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Visualizing Groups and Subgroups in Counted Cross Stitch.

Symmetry groups have a rich algebraic structure, and since many are non-Abelian, they comprise a nice set of examples in which to explore general ideas about groups, free from the hidden pitfalls that students sometimes encounter in Abelian groups. Using counted cross stitch examples created by the author, this talk will address: (1) visualizing the individual group elements and the group operation, (2) visualizing subgroups and cosets in both finite and infinite groups, and (3) exploring other properties and theorems related to groups and subgroups. We will begin these explorations looking at the finite group D_4 and the infinite wallpaper group $p4m$. (Received September 12, 2008)