On-Ramps to more effective teaching: Quick-start guides to strategies for actively engaging students in the classroom to improve learning

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The landscape of college and university teaching in the geosciences has changed over the past 20 years. Research has documented 1) that faculty in the U.S. now spend less time lecturing and more time actively engaging students in the classroom, and 2) that active engagement is more common in geoscience classrooms than it is in biology, chemistry, physics, or engineering. The web sites of Teach the Earth and On the Cutting Edge have thousands of web pages of resources for geoscience faculty who want to more actively engage their students in the classroom. But what if you want to incorporate more active learning but aren’t sure where to start or how these techniques might work in your courses? Or what if you are looking for new approaches or fresh ideas to add to techniques that you already use?

On-Ramps are quick-start guides designed to bring you up to speed in effective strategies for engaging students more actively in the classroom. Each 2-page On-Ramp focuses on a particular teaching strategy, rather than on how to teach a particular topic. The current On-Ramps cover interactive lecture, brainstorming, concept sketches, jigsaws, discussions, quantitative skill-building, just-in-time approaches, case studies, and re-thinking course coverage and linearity. Each On-Ramp includes a simple example that illustrates the strategy, why the technique is valuable,
implementation tips, additional examples and modifications, and links to activities, supporting research, and other resources. On-Ramps will be available at the poster and can also be downloaded as pdfs from serc.carleton.edu/onramps/index.html

On-Ramps originated from the 2018 community vision report to US National Science Foundation on Challenges and Opportunities for Research in Tectonics, and their development was supported with a grant from NSF. The On-Ramps writing team is a group of geoscientists at a variety of career levels with specialties across the range of subdisciplines that regularly address tectonic problems. Although examples currently focus on the broad field of tectonics, On-Ramps can be easily adapted for courses in other geoscience disciplines at all levels.