Agricultural Practices 2019 v1.0

Applied Senior Syllabus

This syllabus is for implementation with Year 11 students in 2019.

Queensland Government | Queensland Curriculum & Assessment Authority

For all Queensland schools

170227

Contents

1 Course overview

1.1 Introduction

1.1.1 Rationale

Agricultural Practices provides opportunities for students to explore, experience and learn knowledge and practical skills valued in agricultural workplaces and other settings. Through these learning experiences, students build their understanding of expectations for work in agricultural settings and develop an understanding of career pathways, jobs and other opportunities available for participating in and contributing to agricultural activities.

Agricultural Practices includes two areas of study, 'Animal studies' and 'Plant studies', which focus on building knowledge and skills suited to practical situations in agricultural workplaces. Schools decide whether to include one or both of the areas of study in their course of study. Learning in the selected areas of study is delivered through modules of work set in specific animal and plant contexts, such as poultry, vegetables or conservation areas.

'Safety and management practices' are embedded across both areas of study and focus on building knowledge and skills in working safely, effectively and efficiently in practical agricultural situations. These practices include skills needed to work effectively as an individual and as part of a team, to build relationships with peers, colleagues and wider networks, to collaborate and communicate appropriately with others, and to plan, organise and complete tasks on time. These skills are valued in all settings where people work together, and therefore position students for successful transition to work, training and other collaborative environments.

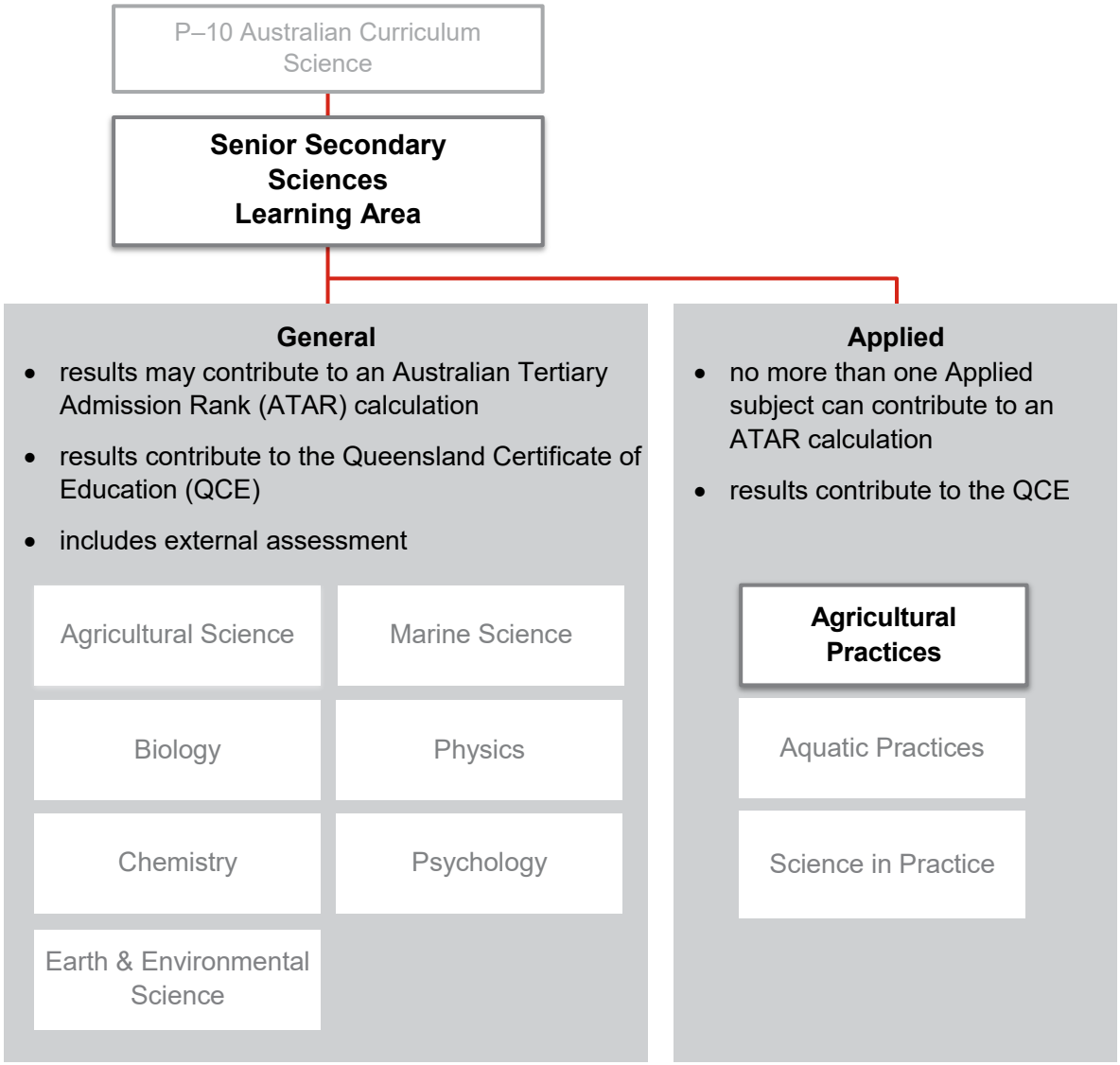
In the course of study, students learn the core topics for the included area/s of study and 'Safety and management practices', plus at least two elective topics by midway through the course (end of Unit 2) and again by the end of the course (end of Unit 4).

Pathways

A course of study in Agricultural Practices can establish a basis for further education, training and employment in agriculture, aquaculture, food technology, environmental management and agribusiness. The subject also provides a basis for participating in and contributing to community associations, events and activities, such as agricultural shows.

1.1.2 Learning area structure

Figure 1: Summary of subjects offered in the Science learning area



1.2 Teaching and learning

1.2.1 Dimensions and objectives

The dimensions are the salient properties or characteristics of distinctive learning for this subject. The objectives describe what students should know and be able to do by the end of the course of study.

Progress in a particular dimension may depend on the knowledge, understanding and skills developed in other dimensions. Learning through each of the dimensions increases in complexity to allow for greater independence for learners over a four-unit course of study.

The standards have a direct relationship with the objectives, and are described in the same dimensions as the objectives. Schools assess how well students have achieved all of the objectives using the standards.

The dimensions for a course of study in this subject are:

- Dimension 1: Knowing and understanding
- Dimension 2: Analysing and applying
- Dimension 3: Planning and evaluating.

Dimension 1: Knowing and understanding

Knowing and understanding refers to students comprehending what is meant by the concepts and ideas, knowledge, understanding and skills used in agricultural activities.

Objectives

By the conclusion of the course of study, students should:

- demonstrate procedures to complete tasks in agricultural activities
- describe and explain concepts, ideas and processes relevant to agricultural activities.

When students demonstrate, they give a practical exhibition of procedures. This practical exhibition may be given in the classroom, in real-world or lifelike situations.

When students describe concepts, ideas and processes, they give an account of their characteristics or features. When students explain concepts, ideas and processes, they present meaning with clarity, precision, completeness, and with due regard to the order of statements in the explanation.

Dimension 2: Analysing and applying

Analysing and applying refers to the analysis of agricultural information, and the selection and application of knowledge, understanding and skills suited to activities. When students apply and analyse, they draw on their learning in Knowing and understanding.

Objectives

By the conclusion of the course of study, students should:

- analyse agricultural information
- apply knowledge, understanding and skills relevant to agricultural activities
- use appropriate language conventions and features for communication of agricultural information.

When students analyse agricultural information, they dissect activities to ascertain and examine constituent parts and/or their relationships. It may include establishing the importance of particular relationships and will inform the application of knowledge, understanding and skills.

When students apply knowledge, understanding and skills, they select particular knowledge, understanding and skills in preference to others and use them in particular agricultural activities.

When students use language conventions and features, they use correct grammar, spelling, punctuation, vocabulary, text types and structures in written, oral and visual communication modes.

Dimension 3: Planning and evaluating

Planning and evaluating refers to students devising processes and carrying out actions to successfully complete agricultural activities and then reflecting on their decisions to consider and determine ways to improve future responses.

When students plan and evaluate, they draw on their learning in Knowing and understanding and Analysing and applying.

Objectives

By the conclusion of the course of study, students should:

- plan processes for agricultural activities
- make decisions and recommendations with evidence for agricultural activities
- evaluate processes and decisions regarding safety and effectiveness.

When students plan processes, they collect information to design a detailed proposal of processes for agricultural activities.

When students make decisions, they reach a conclusion or resolution after considering agricultural activities. When students make recommendations, they consider improvements and/or alternatives to improve results in future activities. When students provide evidence, the include justifications to support decisions and recommendations.

When students evaluate processes and decisions, they assign merit according to the criteria of safety and effectiveness. Criteria could be developed by the teacher or student/s. Examples of criteria include safety, effectiveness, cost, time-efficiency and environmental impact.

1.2.2 Underpinning factors

There are five factors that underpin and are essential for defining the distinctive nature of Applied syllabuses:

- applied learning
- community connections
- core skills for work
- literacy
- numeracy.

These factors, build on the general capabilities found in the P–10 Australian Curriculum. They overlap and interact and are derived from current education, industry and community expectations, and inform and shape Agricultural Practices.

All Applied syllabuses cover all of the underpinning factors in some way, though coverage may vary from syllabus to syllabus. Students should be provided with a variety of opportunities to learn through and about the five underpinning factors across the four-unit course of study.

