## Abstract Submitted for the SES16 Meeting of The American Physical Society

Scaffolding Interdisciplinary Classical Mechanics using Snack Foods and Household Liquids CHELSEA DANDRIDGE, REBECCA SKEL-TON, KENNETH PESTKA, II, Longwood University — Scaffolding is an instructional technique that is used to move students progressively toward better understanding and greater independence in the learning process. A component of scaffolding is to present the conceptual ideas about a topic and then gradually increase difficulty and inter-connect physics concepts. The scaffolding technique was applied to the experiments presented here, which focused on maple seeds, various snack foods, and household liquids. For example, the Young's Moduli of Twizzlers, Cheetos Puffs, Cheetos Crunchy, and pretzel sticks were calculated using Euler beam theory and the cantilever method. In another experiment, the parallel axis theorem was used to calculate the moment of inertia of maple seeds, and a motion sensor and high-speed camera were used to analyze the kinematics and rotational motion of falling seeds. Experiments were conducted to measure the mass and density of different household liquids, as well as determine viscosity by measuring the terminal velocity of a marble dropped in each substance. In addition, the density and viscosity were used to calculate the Reynolds number for each fluid. All experiments included the use of video analysis in order to measure variables needed for calculations. One of the main goals of this research was to design experiments with common, everyday objects people are familiar with, in order to increase interest in learning physics and performing experiments.

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