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Introducing group theory through music.

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Summary: The central ideas of postcalculus mathematics courses offered in college are difficult to introduce in middle and secondary schools, especially through the engineering and sciences examples traditionally used in algebra, geometry, and trigonometry textbooks. However, certain concepts in music theory can be used to expose students to interesting and straightforward examples of abstract notions in higher algebra, such as groups and rings. In this article, the author defines inversions, shows how they are used in composing music, and shows how sets of inversions can be given a structure that then leads in a natural way to the definition of a group, a subgroup, and a co-set. The author begins by enumerating a piano keyboard as a means of organizing pitch relationships. (Contains 11 figures.) (ERIC)

Classification: M84 H44

Keywords: music; music theory; mathematical applications; algebra; group theory; teaching methods