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**Teaching from a Microgravity Environment: Harmonic Oscillator and Pendulum** RAYMOND BENGE, Tarrant County College - NE Campus, CHARLOTTE YOUNG, SHIRLEY DAVIS, ALAN WORLEY, South Plains College, LINDA SMITH, NASA - JSC, AMBER GELL, Lockheed Martin — This presentation reports on an educational experiment flown in January 2009 as part of NASA's Microgravity University program. The experiment flown was an investigation into the properties of harmonic oscillators in reduced gravity. Harmonic oscillators are studied in every introductory physics class. The equation for the period of a harmonic oscillator does not include the acceleration due to gravity, so the period should be independent of gravity. However, the equation for the period of a pendulum does include the acceleration due to gravity, so the period of a pendulum should appear longer under reduced gravity (such as lunar or Martian gravity) and shorter under hyper-gravity. These environments can be simulated aboard an aircraft. Video of the experiments being performed aboard the aircraft is to be used in introductory physics classes. Students will be able to record information from watching the experiment performed aboard the aircraft in a similar manner to how they collect data in the laboratory. They can then determine if the experiment matches theory. Video and an experimental procedure are being prepared based upon this flight, and these materials will be available for download by faculty anywhere with access to the internet who wish to use the experiment in their own classrooms.

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