# SACE Board Logo2023 Agricultural Production and Agricultural Systems Subject Assessment Advice

Overview

Subject assessment advice, based on the 2023 assessment cycle, gives an overview of how students performed in their school and external assessments in relation to the learning requirements, assessment design criteria, and performance standards set out in the relevant subject outline. They provide information and advice regarding the assessment types, the application of the performance standards in school and external assessments, and the quality of student performance.

Teachers should refer to the subject outline for specifications on content and learning requirements, and to the subject operational information for operational matters and key dates.

School Assessment

Assessment Type 1: Agricultural Reports

In 2023 students were required to complete two or three agricultural reports. Two reports have a practical focus, and one report has a focus on science as a human endeavour, SHE, in an agricultural context. Both assessment design criteria, Investigation, Analysis and Evaluation, and Knowledge and Application, are used for this assessment type. Both practical reports and the SHE report have required specifications, which are described in the assessment section of the subject outline. In some cases, teachers made incorrect adjustments omitting the SHE task, or omitting the design and deconstruct task. Teachers should seek guidance if they are unsure about the subject adjustments.

Student evidence in the Agricultural Reports should focus on the science inquiry skills, explain connections with science as a human endeavour and apply the key agricultural understandings. In at least one practical investigation, students deconstruct a problem and design a method to investigate one aspect of the problem. Additionally, one task should involve collaborative work.

It is essential that teachers refer to the subject outline to ensure that samples meet all the requirements. In some cases, students were not given a clear and obvious opportunity to demonstrate learning and knowledge against all the performances standards. Teachers must also include comments on marked work and highlighted performance standards for all assessment tasks.

Overall, selection of topics for deconstruction and SHE tasks are made harder if a suitable topic is not selected, so it is important that teachers ensure appropriate selection and provide clear guidance before students commence their research.

Students should trial and/or research aspects of their proposed design before they write their final method.

The more successful responses commonly:

* included assessment tasks with clear communication of the expectations with clear subheadings
* included well-structured task sheets, that clearly specify the requirements of the task without overloading the students
* included deconstruction with an in depth unpacking of concepts and an obvious understanding of the relationship to agricultural industries
* included a deconstruction wherein the method correctly identified the independent, dependent, and controlled variables
* provided detailed analysis explaining trends and results using scientific concepts
* provided summary data tables and graphs with clear and accurate labelling/identification using informative scientific conventions including units (e.g. “Table One: The effect of fertilizer rate on wheat biomass”)
* designed an investigation that related to relevant agriculture with all required elements in detail
* demonstrated that students understood what uncontrolled variables are and made clear and obvious links to the SHE concepts
* included a SHE task that explored in detail the relationship between the community/society and agriculture locally and globally. This also included considerations from a wide perspective
* supported the discussion in the SHE investigation with substantial, relevant, and well-referenced research
* included a Deconstruction showing thorough research into a series of different possible topics rather than just stating them
* provided evidence of individual design by using a unique layout and their own justification and explanations for the method and for the selection of equipment. They used research as well as internally referenced justifications to support their thought processes, showing the critical nature of their work
* used a concise, testable hypothesis, one independent variable and one dependent variable in practical investigations
* contained clear and succinct analysis and evaluation within the word count
* included thoughtful analysis with carefully formulated conclusions that were aligned with their aims and hypothesis as well as, identified trends, patterns, and relationships in the data
* were able to suggest reasons for results that did not show a clear trend
* were able to clearly state evaluations that had errors and uncertainties and confidently explained the impacts of these errors across a range of contexts both locally and globally, as wells as exploring the potential possibilities that can emerge as a result of these errors and uncertainties
* acknowledged the limitations of the conclusion by referring to the parameters of the investigation.

The less successful responses commonly:

* had overloaded task sheets where students found it difficult, or confusing to identify clearly what the required expectations were
* presented SHE tasks with limited SHE concept responses (less than 500 words) and focused a large portion of the task on the background and the conclusions of the work with a combined word count of 700+ words. These students struggled to clearly elaborate and explore the impacts on society only providing brief answers that did not explore the impacts of solutions in any depth
* provided materials that were missing a deconstruction and/or SHE task
* presented a Deconstruction that was not broken down into a logical and detailed way
* lacked a detailed exploration of the various elements of SHE. These reports also tended to be completed with a lack of specific details and explorations of different and broad perspectives
* presented issues that did not relate to the agricultural industries in Australia
* presented a Deconstruction that was not broken down in a logical and detailed way relating clearly to agricultural production
* provided practical reports with simple deconstructions that did not explore different possibilities, merely providing a list of possible options before seemingly selecting one at random
* provided a limited design with little to no safety assessment, identification, or controlled variables. They also included method and materials list as outlines of what to do rather than elaborations or justifications as to the process or materials
* presented an analysis wherein the hypothesis did not clearly address the overarching aim of the report
* provided limited to no discussion regarding trends, patterns or relationships in the data and did not seek to provide supporting evidence of their claims either from their own data or further research to elaborate on their thinking
* had evaluations that did not clearly identify the types of errors (systematic or random)
* had little opportunity to deconstruct a problem or develop an individual design
* rarely included justification of the design procedure
* stated potential errors without acknowledging the significance of these on the data collected and hence on the conclusion
* displayed a poor understanding of errors, mistakes, precision, and reliability of results
* responded to questions rather than discussing the actual data collected in a practical investigation
* did not explain the interaction between the relevant agricultural science and society in the SHE investigation.

