For over twenty years, the Calculus&Mathematica and NetMath programs at the University of Illinois have delivered high quality, innovative, computer-based mathematics instruction both face-to-face to on-campus students and online to students worldwide. Based on this experience, a new instructional design paradigm and new web-based tools for using an online version of Mathematica to teach mathematics at the undergraduate and high school levels will be presented. Dubbed a Maker Cube, the system combines Constructionist learning ideas and Formative assessment to bring about a radically different approach to math education. (Received September 22, 2011)