



## **Engaging Girls in Geoscience Through the School Science Curriculum**

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Geology and the geosciences are vitally important to the UK economy. According to the Confederation of British Industry (CBI) 'minerals directly contribute to the UK economy by generating £35bn in gross value added, representing 16% of the total UK economy'. Mineral extraction alone (excluding oil and gas) employs 34,000 people.

Opportunities to study Earth Science at university are as extensive as for Chemistry and if Civil Engineering is included then they are as large as for Biology.

However, as state secondary schools face a funding crisis, it is increasingly difficult to be able to offer the perceived 'niche' subject of geology despite it containing elements of all the valued STEM subjects.

In the UK at present, there is very little Earth Science within the national curriculum for 11-16 year olds compared to chemistry, physics and biology. In addition, for those students fortunate enough to be able to study geology, there are twice as many boys than girls entering the exams.

In the context of a non-selective girls state secondary school, how could the subject be promoted? The school is in a suburban area on the outskirts of London. Rock outcrops, dramatic landscapes and industrial processes do not form part of the local scenery. Students have little appreciation of where the resources to make the products they use come from.

We have been exploring various ways to promote geoscience within the science curriculum, that all the science teachers in the department can deliver. There is often hidden reluctance among science teachers to include an Earth Science topic in lessons because they are not confident with the content or delivering it via the traditional practical.

Currently we are experimenting with adapting and introducing geoscience practical work. For example, in chemistry we include rock/mineral samples to show students where the substance being studied originally comes from. We have been able to make links to areas of the curriculum on composition and structure of the Earth, the rock cycle and climate change for 11-14 year olds. For the 14-16 year olds, we are creating links to geology with atmospheric science including evolution of the atmosphere, water resources, metal extraction and carbon compounds as fuels.

A club for 11-13 year olds based on geoscience and physics is run every week – using 'what makes up my mobile phone' Earth Learning Idea as the basis for discussion and practical work.

The students are now showing interest in a branch of science they can relate to. A quote from a 15 year old chemistry student: "Miss, I was in Brazil at Christmas and I've brought back this huge piece of iron ore to add to the collection. I think it is better than the ones we've got at as apparently it is 60% iron".