Assessment Type 2: Applications

Students undertake three applications tasks, with at least one of these tasks done under direct teacher supervision within a maximum of 90 minutes of class time. Evidence should be presented for both assessment design criteria, Investigation, Analysis and Evaluation, and Knowledge and Application.

Student evidence in the Applications tasks should focus on the key agricultural understandings, apply science inquiry skills, and explain connections with science as a human endeavour.

Overall, the Skills and Applications Tasks were completed more successfully and effectively than the reports.

Teachers need to look at the subject outline and talk to experienced Agricultural teachers so that they are fully aware of what is required for their assessment work. There were several schools that did not have complete or appropriate tasks that are required for students to be successful.

It is important for students’ success that teachers include good task design and to include the task in the teacher material.

A consideration would be to give students more multimodal options, especially when it could easily be achieved in this assessment type. This may allow students who struggle with literacy to present their understanding and evidence of learning more comprehensively.

The more successful responses commonly:

* had clear easy to read responses, that used appropriate terminology, which were spelt correctly
* provided an opportunity to demonstrate KA2 with clear evidence, demonstrating where it was assessed and examined
* provided clear evaluations that evaluated a range of impacts, not only on results and data collected, but also on local, national, and international markets and industries
* referenced and used images and other modes of conveying information rather than solely on written text
* presented suitable application and connection of content/knowledge to primary production rather than just a recount of information
* were well organised with clear sub heading and all evidence presented rather than relying on assumed or inferred knowledge
* presented different perspectives with appropriate depth and exploration
* used a variety of communication formats and included relevant diagrams, data, and images
* provided well-structured reports using technical language, making clear links to commercial agricultural practices.

The less successful responses commonly:

* did not have the opportunity to demonstrate the IAE4 evaluation of many things, not just the information that they gathered
* struggled to use data or evidence well (IAE3). The students mostly inferred information, but did not actively state it
* presented poorly structured responses with limited commercial application
* presented knowledge in a more general manner with minimal considerations given to multiple / broad perspectives
* provided partial connections between the knowledge and understanding to Agricultural Production systems on the farm.
* presented no or little transfer of understanding into new contexts.
* presented tasks where the demonstration of SHE was limited and difficult to find. This is largely due to the task design by the teacher rather than the students’ lack of inclusion.

Operational Advice

* If students, in either Assessment Type 1 or Type 2, present their responses in oral or multimodal form, 6 minutes is the equivalent of 1000 words. Students should not speed-up the recording of their videos excessively in an attempt to condense more content into the maximum time limit.
* From 2023, if a video is flagged by moderators as impacted by speed, schools will be requested to provide a transcript and moderators will be advised to moderate based on the evidence in the transcript, only considering evidence up to the maximum word limit.
* If the speed of the recording makes the speech incomprehensible, it affects the accuracy of transcriptions and it also impacts the ability of moderators to find evidence of student achievement against the performance standards.

External Assessment

Assessment Type 3: Production Investigation

The purpose of this investigation is for students to conduct their own individual practical investigation that is based on a primary production enterprise in agriculture. Students and teachers must discuss the proposed plans before they are finalised to check that animal welfare has been properly considered.

Some students’ work exceeded the word count, possibly due to information presented in tables mistakenly considered to be excluded from the word count. All of a student’s own words are included in the word count. Words after the word limit such as concluding paragraphs are not assessed nor is material in appendices. Students who exceeded the word count often underperform in the specific features relating to analysis and evaluation. Teachers need to ensure that students are carefully guided regarding meeting all the requirements within the set word count.

A significant amount of incorrect format, school identification and student identification were evident this year. This needs to be carefully checked before submission.

Overall, there is a general lack of industry relevant referencing through this task. Teachers must guide students to correct and frequent referencing throughout the Investigation Task.

