

HOW TO RUN A TEACHER'S MATH CIRCLE

organized by

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Workshop Summary

From June 18 through June 22, 2007 a workshop on teacher's circles was run at the American Institute of Mathematics (AIM). Using our experiences based on a teacher's circle run the previous year at the same location, the workshop organizers, Tom Davis, Tatiana Shubin, Mary-Fay Zenk and Joshua Zucker invited teams of people from seven different regions across the country (Boston MA, Saint Louis MO, Tucson AZ, Charlotte NC, Lincoln NE, Salt Lake City UT and South Bend, IN).

We selected teams of 4 to 6 people that we judged would have a good chance of initiating enduring circles at their sites. Each team consisted of at least two middle school teachers from the area, a couple of people who would be capable of leading the circles there and recruiting other leaders, and others who might be helpful for administrative details, like finding a venue, raising money, recruiting other teachers to attend and so on.

The workshop for the most part went according to plan. Mornings were devoted to running sample teacher's circle sessions for the middle school teachers primarily to demonstrate different approaches to leading such circles but with the added bonus that the middle school teachers were provided with topics they could use when they returned. Nearly everyone participated in all of the sample teacher's circles. In the circles a wide variety of techniques was presented since in addition to the workshop organizers there were four guest leaders. Generally, we ran two sessions in the morning with a break between them so almost every session had a different leader.

The morning session circles covered the following topics:

- Introduction to problem solving: Joshua Zucker
- Decimal expansions of rational numbers: Sam Vandervelde
- Conway's rational tangles: Tom Davis
- Zome: Paul Zeitz
- Fractions: Tatiana Shubin
- Puppies and Kittens: Paul Zeitz
- The decanting problem: Harold Reiter
- Circle geometry: Zvezdelina Stankova
- Introduction to number theory: Joshua Zucker
- Mathematical Games: Tatiana Shubin

In the afternoons, we usually began with a discussion of how the morning session went, and then spent the rest of the day talking about one or more topics which were related to the mechanics of getting a teacher's circle running. Topics included:

- Recruiting teachers and good leaders
- Obtaining funding

- Where to obtain resources (materials, venues, college or professional development credit)

Since the workshop organizers had been involved with the AIM teacher's circle the previous summer, we tended to concentrate on funding, which was the most difficult problem for us. One of the most successful sessions was a lunch with local business leaders who provided a great deal of advice about how to obtain grants or other support (financial and otherwise). Even the workshop organizers learned a lot from this, so it must have been very useful to the participants.

Starting with the second day of the workshop we set aside time for the teams to work together to put together a plan for how to implement a teacher's circle in their own city when they returned. On the final Friday each team made a presentation of their plan to everyone. The plans varied quite a bit, since virtually every group was starting from a different place: some already had operating circles for students, others already had groups of teachers meeting, some had easy access to circle leaders, et cetera.

When we ran the teacher's circle the previous year, we held problem-solving sessions in the evenings that were far less structured than the sessions during the day. We did not do this for this "How to run a teacher's workshop", but perhaps it would have been good to do so. Naturally a lot of open mathematical questions remained after the morning session and it might have been nice to have time to work on them in the evenings, perhaps just as optional sessions, but with at least one leader from the day present. Many of the participants wished that there had been more math, but we had so many other topics to cover it would have been difficult. This is another reason that optional evening sessions might have been a good idea.

The final reports from all the teams will be available at the following location:

<http://www.theteacherscircle.org/private/>