The University of Washington’s GK-12 Program in Mathematics will be described in detail. Over a period of 10 years, 7 to 23 graduate fellows from the mathematics and sciences disciplines have been partnered each year with elementary school teachers twice weekly to co-teach mathematics. Every teacher in the school is partnered with a fellow to help create building-wide mathematical change. The graduate fellows learn about inquiry-based teaching and learning and improve their communication and leadership skills while motivating economically-disadvantaged students in urban schools. The teachers are supported while increasing their math understanding both in the classroom, at faculty meetings, and at outside workshops in collaboration with the University Child Development School, our local professional development partner. The focus is to increase the conceptual understanding of mathematics for every student in the school and to create a mathematics culture that the teachers can sustain once our program leaves the school. Lessons learned from our approach will be discussed. (Received September 02, 2007)