Applied learning and community connections emphasise the importance of applying learning in workplace and community situations. Applied learning is an approach to contextualised learning; community connections provide contexts for learning, acquiring and applying knowledge, understanding and skills. Core skills for work, literacy and numeracy, however, contain identifiable knowledge and skills which can be directly assessed. The relevant knowledge and skills for these three factors are contained in the course dimensions and objectives for Agricultural Practices.

Applied learning

Applied learning is the acquisition and application of knowledge, understanding and skills in real-world or lifelike contexts. Contexts should be authentic and may encompass work place, industry and community situations.

Applied learning values knowledge — including subject knowledge, skills, techniques and procedures — and emphasises learning through doing. It includes both theory and the application of theory, connecting subject knowledge and understanding with the development of practical skills.

Applied learning:

- links theory and practice
- integrates knowledge and skills in real-world and/or lifelike contexts
- encourages students to work individually and in teams to complete tasks and solve problems
- enables students to develop new learnings and transfer their knowledge, understanding and skills to a range of contexts
- uses assessment that is authentic and reflects the content and contexts.

Community connections

Community connections build students' awareness and understanding of life beyond school through authentic, real-world interactions. This understanding supports transition from school to participation in, and contribution to, community, industry, work and not-for-profit organisations (NFPOs). 'Community' includes the school community and the wider community beyond the school, including virtual communities.

Valuing a sense of community encourages responsible citizenship. Connecting with community seeks to deepen students' knowledge and understanding of the world around them and provide them with the knowledge, understanding, skills and dispositions relevant to community, industry and workplace contexts. It is through these interactions that students develop as active and informed citizens.

Schools plan connections with community as part of their teaching and learning programs to connect classroom experience with the world outside the classroom. It is a mutual or reciprocal arrangement encompassing access to relevant experience and expertise. The learning can be based in community settings, including workplaces, and/or in the school setting, including the classroom.

Community connections can occur through formal arrangements or more informal interactions. Opportunities for community connections include:

- visiting a business or community organisation or agency
- organising an event for the school or local community
- working with community groups in a range of activities
- providing a service for the local community
- attending industry expos and career 'taster' days
- participating in mentoring programs and work shadowing
- gaining work experience in industry
- participating in community service projects or engaging in service learning
- interacting with visitors to the school, such as community representatives, industry experts, employers, employees and the self-employed
- internet, phone or video conferencing with other school communities.

Core skills for work

In August 2013, the Australian Government released the *Core Skills for Work Developmental Framework (CSfW)*[1]. The *CSfW* describes a set of knowledge, understanding and non-technical skills that underpin successful participation in work[2]. These skills are often referred to as generic or employability skills. They contribute to work performance in combination with technical skills, discipline-specific skills, and core language, literacy and numeracy skills.

The *CSfW* describes performance in ten skill areas grouped under three skill clusters, shown in the table below. These skills can be embedded, taught and assessed across Agricultural Practices. Relevant aspects of core skills for work are assessed, as described in the standards.

Table 1: Core skills for work skill clusters and skill areas

	Skill cluster 1: Navigate the world of work	Skill cluster 2: Interacting with others	Skill cluster 3: Getting the work done
Skill areas	• Manage career and work life • Work with roles, rights and protocols	• Communicate for work • Connect and work with others • Recognise and utilise diverse perspectives	• Plan and organise • Make decisions • Identify and solve problems • Create and innovate • Work in a digital world

Literacy in Agricultural Practices

The information and ideas that make up the Agricultural Practices are communicated in language and texts. Literacy is the set of knowledge and skills about language and texts that is essential for understanding and conveying this content.

Each Applied syllabus has its own specific content and ways to convey and present this content. Ongoing systematic teaching and learning focused on the literacy knowledge and skills specific to Agricultural Practices is essential for student achievement.

[1] More information about the *Core Skills for Work Developmental Framework* is available at https://docs.education.gov.au/node/37095.

[2] The term 'work' is used in the broadest sense: activity that is directed at a specific purpose, which may or may not be for remuneration or gain.

Students need to learn and use knowledge and skills of reading, viewing and listening to understand and learn the content of Agricultural Practices. Students need to learn and use the knowledge and skills of writing, composing and speaking to convey the Agricultural Practices content they have learnt.

In teaching and learning in Agricultural Practices, students learn a variety of strategies to understand, use, analyse and evaluate ideas and information conveyed in language and texts.

To understand and use Agricultural Practices content, teaching and learning strategies include:

- breaking the language code to make meaning of Agricultural Practices language and texts
- comprehending language to make literal and inferred meanings about ideas and information in Agricultural Practices texts
- using Agricultural Practices ideas and information in classroom, real-world and/or lifelike contexts to progress their own learning.

To analyse and evaluate Agricultural Practices content, teaching and learning strategies include:

- making conclusions about the purpose and audience of Agricultural Practices texts
- analysing the ways language is used to convey ideas and information in Agricultural Practices texts
- transforming language and texts to convey Agricultural Practices ideas and information in particular ways to suit audience and purpose.

Relevant aspects of literacy knowledge and skills are assessed, as described in the standards.

Numeracy in Agricultural Practices

Numeracy is about using mathematics to make sense of the world and applying mathematics in a context for a social purpose.

Numeracy encompasses the knowledge, skills, behaviours and dispositions that students need to use mathematics in a wide range of situations. Numeracy involves students recognising and understanding the role of mathematics in the world and having the dispositions and capacities to use mathematical knowledge and skills purposefully.[3]

Although much of the explicit teaching of numeracy skills occurs in Mathematics, being numerate involves using mathematical skills across the curriculum. Therefore, a commitment to numeracy development is an essential component of teaching and learning across the curriculum and a responsibility for all teachers.

To understand and use Agricultural Practices content, teaching and learning strategies include:

- identifying the specific mathematical information in their learning area
- providing learning experiences and opportunities that support the application of students' general mathematical knowledge and problem-solving processes
- communicating and representing the language of numeracy in teaching, as appropriate.

Relevant aspects of numeracy knowledge and skills are assessed, as described in the standards.

[3] ACARA, General Capabilities, Numeracy, www.australiancurriculum.edu.au/GeneralCapabilities/Numeracy/Introduction/Introduction

1.2.3 Planning a course of study

Agricultural Practices is a four-unit course of study.

Units 1 and 2 of the course are designed to allow students to begin their engagement with the course content, i.e. the knowledge, understanding and skills of the subject. Course content, learning experiences and assessment increase in complexity across the four units as students develop greater independence as learners.

Units 3 and 4 consolidate student learning.

The minimum number of hours of timetabled school time, including assessment, for a course of study developed from this Applied syllabus is 55 hours per unit. A course of study will usually be completed over four units (220 hours).

A course of study for Agricultural Practices includes:

- the core topic, associated concepts and ideas, knowledge, understanding and skills for the included area/s of study
- core topics, and associated concepts and ideas, knowledge, understanding and skills for 'Safety and management practices'
- at least two elective topics by midway through the course (end of Unit 2) and again by the end of the course (end of Unit 4)
- a minimum of four and a maximum of eight modules of work.

When a school includes **either** 'Animal studies' **or** 'Plant studies':

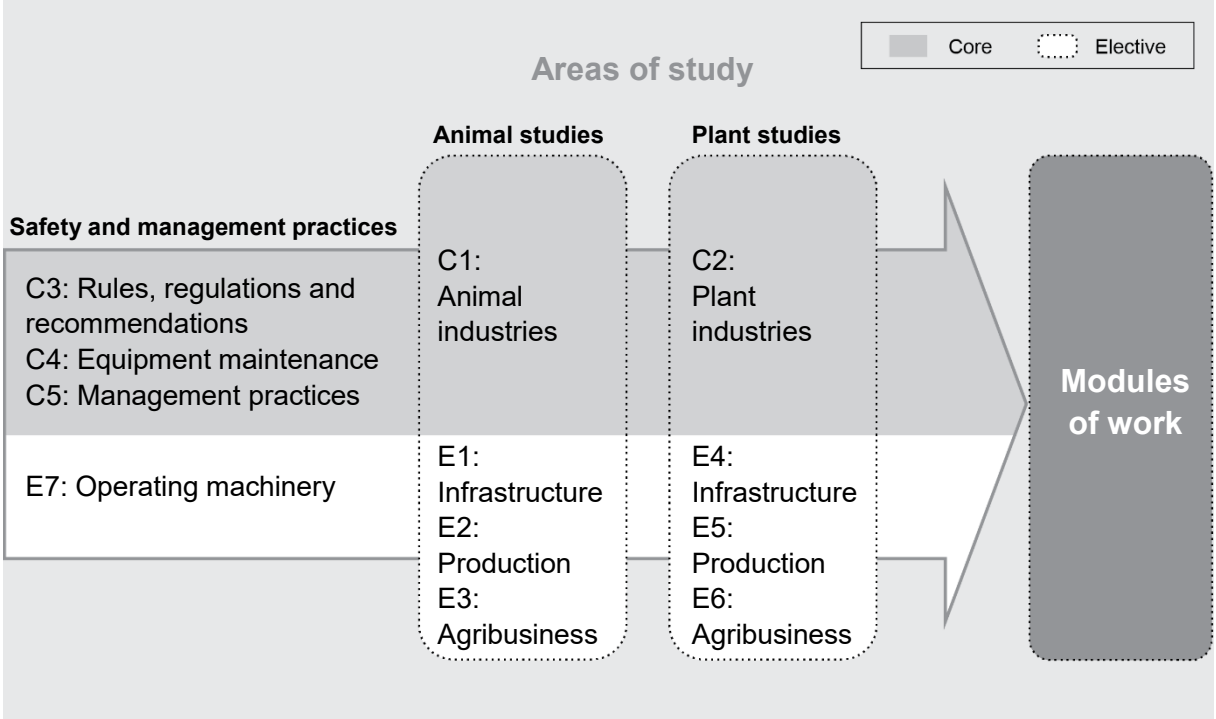
- the core topics, and associated concepts and ideas for the included area and for 'Safety and management practices' must be taught by midway through the course (end of Unit 2) and again by the end of the course (end of Unit 4)
- knowledge, understanding and skills for all core topics must be taught across the course of study.

