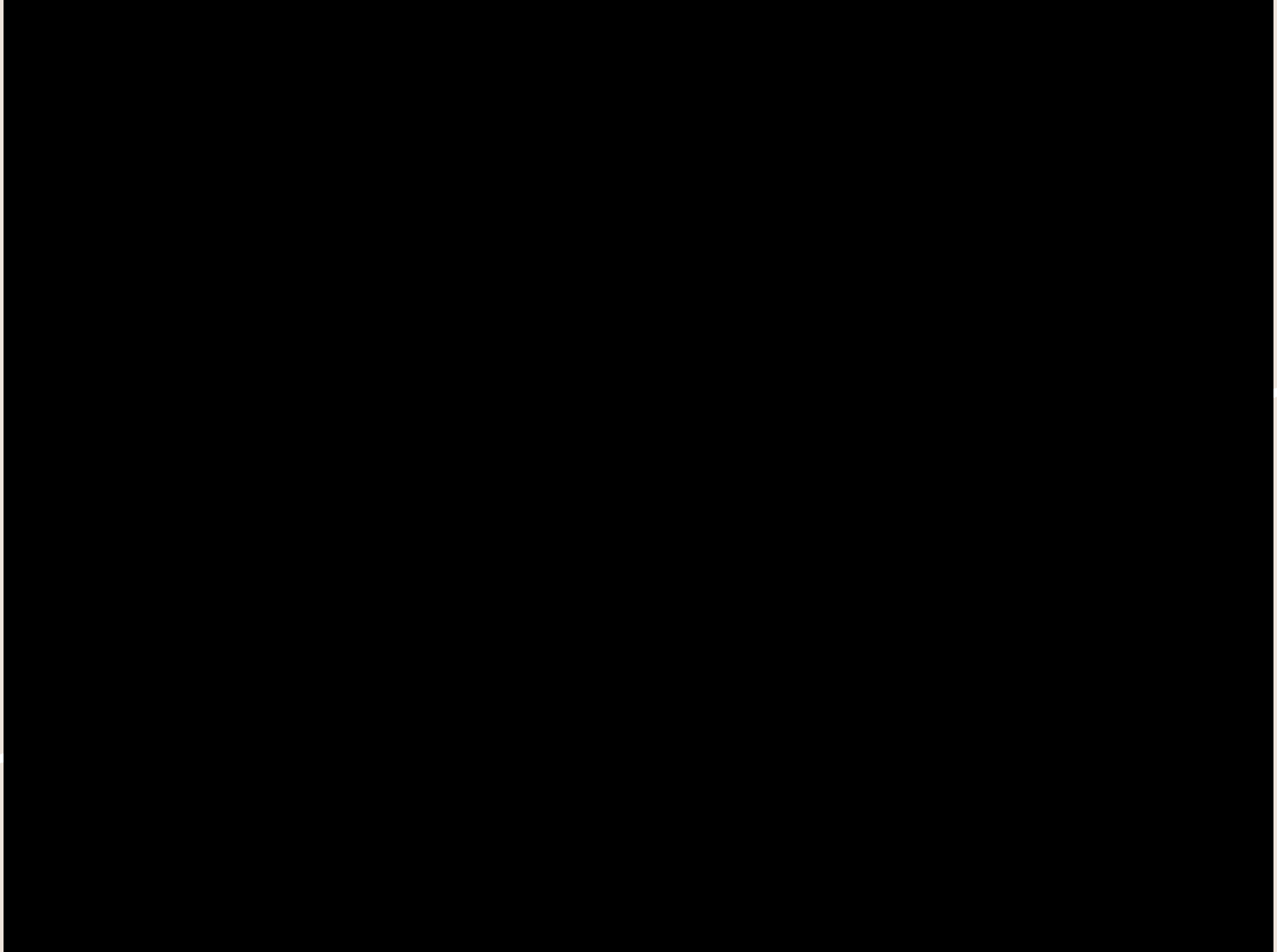
Setup was one leader that guided individual “coaches” and small groups. 1 class leader and 6 groups with individual coaches. There was more than 4 students per group.

All hands on. Conceptual. No procedures were taught - completely out of the norm for these kids. Constant questioning. We asked more questions than they did.

