In this presentation, we describe a two-semester course for Ph.D. students in mathematics education, all former K-12 teachers. The goal of the course was for participants to develop strategies for continued lifelong learning of mathematics, particularly of mathematics related to their professional work. To that end, course participants were asked to design and carry out individual mathematical explorations rooted in the K-12 curriculum while simultaneously engaging in in-class explorations designed by the instructors. Although students presented their work often during the two semesters, we did not anticipate the degree to which in-class and individual explorations would inform each other. To illustrate this, we trace how one individual’s exploration impacted the mathematical conversations throughout both semesters. (Received September 28, 2005)