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Murray H Siegel* (murray.siegel@asu.edu), 20159 N Geyser Dr, Maricopa, AZ 85138. *Place Value – the Link Between Arithmetic and Success in Algebra.*

Learning theory indicates that accommodation of new learning is aided by linking new knowledge to concepts that have already been learned. Teachers at all grade levels must see polynomials as a generalization of whole numbers and that the powers of the variable are place values. Operations with polynomials and polynomial fractions are easily understood if tied to arithmetic. Preparing students to teach mathematics at any level in k-12 must include a study of place value both with whole numbers and polynomials. This presentation describes lessons that have been used successfully in both pre-service and in-service classes to accomplish that goal. These lessons include a study of arithmetic using alternate bases and checking polynomial problems using $x = 10$. (Received August 22, 2009)