1003-N1-30 **Brian John Winkel*** (`Brian-Winkel@usma.edu`), Dept of Mathematical Sciences, United States Military Academy, West Point, NY 10996. *Now See 'Ems. NO No See 'Ems.*

To teach visualization skills we need activities in which visualization plays a role. We present four such activities we have used. (1) Fully describe what you would see on one mountain (paraboloid, say) if your eye was on another mountain - issues of dot and cross product, tangent planes, normals to the surface, gradients, regions of integration, surface area, and programming can play major roles in describing what the eye can see. Students must first attempt to visualize and describe what they expect to see and then precisely determine and describe what they can see and how much they can see. (2) Describe the kinematics (motion) of a point, e.g., a point on a piston or the tip of a lever mechanism subjected to spring-like influence on its motion. (3) Explore the parameter space when trying to determine the best fitting parameters to a nonlinear data analysis activity. (4) Examine data points (each student gets a unique input frequency for a circuit which turns out to be a low-hi-pass filter). We plot the resulting output gain as a function of input frequency using class data and attempt to predict the nature of the device from the data points before using Laplace Transform techniques to "nail" the gain response curve. (Received June 16, 2004)