



What I've learned from teaching geoscience in prisons

Philip Heron

Durham University, Department of Earth Sciences, Durham, United Kingdom (philip.j.heron@durham.ac.uk)

For a number of years, I have been going into high schools and primary schools armed with a bag of rocks, spaghetti and marshmallows, and some chat about plate tectonics. I thoroughly enjoy doing it. And it is impactful – I find a good percentage of students I meet love the exposure to geoscience. There are a number of school outreach programmes within my university, and they are excellent at what they do. When writing grants as a theoretical geodynamicist, and as such someone who can't readily apply all of my work to everyday life, I could attach myself to these programmes. However, writing a grant that requires outreach allows for an opportunity to do something different. There are many school-based programmes, connecting geoscience ideas and practices to school children, which is usually a 'go-to' for outreach. Is it time to start exploring other avenues outside the traditional classroom setting for our required outreach programs?

I live and work in Durham (UK) which has, broadly speaking, a university, a cathedral, and a few prisons. As part of my outreach activity, I tried to combine one of the two other local non-university entities - in going in and talking to prison leaders, it became clear that there is a lack of science education on the inside due to funding and personnel. In visiting prison and talking to inmates, it was also clear that there is an appetite for a focussed science education program. To try to bridge this gap, I've set up what appears to be England's first science course to be taught inside the prison system. The course is called 'Think Like A Scientist' (<https://philheron.com/think-like-a-scientist/>) and has a strong geoscience theme (plate tectonics, atmospheric science, missions to Mars) as well as a health component (the science of sleep). The 6-week course that is entirely taught inside a prison tries to combat the growing epidemic of 'fake news', teaching students three main tenants of being a scientist: understanding a problem; analysing what we know and what we need to know to make a conclusion; and communicating the results.

Here, I will present ideas on the importance of using mandatory outreach components of our grants in the most useful way possible. In this case, the time has been used to experiment with a science course in an underrepresented arena – the potential benefit to students is massive, alongside the ability of such a course to grow. I will outline the difficulties in 'back to basics' teaching in a prison, without any laptops and internet access, as well as the importance on being inclusive and trust that is required to conduct successful lessons. Due to the nature of such teaching practices, the course offers a "two-way" conversation where problems are worked through and analysed as a group.

Grants demand academics to be impactful with our science and our outreach programs – is it time to expand our portfolio of classrooms and science fairs?