T Level Technical Qualification in Animal Care and Management

Animal Management and Science Occupational Specialism (Level 3)

Research Project

SAMPLE Marking grid

May 2024 v1.0

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General marking approach

The following process details at high level, the steps that will be undertaken by the external marking teams at City & Guilds following the submission of candidate's evidence (including additional supporting evidence such as videos of presentations, etc).

Guidance

Markers of this assessment should note the following:

- Candidate evidence must be marked based on what has been submitted. This means that if candidate evidence is not complete, marks will **only** be based on what has been submitted.

Process

- The marker scans/reads the candidate's evidence; the external marker makes a judgement on the level of performance the candidate has demonstrated, taking all the evidence into consideration and they then judge the appropriate mark following the normal process.
- The marker makes an initial assessment of the band that is the best fit.
- The marker reviews the candidate evidence against the initial band descriptor in more detail to decide if the response is securely sitting within the band; if all characteristics described by the band descriptor are seen, or it strongly meets the level of performance described by the descriptor holistically:
    - the marker will also check the descriptor for the level above
    - if evidence clearly shows some of the characteristics of the higher band, the marker will select a suitable mark at the bottom of that band
    - if it is not showing characteristics of the higher band, the marker will revert to the original band, selecting a mark at the higher end of that mark range.

  If the response is not securely in the band, but **is partially** showing the characteristics of the band:
    - the marker will check the descriptor of the level below/above
    - the marker will decide on a suitable mark either at the bottom of the original band as some characteristics shown, or top of the lower band if it better describes the quality of the characteristics being shown.

  If the response is largely meeting the band, with only a few concerns and is not showing characteristics aligning with the higher or lower bands, the appropriate mark is likely to be in the middle range.

  If there is no alignment with the descriptor, the marker will reassess the starting band, and begin again.
- Based on the level of alignment with the descriptor, the marker will confirm a final mark within the band, bearing in mind the marks available form an evenly distributed scale:
    - if the quality of response fully aligns with the performance described by the descriptor, the marker will assign a high mark within the band
    - if the quality of the response partially aligns with the performance described by the descriptor, the marker will assign a low to medium mark within the band
    - the marker will consider the quality of a range of similar responses (e.g. annotated lead grade exemplification materials, responses reviewed during standardisation, and through experience) and choose a mark that would give

an appropriate ranking amongst those responses in relation to the full range of marks available in each band.

- In order to fully assess the evidence, it may be necessary to focus on several distinct aspects. These have been grouped into separate sub-grids to allow the marker to make separate assessment decisions, rather than attempt to bring disparate elements together as a holistic judgement, to support reliability, validity and manageability for the marker.
- Should a candidate make an error or display a weakness in one task that is further compounded through the interdependent nature of the tasks and carry through that error, the marker should penalise the candidate only once. Each task should be considered within the constraints of the marking for the task itself, focusing on the knowledge and skills to be demonstrated in that task. For example, if the candidate does not suitably plan their research and time in Task 1, when they get to the report in Task 2 – the marker should focus on looking at how well the candidate structures and writes the report, i.e. it is content and structuring that hold the main relevance in this task, rather than further penalising the candidate for a less than optimal research proposal from the initial Task 1.

Research project mark distribution

This table illustrates how the 36 marks for the research project are distributed against the tasks. These have been set by subject matter experts and employers and will support the comparability between versions of the research project over time.

Performance outcome (PO)	Tasks	Marks per task	Task weightings	Marks per PO
PO1 Apply research methods to collect and analyse scientific information on reproductive technologies and gene manipulation	1 Planning and researching	12	33%	36
	2 Research report	15	42%	
	3 Presentation	9	25%	
Totals		**36**	**100%**	**36**

Marking grids

There is a marking grid for each task that must be assessed as part of this occupational specialism assessment.

Task 1 – Planning and researching

Guidance for markers

The following **evidence** must be used to assess performance against each task:

Task 1a – Research proposal

- Research proposal in a digital, written format

Task 1b – Action plan

- Action plan for the research project

Note: where there is insufficient evidence to award a mark, a zero mark may be given.

Indicative content

Task 1a – Research proposal

Aims – statement of the purpose (what candidate is hoping to achieve as an end goal) – to discuss the principles, ethical aspects, welfare aspects, organisations involved, uses and limitations of embryo transfer and genetic testing for the two species.

Objectives – steps to get to the purpose/aim.