Methods we used / Routines

Constant curricular development - student misconceptions guided the next lesson.

Activities:
Paper Plate Lesson
Fraction Strips - paper folding - questioning
Clothesline
Cuisenaire Rods - modeling addition, “If this is ½, what is this...”
Different representations of fractional amounts/shading
Different ways to shade fractional amounts



MTH-320 Impact

Content duration

- 2 weeks to about 8 weeks

Class content

- Previously started with brief prerequisite discussion, jump into modeling operations (linear, area)
- Paper plates, fraction strips- fraction (numerator, denominator) meaning
- Comparison strategies
    - naive reasoning to residual reasoning
    - number lines activity
- Approach is not common in schools

My classroom Impact

How students changed during the course of the year.

- Behavior in other classes.
- Waiting at the windows.
- Attendance

How it changed my teaching.

- Math and relationships

Culminating Activity

A student kept asking if they could visit the professors on campus.

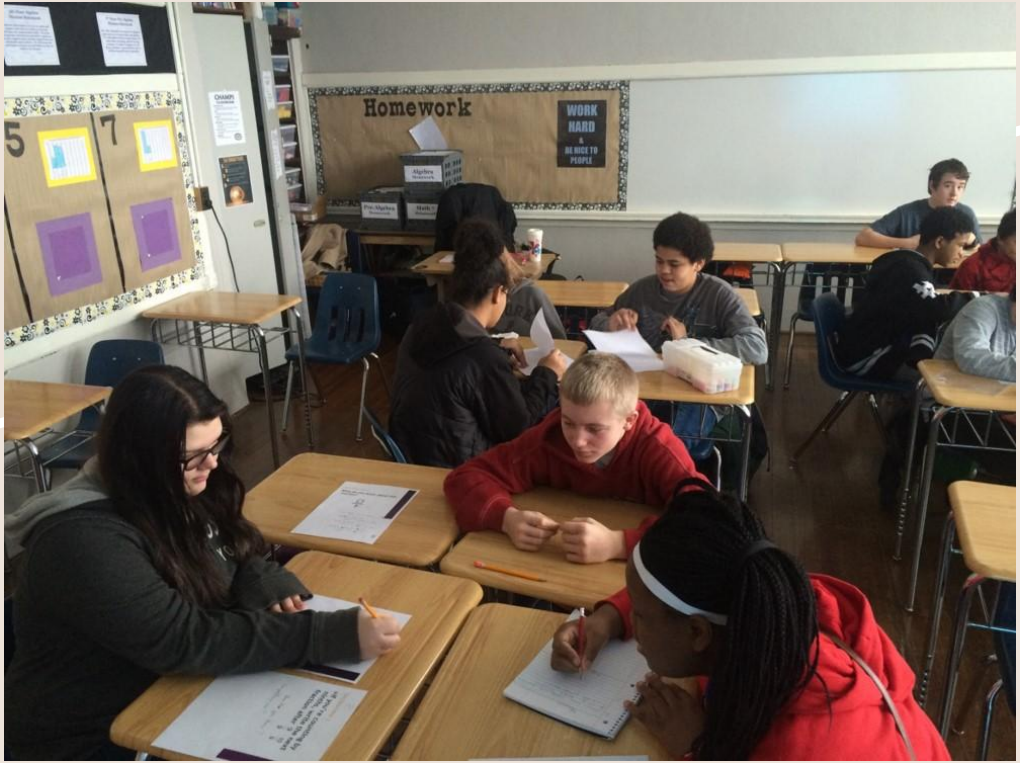
Originally - we were just going to bring them to campus.

“What if we had them teach one of our 320 classes?”

