

Abstract Submitted
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Use of videos for students to see the effect of changing gravity on harmonic oscillators RAYMOND BENGE, Tarrant County College, CHARLOTTE YOUNG, ALAN WORLEY, SHIRLEY DAVIS, South Plains College, LINDA SMITH, NASA, AMBER GELL, Lockheed Martin — In introductory physics classes, students are introduced to harmonic oscillators such as masses on springs and the simple pendulum. In derivation of the equations describing these systems, the term “g” for the acceleration due to gravity cancels in the equation for the period of a mass oscillating on a spring, but it remains in the equation for the period of a pendulum. Frequently there is a homework problem asking how the system described would behave on the Moon, Mars, etc. Students have to have faith in the equations. In January, 2009, a team of community college faculty flew an experiment aboard an aircraft in conjunction with NASA’s Microgravity University program. The experiment flown was a study in harmonic oscillator and pendulum behavior under various gravity situations. The aircraft simulated zero gravity, Martian, Lunar, and hypergravity conditions. The experiments were video recorded for students to study the behavior of the systems in varying gravity conditions. These videos are now available on the internet for anyone to use in introductory physics classes.

Raymond Benge
Tarrant County College

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