

NQ
NATIONAL
QUALIFICATIONS *Review*

SCOTTISH
QUALIFICATIONS
AUTHORITY 

National Qualifications Review Report

Geology

Subject Review: Geology

1 Subject summary

Summary of Courses

Intermediate 1	Geology
Intermediate 2	Geology
Higher	Geology
Advanced Higher	Geology – two Units only

Recommendations

Recommendations which can be implemented this session (2001-2002)

- 1. Use of 20-hour Units in Higher Geology**
The two 20-hour Units should be retained (see section 2.1)
- 2. Fieldwork in Intermediate 2 and Higher Geology**
For 2001 the fieldwork will contribute to the Course assessment at Int 2 and Higher level (see section 2.3).

Recommendations which can be implemented for next session (starting August 2002)

- 3. Outcome 3 — all Units at Intermediate 2 and Higher**
Reduce the volume of internal assessment evidence required for assessment of Outcome 3 in Geology courses at Intermediate 2 and Higher. This will be achieved by requiring candidates to produce one piece of evidence for Outcome 3 in each Course and using it for Outcome 3 in both Units of the Course. This will replace the existing requirement to produce two distinct pieces of evidence for Outcome 3 for the course. This change will require some minor changes to the units, as currently the Outcomes and Evidence Requirements make reference to the context of the unit.
- 4. Minor review of arrangements at Intermediate 1 and 2**
Review the Course arrangements to ensure appropriate terminology is used, and that the content is topical. This will help to ensure that the subject is as accessible as possible (see section 2.1).
- 5. Reduce the content of the Unit *Minerals and Rocks* (H)**
Reduce the content of the Unit, *Minerals and Rocks* (H). This will assist in reducing the burden of assessment for this Unit (see section 2.1).
- 6. Reduce volume of internal assessment for Unit, *Fossils and Stratigraphy* (H)**
Reduce the number of questions contained in the NAB (versions 1-5), but retain the length of time allocated to the NAB (see section 2.3).
- 7. Level of demand of Geology Courses**
Investigate the degree of difficulty of Geology in comparison to the other sciences, as there is a perception that Geology is marginally more difficult (see section 2.4).

Mid-long term recommendations

There are no mid to long term recommendations.

2 Course report

2.1 Structure of Courses

Component Units

Acc 3 Geology

- ◆ The Study of the Earth (40 hours)
- ◆ Geology and Scenery (40 hours)
- ◆ Geology, People and Environment (40 hours)

The Access 3 Units are designed to articulate with the Intermediate 1 Geology Units.

Int 1 Geology

- ◆ The Study of the Earth (40 hours)
- ◆ Geology and Scenery (40 hours)
- ◆ Geology, People and Environment (40 hours)

Int 2 Geology

- ◆ Earth Materials - Rocks and Minerals (40 hours)
- ◆ Earth Physics and Earth Movements (40 hours)
- ◆ History of the Earth (40 hours)

Higher Geology

- ◆ Minerals and Rocks (40 hours)
- ◆ Earth Physics, Structural Geology and Plate Tectonics (40 hours)
- ◆ Fossils and Stratigraphy (20 hours)
- ◆ Economic Geology (20 hours)

All Units are mandatory.

Advanced Higher Geology

There is no Course at this level. There are two free-standing Units:

- ◆ Engineering Geology (40 hours)
- ◆ Environmental Geology (40 hours)

Uptake in 2001 (figures for 2000 are in brackets)

Intermediate 1	84 (60)
Intermediate 2	28 (19)
Higher	54 (44)

Do the Courses meet the design criteria (1-7)?

Yes, at Intermediate 1 and 2.

No at Higher – 2x 20-hour Units are used.

Issues and recommendations

1. Issue: use of 20-hour Units

The Higher Geology Course uses two 20-hour Units to cover two different topic areas. There have been no adverse comments on the impact of the 20-hour Units

Recommendation: use of 20-hour Units

The two 20-hour Units in Higher Geology should be retained.

2. Issue: terminology and content at Intermediate 1 and 2

Feedback from centres is that the Course content needs to be more varied and could be more topical to attract more candidates, particularly mature candidates. The terminology used in the Arrangements and Question Papers is reported as off-putting for candidates, and there is still no uptake in the FE Sector. SQA should work to ensure appropriate terminology is used in the examination papers.

Recommendation: terminology and content at Intermediate 1 and 2

Review the Course Arrangements to ensure appropriate terminology is used and that the content is topical. This will help to ensure that the subject is as accessible as possible.

3. Issue: Content of the Unit *Minerals and Rocks* (H)

Feedback from centres and subject experts suggests that the content of the Unit, *Minerals and Rocks* (H) should be reduced. The consequent reduction in both the Unit and the Question Paper would alleviate the assessment burden.

Recommendation: Content of the Unit *Minerals and Rocks* (H)

Reduce the content of the Unit, *Minerals and Rocks* (H). This will assist in reducing the burden of assessment for this Unit.

2.2 Assessment rationale

Relationship between external and internal assessment

The total volume of assessment and balance between internal and external is satisfactory.

Estimates and appeals

There are no issues relating to the generation of evidence for estimates and appeals

Does the assessment approach meet the assessment criterion (8)?

Yes

Issues

None.

2.3 Internal assessment of Units

Description of the overall approach to internal assessment

There has been no adverse feedback on the volume of internal Unit assessment. However, the volume of Unit assessment is high compared to the agreed norms.