Broke into 6 groups - designated coaches in each activity

Preparing for the Trip

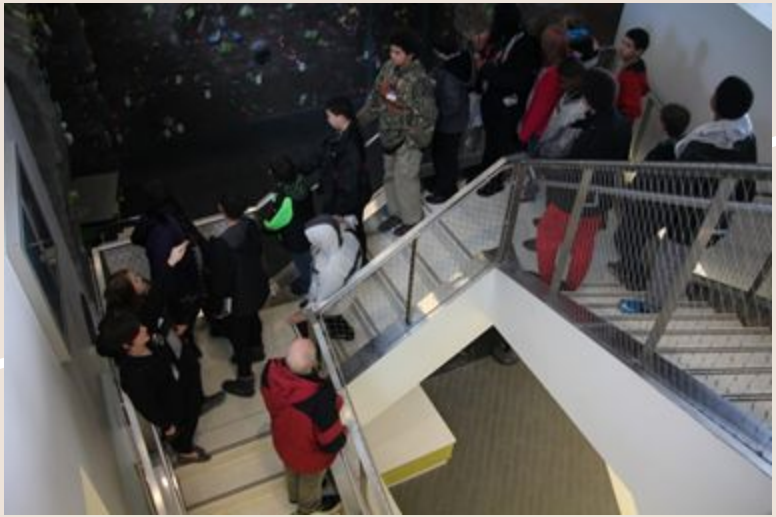
Preparing for the Trip



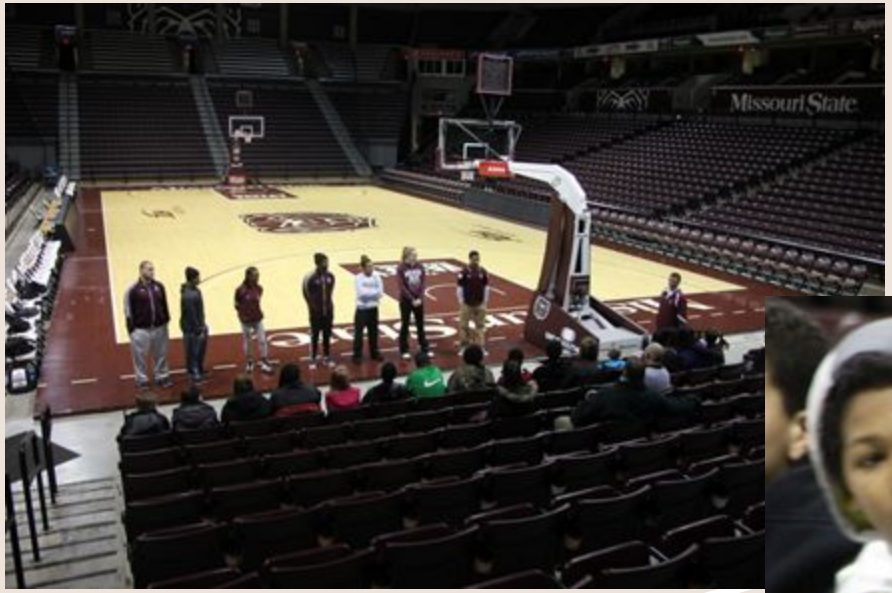
Library Tour

Library Tour

Rec Center Tour



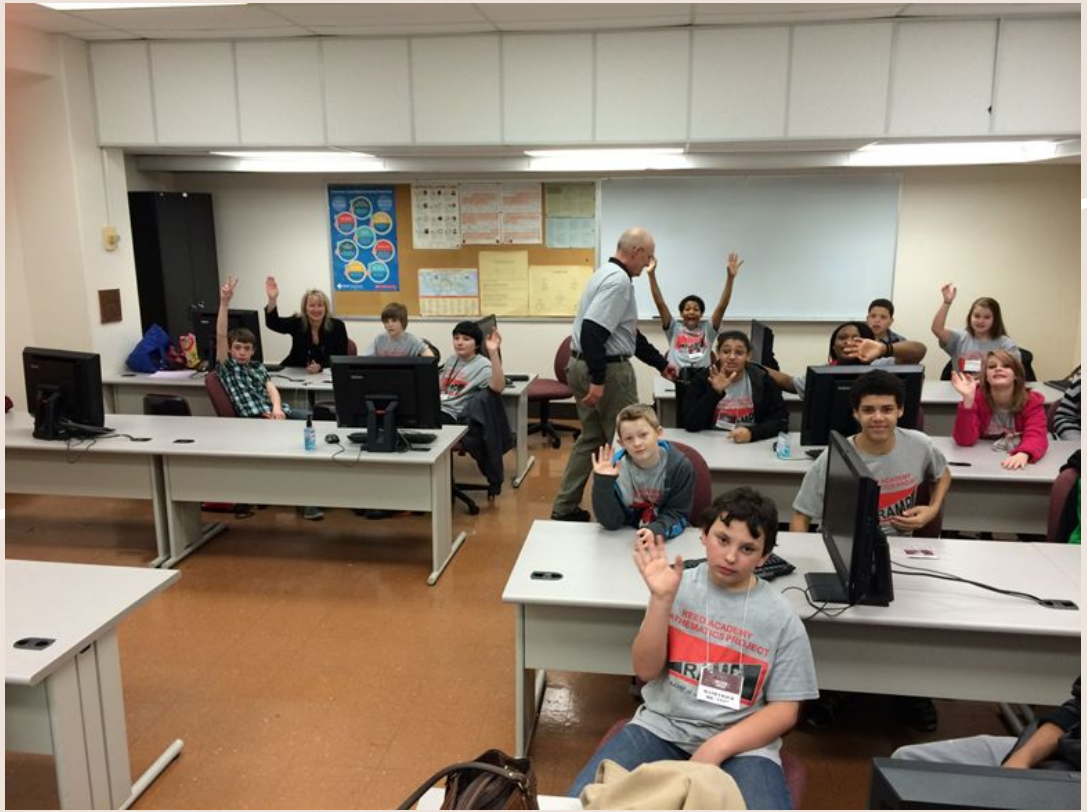
Meeting Student Athletes at the Arena


Missouri State


SPALDING

Lunch

Preparing to Teach



Teaching Future Teachers!


Rally Table
Quiz-Quiz-Trade
MSU


RAMP
REED ACADEMY


EXIT


WHAT
GEOMETRY
Trapezoids
Rhombi

My Research for MSEd

Research Questions - The following questions were used to guide my research study:

1. Did specific hands-on instructional methods have an impact on students' self-efficacy in mathematics?

2. Did specific hands-on instructional methods have an impact on students' attitude towards and enjoyment of mathematics?

3. Did hands-on instructional methods have an impact on students' belief about the importance of mathematics?

Question	SA	A	D	SD
1. Mathematics is worthwhile and necessary.	6/8	5/7	3/0	1/0
2. I want to develop my math skills.	7/7	7/8	0/0	1/0
4. Math teaches you to think.	2/7	9/8	3/0	1/0
5. Math is one of most important subjects.	5/5	6/8	4/2	0/0
29. I think advanced math is useful.	2/5	7/9	5/0	1/1
30. Math helps problem solving in other areas.	1/6	13/8	0/1	1/0

Post test results showed 100% of students thought mathematics was a worthwhile topic and it taught a person to think.

