

Abstract Submitted
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A multi-dimensional physics curriculum dedicated to future K-6 Teachers VERA MARGONINER, California State University, Sacramento — I describe an innovative curriculum designed for a one-semester class that meets weekly for 5 hours. The goal is to get Liberal Studies majors to achieve a deeper understanding of scientific ideas, and more importantly, an appreciation for the process of science and the realization that anyone can be a scientist. This is an important job because if we fail to get future teachers excited and confident enough to teach physical science, our most vulnerable children will continue to miss out. The curriculum is ambitious: It aims to demonstrate that science can teach math and language in an integrated way; and how science learning can (should!) focus on making sense of natural phenomena using scientific practices. The ideal lesson starts with observing a phenomenon, leading students to create hypotheses, design and execute further experimentation, and use the results to refine their ideas. Slowly, through the analysis of several phenomena, students create models. At the end of the term, students have created four models (particle, waves, energy, and forces) covering most of the associated Next Generation Science Standards K-6 Performance Expectations. Pedagogical topics, such as formative assessment and growth mindset, are presented and used throughout the semester.

Vera Margoniner
California State University, Sacramento

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