

Starting Point: Using Words and Pictures to Capture the Essence of Field Work

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Teaching Intro Geoscience through Field Work

Students love field labs! They enjoy being outside and they appreciate the fact that geoscience field labs are unusually tactile and bring them into contact with real, messy (in all senses of that word) problems. For instance, as instructors we may start out with a focus on the lithology at an outcrop, but soon aspects of weathering enter the conversation and the physical "lithosphere" becomes linked to the atmosphere and biosphere. For these reasons, field labs are a great way to draw students into inquiry-based scientific investigations.

Running field labs is often challenging and intimidating. This site gives advice and examples that can benefit instructors at all levels of teaching experience. We chose photos for the site that emphasize the intellectually active nature of teaching and learning in the field.



Designing the field experience

The site contains advice about:

- Organizing student work around a particular question
- Encouraging observation first
- The field "lecturette"
- Dealing with complexity
- The concluding discussion
- Summing up
- Closure for the students
- Follow-up assignments



Why Use Field Labs?

Here are some of the many reasons to develop and teach field labs in geoscience:

- Field problems are often more complex and realistic than what can be easily represented in a lab.
- Although the solutions to many geoscience problems may involve lab analysis and computer modeling, the fundamental questions are often posed in the field.
- Field problems break down artificial boundaries within geology. A single outcrop, for example, raises questions relating to stratigraphy, sedimentology weathering, structure, hydrology, and other specialty areas within the field.
- Students working on a field lab together will commonly notice that each of them observes different things. This is an easy way to demonstrate that a combination of many observations is needed to represent the natural situation accurately.
- Collecting their own data gives students a better sense of the uncertainty and error involved in scientific investigations that they read about in journal articles.
- Simply being outside helps many students work together more easily.
- Field labs give students the opportunity to learn about the local geography of the local campus area - or in some cases, to view the familiar features of campus in a new way through geoscience study.



Practical Help

- How to manage time in the field
- How to choose field sites
- What kinds of equipment are necessary for field labs
- How to find good field sites on and near the campus.

Ready-to-Use Examples

The site now includes sixteen detailed examples of field labs, including:

- Cemetery Geology
- Adopt an Outcrop
- Cloud Observation
- Building Stone Geology
- Post-settlement Landscape Evolution
- Aquifers in Outcrop

Most of them come with printable (pdf format) handouts and links to still more helpful resources.



Get Involved!

We encourage other geoscience faculty to contribute more examples to the site and we also encourage comments on the pedagogy pages. Contact Cathy Manduca (cmanduca@carleton.edu) or John McDaris (jmcदारिस@carleton.edu) to find out how. You can also help us review this and other starting point sites and examples by going to serc.carleton.edu/introgeo/review.html.

