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Problem finding and open inquiry science teaching with PARTICLE DOUG HOLLINGER, Pavilion High School, Pavilion NY, KEVIN MCFARLAND, University of Rochester, MARJORIE BARDEEN, Fermilab — We applied the teaching techniques of open inquiry and problem finding in a high school physics course as students used equipment and resources provided by the University of Rochester PARTICLE program and QuarkNet. The goal was to create an environment in which students engaged in self-directed learning so that they assumed more responsibility for their intellectual development. Students determined questions they hoped to answer about cosmic radiation. Having established their questions, the students incorporated scintillator counters in the design and construction of their cosmic ray telescope capable of being used in all of their proposed situations. Each group of three students was responsible for formulating a testable hypothesis, developing and conducting a research project and presenting the results of their findings. We used a standard physics laboratory project rubric to assess creativity, scientific content and how well students met the achievement targets. This exercise also used the methodologies of surveys and interviews of students and college professors of physics and mathematics to determine the effectiveness of this work in the preparation of students to meet expectations of post secondary level study.

Marjorie Bardeen
Fermilab

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