

BB3 2:15 p.m. Investigating Student Difficulties with Concepts of Gravitation

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Teaching the concept of gravity and the universal nature of gravitation in any physics or astronomy classroom can be difficult. Unlike subjects such as magnetism or optics, gravitation is difficult (or impossible, on astronomical scales) to demonstrate in a student laboratory. We have developed diagnostic instruments to identify students' initial concepts of gravitation. These diagnostics have now been administered to over 1700 students in community college and university settings. We are also developing materials to enable students to recognize incomplete and incompatible concepts and to strengthen their understanding of the nature of gravitation. The target audience for these materials is the typical population of introductory astronomy and physics course - both science and nonscience majors. We will report diagnostic data, as well as data from class testing of the curricular materials.