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David C. Kelly* (dkelly@hampshire.edu), NS, Hampshire College, 893 West St., Amherst, MA 01002. *How and Why the Hampshire College Summer Studies in Mathematics Works. YP17.*

Since 1971 talented high school students have come to the Hampshire College Summer Studies in Mathematics to do math (not simply to learn the results of mathematics). Small interactive classes are guided by college professors assisted by grad students and math majors (all of whom live in the program dorm and join students for meals and recreational activities). Students find patterns, formulate definitions, make and test conjectures, and devise proofs; they collaborate, learn about teaching, publish a weekly program journal, experience frustrations, and share the joy of discovery.

Hundreds of HCSSiM alumni are working mathematicians, and many say that the Summer Studies was a major influence on their career decisions.

This talk is an attempt to identify changes in high school math students over the past third of a century, to describe the spirit of the Summer Studies, to suggest things that have worked for us (and a few that haven't), and to assess the importance of mathematical communities such as the Summer Studies. (Received September 21, 2006)