Topic: Earth and Atmosphere

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Issues tackled:

1. **Key ideas, use of language and terminology – Explaining some more difficult concepts.**
2. **Investigative skills - Trialling some relevant experiments and opportunities for investigation.**
3. **Applications, relevance and cross-curricular issues – Resources from the geography department.**

Issue 1: Key ideas, use of language and terminology – Explaining some more difficult concepts.

Prior knowledge and experience:

Possible tasks:

Preparation for tutorial:

1. Prepare an activity to explain how small scale structures within sedimentary rocks contain evidence for how they were deposited (e.g. layers formed by discontinuous deposition, ripple marks formed by currents or waves). [OCR & AQA]
2. Prepare/adapt an activity to explain the evolution of the atmosphere. [AQA, EDEXCEL & OCR]

Possible activities during tutorial:

1 and 2 Present the activity and discuss.

AST Input:

- Check that the trainee understands the terminology, in their selected lesson and in other lessons which may cause difficulty.

Reading:

Subject knowledge and understanding

Appropriate GCSE specification.

Subject pedagogy

Useful websites and applications

Resources:

Tasks 1 and 2

For both tasks it would be useful to look in the specifications before planning the activity.

www.edexcel.org.uk
www.aqa.org.uk
www.ocr.org.uk

Issue 2: Investigative skills – Trialling some relevant experiments and opportunities for investigation.

Prior knowledge and experience:

Possible tasks:

Preparation for tutorial:

1. Carry out an experiment to "make sedimentary rocks" [see Resources] Consider how this experiment can be used as a scientific enquiry for KS3 or KS4.
2. Carry out an experiment to show the chemical weathering of limestone. Consider how this experiment can be adapted to form a suitable investigation for KS3 or KS4.
3. Carry out an experiment which allows pupils to observe the formation of crystals (often using salol). Consider how this experiment can be adapted to investigate how crystal size depends on rate of cooling.

Possible activities during tutorial:

1. 2. and 3. Present the results of the experiment. Discuss whether this experiment should be included and whether it makes a suitable investigation.

AST Input:

- Discuss with trainees the pitfalls of the experiment in detail. Consider how this could be linked to an evaluation.
- Show the trainees any other practical work which they may need to practise for this topic.

Reading:

Subject knowledge and understanding

Refer to websites below.

Subject pedagogy

Rowlands, D. and Snape, G. (eds) (1992**) Science at Work; Earth Science and Atmosphere**. Longman, Harlow
offers some good ideas for practical work.

See websites below.

Useful websites and applications

http://www.chemsoc.org/networks/learnnet/jesei Click on **contents** then find the relevant activity. The site contains a teachers' guide and a pupil sheet for the making sedimentary rocks from sand in a syringe activity.

http://www.earthscienceeducation.com/index.htm This site contains some materials of its own and is useful for its links to other sites. Follow link to 'resources for schools'.

Resources:

Tasks 1, 2 and 3
http://www.chemsoc.org/networks/learnnet/jesei Click on **contents** then find the relevant activity. The site contains a teachers' guide and a pupil sheet for the making sedimentary rocks from sand in a syringe activity.

Task 3.
Nuffield Co-ordinated Sciences Teachers' Guide, Longman Group UK Limited, Topic C1 Raw Materials Chapter C4 Chemicals and Rocks Worksheet C4A2.

Issue 3: Applications, relevance and cross-curricular issues – Resources from the geography department.

Prior knowledge and experience:

Possible tasks:

Preparation for tutorial:
1. Find out from the Geography department of relevant teaching resources/activities in the teaching of Plate boundaries (Earthquakes and volcanoes). Also look at the resources/activities available in Science.

Possible activities during tutorial:
1. Present findings about the teaching of plate boundaries (earthquakes and volcanoes) in Geography.

AST Input:
- Compare the methods and resources from both curriculum areas.
- Discuss how activities from geography can be adapted or incorporated into the science scheme of work.

Reading:

Subject knowledge and understanding

Relevant section of Geography National Curriculum/Scheme of work.

Ryan, L. (2005) **Chemistry for You**, Nelson Thornes, Cheltenham.

A Key Stage 3 Geography textbook if available.

Subject pedagogy

Useful websites and applications

www.nc.uk.net
Find the relevant section in the geography national curriculum. Use the links from curriculum online for additional resources if needed.

Resources: