

SQA Advanced Unit Specification

General information for centres

Unit title: Science Industry: Key Issues

Unit code: HV4J 47

Unit purpose: This unit is designed to give candidates the opportunity to appreciate and understand the key issues and problems, which industry encounters, which individuals are likely to experience when entering the science industry

On completion of the unit, the candidate will be able to:

- 1 investigate and analyse a science industry and its related key issues

Credit points and level: 1 SQA Credit at SCQF level 7: (8 SCQF credit points at SCQF level 7*)

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from National 1 to Doctorates.*

Recommended prior knowledge and skills: Access to the unit will be at the discretion of the centre. Experience operating in a science industry environment would be valuable but not essential for a candidate attempting this unit.

Core skills: There may be opportunities to gather evidence towards the core skill of Working with Others at SCQF level 6 in this unit, although there is no automatic certification of core skills or components.

Context for delivery: If this unit is delivered as part of a group award, it is recommended that it should be taught and assessed within the subject area of the group award to which it contributes.

Assessment: This unit will be assessed by means of an investigation. The candidates will produce a report based on the investigation and will also deliver a presentation based on one of the key issues. There are a number of ways in which the report and presentation can be produced and this information is contained in the assessment guidelines for the unit.

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SQA Advanced Unit Specification: statement of standards

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The sections of the unit stating the outcomes, knowledge and/or skills, and evidence requirements are mandatory.

Where evidence for outcomes is assessed on a sample basis, the whole of the content listed in the knowledge and/or skills section must be taught and available for assessment. Candidates should not know in advance the items on which they will be assessed and different items should be sampled on each assessment occasion.

Outcome 1

Investigate and analyse a science industry and its related key issues

Knowledge and/or skills

- ◆ History
- ◆ Products of business
- ◆ Technology
- ◆ Current size
- ◆ Growth prospects
- ◆ Key issues
 - Impact on society
 - Ethical and legal issues
 - Threats to the industry
 - Environmental impacts

Evidence requirements

Candidates will need to provide evidence to demonstrate an in depth investigation into one science industry. The body of the report will be the findings from the investigation and will cover all of the bullet points listed in the knowledge and skills and any relevant key issues.

- ◆ History — describe the formation of the industry, eg traditional industry company or a new start up
- ◆ Products of industry — describe the products of the industry
- ◆ Technology — discuss technology, including information on the science behind the products of the industry
- ◆ Current size — explain the current size of the industry and how the industry has reached its current position

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- ◆ Growth prospects — discuss growth prospects including any potential issues which may affect growth of the industry such as the emergence of new technology, or new findings in a particular area, or the effect of government legislation on the impact of research
- ◆ Key issues:
 - impact on society — analysis on the impact on society. This may include economic impacts and the impacts on an individual or a community including any moral and/or health issues
 - ethical and legal issues — discussion of ethical and legal issues, ie are there any factors that impinge on the potential growth of the business? This should be a balanced debate showing the positive and negative aspects
 - threats to the industry — analysis of threats. Candidates should research all threats to the industry including competition, threats to growth
- ◆ Environmental impacts — analyse the environmental impacts of the industry eg pollution, GM crops

Assessment of this outcome will be by an open-book, unsupervised assignment consisting of a report on a specific industry of approximately 3,000 words. Candidates should analyse the industry in some depth, expressing views as to its impact on society, which may be considered from an environmental or an ethical standpoint, depending on the type of industry chosen.

Candidates should also deliver a presentation on one key issue of their report. This presentation should be approximately 10 minutes long and should contain:

- ◆ information about the key issue
- ◆ discussion on different sides of the debate
- ◆ detail on how the science industry has sought to overcome these issues
- ◆ evaluation, including the candidate's own conclusion on the future of the industry

Candidates should also be questioned to ensure that the work is their own. An observation checklist should be retained as evidence of performance for each candidate.

Assessment guidelines

The industry chosen for the case study should reflect the SQA Advanced Diploma that the candidate is studying. Given the range of science industries, it should be possible for each candidate to research a different industry. This will minimise the possibility of plagiarism.

The presentation does not have to be a formal group presentation and could be a one-to-one with the tutor, however the presentation could be integrated with assessment for the SQA Advanced Unit: Presentation Skills in Science.

The report of the investigation can be done using a variety of formats eg an audio diary, site visits and interviews with the public can all be utilised.