When a school includes **both** 'Animal studies' **and** 'Plant studies':

- the core topics, associated concepts and ideas, and knowledge, understanding and skills for both 'Animal studies' and 'Plant studies' must be taught across the course of study
- the core topics and associated concepts and ideas for 'Safety and management practices' must be taught by midway through the course (end of Unit 2) and again by the end of the course (end of Unit 4)

Topics, associated concepts and ideas, and knowledge, understanding and skills are embedded in and delivered through modules of work (see Developing a module of work).

Figure 2: A course of study — the relationship between core, electives and modules of work



1.2.4 Developing a module of work

In Agricultural Practices, core and elective learning are embedded in and delivered through four to eight modules of work across the four-unit course of study. Requirements for core and elective learning are detailed in the Core and Electives sections.

Modules of work provide students with opportunities to learn in real-world and/or lifelike agricultural contexts, such as projects, businesses and other related undertakings that may be based in school or the wider community. Examples of contexts suited to 'Animal studies' include poultry (for meat and/or eggs), redclaw and beekeeping. Examples of contexts suited to 'Plant studies' include vegetables, fodder crops (hay and silage), conservation areas and nurseries.

Defining *inquiry* in science education

This syllabus provides guidance to support schools in aligning a chosen pedagogical framework with the curriculum and assessment expectations outlined in this syllabus. This guidance clarifies the use of the term *inquiry* and articulates a framework to describe the process of inquiry. The purpose of this guidance is to prevent misunderstandings and problematic conflations and their subsequent negative impact on student learning. As Abrams, Southerland and Silva (2008, p. xv) stated in their book, *Inquiry in the Classroom: Realities and opportunities*:

> Inquiry in the classroom can be conceived as a complex set of ideas, beliefs, skills, and/or pedagogies. It is evident that attempting to select a singular definition of inquiry may be an insurmountable and fruitless task. Any single definition of inquiry in the classroom would necessarily reflect the thinking of a particular school of thought, at a particular moment in time, or a particular goal, and such a singular definition may serve to limit legitimate and necessary components of science learning. **However, operating without a firm understanding of the various forms of inquiry leaves science educators often 'talking past' one another, and often results in very muddled attempts in the classroom.**

Uses of the term *inquiry*

Common phrases involving the term *inquiry* have been listed below:

- science inquiry
- science inquiry skills
- the inquiry process
- inquiry-based learning.

This syllabus refers to the first three uses listed above. The first, *science inquiry*, defines the practical work of a scientist (Harlen 2013). The second, *science inquiry skills*, refers to the skills required to do the work of a scientist (Harlen 2013). The third, *the inquiry process*, is a framework that can be used to describe the process of asking a question and then answering it.

The final phrase, *inquiry-based learning*, refers to a variety of teaching and learning strategies an educator may choose to use within their school's pedagogical framework. Although a school may choose to adopt an inquiry-based pedagogy, this syllabus is *not* intended to endorse or recommend an inquiry-based learning approach.

Science inquiry and science inquiry skills

Science inquiry involves identifying and posing questions and working to answer them. It is concerned with evaluating claims, investigating ideas, solving problems, reasoning, drawing valid conclusions and developing evidence-based arguments. It can easily be summarised as the 'work of a scientist' (Hackling 2005).

Within this syllabus, it is expected that students will engage in *aspects* of the work of a scientist by engaging in science inquiry (Tytler 2007).

Science inquiry skills are the skills required to do the work of a scientist. They include writing research questions, planning, conducting, recording information and reflecting on investigations; processing, analysing and interpreting evidence; evaluating conclusions, processes and claims; and communicating findings (ACARA 2015c).

It is expected that students are taught science inquiry skills (Krajcik et al 2000). The syllabus outlines a number of these skills in the subject matter. Teachers decide how the science inquiry skills are to be developed. For example, teachers will determine opportunities to:

- develop, rehearse and refine science inquiry skills
- engage students in scaffolded or open-ended science inquiry tasks
- formatively assess science inquiry skills.

Framework to describe the inquiry process

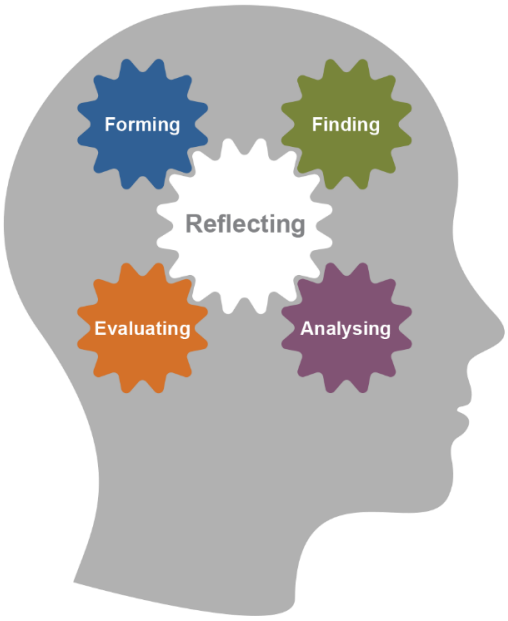
In order to support student engagement in activities involving inquiry, it is useful to establish a common language or framework to distinguish between stages of the process.

The stages involved in any inquiry are:

- forming and describing the inquiry activity
- finding valid and reliable evidence for the inquiry activity
- analysing and interpreting the evidence selected
- evaluating the conclusions, processes or claims.

This framework uses reflection as the connection between, and driver of, all the stages. The progression through the inquiry process requires reflection on the decisions made and any new information that has emerged during the process to inform the next stage. Each stage of the inquiry process is worthy of reflection, the result of which may be the revision of previous stages (Marzano & Kendall 2007).

Figure 3: Stages of inquiry process



Scientific literacy

Agricultural Practices continues the development of scientifically literate individuals who are able to:

- connect scientific knowledge to everyday life and the world around them
- respond critically and analytically to new technologies and associated issues
- understand uncertainty and risk, how scientists work, and the impact of science on people's lives
- understand the evolving and interdisciplinary nature of science, the links with technology, and the complexity of systems with many interconnected effects (such as balancing economic, social, energy and environmental factors)
- identify scientific questions, and investigate and draw evidence-based conclusions
- be sceptical and questioning of claims made by others
- think critically about significant contemporary issues, using an understanding of science
- apply their knowledge in a broad range of relevant practical situations, including field work
- use community and industry resources; and use technology
- collaborate and work safely and effectively in teams
- participate as informed and responsible citizens in decision-making processes, making informed decisions about the environment and their own health and wellbeing.[4]

[4] Adapted from Rennie, L 2006, *The community's contribution to science learning: Making it count*, Proceedings of the Australian Council for Educational Research, Melbourne, p. 6. And Tytler, R 2007, 'Re-imagining Science Education: Engaging students in science for Australia's future', *Australian Education Review*, http://research.acer.edu.au/aer/3, pp. 26–27.

1.2.5 Aboriginal perspectives and Torres Strait Islander perspectives

The Queensland Government has a vision that Aboriginal and Torres Strait Islander Queenslanders have their cultures affirmed, heritage sustained and the same prospects for health, prosperity and quality of life as other Queenslanders. The QCAA is committed to helping achieve this vision, and encourages teachers to include Aboriginal perspectives and Torres Strait Islander perspectives in the curriculum.

The QCAA recognises Aboriginal peoples and Torres Strait Islander peoples, their traditions, histories and experiences from before European settlement and colonisation through to the present time. Opportunities exist in Agricultural Practices to encourage engagement with Aboriginal peoples and Torres Strait Islander peoples, strengthening students' appreciation and understanding of:

- frameworks of knowledge and ways of learning
- contexts in which Aboriginal peoples and Torres Strait Islander peoples live
- contributions to Australian society and cultures.

Aboriginal peoples and Torres Strait Islander peoples have successfully managed their land for thousands of years. This land provides the primary resources for clothes, food, building materials and all the other items required for a healthy sustainable life. Traditional land use practices of Aboriginal peoples and Torres Strait Islander peoples include the use of resources in such a way that they are renewed and not exhausted.

Land use practices of Aboriginal peoples and Torres Strait Islander peoples rely on specific knowledge of the local area, including the complex diversity of plants and animals found there and the physical environment and ecology in which they live. There is a deep understanding of season changes which affect all land use activities including food collection, mobility and ceremonial practices.

Aboriginal peoples and Torres Strait Islander peoples have diverse relationships with, connections to and understanding of the Australian environment. Aboriginal peoples refer to 'country' while Torres Strait Islander peoples refer to 'place' — the significant place they have a symbiotic connection to and relationship with, including the people, flora, fauna, sky, spirituality (ancestors) and weather cycles.