Suitable range of objectives relating to the research brief that are achievable and realistic.

E.g. analysis of the reasons for undertaking genetic testing in dogs, analysis of the reasons for undertaking embryo transfer in cattle.

Objectives will meet the end goal listed in their aim.

- The principles of the research design and methodology of research.

Referred to what else would need to be included for the research e.g. precision and accuracy when collecting results, comparative data.

Discussed method of research (secondary) and how the research would be shown (literature review) including advantages and disadvantages of the method.

- Sources of information and the proposed techniques to analyse and interpret the data.

Consideration of types of data that they will have and relevant ways to interpret this – literature reviews, numerical diagrams, charts, tables etc.

Consideration that the range of sources used and avoiding any that may be biased.

Candidates may consider credibility, validity, currency and accuracy. Consideration of the confidentiality of research under data protection act.

Task 1b – Action plan

- Research action plan.

Topics to be researched, outlining the key aims and objectives of the project, alongside the research question described in the brief.

The resources required and suitability, with consideration given to how candidate plans to identify and access credible sources of information (peer reviewed journals, government websites, websites of professional bodies, reputable news outlets).

How they will source resources, and contingency sources.

Currency of sources – after 2000 as a minimum.

Use of reliable sources only.

Consider the search criteria that may be used in reference to the objectives e.g. ‘organisations involved in genetic testing for dogs’, ‘ethical considerations of embryo transfer in cattle’.

Planning for efficient and effective use of the candidate’s time when researching.

What they will do and when they will do it by.

Gantt chart or similar to show action plan and timelines in relevant chunks of time (15minutes, 30minutes, 1 hour etc).

Consideration of how much to do within the timeframe. How they will monitor their progress when completing the research project. Evidence of project monitoring frameworks and timelines identified by the candidate, with links to timescales. Critical analysis pathways e.g. a Gantt chart or suitable spreadsheet alternative. Review of the progress within the set period of time. Contingency plans. How they will resolve any issues that occur during the research. E.g. lack of relevant information, utilisation of alternative sources, unexpected obstacles (such as corruption of files).

Performance Outcome	Band 1 descriptor	Band 2 descriptor	Band 3 descriptor	Total marks
Marks per band	**1-4**	**5-8**	**9-12**	**12**
	Research proposal has **basic** links to the requirements of the project, with **minimal** consideration of the principles of research and data analysis techniques.	Research proposal has **good** links to the requirements of the project, with **moderate** consideration of the principles of research and data analysis techniques.	Research proposal has **comprehensive** links to the requirements of the project, with **thorough** consideration of the principles of research and data analysis techniques.	
	Demonstrates a **basic** ability to interpret a research brief and plan a research project. The range of sections included in the structuring and planning of the research project is **limited** and **minimally relevant** in relation to the context of the brief.	Demonstrates a **good** ability to interpret a research brief and plan a research project. The range of sections included in the structuring and planning of the research project is **moderate** and **mostly relevant** to the context of the brief.	Demonstrates an **excellent** ability to interpret a research brief and plan a research project. The range of sections included in the structuring and planning of the research project is **excellent** and **highly relevant** in relation to the context of the brief.	

Task 2 – Research report

Guidance for markers

The following **evidence** must be used to assess performance against each task:

Task 2 - Research report

- written report

Note: where there is insufficient evidence to award a mark, a zero mark may be given.

Indicative content

Research report:

- Title and introduction.
- Aims and objectives.

To carry over from Task 1, showing good practice for report writing.

A literature review analysing their findings and including assessment of the validity and reliability of the sources.
Each source used to be summarised, with an assessment made of its validity and reliability.

Reasons and applications for using embryo transplant and its effectiveness for improving reproduction rates and the proliferation of desirable characteristics, to include:

- superovulation
- oestrus synchrony
- methods of embryo harvesting e.g. flushing
- species specific desirable characteristics e.g. high milk yield in dairy cattle.

Reasons and applications for using genetic testing, welfare considerations and its use in animal science:

- heritable disease e.g. breed specific disease in dogs
- lineage e.g. good lineage and prevention of inbreeding.

Organisations that may be involved in using embryo transplantation and genetic testing.

- breed/species societies e.g. The Kennel Club, Holstein UK
- for medical procedures e.g. Royal College of Veterinary Surgeons (RCVS)

Ethical and legal considerations of embryo transplantation and genetic testing may include:

- Veterinary Surgeons Act 1966
- Animal Welfare Act 2006
- Welfare of Farmed Animals (England) Regulations 2007.

