

Abstract Submitted
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Assessing the impact of IPLS on physical reasoning¹ MAYA TIPTON, BENJAMIN GELLER, CATHERINE CROUCH, Swarthmore College — In this work we seek to determine whether IPLS courses better prepare life science students to use physical reasoning in contexts that extend beyond those explicitly encountered in IPLS. We designed and administered a task in which students are asked to apply fluid dynamics to analyze a novel biological situation at the conclusion of both traditional and IPLS introductory physics courses. The same fluid dynamics topics were taught in both courses. We report differences in the ways IPLS students and students in the traditional course approached the task. Overall, IPLS students exhibit greater skill than non-IPLS students justifying and flexibly combining physical models to analyze an unfamiliar biological situation, despite demonstrating comparable calculation skills. Furthermore, we find that IPLS students are more likely to create coherent explanations when reasoning with newly introduced physical ideas.

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