

Abstract Submitted
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The Mile Deep Muon Detector at Sanford Underground Laboratory¹ MARGARET MCMAHAN, Black Hills State University, STEVE GABRIEL, Spearfish High School — For educating students and teachers about basic nuclear and particle physics, you can't go wrong with cosmic rays muons as a cheap and reliable source of data. A simple and relatively inexpensive detector gives a myriad of possibilities to cover core material in physical science, chemistry, physics, and statistics and gives students opportunities to design their own investigations. At Sanford Underground Laboratory at Homestake, in Lead, SD, cosmic ray muon detectors are being used to answer the first question always asked by any visitor to the facility, "Why are you building the lab a mile underground" A conventional Quarknet-style detector is available in the education facility on the surface, with a much larger companion detector, the Mile Deep Muon Detector, set up 4850 feet below the surface. Using the Quarknet data acquisition board, the data will be made available to students and teachers through the Cosmic Ray E-lab website. The detector was tested and installed as part of a summer program for students beginning their first or second year of college.

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