Albuquerque Math Teachers’ Circle Mission Statement

Teachers represent one of the largest, most diverse, and vitally important groups in our society. Their influence is felt by each and every person and the impact of their work lasts for a lifetime. It is therefore essential to the health of our community that we provide substantial support and opportunities for growth to teachers throughout their careers. University faculty have a clear and invaluable role to play in the education of pre-service teachers but it is no less important for professors to actively engage with practicing teachers, providing them a forum to grow intellectually, to experiment with different approaches to problem solving, and to feel like valued members of a larger community. A Math Teachers’ Circle provides an ideal, low-cost, bureaucracy-free way to provide an environment where teachers and mathematicians can work together toward improving the mathematical experiences of educators and their students.

Math Teachers’ Circles are one important aspect of a national movement toward education reform, stressing the creative and intellectually engaging value of problem solving as a learning tool. Math Teachers’ Circles are alive and thriving in all regions of the continental United States and are coming soon to Hawaii and the Virgin Islands. A description of their historical origin and profound impact on participants can be found at

http://www.mathteacherscircle.org/about/background/

In a typical session, a mathematician will briefly introduce a multi-layered problem and then the teachers, supported by the Circle leaders, will work on the problem together, sharing questions and ideas. The session ends with a wrap-up discussion, including some new directions for further inquiry. Just as the beautiful and complex world of fractals is generated by a simple “seed” so, in Math Teachers’ Circles, the simple joy and fun of learning through problem solving sparks a passion and interest in teachers which will last through their career and take them, and their students, to previously unimagined worlds.

Math Teachers’ Circles normally have two distinct components, a summer immersion workshop followed during the academic year by monthly meetings. The summer workshop is an intense three to five day event where teachers are exposed to mathematical ideas, new and old, from the angle of problem solving. Through careful selection of questions and problems, the teachers will discover patterns, make conjectures, and eventually establish mathematical results. Through this experience, the teachers will come to have a richer appreciation of mathematics and the equations which they find in books will have a new, deeper, more personal meaning. By becoming more engaged with mathematics and the creative nature of problem solving, the teachers will find new ways to entice their students to partake in the joy of successfully doing mathematics.

The summer workshop for teachers will be intense, and, as a result, the bonds formed, both amongst teachers and between teachers and mathematicians, will be strong. In order to preserve and enhance this sense of community, during the academic year we will have monthly meetings which consist of a dinner and a presentation of mathematical problems and ideas.
to keep the teachers’ creative juices flowing. Also during the academic year, we would like to involve selected graduate and advanced undergraduate students, who have a clear and strong interest in mathematics education, pairing them with local teachers interested in implementing problem solving within their classroom.

The Albuquerque area is blessed with a large pool of mathematicians and scientists to help with teacher professional development. In addition to the University of New Mexico and Central New Mexico Community College we have the Sandia National Laboratories and, a little further away, Los Alamos National Laboratories. The latter two institutions employ a large variety of scientists and mathematicians, encompassing the full spectrum from the most theoretical to the very applied. Many scientists have a genuine desire to contribute to their local communities by sharing their professional expertise. Creating good opportunities for this interaction, however, is not always easy. A Math Teachers’ Circle would fill this need. Moreover, for those teachers who are curious and desire to learn more about how what they teach relates to the modern world, the chance of interacting with professional scientists and mathematicians will be an invaluable experience and it is our hope that some of the contacts established through these meetings will turn into lasting collaborations.

The normal audience for Math Teachers’ Circles is middle school teachers. We will target the same audience while remaining flexible, with a willingness to include some elementary and high school teachers. We will recruit teachers not only from the massive Albuquerque Public School system but also from surrounding communities such as Rio Rancho, Los Lunas, Belen, and even Santa Fe. As our Math Teachers’ Circle develops, we would like to branch out and hold sessions specifically oriented toward elementary school teachers and, eventually, high school teachers. Our Albuquerque Math Teachers’ Circle already has the support of Sandia National Laboratories, the American Institute of Mathematics, and the UNM Department of Mathematics and Statistics, and we are only just beginning to get the word out about our future goals and ambitions.