For over a century, the testing industry has been more or less isolated from research on learning and development. Although there are attempts to integrate educational research and assessment, the basic model consists of a testing company composed of psychometricians and content experts, working (in separate rooms) to build items that address a mandated area of knowledge, then compose these items into statistically reliable tests. Because they are practical, multiple-choice items, despite their many limitations, are the item-type of choice. Today, NCLB requirements—designed to improve student learning—have increased the amount of high-stakes testing in the United States. Extensive research has shown that tests made of multiple choice items are good indicators of what students have committed to memory, but are poor indicators of student understanding. Assessments need to focus on a number of basic requirements that I will explore in this talk and workshop (to follow), such as how to create an assessment that is based on rigorous research into the pathways through which students learn particular concepts over time. I will introduce the set of methods my colleagues and I have been using to create assessments that meet assessment requirements, and explore some of the ways in which our assessment-building agenda and your research agendas may overlap.