



Any Quarry Guide :
good questions to ask and answer
at a quarry, cliff face or rock face
Earth science out of doors
for KS3 science/geography

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Earthlearningidea online video workshops

Purpose – ESEU background

- Most Earthlearningidea online video workshops are based, with permission, on workshops originally developed by the Earth Science Education Unit (ESEU)
- These were designed as interactive workshops for teachers and trainees, involving interaction, discussion and presentations by participants to others.
- Global research into professional development workshops shows that these aspects are critical to success.
- ESEU research shows that this workshop approach is highly successful in changing teaching in schools; evaluation feedback has also been very strong.

Earthlearningidea online video workshops

Purpose – Earthlearningidea development

- The Earthlearningidea Team has developed the ESEU workshops into online video workshops for those unable to take part in face to face interactive workshops
- Most workshops are led by a PowerPoint presentation and have an accompanying booklet that contains all the activity background details, resource lists, risk assessments, etc.
- The individual workshop activities have been published for open access online at the website:
<https://www.earthlearningidea.com/>
- Each workshop activity has a question script and a video keyed into CASE principles, that can be accessed through the PowerPoint hyperlinks.
- The aim is to facilitate online Earth science learning.

Any Quarry Guide - using CASE

Teaching Earth science using the Cognitive Acceleration through Science (CASE) approach

- The activities in this workshop are keyed into the CASE approach – to develop thinking skills while teaching key Earth science material
- If you are unfamiliar with the case approach, you can access a video introduction at:
<https://www.earthlearningidea.com/Video/CASE.html>
- An exemplar Earth science teaching activity with a question script using the CASE approach is at:
https://www.earthlearningidea.com/Video/Atmosphere_ocean.html

Any Quarry Guide

Summary

- What to look for during a field visit to a local disused quarry or natural rock exposure;
- This PowerPoint covers each aspect of the ESEU Any Quarry Guide booklet;
- The case-study videos were filmed in Brown Edge Quarry, Ringinglow, near Sheffield, (omitting aspects from the Guide which were not relevant to that quarry).

Any Quarry Guide

Workshop outcomes

The quarry visit provides the following outcomes:

- identification of a range of rock types;
- knowledge and understanding about processes of weathering, erosion and soil formation;
- skills of thinking in three dimensions;
- understanding how the geological history of an area can be elucidated;
- experience of bridging school-based learning with the outside environment.

Any Quarry Guide

Workshop video run times	m	s	m	s
CASE – Cognitive Acceleration through Science Education			21	51
Using CASE	6	24		
Atmosphere and ocean	15	27		

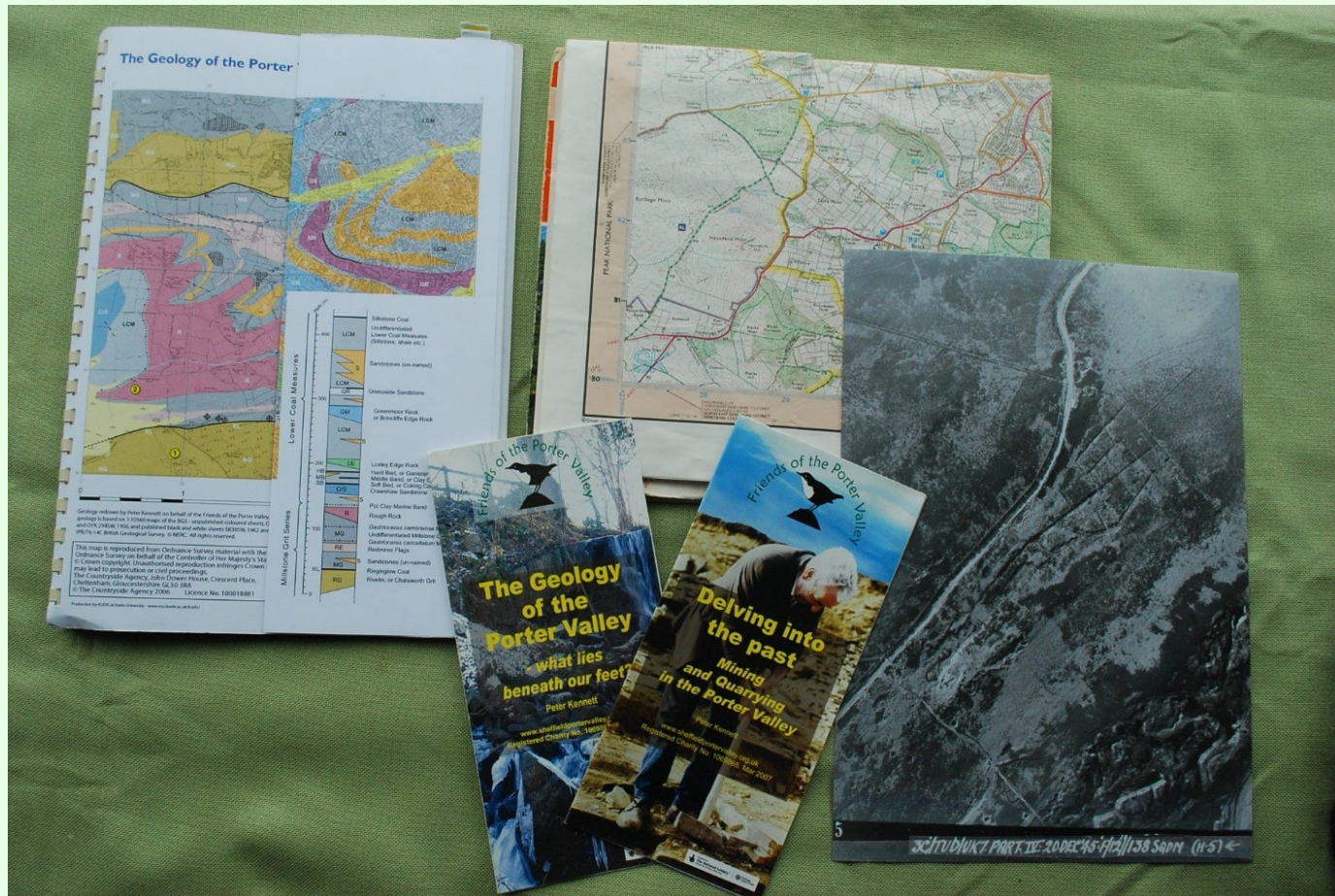
Any Quarry Guide			46	77
A. Preparation			6	30
B. Reconnaissance Visit			3	18
Focus 1 and 2: Weathering and erosion			4	14
Focus 3: Soils			1	52
Focus 4: Rock Group			2	14
Focus 5: Grains			1	42
Focus 6: Sedimentary structures			3	23
Focus 9: Tilted rocks			2	57
Focus 13: Sequencing			3	16
Focus 14: Tectonic plates			3	02
Focus 15: Landscape			2	25
Focus 16: Quarry economics			5	33
Focus 17: Quarry potential			1	37

