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Connecting fieldwork to careers

Contamination Assessment: Year 11 Fieldwork at School

Kathy Jones, Fieldwork Connections

Syllabus: Stage 6 – Biophysical Interactions.

One of the most meaningful conversations you can have with senior students is about their future, what careers they are thinking of pursuing after they leave school. I really enjoy hearing about their goals and dreams, and they seem to appreciate that someone has taken the interest in them. If we are going to be able to help and inspire our senior students, our teaching needs to be meaningful and relevant showing them direct links and pathways into future careers. With this in mind, I designed a Contamination Assessment fieldwork investigation for year 11 Geography students, to be run at school. In industry, these forms of investigations are undertaken by environmental consultants and link directly to EPA guidelines.

I began my working life as an Environmental Scientist, working in contaminated land. A large part of my job involved conducting Contamination Assessments on urban land around Sydney. Currently, I teach fieldwork to school students on a daily basis and I also recently began teaching Geography one day a week at Hills Grammar in north west Sydney. This has given me, not only the opportunity to develop my classroom teaching but to also build relationships with my students and gain a deeper understanding of how Geography can lead to future careers.

Running this fieldwork as an incursion, confined to one school day, there were some secondary information that needed to be gathered by myself before the day. I was able to obtain site history information from the school's archives, conduct a Dial-Before-You-Dig search and set up a scaffold for the Contamination Assessment Report.

On the day, I spent the first hour with the students in a classroom, explaining why and how we would undertake the Contamination Assessment. This gave the students background into the investigation and a purpose for the day. Students were divided into fieldwork groups of 5 students. Next, we went into the school grounds to identify our first sampling location where I demonstrated all the fieldwork tools and skills that would be replicated at the following 4 locations. Rather than a fieldwork booklet, a checklist was used to remind students of what was to happen at each location. This made the experience closer to a real world scenario and didn't feel like they were just writing answers on a worksheet. The checklist included:

- Identify location on site map;
- Look at Dial-Before-You-Dig plans;
- Name location (e.g. BH1);
- Hand auger or collect sample with trowel;

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- Complete borehole log and any additional field notes;
- pH test of soil sample;
- Ribbon test for soil texture;
- Collect soil sample in plastic bag, label bag, place sample in esky; and
- When all samples are collected from five locations, fill in chain of custody sheet for lab and send to soil lab.

All the students were very engaged by the fieldwork and especially enjoyed the hand augering, Ribbon test and pH soil testing. Not only were we able to better understand the lithosphere but students were

also fascinated by the biosphere; beetle larvae and cockroaches found living in the soil. Undertaking the fieldwork on school grounds gave students a deeper sense of not only the geographical concepts of Environment and Change but also of Place.

Once back in the classroom for the final hour of the day, students were able to work in their groups and use their results and data to edit the scaffolded Report.

This kind of fieldwork could similarly be run for or with Earth Environmental Science, however, the following table demonstrates how this Contamination Assessment is directly linked to geographical fieldwork.

Geographical Fieldwork

<p>Content and Syllabus</p>	<p>Stage 6 Preliminary Course, Biophysical Interactions.</p> <p>Students learn to:</p> <ul style="list-style-type: none"> – investigate and communicate geographically by asking and addressing geographical questions such as ‘what are the biophysical interactions in the lithosphere and the effects of human impacts?’ – use geographical skills and tools such as identifying, collecting and recording data about soil and the lithosphere. – identify geographical methods applicable to the workplace such as a Contamination Assessment based on NSW EPA guidelines and associated fieldwork. <p>Students learn about:</p> <ul style="list-style-type: none"> – the nature and functioning of the biophysical environment with a focus on the lithosphere and the human impacts upon it such as soil contamination.
<p>Tools and Skills</p>	<p>Hand auger for soil sampling. Ribbon test for soil texturing. Soil sampling and laboratory chain of custody procedures.</p>
<p>Inquiry</p>	<p>Small groups. Acquiring, processing and communicating knowledge. Primary data collection, use of secondary sources. Site history search, Dial-Before-You-Dig search.</p>
<p>Concepts</p>	<p>Place, environment, change.</p>
<p>Geographical language</p>	<p>Examples: The lithosphere, biophysical interactions, soil texturing</p>
<p>Accessible</p>	<p>At school incursion. Run in one school day.</p>
<p>Relevant</p>	<p>Direct industry links. Located at school, connection to Place.</p>

Source: K. Jones 2020, adapted from S.Caldis 2019

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Not only was I able to give my students a deeper understanding of the lithosphere and biophysical interactions, the contamination assessment also gave them a taste of industry and future careers. At the end of the day I asked the class for some verbal feedback and specifically asked them if they would consider this as a career choice. I was not expecting every student to be won over by soil, however, a couple responded positively. As I explained to them, it was giving them all the exposure to industry and they could now make an informed decision if it was an area they wanted to pursue.

Please feel free to contact me at kathy@fieldworkconnections.com.au if you are interested in running fieldwork at your school or for some other simple one hour fieldwork ideas outside the classroom.

I would like to extend my thanks to Hills Grammar Head of Geography, Grace Larobina and Senior Geography teacher Helen Laidler, who supported me with the fieldwork and incorporated the project as the 2022 Geography Department goal to support student and teacher learning.

