Activity 2: Study question mark scheme

This question can be used to assess understanding of this part of the specification:

*A2.1 Factors that contribute to the diversity of employers/organisations within the science sector*

*A2.2 The diversity of work undertaken in different job roles within the science sector*

It is a band-marked question.

AO1 = 3 marks

AO2 = 3 marks

AO3 = 3 marks

QWC = 3 marks

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| Band | Marks | Descriptor |
| 3 | 7–9 | AO3  A comprehensive evaluation of the likely diversity of scientific jobs and careers available through an employer, taking into account a wide range of factors including company size, location and access to funding streams. The evaluation should consider factors which are supportive, and those which are unsupportive, of the company’s claim. Arguments show detailed understanding and are logical, clear, coherent and draw evidence from the text and from students’ wider knowledge of jobs within the science sector. Informed conclusions are made that are fully supported with rational and balanced judgements.  AO2  Excellent knowledge is demonstrated of a range of jobs available, with a detailed account of the nature of the roles undertaken.  Links are made between the geographical location of the company and the potential skilled employment pool available.  A clear understanding is demonstrated of how funding streams may affect the number or range of roles available at an employer.  AO1  An excellent understanding is demonstrated of the term ‘job diversity’.  Typical roles within a scientific employer are named.  Factors which may affect job diversity within an employer are stated.  The answer demonstrates a comprehensive breadth and depth of understanding. |
| 2 | 4–6 | AO3  Evaluation of the likely diversity of scientific jobs and careers available through an employer, taking into account a range of factors including company size, location and access to funding streams. It is mostly effective, relevant and shows logical and coherent chains of reasoning. The evaluation should consider at least one factor which is supportive, and at least one which is unsupportive, of the company’s claim. Arguments draw on evidence sourced from the text and from students’ wider knowledge of jobs within the science sector. Conclusions supported by reasoned judgements that consider most of the relevant arguments are evident.  AO2  Mostly relevant knowledge is demonstrated for a range of jobs available, with an account of the nature of the roles undertaken.  An attempt is made to form links between the geographical location of the company and the potential skilled employment pool available and/or an understanding is demonstrated of how funding streams may affect the number or range of roles available at an employer.  AO1  A mostly clear and accurate understanding is demonstrated of the term ‘job diversity’.  Typical roles within a scientific employer are named.  Factors which may affect job diversity within an employer are stated.  The answer demonstrates reasonable breadth and/or depth of understanding, with occasional inaccuracies and/or omissions. |
| 1 | 1–3 | AO3  A limited evaluation is made of the likely diversity of scientific jobs and careers available through an employer, taking into account at least one factor from company size, location and access to funding streams. The evaluation may only consider evidence that is supportive, or unsupportive, of the company’s claim. Arguments are likely to draw on evidence sourced from the text.  Brief conclusions are made supported by judgements that consider only basic arguments.  AO2  Limited knowledge is demonstrated of the range of jobs available, with some attempt made to form an account of the nature of the roles undertaken.  The location and/or availability of funding streams may be mentioned, but links to the impact on job diversity are not formed.  AO1  A basic understanding is demonstrated of the term ‘job diversity’, and/or typical role(s) within a scientific employer are named, and/or  factors which may affect job diversity within an employer are stated.  The answer is basic and shows limited breadth and/or depth of understanding, with inaccuracies and omissions. |
| 0 | 0 | No creditworthy material. |

# Indicative content

## AO1

* Job diversity means that there are a wide range of roles within the organisation.
* Roles inside the science sector may include: research and development, data analysis, clinical testing/trials, quality control, quality assurance, product development, scientific publishing, manufacturing.
* Factors that contribute to diversity within organisations include: size of employer/organisation, funding streams, commercial status, working environments (e.g. laboratory, manufacturing plants, field work), geographic location.

## AO2

* Roles that are likely to be present within the company with reasons:
  + Research and development – designing the vaccine.
  + Clinical testing trials – testing the vaccine in the laboratory and then on people for dosage, efficacy and toxicity.
  + Quality control – for example, sampling products to check production consistency/check calibration of instrumentation.
  + Quality assurance – checking SOPs are followed so all vaccines/clinical trials/named procedure or product are produced/completed in the same manner.
  + Product development – adapting a product in line with consumer/scientific feedback.
  + Science publishing – presenting information in science journals/peer sharing information for scientific review/publishing information for government/doctors/NHS campaigns.
  + Manufacturing (including manufacturing operatives and production managers) producing the product through employment of scientific practices.
* Medivac is a very large employer – so will employ a diverse range of occupations to be able to bring a complex scientific product to market.
* Medivac is a multinational company – so will employ people with a range of backgrounds and experiences (which will add value to the company’s skills base).
* The potential for vaccinating an entire population will bring significant additional funding to Medivac, which is likely to support employing a wide range of careers to access this funding.
* The company is located adjacent to a large city, which will give direct access to university-level research and development – this further widens the range of employees available to Medivac in a professional or scientific capacity.

## AO3

Reasons why the claim is likely to be true:

* Large size/employs 5000 people/multinational company so more chance of there being a wide range of roles available as there is likely to be a range of projects in differing areas, therefore offering different types of role.
* Product being manufactured will provide access to good funding streams. This will bring the potential for significant profit, so the investment in a range of careers to make the product is a proportional risk for the company to take.
* Manufacturing a new scientific product/scientific research requires a multidisciplinary approach/input from a wide range of jobs – therefore increasing the likelihood of a range of careers being available within the company.

Reasons why the claim may not be true:

* No indication is given of possible outsourcing of work to other organisations, for example, large-scale manufacturing; this could reduce the diversity of roles available within Medivac.
* The product is not proven, so the company may not have adequate financial backing/funding stream is not guaranteed. This may limit the range or types of role available.
* The siting of the company headquarters may not provide a workforce with some scientific specialisms. If the employee base is not present in that area, the company may not be able to employ people in some positions (and so this work would need to be outsourced).

Possible conclusions

* The size of the company is the greatest factor likely to affect the range of roles available, as many different types of job would be available within the company. Therefore, through its size, the claim made by the company is likely to be true.
* In addition, due to the company utilising multiple sites, it is likely that a range of research projects are being undertaken, again increasing the likelihood of a diverse range of roles being available, supporting the company’s claim.
* Finally, as the company is involved in both research and development, and the manufacture of pharmaceuticals, this again implies that a diverse range of careers are available, supporting the company’s claim. It is therefore very likely overall that the company’s claim to ‘employ people in a diverse range of jobs and professions’ is true.

# QWC mark scheme

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| Mark | Descriptor |
| 3 | The answer is clearly expressed and well-structured.  The rules of grammar are used with effective control of meaning overall.  A wide range of appropriate technical terms are used effectively. |
| 2 | The answer is generally clearly expressed and sufficiently structured. The rules of grammar are used with general control of meaning overall. A good range of appropriate technical terms are used effectively. |
| 1 | The answer lacks some clarity and is generally poorly structured. The rules of grammar are used with some control of meaning, and any errors do not significantly hinder the overall meaning. A limited range of appropriate technical terms are used effectively. |
| 0 | There is no answer written or none of the material presented is creditworthy, or the answer does not reach the threshold performance level. The answer is fragmented and unstructured, with inappropriate use of technical terms. The errors in grammar severely hinder the overall meaning. |