

1046-D1-1479      **Joshua Brandon Holden\*** ([holden@rose-hulman.edu](mailto:holden@rose-hulman.edu)), CM#125, 5500 Wabash Ave., Terre Haute, IN 47803. *Teaching the Group Theory of Permutation Ciphers*. Preliminary report.

One of the first topics often taught in an abstract algebra class is permutations, since they provide good examples of non-commutative finite groups which the students can manipulate and visualize. This visualization is often done through symmetry groups. For students who are less geometrically inclined, however, the use of permutation ciphers provides another good way of motivating permutations. They can easily be used to illustrate composition, non-commutativity, inverses, and the order of group elements, which are fundamental topics in group theory. We will give examples of how this can be done and suggest other courses besides abstract algebra in which this could also prove useful. (Received September 15, 2008)