Guidelines about Aboriginal perspectives and Torres Strait Islander perspectives and resources for teaching are available at www.qcaa.qld.edu.au/k-12-policies/aboriginal-torres-strait-islander-perspectives.

In particular, see the following resource, found on the Support materials tab under Resources at www.qcaa.qld.edu.au/3035.html:

- *Aboriginal and Torres Strait Islander Studies Handbook 2010*, a helpful guide for schools when embedding Aboriginal perspectives and Torres Strait Islander perspectives across the curriculum
- Relationships to country: Aboriginal people and Torres Strait Islander people, which describes the diverse relationships that Aboriginal people and Torres Strait Islander people have with the Australian environment.

2 Subject matter

2.1 Core

Core topics are dependent on the areas of study the school has included in the course of study, as outlined in the Areas of study section. To support schools in the development of their study plans, codes have been provided for core topics, concepts and ideas. Core topics are numbered C1 to C5.

The topic C1: Animal industries must be studied if the course of study includes 'Animal studies'.
The topic C2: Plant industries must be studied if the course of study includes 'Plant studies'.
The 'Safety and management practices' core topics must be included in every course of study:

- C3: Rules, regulations and recommendations
- C4: Equipment maintenance and operation
- C5: Management practices.

2.2 Electives

The choice of electives is dependent on the areas of study the school has included in the course of study, as outlined in the Areas of study section. To support schools in the development of their study plans, codes have been provided for elective topics, concepts and ideas. Elective topics are numbered E1 to E7.

These electives can be selected if the course of study includes the area 'Animal studies':

- E1: Infrastructure (animal studies)
- E2: Production (animal studies)
- E3: Agribusiness (animal studies).

These electives can be selected if the course of study includes the area 'Plant studies':

- E4: Infrastructure (plant studies)
- E5: Production (plant studies)
- E6: Agribusiness (plant studies).

This elective can be selected in any course of study:

- E7: Operating machinery.

2.3 Areas of study

There are two areas of study in Agricultural Practices:

- Area of study: Animal studies
- Area of study: Plant studies.

Schools can choose to focus on one or both of these areas of study, and this choice dictates core topics and elective options for the course of study.

2.3.1 Area of study: Animal studies

The ‘Animal studies’ area includes one core topic and three elective topics, and associated concepts and ideas, knowledge, understanding and skills related to practical activities focused on animals. These topics are embedded in and delivered through units of work.

A range of activities are relevant to the ‘Animal studies’ area, for example, redclaw production, beekeeping for honey production, poultry for meat and/or eggs, and preparation and presentation of livestock at shows.

The ‘Animal studies’ core and elective topics are:

- C1: Animal industries
- E1: Infrastructure (animal studies)
- E2: Production (animal studies)
- E3: Agribusiness (animal studies).

C1: Animal industries

Concepts and ideas	Knowledge, understanding and skills
C1.1 Fundamental information is essential for success in animal industries.	• location of industry, e.g. proximity to markets and inputs • significance of industry, e.g. value to Australian economy • environmental considerations, e.g. climate, weather, soil, water, temperature, pests and diseases
C1.2 A variety of employment opportunities are available in animal industries.	• different types of animal industries, e.g. egg production, dairy, wool • different types of roles, e.g. classer/grader, shearer, farmhand, stockperson, veterinary assistant • some roles require specific qualifications, training and experience, e.g. farmhands may require an Agricultural Chemical Distribution Control (ACDC) licence • knowledge, understanding and skills developed in animal industries can be transferred to other fields, e.g. business knowledge and skills, financial knowledge and skills • different conditions apply to roles, e.g. permanent, casual, seasonal work; length of working day (set or flexible hours) and working cycles (five, seven, ten days); physical health and fitness requirements
C1.3 Stock have nutrition requirements.	• feeding systems, e.g. pasture-based, feed lot, grain-assisted • nutritional considerations for relevant stock, e.g. protein and energy, macronutrients and micronutrients • factors effecting feed intake, e.g. temperature, palatability, digestibility, water intake • water quality and quantity, e.g. water temperature, water composition, microorganisms, lactating compared with dry stock
C1.4 Maintaining animal health and welfare are requirements for success in animal industries.	• characteristics of a healthy animal, e.g. behaviour, appearance and clinical signs • causes of ill health relevant to stock, e.g. hereditary, metabolic, infections, congenital, environmental • strategies to prevent ill health, e.g. welfare, breeding program/genetics, vaccination, quarantine, drenching • strategies to treat ill health, e.g. drenching, antibiotics • animal welfare, e.g. handling

E1: Infrastructure (animal studies)

Concepts and ideas	Knowledge, understanding and skills
E1.1 Animal production requires infrastructure for water.	• water supply systems, e.g. dams, bores, piped and reticulated systems • cleaning, maintaining and repairing water supply systems, e.g. delivery equipment and troughs
E1.2 Animal production requires infrastructure for containment and handling.	• structures for stock health and security, e.g. yards, fences, gates, sheds, feed troughs • constructing, maintaining and repairing structures

E2: Production (animal studies)

Concepts and ideas	Knowledge, understanding and skills
E2.1 Identification of animals is essential for animal production.	• identifying species, e.g. types of fish, bees • identifying breeds for production, e.g. Holstein, Brahman, Suffolk, Australorp • identifying specific animals for husbandry, e.g. tagging (National Livestock Identification Scheme and management tags), branding, tattooing • recording relevant data
E2.2 Husbandry techniques are required for animal production.	• hive management, e.g. robbing, checking for pests • moving stock, e.g. mustering, drafting • marking, e.g. vaccinating, tail-docking, de-horning, castration • conducting clinical analysis/observations, e.g. measuring heart rate, temperature, weight; observing behaviour • controlling parasites, e.g. drenching, dipping • preparing and presenting livestock for showing • recording relevant data
E2.3 Various animal selection and reproduction techniques are used in animal production.	• sexual reproduction • animal breeding and selection, e.g. estimated breeding values (EBVs) • animal breeding technologies, e.g. artificial insemination, embryo transfer, pregnancy testing • applying EBVs to select breeding stock, e.g. selecting a bull • identifying and managing reproductive disorders, e.g. leptospirosis, hypocalcaemia (milk fever), mastitis • recording relevant data
E2.4 Managing nutrition produces healthy animals.	• pasture management, e.g. strip grazing, paddock rotation • bunk management, e.g. assessing intake, feed scheduling, self-feeder management • feed conversion rates (cost of gain) • assessing pasture quality and quantity • preparing and storing feed
E2.5 Aquaculture has specific considerations.	• harmful organisms in water supply • mineral content of water supply • water filtration, oxygen levels • cleaning filters, testing water quality

E3: Agribusiness (animal studies)

Concepts and ideas	Knowledge, understanding and skills
E3.1 Different animal products can be produced from stock.	• consumer demand and expectations in different markets, e.g. export market compared with domestic market • breed characteristics best suited to a specific animal product, e.g. selecting merino sheep for superfine wool • diversification from existing stock, e.g. use of terminal sires for meat production
E3.2 Animal products must be processed, packaged, handled, transported and stored to meet market requirements.	• safe packaging and handling of animal products for market, e.g. straining and bottling honey, and grading and placing eggs in cartons • safe storage of animal products, e.g. refrigerating milk • assessing product quality, e.g. grading eggs and classing wool fibre • preparing products for transportation, e.g. loading cattle onto truck, baling wool
E3.3 Value-adding processes can be carried out on the farm and at the market, by wholesalers and retailers.	• value-adding processes for different animal products, e.g. non-homogenisation of milk, Meat Standards Australia (MSA) graded beef • processing animal products to add value, e.g. packaging honey to include the comb
E3.4 Successful animal industries are run as businesses.	• production costs and returns, e.g. input costs, gross margins, accounting and taxation • innovations in agriculture, e.g. renewable energy sources (biomass, solar, enviro-shelters), integrated pest management, precision agriculture • keeping records, e.g. financial, stock

2.3.2 Area of study: Plant studies

The ‘Plant studies’ area includes one core topic and three elective topics, and associated concepts and ideas, knowledge, understanding and skills related to practical activities focused on plants. These topics are embedded in and delivered through units of work.

A range of activities are relevant to the ’Plant studies’ area, for example, vegetable production, floriculture, regeneration of natural environments, and stock feed production.

The ‘Plant studies’ core and elective topics are:

- C2: Plant industries
- E4: Infrastructure (plant studies)
- E5: Production (plant studies)
- E6: Agribusiness (plant studies).

