

Abstract Submitted
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A student-driven approach to learning about the interplay of model and measurement DIMITRI DOUNAS-FRAZER, Compass Project, University of California Berkeley, PUNIT GANDHI, JESSE LIVEZEY, Department of Physics, University of California Berkeley, GEOFFREY IWATA, Department of Physics, Columbia University — What does it mean for an effect to be negligible? This question forms the overarching theme for a course on measurement that was designed and taught by the Compass Project at UC Berkeley. To answer it, students must develop a sophisticated understanding of two important, interrelated physics concepts: measurement uncertainty and models. We use a thermal expansion experiment as a tool for facilitating this understanding. The phenomena relevant to the experiment are familiar to students with only an introductory physics background. Thus this simple, low-cost experiment provides an accessible context for beginning students to tackle an abstract and sophisticated question about physics, i.e., what it means for an effect to be negligible.

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