Intermediate 1:	1-hour test (Outcomes 1 & 2) Practical activity (Outcome 3) 1 hour
Intermediate 2:	45-minute test (Outcomes 1 & 2) Practical Assignment (Outcome 3) – 1000 words (A fieldwork component is now being added to the external assessment.)
Higher:	45-minute test (Outcomes 1 & 2) Practical Assignment (Outcome 3) – 2000 words (A fieldwork component is now being added to the external assessment.)

Note on comparability with other Courses in the same broad subject area

The Principal Assessor and the Assessment Panel are continuing to strive to make Geology comparable with other sciences.

Does the internal assessment of the Units meet the assessment criterion (9)?

No — issue outlined below.

Issues and recommendations

1. Issue: All levels, assessment of Outcome 3

Geology Units do not exactly match Units in the other sciences, but they are very similar. In particular, they use Outcome 3 to assess practical skills. The workload issue for this Outcome has not been raised in Geology (it has in other sciences), perhaps because the Course is more practical, and would naturally involve a lot of fieldwork. Nevertheless, it is important that Geology remains comparable with the other sciences in terms of the demands it makes and the volume of assessment.

Recommendation: All levels, assessment of Outcome 3

Reduce the volume of internal assessment evidence required for assessment of Outcome 3 in Geology courses at Intermediate 2 and Higher. This will be achieved by requiring candidates to produce one piece of evidence for Outcome 3 in each Course and using it for Outcome 3 in both Units of the Course. This will replace the existing requirement to produce two distinct pieces of evidence for Outcome 3. This change will require some minor changes to the Units, as currently the Outcomes and Evidence Requirements make reference to the context of the Unit.

2. Issue: Volume of internal assessment for Unit, *Fossils and Stratigraphy* (H)

The NAB (Versions 1-5) for this 20-hour Unit contains too many questions for the length of time allocated to it.

Recommendation: Reduce volume of internal assessment for Unit, *Fossils and Stratigraphy* (H)

Reduce the number of questions contained in the NAB (Versions 1-5), but retain the length of time allocated to the NAB.

2.4 External assessment of the Course

Description of the overall approach to external assessment

At Intermediate 1, Geology Courses are assessed by a single question paper. From 2002, at Intermediate 2 and Higher, a combination of question paper and fieldwork are used:

- ◆ Intermediate 1 has a question paper of 1 ½ hour duration

- ◆ At Intermediate 2, there is a 2 hour question paper (95 marks). For 2002, there will be a fieldwork element (15 marks). At this level, the fieldwork report will be 400 words long.
- ◆ At Higher, there is a 2 ½ hour question paper (95 marks). For 2002, there will be a fieldwork element (15 marks). At this level, the fieldwork report will be 1,000 words long.

Instruments of assessment used in the question papers:

Int 1:

Structured short answer questions

Int 2:

Structured short answer questions, including questions on fieldwork activities

Higher:

Structured short answer questions and one extended essay (from a choice of 3)

Note on comparability with other Courses in the same broad subject area

External assessment of Geology is comparable with other sciences, although it is the only science to include fieldwork as part of the Course assessment at Int 2 and H level.

Does the external assessment of the Courses meet the assessment criterion (10)?

Yes, although there is one issue outlined below for investigation.

Issues and recommendations

Issue: level of demand of Geology Courses

Geology is perceived as being slightly more difficult than the other sciences. For Diet 2002, the fieldwork component (Intermediate 2 and Higher), which was previously internally assessed, is now a contributing component to the Course assessment. Historically, candidates find fieldwork highly motivating and perform well in it, so the inclusion of Fieldwork as a component of external assessment should address the perceived degree of difficulty to some extent. If it turns out that there is a basis for the perception of relative difficulty, there are a range of approaches that could be used to address this: lighter sampling of the content of the Course; looking at the design of the types of questions used in the Question Paper to see if any improvements could be made here; or looking at the distribution of marks.

Recommendation: level of demand of Geology Courses

Investigate the degree of difficulty of Geology Courses in comparison to the other sciences, as there is a perception that Geology is marginally more difficult.

2.5 Quality Assurance

Description of the overall approach to quality assurance

SQA's standard setting, vetting and marking procedures apply. Attendance at markers' meetings is mandatory.

Postal Moderation is carried out satisfactorily.

Do the quality assurance arrangements for the Courses meet criterion 11?

Yes.

Issues

None

2.6 Administration

Issues

Clarification of the new Arrangements for fieldwork evidence being sent from centres for moderation will be required for centres and moderators. The Arrangements have not yet been agreed, but will mirror existing procedures for postal moderation of internal evidence.

SQA will inform centres about the administrative arrangements for the fieldwork as soon as possible.

3 Summary of review process and issues raised

Who	Mechanism	Issues
Subject specialists	Assessment Panel (5 October 2001) No comments on Geology have been submitted to the subject review.	Some Geology teachers would like to see an Advanced Higher Course. However, candidate uptake needs investigation. The subject is perceived as difficult and specialised by many teachers. Mainly Geography teachers are delivering it.
SQA co-ordinators	SQA SAMs and CRMs	No issues raised
Principal Assessors and Senior Moderators	PA Report	Issues included in recommendations
Units within SQA	Internal views sought	No issues raised
Candidates and parents	SPTC survey	No issues raised. The candidate group for Geology is not a typical one: candidates tend to attempt the Course in S6. The Courses seem to be viewed as inaccessible by many candidates and there is no uptake at all by adults in the FE sector.
Other surveys and reports	Various	No issues raised. An Earth Sciences Forum has been created, and Scottish university Geology departments are supporting this. A Development Officer has been appointed to increase uptake of the subject in schools.