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Teaching Gauss's Law using Virtual Reality: Motivation and Implementation JARED CANRIGHT, PETER SHAFFER, SUZANNE BRAHMIA, University of Washington — Virtual reality (VR) laboratory and tutorial exercises hold promise for enhancing student understanding of 3D concepts and phenomena, especially those that are otherwise difficult or impossible to experience directly. Gauss's Law poses difficulties for students that have proven resilient to many forms of instructional intervention. This work presents data that highlight particular student difficulties with the concepts underlying correct understanding and application of Gauss's Law and provide a backdrop to motivate the development of a VR learning environment on this topic. Further, we describe, from instructional and software development perspectives, the design and implementation of virtual exercises and tools to elicit and confront these difficulties in the virtual learning environment.

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