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http://www.pointloma.edu/MICS.htm

Project Used: Sums of numerical powers in discrete mathematics: Archimedes sums squares in the sand

Class Where the Project Was Used: MTH352: History of Mathematics
This is a two-unit class on the history of mathematics that is a required for all mathematics majors at our university. The prerequisite for the class is one semester of calculus, though most students in the class had taken a great deal more mathematics than calculus. In addition to mathematics majors, there were a few liberal studies majors (prospective elementary school teachers) taking the class as part of a concentration in mathematics.

How the Project Was Used:
This project was assigned as a group project with groups of 2-3 students. The students were given the paper to read in advance and two days of class time were spent working through a collection of problems in groups with class discussions about stumbling points and results. The groups were given Cuisenaire rods and graph paper to work with so that they had something kinesthetic to use in seeking to understand the addition patterns (this was particularly helpful with problems 3, 6 and 9). The students were able to move quite easily from the rods to the equations. The class did not do the entire project, but went up through problem number 14. The write ups of the solutions to the problems were due two days after the completion of the group work in class.

The students struggled with the language in this project because the ancient Greek way of expressing ideas is quite different from modern mathematical terminology. We spent a fair amount of time in class talking through the translation of Archimedes line by line and extracting meaning.   At the end of the project the students did appear to have more of an appreciation for how mathematical language has changed over time and they did gain a greater sense of how finite sums can be manipulated.