Comparison of the effectiveness of embryo transplant and the uses of genetic testing between chosen species.

- Which species genetic testing is most used in and why
- Which species embryo transfer is most used in and why
- Why they are not as highly used in the other species.

- Evaluation of the project process, including any adaptations the candidate has had to make to their action plan and reasons for this.

How well they have stuck to the action plan – To what extent have their methods helped them to meet their objectives? E.g. Were there actions that remained incomplete? Did the candidate's action plan prove to be effective?

Evaluation of the candidate's own performance against the brief and their time management. The candidate's own performance as a researcher should be considered. Did they meet their stated aims?

Any adaptations made due to unplanned difficulties whilst carrying out the task e.g. candidates are able to identify the adaptations that they have made, and can justify their reasoning for them. Adaptations or additions that they might make if repeating the research with justification.

- Conclusion.

Candidates should answer their questions in the brief, alongside a summary of the research that they have undertaken (relate back to the aims and objectives). Discreet conclusions based on individual themes identified in their research are acceptable. Weaknesses in methodology or limitations to the scope of research should also be identified and explained (e.g. finding more information on one species than the other and how they could have overcome this).

Performance Outcome	Band 1 descriptor	Band 2 descriptor	Band 3 descriptor	Total marks
Marks per band	**1-5**	**6-10**	**11-15**	**15**
	Knowledge of the genetic technologies shows **basic** depth and breadth with **minimally relevant** connections to the brief/task.	Knowledge of the genetic technologies shows **good** depth and breadth with **moderately relevant** connections to the brief/task.	Knowledge of the genetic technologies shows **excellent** depth and breadth with **highly relevant** connections to the brief/task.	
	The literature review analyses a range of sources that have been **minimally** assessed for validity and reliability. Comparisons made between species in the research are **limited** and show **basic** reasoning.	The literature review analyses a range of sources that have been **moderately** assessed for validity and reliability. Comparisons made between species in the research are **good** and show **moderate** reasoning.	The literature review analyses a range of sources that have been **comprehensively** assessed for validity and reliability. Comparisons made between species in the research are **thorough** and show **excellent** reasoning.	
	Evaluation of the project progress and action plan is **basic** and justifications are supported with **limited** reasoning.	Evaluation of the project progress and action plan is **good** and justifications are supported with **moderate** reasoning.	Evaluation of the project progress and action plan is **excellent** and justifications are supported with **thorough** reasoning.	

Task 3 – Presentation

Guidance for markers

The following **evidence** must be used to assess performance against each task:

Task 3a – Scientific poster

- digital, scientific poster.

Task 3b - Presentation

- video of the presentation.

Note: where there is insufficient evidence to award a mark, a zero mark may be given.

Indicative content

Task 3a – Scientific poster

As part of the scientific poster candidates may:

- Include all required elements of the poster (title, aims and objectives, summary of the literature review, diagrams or graphs to support the research and conclusion)
- produce a poster that summarises the candidate's work in a professional, academic format
- summarise the literature review, rather than all information e.g. relating directly to the purpose of the research
- include diagrams or graphs that summarise the candidate's key findings, with the most applicable selected
- give a succinct conclusion, detailing the extent to which the candidate met their stated aims.

Task 3b - Presentation

- Presentation skills and timing (eye contact, tone and body language).
- Related to the audience's needs (team leader) e.g. professional, appropriate language/terminology.
- Delivery - should not be reading from the poster.

Performance Outcome	Band 1 descriptor	Band 2 descriptor	Band 3 descriptor	Total marks
Marks per band	**1-3**	**4-6**	**7-9**	**9**
	The scientific poster has **minimal** structure and relevance and **minimally** appropriate language and terminology is used to convey information in line with the requirements of the brief.	The scientific poster has **good** structure and relevance and **moderately** appropriate language and terminology is used to convey information in line with the requirements of the brief.	The scientific poster has **excellent** structure and relevance and **highly** appropriate language and terminology is used to convey information in line with the requirements of the brief.	
	Basic presentation skills with **minimal** consideration of target audience and time keeping, presentation of information is at times **unclear** limiting its effectiveness.	**Good** presentation skills with **moderate** consideration of target audience and time keeping, presentation of information is **mostly** clear and effective.	**Excellent** presentation skills with **thorough** consideration of target audience and time keeping, presentation of information is **consistently** clear and effective.	

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