C2: Plant industries

Concepts and ideas	Knowledge, understanding and skills
C2.1 Fundamental information is essential for success in plant industries.	• location of industry, e.g. proximity to markets and inputs • significance of industry, e.g. value to Australian economy • environmental considerations, e.g. climate, weather, soil, water, temperature, pests and diseases
C2.2 A variety of employment opportunities are available in plant industries.	• different types of plant industries, e.g. hydroponics, broad-acre agriculture, nursery • different types of roles, e.g. farmhand, picker, classer/grader • some roles require specific qualifications, training and experience, e.g. farmhands may require an Agricultural Chemical Distribution Control (ACDC) licence • knowledge, understanding and skills developed in plant industries can be transferred to other fields, e.g. business knowledge and skills; financial knowledge and skills • different conditions apply to roles, e.g. permanent, casual, seasonal work; length of working day (set or flexible hours) and working cycles (five, seven or ten days); physical health and fitness requirements
C2.3 Productive plants have nutrition and environmental requirements.	• nutritional considerations for relevant plants, e.g. macronutrients and micronutrients • factors affecting growth rate, e.g. light, temperature, water quality and quantity, frequency and scheduling of watering • growing systems, e.g. dry land, irrigated and hydroponics • characteristics of growing media, e.g. structure, texture, drainage, pH
C2.4 Maintaining plant health is a requirement for success in plant industries.	• characteristics of a healthy plant, e.g. appearance, productivity • causes of ill health relevant to plant, e.g. infections, nutritional, pests, environmental • strategies to prevent, control and treat ill health, e.g. breeding program/genetics, hygiene, spraying, fertilising

E4: Infrastructure (plant studies)

Concepts and ideas	Knowledge, understanding and skills
E4.1 Plant industries have water infrastructure requirements.	• water supply systems, e.g. irrigation, hydroponics • cleaning, maintaining and repairing the water supply systems, e.g. delivery equipment
E4.2 Some plant industries have additional infrastructure requirements.	• structures for production and processing, e.g. biosecurity, climate control, packing sheds, trellising, shade houses • constructing, maintaining and repairing structures

E5: Production (plant studies)

Concepts and ideas	Knowledge, understanding and skills
E5.1 Selection of plants is influenced by a number of factors.	• selecting plants for a specific: – purpose, e.g. barley, wheat and oats – location and climate, e.g. cherry and Roma tomatoes – market, e.g. navel compared with Valencia oranges
E5.2 Propagation systems are needed for plant production.	• sexual and asexual reproduction, e.g. pollination, budding, grafting • plant breeding technologies, e.g. tissue culture, genetic modification, plant breeders rights (intellectual property) • planting methods, e.g. seed, runners, tubers, cuttings, seedlings • recording relevant data
E5.3 Managing growing medium produces healthy plants.	• ground preparation methods and tools, e.g. use of rotary hoe • identifying and managing deficiency, e.g. nitrogen • testing characteristics of growing medium, e.g. pH level, soil structure and texture • sustainably managing a growing medium, e.g. minimum till, green manure, composting, lime

E6: Agribusiness (plant studies)

Concepts and ideas	Knowledge, understanding and skills
E6.1 Different products can be produced from plants.	• identification of plants best suited to specific products, e.g. sweet corn and maize • identification of different products that can be produced from plants, e.g. olive trees can produce olives, olive oil and olive leaf products
E6.2 Plant products must be stored, packaged, handled and transported to meet market requirements.	• harvesting methods • assessment of product quality, e.g. grading fruit • safe packaging and handling of plant products for market, e.g. removing contaminants, cooling after harvesting • safe storage of plant products, e.g. silos, refrigeration, controlled atmosphere storage and packaging • preparing products for transportation, e.g. loading produce packages into refrigerated containers
E6.3 Value-adding processes can be carried out on the farm and at the market, by wholesalers and retailers.	• market requirements, processes and procedures, e.g. selling agents • value-adding processes for different plant products, e.g. preserving and drying fruit, making sauces and relishes, milling grains
E6.4 Successful plant industries are run as businesses.	• production costs and returns, e.g. input costs, gross margins, accounting and taxation • keeping records, e.g. financial, chemical use • innovations in agriculture, e.g. renewable energy sources (biomass, solar, enviro-shelters), integrated pest management, precision agriculture

2.4 Safety and management practices

The study of 'Safety and management practices' is compulsory, and is embedded throughout the course of study.

'Safety and management practices' includes three core topics and one elective topic, and associated concepts and ideas, knowledge, understanding and skills for planning, managing and safely completing agricultural activities. These topics are embedded in and delivered through units of work.

The 'Safety and management practices' core and elective topics are:

- C3: Rules, regulations and recommendations
- C4: Equipment maintenance and operation
- C5: Management practices
- E7: Operating machinery.

C3: Rules, regulations and recommendations

Concepts and ideas	Knowledge, understanding and skills
C3.1 Commonwealth and State rules, regulations and recommendations control agricultural contexts and activities.	• rules, regulations and recommendations associated with agricultural activities, e.g. animal welfare, feed lot rules, pesticide application • identifying and accessing resources to support understanding and implementation of rules and regulations, e.g. Standing Committee on Agriculture and Resource Management (SCARM) codes, resources provided by government departments and authorities and local councils • following rules, regulations and recommendations, e.g. keeping records
C3.2 Observation of workplace health and safety requirements is a requirement when participating in agricultural activities.	• relevant rules, regulations and recommendations, e.g. chemical application, working with livestock, tractor operations, pests and disease • first aid for injury, illness and emergencies, e.g. cuts and abrasions, snake bite • completing risk assessments

C4: Equipment maintenance and operation

Concepts and ideas	Knowledge, understanding and skills
C4.1 Check, clean and store equipment.	• due diligence, including identifying faults, e.g. damaged protective guards • maintaining equipment and keeping appropriate records, e.g. cleaning, storing, servicing and repair • determining appropriate action and keeping appropriate records, e.g. out-of-service equipment (tagging faults), logging maintenance requests • determining who should repair the fault, e.g. teacher or licenced tradesperson
C4.2 Use equipment.	• equipment is identified and selected in accordance with supervisor's instructions • suitable personal protective equipment is selected, used, maintained and stored in accordance with workplace health and safety requirements • using Standard Operating Procedures (SOPs) for equipment, e.g. operation manuals, support materials

C5: Management practices

Concepts and ideas	Knowledge, understanding and skills
C5.1 Agricultural industries require sustainable practices.	• sustainable management practices, e.g. management of run-off, erosion, algae, effluent • sustainable use of chemicals, e.g. herbicides, drenches, dips, antibiotics
C5.2 Working with others is essential when working in agricultural environments.	• following instructions • working and collaborating effectively in teams • communicating effectively with others
C5.3 Completion of agricultural activities requires a range of management skills.	• setting goals to complete agricultural activities • planning and organising agricultural activities • managing time and resources to complete agricultural activities

E7: Operating machinery

Concepts and ideas	Knowledge, understanding and skills
E7.1 Prepare basic machinery for use.	• machinery is identified and selected in accordance with supervisor's instructions • carry out risk assessments for the type of machinery and any personal protective equipment required • carry out routine pre-operational checks of machinery to manufacturer specifications • identify and segregate unsafe or faulty machinery for repair or replacement
E7.2 Operate basic machinery.	• suitable personal protective equipment is selected, used, maintained and stored in accordance to with workplace health and safety requirements • machinery is operated to manufacturer specifications, in accordance with supervisor's instructions and standard operating procedures
E7.3 Check, clean and store basic machinery.	• machinery is cleaned, secured and stored to manufacturer specifications and supervisor instructions • malfunctions, faults, wear or damage to machinery and equipment are identified and reported, e.g. out-of-service equipment (tagging faults), logging maintenance requests • workplace areas are cleaned and maintained in line with workplace health and safety requirements
E7.4 Assist with routine maintenance of machinery.	• prepare for basic routine maintenance including the selection of tools and supplies to carry out basic routine maintenance • carry out basic routine maintenance, e.g. 'WOGAM' (water, oil, gas, air and miscellaneous)

3 Assessment

3.1 Assessment — general information

Assessment is an integral part of the teaching and learning process. It is the purposeful, systematic and ongoing collection of information about student learning outlined in the syllabus.

The major purposes of assessment are to:

- promote, assist and improve learning
- inform programs of teaching and learning
- advise students about their own progress to help them achieve as well as they are able
- give information to parents, carers and teachers about the progress and achievements of individual students to help them achieve as well as they are able
- provide comparable exit results in each Applied syllabus which may contribute credit towards a Queensland Certificate of Education (QCE); and may contribute towards Australian Tertiary Admission Rank (ATAR) calculations
- provide information about how well groups of students are achieving for school authorities and the State Minister responsible for Education.

Student responses to assessment opportunities provide a collection of evidence on which judgments about the quality of student learning are made. The quality of student responses is judged against the standards described in the syllabus.

In Applied syllabuses, assessment is standards-based. The standards are described for each objective in each of the three dimensions. The standards describe the quality and characteristics of student work across five levels from A to E.

3.1.1 Planning an assessment program

When planning an assessment program over a developmental four-unit course, schools should:

- administer assessment instruments at suitable intervals throughout the course
- provide students with opportunities in Units 1 and 2 to become familiar with the assessment techniques that will be used in Units 3 and 4
- assess all of the dimensions in each unit
- assess each objective at least twice by midway through the course (end of Unit 2) and again by the end of the course (end of Unit 4)
- assess only what the students have had the opportunity to learn, as prescribed in the syllabus and outlined in the study plan.

For a student who studies four units, only assessment evidence from Units 3 and 4 contributes towards decisions at exit.

Further guidance can be found in the QCE and QCIA policy and procedures handbook.

3.1.2 Authentication of student work

Schools and teachers must have strategies in place for ensuring that work submitted for summative assessment is the student's own.

