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On the Cover

Top: Students discuss a figure from a journal article in Biology 355: *Analysis of Scientific Literature with C.R.E.A.T.E.*, an upper-level (junior/senior) biology elective at the City College of New York. The C.R.E.A.T.E. (Consider, Read, Elucidate hypotheses, Analyze and interpret the data, and Think of the next Experiment) strategy provides a framework for following the logic of a paper, including its approach to addressing a scientific question and the evolution of the project as it progresses over a period of years. Students read series of papers produced sequentially by individual lab groups and use novel approaches to analyze the experiments summarized in each figure or table. Students also survey the authors to gain insight into “the people behind the papers” and the nature of science.

Bottom: A concept map generated by a group of students during the first class meeting. Concept mapping is new to most college students, and developing a quick map on the topic of “college education” introduces the approach while underscoring that there is no single “correct” map. C.R.E.A.T.E. students subsequently concept map paper introductions to situate themselves in the study content and define areas to review. After each paper is analyzed, students again use concept mapping to define the significance of each figure and table and to visualize the experimental logic of the paper. Students make use of concept mapping and other C.R.E.A.T.E. tools to make sense of papers and lines of research, including cartooning, annotating figures, transforming data tables into graphical form, and designing follow-up studies. As outlined in the article by Hoskins, Lopatto, and Stevens (see page 368), the C.R.E.A.T.E. course shifts students’ attitudes about science, their own abilities, and the nature of science.