

Doug Porter: 29 March 2007

The one thing we all really want our students to be able to do is to think like scientists. But what does that really mean? How do you think like a scientist? I had a great opportunity to see how scientists think today. This morning I went out with Photosynthetic Mathematical Insight team,(PMI team), made up of Chris McKay, Penny Boston, Henry Sun, Jim Nienow, Jane Curnut, Roger Spears and myself.



The team was jokingly named, but what it really was, was a brainstorming team. One question that had come up during our evening meetings, was whether desert crusts self-organize? A desert crust is a combination of organisms like algae and lichens that live on the desert floor and form an intertwined mat of living matter. Crusts are black and lumpy in appearance and often form maze-like patterns. That is the self-organizing part that the scientists had the question about. Do these maze-like patterns come from some predictable living process, or are they random?

What was interesting today was that I got to watch the scientists in action and to see how they work as a team. So how did the scientists think? They thought, by asking questions. Where do we find soil-crusts? Do they form around other plants, or out in the open? Can they be found on slopes, on desert pavement? Once the scientists had the questions, then they came up with ideas on what would need to be done to get the answers. What tests could they run? How can they sample the area? Could they see the crusts and map them with a camera in a balloon? Who has done similar research that might give them more information, and where could they get research money to fund their research? All of them worked together and they fed off each other, with one idea inspiring another.

So what did I find out about how scientists think? I found that scientists think by asking questions. They think by making observations, gathering information, and most

importantly collaborating with, and inspiring each other. That is what makes the Spaceward Bound program so powerful, it gives all of us the opportunity to be a team, to inspire each other and to think and work like scientists.