The more successful responses commonly:

* had in text references, good structure, detailed analytical and evaluation skills. Feasible sample size that met industry standards. They also included detailed justifications for use of items and materials
* analysed their agricultural production to industry standards throughout the stages in great depth
* investigated a topic with clear links to commercial agricultural practice where the results and findings are not obvious
* structured the gross margin using industry standard protocols – income at the top, expenses underneath, operating costs only included, and included brief justification for the prices and quantities that are relevant to industry best practice eg. Yield and unit per hectare, return per head
* clearly linked commercial production goals to their enterprise and based their analysis on the production goals for that enterprise
* reflected on the commercial links to their topic by using industry relevant enterprises and contacts
* followed a standard structure with clear titles as per the task outline in the subject outline
* achieved the requirements in the expected word count
* included calculations to demonstrate costings, for example, how the price/kg for lamb was initially calculated
* compared data from the trial with data provided by industrial producers
* analysed variations between the projected and final gross margin and give reasoning that relates to industry standards
* evaluated limitations of the investigation and explained appropriate improvements and comparisons to industry relevance.

The less successful responses commonly:

* sometimes did not outline the procedure (resources, management strategies, marketing, safety, environmental and animal welfare considerations) to be undertaken in enough detail
* did not provide an industry relevant purpose at the start of the investigation
* provided basic details of the production process
* did not refer to an industry expert or mentor to justify production goals and gross margin figures
* did not include production goals or production goals that were industry relevant
* did not relate their marketing strategy to a commercial option
* limited the discussion to only one market. (Other marketing options would benefit understanding of the current market climate)
* displayed a general lack of industry knowledge
* exceeded the word limit, usually because of an unnecessary number of words in the plan (often in tables) rather in analysis of outcomes and evaluation of procedures
* identified unrealistic production goals with no basis in commercial practice (and sometimes in direct contradiction to stated industry standards)
* included capital costs like the purchase of equipment in the gross margin but did not allocate values for some expenses, such as donated items, and key expenses like water consumption and electricity
* indicated a limited understanding of end market with poor marketing considerations and no justification for the marketing strategies
* included minimal discussion about links to best practice in industry
* wrote very simple statements when attempting to evaluate procedures
* displayed poor communication skills by using conversational language that is not appropriate in a formal report, unnecessarily repeating information and confusing the projected gross margin with the actual gross margin.

Assessment Type 3: Experimental Investigation

The purpose of this investigation is for students to conduct their own individual practical investigation that is based on a primary production enterprise in agriculture. Students and teachers must discuss the proposed plans before they are finalised to check that animal welfare has been properly considered and that the plan is environmentally suitable.

Some students’ work exceeded the word count, possibly due to information presented in tables mistakenly considered to be excluded from the word count. All of a student’s own words are included in the word count. Words after the word limit such as concluding paragraphs are not assessed nor is material in appendices. Students who exceeded the word count often underperform in the specific features relating to analysis and evaluation. Teachers need to ensure that students are carefully guided regarding meeting all the requirements within the set word count.

A significant amount of incorrect format, school identification and student identification were evident this year. This needs to be carefully checked before submission.

Overall, there is a general lack of industry relevant referencing through this task. Teachers must guide students to correct and frequent referencing throughout the Investigation Task.

The more successful responses commonly:

* had in text references, good structure, detailed analytical and evaluation skills. Feasible sample size that met industry standards. They also included detailed justifications for use of items and materials
* analysed their agricultural experimentation to industry standards and relevance throughout the stages in great depth
* investigated a topic with clear links to commercial agricultural practice where the results and findings are not obvious
* included brief justification for the possibilities and quantities that are relevant to industry best practice e.g. Volume and unit per hectare, sowing rate and depth, chemical rate, and fertiliser application
* clearly linked commercial relevance to their experimentation and based their analysis for that enterprise
* reflected on the commercial links to their topic by using industry relevant practice and contacts
* followed a standard structure with clear titles as per the task outline in the subject outline
* achieved the requirements in the expected word count
* compared data from the trial with data provided by industrial producers
* analysed variations to give reasoning that relates to industry standard
* evaluated limitations of the experimental investigation and explained appropriate improvements, recommendations, and comparisons to industry and the agricultural environment.

The less successful responses commonly:

* sometimes did not outline the procedure (resources, management strategies, safety, environmental and animal welfare considerations) to be undertaken in enough detail
* did not provide an industry relevant purpose at the start of the experimental investigation
* provided basic details of the planning process
* did not refer to an industry expert, mentor, or reference to justify relevance within analysis and evaluation
* did not include clear hypothesis or aim that were industry relevant
* did not relate their data to a commercial option
* displayed a general lack of industry knowledge
* exceeded the word limit, usually because of an unnecessary number of words in the plan (often in tables) rather in analysis of outcomes and evaluation of procedures
* identified unrealistic aims with no basis in commercial practice (and sometimes in direct contradiction to stated industry standards)
* restated results in the analysis but did not provide and explanation of the science behind the results
* provided a superficial discussion of environmental, ethical, economic aspects in the conclusion rather than selecting the most relevant aspect and providing a deeper discussion with reasoning
* made minimal reference to secondary data
* included minimal discussion about links to best practice in industry
* wrote very simple statements when attempting to evaluate procedures
* displayed poor communication skills by using conversational language that is not appropriate in a formal report, unnecessarily repeating information.