

1014-N1-1748      **Rehana Patel\*** (patelr@stjohns.edu), St. John's University, Department of Mathematics, 8000 Utopia Parkway, Queens, NY 11439, and **Heidi Upton**. *Cycles in Math and Music*.

We describe a musical activity used in a liberal arts mathematics course, comprised largely of freshmen non-math majors, during a module in which students were studying symmetry and group structure. One of us, a musician and music educator, gave a presentation on cycles, in which students were led through an exploration of a single piece of music, based on a 36-beat cycle. Students soon saw the parallel with the rotational symmetries of certain geometric objects that they had been looking at earlier, and for many, this was the moment when abstraction finally made sense, as an attempt to find organizing principles common to disparate phenomena. In subsequent classes, further connections were made between musical and spatial patterns, leading to a discussion of sub-cycles and divisibility, orders of elements and generators in a group. Students later described the musical example as critical to their understanding of these concepts, and to their appreciation of mathematics as a whole. The lesson we draw is that music acted as a vital conduit to mathematics for them: through the discernment of musical form, they were able to recognize mathematical structure. (Received September 29, 2005)