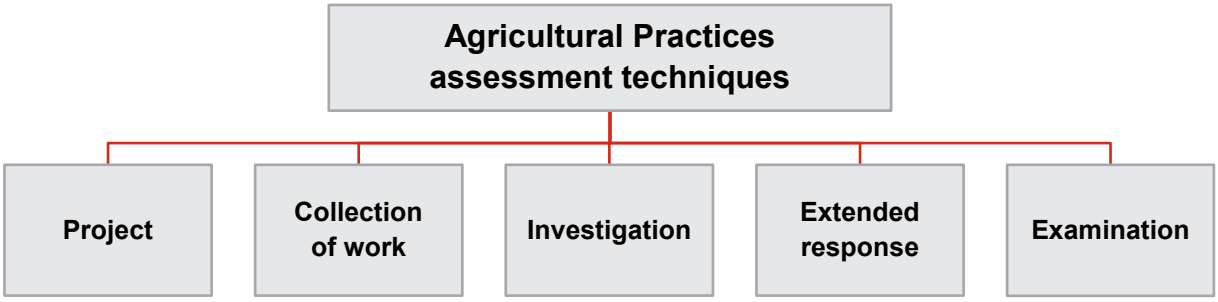
Judgments about student achievement are based on evidence of the demonstration of student knowledge, understanding and skills. Schools ensure responses are validly each student's own work.

Guidance about authentication strategies which includes guidance for drafting, scaffolding and teacher feedback can be found in the QCE and QCIA policy and procedures handbook.

3.2 Assessment techniques

The diagram below identifies the assessment techniques relevant to this syllabus. The subsequent sections describe each assessment technique in detail.

Figure 4: Agricultural Practices assessment techniques



Schools design assessment instruments from the assessment techniques relevant to this syllabus. The assessment instruments students respond to in Units 1 and 2 should support those techniques included in Units 3 and 4.

For each assessment instrument, schools develop an instrument-specific standards matrix by selecting the syllabus standards descriptors relevant to the task and the dimension/s being assessed (see Standards matrix).

The matrix is used as a tool for making judgments about the quality of students' responses to the instrument and is developed using the syllabus standards descriptors. Assessment is designed to allow students to demonstrate the range of standards (see Determining an exit result). Teachers give students an instrument-specific standards matrix for each assessment instrument.

Where students undertake assessment in a group or team, instruments must be designed so that teachers can validly assess the work of individual students and not apply a judgment of the group product and processes to all individuals.

Evidence

Evidence includes the student's responses to assessment instruments and the teacher's annotated instrument-specific standards matrixes. Evidence may be direct, e.g. student responses to assessment instruments, or indirect, e.g. supporting documentation. Within a student folio indirect evidence should be balanced with direct evidence.

Further guidance can be found in the QCE and QCIA policy and procedures handbook.

Conditions of assessment

Over a four-unit course of study, students are required to complete assessment under a range of conditions (see Planning an assessment program).

Conditions may vary according to assessment. They should be stated clearly on assessment instruments, for example:

- supervised or unsupervised
- individual, group or team
- time allowed (with perusal time as needed)
- length required
- seen or unseen questions
- using sources and/or notes (open book).

Where support materials or particular equipment, tools or technologies are used under supervised conditions, schools must ensure that the purpose of supervised conditions (i.e. to authenticate student work) is maintained.

Assessment of group work

When students undertake assessment in a group or team, instruments must be designed so that teachers can validly assess the work of individual students and not apply a judgment of the group product and processes to all individuals.

3.2.1 Project

Purpose

This technique assesses a response to **a single task, situation and/or scenario** in a module of work that provides students with authentic and/or real-world opportunities to demonstrate their learning.
The student response will consist of a collection of **at least two** different assessable components, demonstrated in different circumstances, places and times, and may be presented to different audiences, and through differing modes.

Dimensions to be assessed

This assessment technique is to be used to determine student achievement in objectives from all of the following dimensions:

- Knowing and understanding
- Analysing and applying
- Planning and evaluating.

Not every objective from each dimension needs to be assessed.

Types of projects

A project occurs over a set period of time. Students may use class time and their own time to develop a response.

A project consists of **at least two different assessable components** from the following:

- written, e.g. a set of data
- spoken, e.g. an explanation of a procedure
- multimodal, e.g. a presentation of a set of data and an explanation of its purpose and meaning
- performance, e.g. a demonstration of a procedure.

The selected assessable components must contribute significantly to the task and to the overall result for the project. A variety of technologies may be used in the creation or presentation of the response.

Note: Spoken delivery of a written component; or a transcript of a spoken component (whether written, electronic, or digital) constitutes one component, not two.

Examples of projects in Agricultural Practices include:

- landscape construction
- revegetate a natural area
- show or sale, preparation of livestock
- grow and market a vegetable crop.

Written component

This component requires students to use written language to communicate ideas and information to readers for a particular purpose. A written component may be supported by references or, where appropriate, data, tables, flow charts or diagrams.

Examples include:

- reports, which will normally be presented with section headings, and may include tables, graphs and/or diagrams, and analysis of data supported by references
- articles for magazines or journals
- letters to the editor
- essays, e.g. analytical, persuasive/argumentative, informative.

Spoken component

This component requires students to use spoken language to communicate ideas and information to a live or virtual audience (that is, through the use of technology) for a particular purpose.

Examples include:

- oral presentations
- debates
- interviews
- podcasts
- seminars.

Multimodal component

This component requires students to use a combination of at least two modes **delivered at the same time** to communicate ideas and information to a live or virtual audience for a particular purpose.
The selected modes are integrated to allow both modes to contribute significantly to the multimodal component. Modes include:

- written
- spoken/signed
- nonverbal, e.g. physical, visual, auditory.

Examples include:

- digital presentations
- vodcasts
- seminars
- webinars.

A variety of technologies may be used in the creation or presentation of the component. Replication of a written document into an electronic or digital format does not constitute a multimodal component.

Performance component

This component refers to physical demonstrations as outcomes of applying a range of cognitive, technical skills.

Performance components involve student application of identified skill/s when responding to a task that involves solving a problem, or conveying meaning or intent. Examples include growing a vegetable crop, building a fence and preparing livestock for a show.

Assessment conditions	Units 1–2	Units 3–4
Written component	400–700 words	500–900 words
Spoken component	1½ – 3½ minutes	2½ – 3½ minutes
Multimodal component	2–4 minutes	3–6 minutes
Performance component	Schools provide students with some continuous class time to develop and demonstrate the performance component/s of the project.	

Further guidance

When implementing assessment instruments for the project technique, teachers:

- define for students or work with students to define the task, situation or scenario, and purpose for the project; all components of the project must clearly relate to this single task, situation or scenario
- establish the required length of student responses within the assessment conditions (see above); the required length of student responses should be considered in the context of the tasks — longer is not necessarily better; word lengths and time limits are given as guides
- clearly indicate the dimensions and objectives that will be assessed and explain to students the requirements of the task, including instrument-specific standards
- teach the objectives, knowledge, understanding and skills students need to complete all components of the project

- teach the requirements for each component of the project, e.g. diagrams, report on the condition of an animal/plant, demonstration of mixing fertiliser
- allow some continuous class time for students to work towards completing each component of the project; independent student time may also be required to complete the response
- implement strategies to promote authentication of student work, e.g. note-taking, journals or logs, drafting, research checklists, referencing, teacher observation sheets
- consult, negotiate and provide feedback while students are developing their response to the project, e.g. to provide guidance about ethical matters and to monitor the progress of student work.

3.2.2 Collection of work

Purpose

This technique assesses a response to **a series of tasks relating to a single topic** in a module of work. The student response will consist of a collection of at least three assessable components provided at different times and may be demonstrated in different circumstances and places.

Dimensions to be assessed

This assessment technique is to be used to determine student achievement in objectives from at least two of the following dimensions:

- Knowing and understanding
- Analysing and applying
- Planning and evaluating.

Not every objective from each dimension needs to be assessed.

Types of investigations and responses

A collection of work consists of **at least three assessable components**, for example:

- written component, e.g. a set of data
- spoken component, e.g. an explanation of a procedure
- multimodal component, e.g. a presentation of a set of data and an explanation of its purpose and meaning
- performance component, e.g. demonstration of a procedure.

The selected assessable components must contribute significantly to the overall result for the collection of work. A variety of technologies may be used in the creation or presentation of the response.

Note: Spoken delivery of a written component; or a transcript of a spoken component (whether written, electronic, or digital) constitutes one component, not two.

Examples of topics for collections of work include:

- reproductive technologies across various animal and/or plant species
- farm machinery
- sustainable water use.

Written response

This response requires students to use written language to communicate ideas and information to readers for a particular purpose. A written response may be supported by references or, where appropriate, data, tables, flow charts or diagrams.

Examples include:

- reports, which will normally be presented with section headings, and may include tables, graphs and/or diagrams, and analysis of data supported by references
- articles for magazines or journals
- letters to the editor
- essays, e.g. analytical, persuasive/argumentative, informative.

Spoken response

This response requires students to use spoken language to communicate ideas and information to a live or virtual audience (that is, through the use of technology) for a particular purpose.

Examples include:

- oral presentations
- debates
- interviews
- podcasts
- seminars.

Multimodal response

This response requires students to use a combination of at least two modes **delivered at the same time** to communicate ideas and information to a live or virtual audience for a particular purpose. The selected modes are integrated to allow both modes to contribute significantly to the multimodal response. Modes include:

- written
- spoken/signed
- nonverbal, e.g. physical, visual, auditory.

Examples include:

- digital presentations
- vodcasts
- seminars
- webinars.

A variety of technologies may be used in the creation or presentation of the response. Replication of a written document into an electronic or digital format does not constitute a multimodal response.

When making judgments about multimodal responses, teachers apply the standards to the entire response, i.e. to all modes used to communicate the response.

Performance component

This component refers to physical demonstrations as outcomes of applying a range of cognitive, technical skills.

