

Project-Based Science

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Students in the ninth-grade Foundations of Science class at Community High School in Ann Arbor, Michigan, enter the science room, plug their laptops into the network, and begin to work with their teams on their current project. The room is noisy, but it is productive noise. Students are busy talking with one another and their teachers as they investigate how the glaciers shaped Ann Arbor's terrain.

Community High School has a project-based approach to science that integrates earth science, biology, and chemistry. Mike Belden, Elizabeth Asker, and Madeline Burgess team teach this course, and, although the class is quite large, they each know the students and are familiar with their group projects. The teachers begin their day at Community High School by discussing with each other how things went the day before. They talk about how one of the groups got off on a tangent. They needed to decide how to get the students back on track without crushing their curiosity. And another group was having trouble finding information on their topic. The teachers try to think of resources for the students and ways to direct them without doing the work for them.

The project on glaciation is in its second week in what is expected to be a multiweek inquiry. The goal is to investigate the area using a variety of tools—topographic maps, computer modeling programs, rock samples, and access to geologists across the nation, to name a few—and then to create some kind of product that demonstrates the students' knowledge. Students are assigned to groups or teams (which change with each new project) based on interest. This time, Ray, Paul, David, Jean, and Melissa are exploring the terrain of one of their favorite recreation spots in the area, Bird Park. At some point during the project, Mr. Belden temporarily regroupes students to share information and help each other fill in information gaps. Anyone who doesn't understand topographic maps, for instance, can join a group where the maps are explained and they can investigate the kinds of information the maps reveal. The subgroup is led by either one of the teachers or another student.

During the project, each team is responsible for developing a plan for conducting its research and for managing that plan using a software program, *PlanIt Out*, developed by the University of Michigan. After identifying all of their tasks, the team plots them on the computer screen. Then they agree on who will do each task and by what dates. The computer program draws a graphic with lines connecting people, tasks, and dates, and each team member gets a printout. The teachers know that the Program Manager "dictates" tasks and due dates, which helps make the students more responsible for their own learning.

