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Abstract

Application problems that capture students' interest and represent "real world" situations such as the crash of the Malaysian Airline Flight MH-370 are seldom explored within the high school classroom. Science, technology, engineering and math fields (STEM) have many situations where knowledge of 3-D modeling and coding is needed to simulate the physics of the "real world." Computer-generated 3-D models using open-source programs such as OpenFoam have a great potential for use, exploration, and development in the 9th - 12th mathematics classrooms. Through exploration, students can visualize and virtually interact with the geometry of simple and complex models and the physical law constraints of those models in "real world" situations.