Table 3 shows student responses to statements about their beliefs of their abilities in mathematics. Pretest responses showed 29% of students agreed that mathematics made them feel uncomfortable, while 100% of students disagreed with this statement in the posttest.

Question	SA	A	D	SD
7. Mind goes blank / can't think in math	2/3	6/10	7	0/2
8. Studying math makes me nervous	3/0	2/4	9/7	1/4
9. Math makes me uncomfortable	1/0	3/0	7/9	3/6
10. I am under terrible strain in math class	2/0	3/0	4/11	6/4
12. Thinking about math makes me nervous	0/0	5/3	5/5	5/7
13. Math does not scare me at all	4/6	4/6	4/2	3/1
14. I have a lot of self-confidence in math	0/5	11/7	2/2	1/0
15. I can solve problems without difficulty	1/5	5/4	8/6	1/0
16. I expect to do well in any math class	2/5	8/9	3/1	2/0
17. I am always confused in math	2/1	1/3	10/8	2/3
18. I feel insecure when attempting math	1/1	4/3	9/7	1/4
19. I learn math easily	2/3	6/5	4/6	2/1
20. I am confident I can learn advanced math	1/5	7/7	6/1	1/2
31. I am comfortable expressing my own ideas	2/5	7/8	4/1	2/1
32. Comfortable answering math questions	2/7	9/7	3/1	1/0
33. Believe I'm good at solving math problems	2/6	9/6	2/3	2/0

What it inspired at Reed

Buddy Bears Program / Reading students / RAMP - year two

Other schools? Jarrett / Bowerman / Ozark

Find your own Reed Academy - OR - Find your own MSU Math Ed Professors.
Teachers should always stay connected to a local university.