Journaling
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Monday: I selected Photosynthesis field trip as I felt I could best bring the information from the desert back to the classroom. There was a choice of Geology, Soils, Meteorology, Mars Rover, and Caves.

We looked for soil mats, teaming with moss and cyanobacterial organisms that are able to photosynthesize. So, we get out to the Mojave Reserve, walk out, and IT"S ALIVE!! But it doesn't really look alive. Among the yucca, creosote and a few Joshua trees, there's a dark, lumpy looking soil covering amidst the sand. This amazing stuff makes its own food, secretes it's own sunblock, and mysteriously manages to capture water for its life processes.

How did we work and see all of this? We flipped translucent quartz rocks over and lifted up the lumpy soil mat. Pulse Amplitude Modulator, a fluorometer that zapped each specimen with light was used to determine its degree of photosynthesis. Zero for green pants, zero for the dry stuff found below the rocks, but comparably high amounts for our lunch lettuce, creosote leaves, and when water was added to the rock surface. A simple field microscope revealed the cyanobacterial cells.

Later, I learned how to use sterile soil sampling techniques, taking samples from beneath the desert pavement, a mixture of lava rocks and impermeable soil. Sedimentologist Rosalba Bonaccorsi will later test for ATP, indicating the presence of life. I took soil mat samples and students can examine them for surprising signs of life.