6th grade Tour
June 5, 2012
Holy Angels, Arcadia
Teacher: Emily Diaz
30 students, divided into either two or four groups

Adam Subhas "Using Mass Spectrometry for Carbon-14 dating" (Two 20-minute lab tours/presentations to about 10 students and chaperones each)
In order to teach students about radiocarbon dating, I used a saber tooth tiger bone from the Page Museum collection, and asked students to guess how old it was, using the framework of the scientific method to guide the questions, answers, and final result. I talked them through how scientists date bones using Carbon-14, and introduced a simplified concept of a mass spectrometer. I then walked them through the Eiler and Sessions mass spectrometer labs, and talked about the many uses of mass spectrometry in geology.

I think my first presentation was a little weak, but my second was fairly strong. Next time I think I would like to get my mass spectrometer "demo" up and running, with iron balls and a magnet to show how a magnetic force can be a momentum filter on moving objects. This, along with the application of C-14 dating, would be a very nice demonstration of how a geochemist goes from a hand sample to a measurement using simple teaching aids. I think the material could also be used on any group of kids from middle school to high school, and still be engaging.

Melissa Rice "Mars Rovers" (Two 20-minute presentations to about 10 students and chaperones each)
Description coming soon!

Kirsten Siebach: Mars Exploration (45 min talk to ~20 6th graders + chaperones)
My goal was to talk to the students about Mars, to get them excited about the idea of exploration and to show them that real people are involved in these projects and actively engaged in research in our solar system. The outline of my talk was a series of questions; what is Mars like? How do rovers get to Mars? What do the rovers do on Mars? and What have we learned? I introduced myself and where I came from, then invited them to ask questions at any point. I started out with a couple questions to get them talking, asking what they knew about Mars and then if they had seen various Earth sites (e.g. the Grand Canyon) to compare with features on Mars. I tried to convert all my units into amounts they would understand (speed in terms of loops around Earth per 30-min lunch break, canyons in terms of maps of the US and depth of the Grand Canyon, schedules in terms of school schedules, etc.), and relate the landing system jets to Ironman's suit (crowd-pleaser) and the naming of the Phoenix mission to Dumbledore's pet. I showed them a movie of the landing and narrated while it was playing. On one of my slides, I included a big group picture of all the scientists and engineers from the Phoenix Lander mission and asked them if they could find me and talked about how they were all normal people who were really passionate about their work. I used lots of

graphics and showed pictures of major mission accomplishments and then talked about specific projects I worked on. They were great and asked lots of really excellent questions. I think probably the key to engaging them and getting them to ask questions was just asking them questions and comparing to things they understood so that they would be interested and willing to speak up. I really enjoyed speaking with them and, based on their awesome questions, I'm confident they got something out of the talk as well. It helped to have 45 minutes and to be able to go into more detail than a short presentation, and I think they were engaged throughout the talk.