Using Jigsaw Groups in the Field
Template Cover Page

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This version of Jigsaw Groups is an adaptation of the Jigsaw Classroom described at www.jigsaw.org. It was first developed as a means of preparing non-geology students to be able to investigate a rock outcrop in a manner comparable to a first undergraduate geology course. It has since been used successfully with more advanced groups.

Using Jigsaw Groups in the Field
Template

Why jigsaw groups?

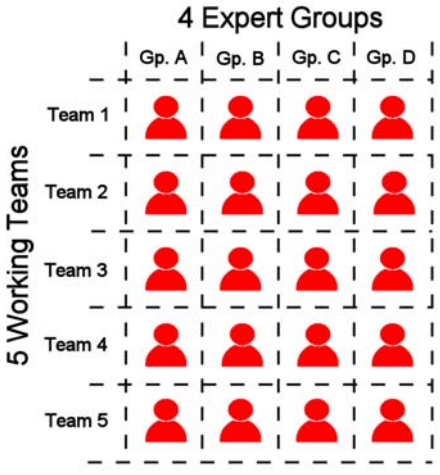
Lecturing at a field site places students in a passive role with varying degrees of commitment. This low cognitive level approach leaves even invested students complaining about remembering the details.

You can add juice to your field trips by bumping up the cognitive level. Shift students from listeners to discoverers by providing the requisite tools and knowledge to ***infer*** the relationships at hand. Step back a bit and allow groups to discover, discuss, and debate. Their "aha"s will signal deep connections and true ownership of concepts.

Jigsaw brings new excitement to familiar activities for every student in your class, even that guy in the back. It's an organizational technique that does not depend on the style or force of personality of the instructor. It's easy to learn and suitable for use from middle through graduate school. Finally, it's portable so completed field site instructional packages can be successfully transferred to other instructors, including Teaching Assistants.

Here's how it works:

1. Identify the critical concepts necessary for a full understanding of the field stop.
2. Divide your class into Expert Groups. Each Expert Group will master one of these critical concepts.
3. Dissolve the Expert Groups. Form new working teams to address the field stop. Each Working Team will include a member from each Expert Group. Like pieces of a jigsaw puzzle, each former Expert Group member brings a critical piece to the Working Team.



Here is a class of twenty students. You can see that each Working Team includes at least one member from each Expert Group. Keep the following guidelines in mind when establishing your Groups and Teams:

- A team must have at least one member from each Expert Group. A second member from the same Expert Group works fine.
- Keep the number of Expert Groups between two and six.
- For large classes, increase the number of teams. More than six Expert Groups makes unwieldy Working Teams.

What would you like students to discover?

You probably started with this question when you chose the field site. If this will be the first time that students will encounter this geology, be mindful of their inexperience. Does the site clearly express the features that you are trying to illustrate? It's very helpful to prepare a point-by-point list of concepts to be discovered in order to support the next step.

Identify the critical concepts needed by Working Teams

Caution – this step is critically important to the success of jigsaw groups! In order for Working Teams to have meaningful discussions, they must have all of the pieces to work with. This is why preparing a point-by-point list of discovery concepts is helpful—you can go down the list and make a second list of required supporting concepts. You are, in effect, building backward. You begin with the end and plan backward until you arrive at the current level of student understanding.

How will you provide these critical concepts?

You have many options here. The National Association of Geoscience Teachers (www.nagt.org) is an excellent repository of fascinating ideas.

One option worthy of special mention is mini-labs. These are short, simple, investigations that are designed to produce a single observation and concept. They are especially useful in preparing Expert Groups because several can be run simultaneously in the same lab period. Written up on a page or two, they can be run by Teaching Assistants or K-12 teachers. As pre-visit activities, mini-labs are an excellent way to avoid vacant stares when lecturing at your local middle or high school.

How will you start the Working Teams on site?

One way is to guide by question. You may chose to prepare and distribute questions before visiting the field site, or you may simply ask questions as you go.

Your role at the field site

This kind of Socratic process requires a bit of faith the first time out. Allow Teams to compare and discuss their interpretations. Assume a minimal presence during this process. At first you'll feel frustration as Teams struggle to get their teeth into the problem at hand. However, poorly conceived lines will usually sort out without your intervention. Guide by questioning rather than stating.

Here's a technique for more difficult situations. Call the Teams together. Have two teams present their tentative conclusions in turn. The key is to select the teams based on the discord between their views, not necessarily right versus wrong. Encourage questions and answers between the others and the two teams. The idea is not to correct wrong directions as much as it is to allow everyone an opportunity to compare notes. The whole process should take ten or so minutes and then Teams should resume their separate work.

Debriefing

At some point, you'll lead a summation of the discovery points associated with the field site. But before moving on, stop to consider whether there were any weak points in your field experience. Perhaps a concept that you had assumed students would already have in place was not applied in this context. Does this suggest a change or addition to the list of critical concepts?

After a few cycles, you will refine this field site into an experience that you will look forward to. Few things are as rewarding as being able to swing away from the front of the class and take up a shared learning role with your students.