Performance components involve student application of identified skill/s when responding to a task that involves solving a problem, or conveying meaning or intent. Examples include preparing a ration, treating a pest and performing an animal husbandry technique, using farm machinery.

Assessment conditions	Units 1–2	Units 3–4
Written component	150–250 words	200–300 words
Spoken component	1–2 minutes	1½– 2½ minutes
Multimodal component	1½– 2½ minutes	2–3 minutes
Performance component	Schools provide students with some continuous class time to develop and demonstrate the performance component/s of the collection of work.	

Further guidance

When implementing assessment instruments for the collection of work technique, teachers:

- define for students or work with students to define the topic and purpose for the collection of work; all components of the collection of work must clearly relate to this single topic
- establish the required length of student responses within the assessment conditions (see above); the required length of student responses should be considered in the context of the tasks — longer is not necessarily better; word lengths and time limits are given as guides
- clearly indicate the dimensions and objectives that will be assessed and explain to students the requirements of the task, including instrument-specific standards
- teach the objectives, knowledge, understanding and skills students need to complete all components of the collection of work
- teach the requirements for each component of the collection of work, e.g. diagrams, report on the condition of an animal/plant, demonstration of mixing fertiliser
- allow some continuous class time for students to work towards completing each component of the project; independent student time may also be required to complete the response
- implement strategies to promote authentication of student work, e.g. note-taking, journals or logs, drafting, research checklists, referencing, teacher observation sheets
- consult, negotiate and provide feedback while students are developing their response to the project, e.g. to provide guidance about ethical matters and to monitor the progress of student work.

3.2.3 Investigation

Purpose

This technique assesses investigative practices and the outcomes of applying these practices. Investigation includes locating and using information beyond students' own knowledge and the data they have been given. In Agricultural Practices, investigations involve research and follow an inquiry approach. Investigations provide opportunity for assessment to be authentic and set in lifelike contexts.

Dimensions to be assessed

This assessment technique is to be used to determine student achievement in objectives from at least two of the following dimensions:

- Knowing and understanding
- Analysing and applying
- Planning and evaluating.

Not every objective from each dimension needs to be assessed.

Types of investigations and responses

An investigation occurs over a set period of time. Students may use class time and their own time to develop a response. In this assessment technique, students investigate or research a specific question or hypothesis through collection, analysis and synthesis of primary and/or secondary data obtained through research.

Examples of investigations in Agricultural Practices include:

- investigation of a pest or disease
- investigation of seasonality of a particular crop or marketing chain
- clinical analysis of an animal.

Written response

This response requires students to use written language to communicate ideas and information to readers for a particular purpose. A written response may be supported by references or, where appropriate, data, tables, flow charts or diagrams.

Examples include:

- reports, which will normally be presented with section headings, and may include tables, graphs and/or diagrams, and analysis of data supported by references
- articles for magazines or journals
- letters to the editor
- essays, e.g. analytical, persuasive/argumentative, informative.

Spoken response

This response requires students to use spoken language to communicate ideas and information to a live or virtual audience (that is, through the use of technology) for a particular purpose.

Examples include:

- oral presentations
- debates
- interviews
- podcasts
- seminars.

Multimodal response

This response requires students to use a combination of at least two modes **delivered at the same time** to communicate ideas and information to a live or virtual audience for a particular purpose. The selected modes are integrated to allow both modes to contribute significantly to the multimodal response. Modes include:

- written
- spoken/signed
- nonverbal, e.g. physical, visual, auditory.

Examples include:

- digital presentations
- vodcasts
- seminars
- webinars.

A variety of technologies may be used in the creation or presentation of the response. Replication of a written document into an electronic or digital format does not constitute a multimodal response.

When making judgments about multimodal responses, teachers apply the standards to the entire response, i.e. to all modes used to communicate the response.

Assessment conditions	Units 1–2	Units 3–4
Written	500–800 words	600–1000 words
Spoken	2–4 minutes	3–4 minutes
Multimodal	3–5 minutes	4–7 minutes

Further guidance

When implementing assessment instruments for the collection of work technique, teachers:

- establish a focus for the investigation or work with the student to develop a focus
- establish the required length of student responses within the assessment conditions (see above); the required length of student responses should be considered in the context of the tasks — longer is not necessarily better; word lengths and time limits are given as guides
- clearly indicate the dimensions and objectives that will be assessed and explain to students the requirements of the task, including instrument-specific standards
- teach the objectives, knowledge, understanding and skills students need to complete the investigation
- teach the written, spoken or multimodal form/s and language features required for student responses, e.g. report, presentation, seminar
- allow some continuous class time for students to work towards completing each component of the project; independent student time may also be required to complete the response
- implement strategies to promote authentication of student work, e.g. note-taking, journals or logs, drafting, research checklists, referencing, teacher observation sheets
- consult, negotiate and provide feedback while students are developing their response to the project, e.g. to provide guidance about ethical matters and to monitor the progress of student work.

3.2.4 Extended response

Purpose
This technique assesses the interpretation, analysis/examination and/or evaluation of ideas and information in provided stimulus materials. While students may undertake some research in the writing of the extended response, it is not the focus of this technique.
Dimensions to be assessed
This assessment technique is to be used to determine student achievement in objectives from at least two of the following dimensions: • Knowing and understanding • Analysing and applying • Planning and evaluating. Not every objective from each dimension needs to be assessed.
Types of extended response
An extended response occurs over a set period of time. Students may use class time and their own time to develop a response. Students respond to a question or statement about the provided stimulus materials. Stimulus material could include: • field data and surveys • case studies • media articles for magazines or journals.
Written response
This response requires students to use written language to communicate ideas and information to readers for a particular purpose. A written response may be supported by references or, where appropriate, data, tables, flow charts or diagrams. Examples include: • reports, which will normally be presented with section headings, and may include tables, graphs and/or diagrams, and analysis of data supported by references • articles for magazines or journals • letters to the editor • essays, e.g. analytical, persuasive/argumentative, informative.
Spoken response
This response requires students to use spoken language to communicate ideas and information to a live or virtual audience (that is, through the use of technology) for a particular purpose. Examples include: • oral presentations • debates • interviews • podcasts • seminars.

Multimodal response

This response requires students to use a combination of at least two modes **delivered at the same time** to communicate ideas and information to a live or virtual audience for a particular purpose. The selected modes are integrated to allow both modes to contribute significantly to the multimodal response. Modes include:

- written
- spoken/signed
- nonverbal, e.g. physical, visual, auditory.

Examples include:

- digital presentations
- vodcasts
- seminars
- webinars.

A variety of technologies may be used in the creation or presentation of the response. Replication of a written document into an electronic or digital format does not constitute a multimodal response.

When making judgments about multimodal responses, teachers apply the standards to the entire response, i.e. to all modes used to communicate the response.

Assessment conditions	Units 1–2	Units 3–4
Written	500–800 words	600–1000 words
Spoken	2–4 minutes	3–4 minutes
Multimodal	3–5 minutes	4–7 minutes

Further guidance

When implementing assessment instruments for the extended response technique, teachers:

- provide stimulus for students and establish a focus for the extended response, or work with students to select suitable stimulus and/or develop a focus for the response
- establish the required length of student responses within the assessment conditions (see above); the required length of student responses should be considered in the context of the tasks — longer is not necessarily better; word lengths and time limits are given as guides
- clearly indicate the dimensions and objectives that will be assessed and explain to students the requirements of the task, including instrument-specific standards
- teach the objectives, knowledge, understanding and skills students need to complete the extended response
- teach the written, spoken or multimodal form/s and language features required for student responses, e.g. report, presentation, seminar
- allow some continuous class time for students to work towards completing each component of the project; independent student time may also be required to complete the response
- implement strategies to promote authentication of student work, e.g. note-taking, journals or logs, drafting, research checklists, referencing, teacher observation sheets
- consult, negotiate and provide feedback while students are developing their response to the project, e.g. to provide guidance about ethical matters and to monitor the progress of student work.

3.2.5 Examination

Purpose

This technique assesses the application of a range of cognition to provided questions, scenarios and/or problems. Responses are completed individually, under supervised conditions and in a set timeframe.

Dimensions to be assessed

This assessment technique is to be used to determine student achievement in objectives from at least two of the following dimensions:

- Knowing and understanding
- Analysing and applying
- Planning and evaluating.

Not every objective from each dimension needs to be assessed.

Type of examination

Short response test

- Short response tests typically consist of a number of items that may include students responding to some or all of the following activities:
  - drawing, labelling or interpreting equipment, graphs, tables or diagrams
  - making calculations
  - responding to seen or unseen stimulus materials
  - interpreting ideas and information.
- Short response tests occur under supervised conditions as students produce work individually and in a set time to ensure authenticity.
- Questions, scenarios and problems are typically unseen. If seen, teachers must ensure the purpose of this technique is not compromised.
- Stimulus materials may also be used and may be seen or unseen.
- Unseen questions, statements or stimulus materials should not be copied from information or texts that students have previously been exposed to or have directly used in class.