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Administrative information

Unit code:	HV4J 47
Unit title:	Science Industry: Key Issues
Superclass category:	AA
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History of changes:

Version	Description of change	Date

Source: SQA

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SQA Advanced Unit Specification: support notes

Unit title: Science Industry: Key Issues

This part of the unit specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this unit is at the discretion of the centre, the notional design length is 40 hours.

Guidance on the content and context for this unit

It is expected that a substantial number of successful candidates will embark upon a career in a science industry and this unit exposes them to the types of problems and key issues which they are most likely to encounter in the science industry.

The candidates should undertake a detailed investigation on one science industry. They should cover the industry as a whole and should express their own opinions on key issues that the industry faces.

Candidates should be given or select a relevant industry in conjunction with their lecturer. It is important that one industry as a whole is covered as an investigation on one company would not give candidates an understanding of the key issues and problems that an industry would encounter.

It is expected that candidates will research their chosen industry using a variety of sources and although all knowledge and skills must be covered, one key issue which may be of interest to the candidate should be developed further, and be the topic of a 10 minute presentation. In the presentation, candidates should discuss the issue, showing both sides of the debate and delivering their own conclusion and findings on how this issue should be resolved.

Outcome 1: The candidate will be expected to describe and analyse the type of business, its history, commercial activities, products and also the key issues affecting a particular industry. It is expected that candidates will complete an investigation on one industry.

The report could be drawn from the following sectors of the science industry:

- ◆ pharmaceutical industry
- ◆ biotechnology industry
- ◆ chemical engineering industry
- ◆ life science industry
- ◆ microbiology industry

A candidate may attempt an investigation from any science industry with agreement of the lecturer. Information for the report could be obtained from the following sources:

- ◆ literature, eg books, journals etc
- ◆ internet
- ◆ discussion groups formed from friends, fellow candidates and tutors to elicit views on the ethics of a particular biotechnological development
- ◆ site visits
- ◆ interviews
- ◆ media
- ◆ interest groups
- ◆ government sources

Guidance on the delivery and assessment of this unit

This unit is likely to form part of a group award, from the SQA Advanced Science framework. This unit is primarily designed to provide candidates with much wider knowledge of the industry enabling to better prepared for employment in positions such as laboratory, pilot-plant or process technicians. They would also be expected to progress to first-line management or team leader posts in the science industry.

It would be preferable that the unit is delivered towards the end of the course, by which time the candidates should have a good appreciation of scientific techniques, processes and products. The nature of this unit lends itself to site visits, invited speakers as well as self-directed study. Lecturer input could be by a range of methods, including group discussion, direct input and perhaps presentations from the candidates themselves.

Opportunities for developing core skills

There are opportunities to develop the core skill(s) of Working with Others at SCQF level 6 in this unit, although there is no automatic certification of core skills or core skills components.'

Open learning

If the unit is delivered by open or distance learning methods, additional planning and resources may be required for candidate support, assessment and quality assurance. For information on normal open learning arrangements, please refer to SQA guide, *Assessment and Quality Assurance of Open and Distance Learning* (SQA, 2000)

Equality and inclusion

This unit specification has been designed to ensure that there are no unnecessary barriers to learning or assessment. The individual needs of learners should be taken into account when planning learning experiences, selecting assessment methods or considering alternative evidence.

Further advice can be found on our website www.sqa.org.uk/assessmentarrangements.

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General information for candidates

Unit title: Science Industry: Key Issues

This is a 1-credit SQA Advanced Unit at SCQF level 7 and is intended for candidates undertaking a science-related qualification. This unit is designed to provide you with an opportunity to describe a science industry in some detail, as well as its associated technology. You will also be asked to investigate an industry and present the information in the form of a report and presentation.

In order to complete this unit successfully, you should be able to:

- 1 investigate and analyse a science industry and its related key issues

Knowledge and skills

- ◆ History
- ◆ Products of business
- ◆ Technology
- ◆ Current size
- ◆ Growth prospects
- ◆ Key issues
 - Impact on society
 - Ethical and legal issues
 - Threats to the industry
 - Environmental impacts

Tackling this unit will be challenging and will draw upon your knowledge of the science industry and its associated technology obtained in other SQA Advanced Units. When problems or issues arise in the science industry, readily available solutions are not often available and these must be sought by obtaining the information via journals, textbook, internet, site visits or interviews. You will be given access to a variety of sources of information.

In tackling the report, your knowledge of a particular industry and its technologies will be assessed.