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A.i Preparation at school: Field equipment

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A.ii Preparation at school: Desk-top survey

[Video - Preparation](#)

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B. Field Reconnaissance

[Video – Reconnaissance visit](#)

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Focus 1: Weathering

[Video – Weathering and erosion](#)

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Focus 2: Erosion

[Video – Weathering and erosion](#)

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Focus 3: Soil

[Video - Soil](#)

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Focus 4: Rock group

[Video – Rock group](#)

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Focus 5: Grains (Coin = 25mm)

[Video - Grains](#)

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Focus 6: Sedimentary structures

[Video – Sedimentary structures](#)

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Focus 7: Fossils

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Focus 8: Crystals

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Focus 9: Tilted rocks

[Video – Tilted rocks](#)

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Focus 10: Folds

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Focus 11: Faults

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Focus 12: Metamorphism

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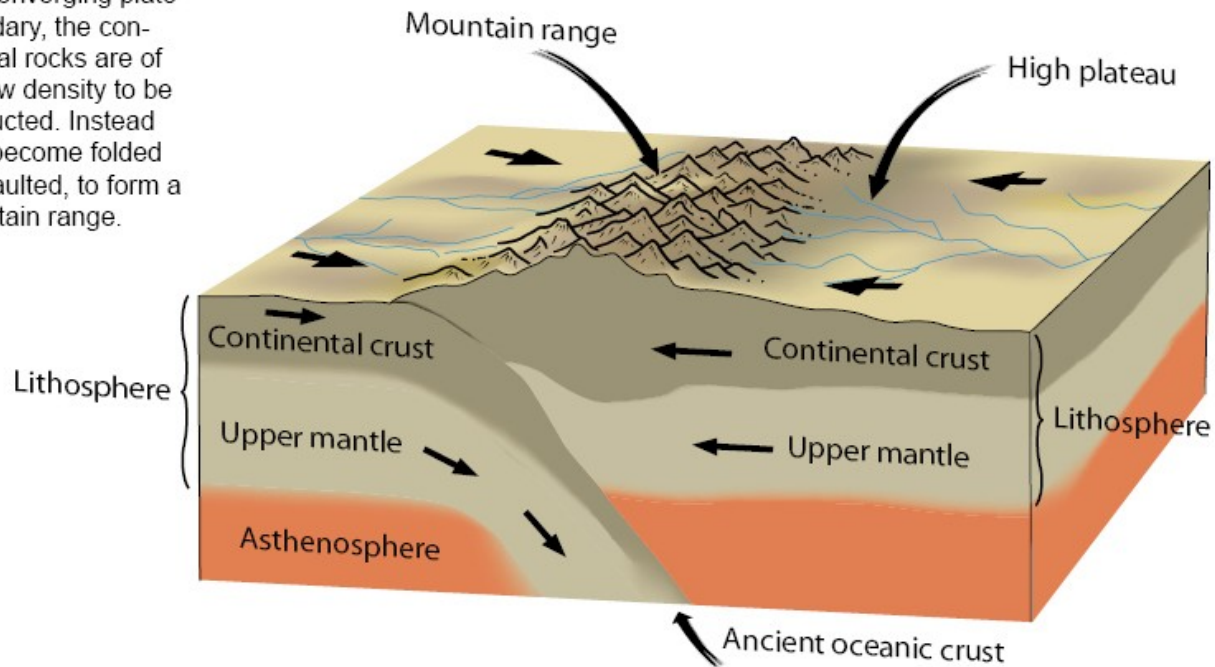
Focus 13: Sequencing

[Video - Sequencing](#)

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Continent-continent convergence

When two continents are brought together at a converging plate boundary, the continental rocks are of too low density to be subducted. Instead they become folded and faulted, to form a mountain range.



Focus 14: Tectonic plates (Diagram courtesy of ESEU)

Video – Tectonic plates

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Focus 15: Landscape

[Video - Landscape](#)

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Focus 16: Quarry economics

[Video – Quarry economics](#)

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Focus 17: Quarry potential

[Video – Quarry potential](#)

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Focus 18: Recording

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