Assessment conditions	Units 1–2	Units 3–4
Recommended duration	60–90 minutes	60–90 minutes
Short response test	up to 150 words per item (diagrams and workings not included in word count)	up to 250 words per item (diagrams and workings not included in word count)

Further guidance

When implementing assessment instruments for the examination technique, teachers:

- format the assessment to allow for ease of reading and responding
- write clear questions, considering students' language needs
- ensure questions allow the full range of standards to be demonstrated
- establish the time requirement for the examination within the assessment conditions (see above)
- ensure stimulus materials are succinct enough to allow students to engage with them in the time provided. If they are lengthy, consider giving students access to them before the assessment
- clearly indicate the dimensions and objectives that will be assessed
- explain to students the requirements of the task, including instrument-specific standards
- outline any permitted material in the instrument conditions, e.g. one page of handwritten notes
- teach the objectives, knowledge, understanding and skills needed for the items in the examination, including opportunities for students to respond to unseen tasks using appropriate communication strategies.

3.3 Exiting a course of study

3.3.1 Folio requirements

A folio is a collection of one student's responses to the assessment instruments on which exit results are based. The folio is updated when earlier assessment responses are replaced with later evidence that is more representative of student achievement.

3.3.2 Exit folios

The exit folio is the collection of evidence of student work from Units 3 and 4 that is used to determine the student's exit result. Each folio must include:

- four assessment instruments, and the relevant student responses
- evidence of student work from Units 3 and 4 only
- evidence of all dimensions being assessed at least twice
- evidence of at least two dimensions in each assessment instrument
- no more than two assessment instruments from any one technique
- a student profile completed to date.

3.3.3 Exit standards

Exit standards are used to make judgments about students' exit result from a course of study. The standards are described in the same dimensions as the objectives of the syllabus. The standards describe how well students have achieved the objectives and are stated in the standards matrix).

The following dimensions must be used:

- Dimension 1: Knowing and understanding
- Dimension 2: Analysing and applying
- Dimension 3: Planning and evaluating.

Each dimension must be assessed in each unit, and each dimension is to make an equal contribution to the determination of an exit result.

3.3.4 Determining an exit result

When students exit the course of study, the school is required to award each student an A—E exit result.

Exit results are summative judgments made when students exit the course of study. For most students this will be after four units. For these students, judgments are based on exit folios providing evidence of achievement in relation to all objectives of the syllabus and standards.

For students who exit before completing four units, judgments are made based on the evidence of achievement to that stage of the course of study.

Determining a standard

The standard awarded is an on-balance judgment about how the qualities of the student's responses match the standards descriptors in each dimension. This means that it is not necessary for the student's responses to have been matched to every descriptor for a particular standard in each dimension.

Awarding an exit result

When standards have been determined in each of the dimensions for this subject, Table 2 below is used to award an exit result, where A represents the highest standard and E the lowest. The table indicates the minimum combination of standards across the dimensions for each result.

Table 2: Awarding exit results

Exit result	Minimum combination of standards
A	Standard A in any two dimensions and no less than a B in the remaining dimension
B	Standard B in any two dimensions and no less than a C in the remaining dimension
C	Standard C in any two dimensions and no less than a D in the remaining dimension
D	At least Standard D in any two dimensions and an E in the remaining dimension
E	Standard E in the three dimensions

Further guidance can be found in the QCE and QCIA policy and procedures handbook.

3.3.5 Standards matrix

	Standard A	Standard B	Standard C	Standard D	Standard E
Knowing and understanding	The student work has the following characteristics:	The student work has the following characteristics:	The student work has the following characteristics:	The student work has the following characteristics:	The student work has the following characteristics:
	• precise and efficient demonstration of procedures to complete tasks in agricultural activities	• precise demonstration of procedures to complete tasks in agricultural activities	• demonstration of procedures to complete tasks in agricultural activities	• demonstration of skills related to procedures relevant to agricultural activities	• demonstration of agricultural skills
	• comprehensive description and explanation of concepts, ideas and processes relevant to agricultural activities.	• detailed description and explanation of concepts, ideas and processes relevant to agricultural activities.	• description and explanation of concepts, ideas and processes relevant to agricultural activities.	• description of concepts, ideas and processes relevant to agricultural activities.	• partial description of concepts, ideas and/or processes relevant to agricultural activities.
Analysing and applying	The student work has the following characteristics:	The student work has the following characteristics:	The student work has the following characteristics:	The student work has the following characteristics:	The student work has the following characteristics:
	• comprehensive analysis of agricultural information	• detailed analysis of agricultural information	• analysis of agricultural information	• identification of relationships in agricultural information	• identification of aspects of agricultural information
	• considered and systematic application of knowledge, understanding and skills relevant to agricultural activities	• systematic application of knowledge, understanding and skills relevant to agricultural activities	• application of knowledge, understanding and skills relevant to agricultural activities	• partial application of knowledge, understanding and skills relevant to agricultural activities	• partial application of knowledge, understanding or skills
	• use of appropriate language conventions and features for coherent and clear communication of agricultural information.	• use of appropriate language conventions and features for clear communication of agricultural information.	• use of appropriate language conventions and features for communication of agricultural information.	• use of basic language conventions and features for communication of agricultural information.	• use of basic language conventions and features for partial communication of agricultural information.

Planning and evaluating	The student work has the following characteristics: • comprehensive planning of processes for agricultural activities • valid decisions and recommendations with comprehensive evidence for agricultural activities • comprehensive evaluation of processes and decisions regarding safety and effectiveness.	The student work has the following characteristics: • detailed planning of processes for agricultural activities • valid decisions and recommendations with detailed evidence for agricultural activities • detailed evaluation of processes and decisions regarding safety and effectiveness.	The student work has the following characteristics: • planning of processes for agricultural activities • decisions and recommendations with evidence for agricultural activities • evaluation of processes and decisions regarding safety and effectiveness.	The student work has the following characteristics: • partial planning of processes for agricultural activities • decisions and recommendations for agricultural activities • consideration of processes and decisions regarding safety and effectiveness.	The student work has the following characteristics: • collection of agricultural information • statements of opinion about agricultural activities • statements about processes and/or decisions regarding safety or effectiveness.

4 Glossary

Term	Explanation
A	
analyse; analysis	dissect to ascertain and examine constituent parts and their relationships
applied learning	the acquisition and application of knowledge, understanding and skills in real-world and/or lifelike contexts
apply; application	use in a particular situation; make use of as relevant, suitable, or pertinent
appropriate	suitable to the context or activity
aspects	components, elements
B	
basic	elementary
C	
clear	explicit; without ambiguity
coherent	logical and internally consistent relation of parts
collection	a group of accumulated items
communicate	convey information, knowledge and/or understanding to others
comprehensive	detailed and thorough, including all that is relevant from the information taught in the course of study
consideration	taking factor/s into account
considered	formed after careful thought and relating to multiple parts of agricultural activities
D	
decision	a judgment or resolution
demonstrate; demonstration	give a practical exhibition
describe; description	give an account of characteristics or features
detailed	executed with great attention to detail; specific
E	
effective; effectiveness	the degree to which something is successful in producing a desired result
efficient	skilled, well-organised and productive
evaluate	assign merit according to criteria; examine and judge the merit, significance or value of something
explain; explanation	present a meaning with clarity, precision, completeness, and with due regard to the order of statements in the explanation

Term	Explanation
I	
idea	a thought, conception or notion; a way of thinking
identify; identification	distinguish, isolate; locate and recognise
information	agricultural information is described through the topics, concepts, ideas, knowledge, understanding and skills
J	
justification	sound reasons or evidence to support a statement
L	
language convention	an accepted practice that has developed over time and is generally used and understood; includes the use of specific structural aspects of texts, e.g. use of sections for introduction, background, discussion and recommendations in report writing
language features	the features of language that support meaning, e.g. sentence structure, noun group/phrase, vocabulary, punctuation, figurative language, framing, camera angles; choices in language features and text structures together define a type of text and shape its meaning; these choices vary according to the purpose of a text, its subject matter, audience, and mode or medium of production
M	
machinery	powered agricultural equipment
module of work	a module of work provides effective teaching strategies and learning experiences that facilitate students' demonstration of the dimensions and objectives as described in the syllabus A module of work: • draws from relevant aspects of the underpinning factors • identifies relevant concepts and ideas, and associated subject matter from the core topics • provides an alignment between core subject matter, learning experiences and assessment.
O	
opinion	a view or judgment formed about something, not necessarily based on fact or knowledge
P	
partial	attempted, with evidence provided, but incomplete
perform; performance	carry out or accomplish
plan	devise a procedure or process for accomplishing an activity
practical	of or concerned with the actual doing or use of something rather than with theory and ideas
precise	characterised by definite or exact execution
procedure	a course of action or series of skills to complete an agricultural task
process	a series of actions or steps taken to achieve a particular result

Term	Explanation
R	
recommendation	a suggestion or proposal as to the best course of action
relationship	interdependent connections between two or more things
S	
safety	the condition of being protected from or unlikely to cause danger, risk, or injury
service learning	a method of teaching that combines formal instruction with a related service in the community; integrates meaningful community service with instruction and reflection to enrich the learning experience, teach civic responsibility, and encourage lifelong civic engagement; students learn and develop through active participation in organised service that is coordinated with a school and conducted in, and meets the needs of, a community
simple	concerning a single or basic aspect; few steps; obvious data/outcomes; limited or no relationships
situation	a set of circumstances subject to change
skill	a particular ability
solution	a means of solving a problem
statement	a sentence or assertion
systematic	methodical, organised and logical
T	
thorough	carried out through or applied to the whole of something
U	
unit	a unit is 55 hours of timetabled school time, including assessment. A course of study will usually be completed over four units (220 hours).
V	
valid; validity	in science, the extent to which tests measure what was intended; the extent to which data, inferences and actions produced from tests and other processes are accurate (ACARA 2015c)

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