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The Geological Society

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Science Review Team
National Curriculum Review
Department for Education

Dear Sir / Madam

What are the key concepts in Earth science to which all students should be introduced at school?

The signatory organisations to this letter welcome the inclusion of Earth science in the National Curriculum, and believe it is vital that this continue.

Earth Science is the study of the processes and structure of the whole Earth system - its past evolution, contemporary processes and future predicted models. This includes the atmosphere, the continents, the oceans and rivers, ice, landforms, landscapes and the evolution of life on Earth. Earth science is inherently multidisciplinary, and within current mainstream school subjects, different aspects are most appropriately taught in science (physics, chemistry, biology) and geography.

To assist with the review of the National Curriculum for England, our organisations have worked together, in consultation with a wide range of other societies and organisations and with practicing teachers at primary and secondary level, to identify the key knowledge, understanding and concepts in Earth science which we believe all school students should be introduced to through the combination of science and geography. The attached document is structured progressively, showing what content is best delivered at of the key stages 1-4, building on earlier stages, and which should be taught in science (upper part of the diagram) and which in geography (lower part of the diagram). It also indicates a field/experimental strand for each. The central line running through the document indicates the conceptual underpinning that informs both the science and geography teaching.

Because Earth science can provide a holistic view of our planet, across vastly differing scales of distance, time and rate of change, it is valuable to articulate the links between the aspects taught in science and geography, and teachers should be supported in doing this. All students should be taught about the knowledge, processes, concepts, and main interpretive models, in Earth science, to give them a fundamental understanding and to equip them as well-informed citizens, and to stimulate the next generation of Earth scientists on whose skills achieving this will depend. The direct observation of evidence in the field, and its use to formulate and test scientific theory, is central to Earth science – experience of such fieldwork through school

science and geography, as well as the interdisciplinary thinking and problem solving inherent in Earth science, equips students with valuable knowledge, understanding and skills.

Our organisations would be happy to discuss any of these matters with the DfE Curriculum Review team. A key dependency is which subjects are mandatory at which stages in the curriculum. We would also be pleased to work with the wider science community to discuss which topics within the science programme of study might best be taught in physics, chemistry and biology, respectively – a matter we have not attempted to address here – and to assist with further development of the content suggested across the key stages.

Those science teachers who teach Earth science and the geography teachers who teach physical geography should continue to be strongly supported, for instance through professional development initiatives, and the signatory organisations to this document are involved in such initiatives.

Yours faithfully

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