

Abstract Submitted
for the APR12 Meeting of
The American Physical Society

Analysis of Newton's Third Law Questions on the Force Concepts Inventory at Georgia State University CHRISTOPHER OAKLEY, BRIAN THOMS, Georgia State University — A major emphasis of the Physics Education Research program at Georgia State University is an effort to assess and improve students' understanding of Newton's Laws concepts. As part of these efforts the Force Concepts Inventory (FCI) has been given to students in both the algebra-based and calculus-based introductory physics sequences. In addition, the algebra-based introductory physics sequence is taught in both a SCALE-UP and a traditional lecture format. The results of the FCI have been analyzed by individual question and also as categorized by content. The analysis indicates that students in both algebra and calculus-based courses are successful at overcoming Aristotelian misconceptions regarding Newton's Third Law (N3) in the context of a stationary system. However, students are less successful on N3 questions involving objects in constant motion or accelerating. Interference between understanding of Newton's Second and Third Laws as well as other possible explanations for lower student performance on N3 questions involving non-stationary objects will be discussed.

Brian Thoms
Georgia State University

Date submitted: 06 Jan 2012

Electronic form version 1.4