1014-J1-212   **Frances Van Dyke*** (`vandyke@american.edu`), Dept of Mathematics and Statistics, American University, 4400 Massachusetts Ave NW, Washington, DC 20016. *Introducing Algebra Using Graphs.*

Students can be introduced to a functional approach to algebra using graphs. There is a natural progression from qualitative graphs, to quantitative graphs, to tables, and finally to equations. The materials given out at this talk focus on value of an object as a function of time and distance from an object as a function of time. Using qualitative graphs only, students learn to pick a graph with the correct orientation to match a sentence. They gain a sense of the function globally. They move back and forth from graph to sentence, and sentence to graph first choosing suitable answers and then creating appropriate answers. Coordinates are brought into play by putting points on the graphs and asking for an appropriate statement which relates the information given by the point in terms of the dependent and independent quantities. With two points indicated on a linear function, students are able to give rates of change. They also can interpolate and the move to tables is natural. Equations are introduced last being the most abstract. This method of introducing functions will help elevate the role of the graph in the study of functions as well as make the study of functions more accessible. (Received August 23, 2005)