Preparing an assessment program for Agriculture

Technology Unit
Curriculum Support Directorate
Support for the NEW HSC

Preparing an assessment program – Agriculture

The following is a set of steps that will assist in developing an assessment program for your teaching and learning program. This process is suitable for use with the preliminary or HSC course.

Step 1: Map the course outcomes

All course outcomes are to be included in the assessment program. Teachers need to plan carefully to ensure they provide sufficient opportunities for students to achieve the outcomes and for the teacher to gather and record evidence so that they are able to provide feedback to each student about his or her achievement of the outcomes.

As part of the process of developing teaching programs and assessment programs, it is important to map the syllabus outcomes of the course against the course content.

The relationship between outcomes and content is different in each of the eight technology syllabuses.

The grids shown below map the Preliminary and HSC course outcomes of the Agriculture syllabus against the content.

Preliminary Outcome	Overview	The Farm Case Study	Plant Production	Animal Production
P1.1	*	*		
P1.2	*	*		
P2.1			*	
P2.2				*
P2.3	*	*		
P3.1		*	*	*
P4.1			*	*
P5.1		*	*	*

Agriculture Preliminary course outcomes mapped against content

Compulsory Options

HSC Outcome	Plant/ Animal Production	Farm/ Product Study	Research Project	**OR**	Elective 1 &	Elective 2
H1.1	*					
H2.1	*					
H2.2	*					
H3.1		*				
H3.2		*				
H3.3		*				
H3.4		*	*		*	*
H4.1			*		*	*
H5.1			*		*	*

Agriculture HSC course outcomes mapped against content

Mapping of the outcomes and content is an important step in programming. In instances where an outcome is addressed once only in the teaching program, teachers will need to ensure they provide ample opportunity for students to work toward achieving, and demonstrating achievement of the outcome.

Where an outcome is included more than once, teachers will still need to ensure that the outcome is included at the relevant points in their teaching program. However they will have more opportunities to build student learning experiences and gather evidence for assessing student achievement of that outcome.

Step 2: Brainstorm possible tasks

For each outcome, brainstorm and research the range of appropriate tasks that could be used in Agriculture. This may assist you to identify which outcomes could be assessed together in one assessment task.

The table below can be used to brainstorm tasks most suited to particular outcomes.

Preliminary Outcome	Assessment tasks and strategies
P1.1 describes the complex, dynamic and interactive nature of agricultural production systems	
P1.2 describes the factors that influence agricultural systems	
P2.1 describes the biological and physical resources and applies the processes that cause changes in plant production systems	
P2.2 describes the biological and physical resources and applies the processes that cause changes in animal production systems	
P2.3 describes the farm as a basic unit of production	
P3.1 describes the role of decision-making in the management and marketing of agricultural products in response to consumer and market requirements	
P4.1 applies the principles and procedures of experimental design and agricultural research	
P5.1 identifies the role of associated technologies and technological innovation in producing and marketing agricultural products	

The table below can be used to brainstorm tasks most suited to particular outcomes.

HSC Outcome	Assessment tasks and strategies
H1.1 explains the influence of physical, biological, social, historical and economic factors on sustainable agricultural production	
H2.1 describes the inputs, processes and interactions of plant production systems	
H2.2 describes the inputs, processes and interactions of animal production systems	
H3.1 assesses the general business principles and decision-making processes involved in sustainable farm management and marketing of farm products	
H3.2 critically assesses the marketing of a plant OR animal product	
H3.3 critically examines the technologies and technological innovations employed in the production and marketing of agricultural products	
H3.4 evaluates the management of the processes in agricultural systems	
H4.1 applies appropriate experimental techniques, technologies, research methods and data presentation and analysis in relation to agricultural problems and situations	
H5.1 evaluates the impact of innovation, ethics and current issues on Australian agricultural systems	

An example of the assessment tasks suggested by one group of teachers for the HSC course is shown below.

HSC Outcome	Assessment tasks and strategies
H1.1 explains the influence of physical, biological, social, historical and economic factors on sustainable agricultural production	Develop a map/flow chart/diagrammatic representation of these influences on the sustainable production of a specific commodity
H2.1 describes the inputs, processes and interactions of plant production systems	Seminar presentation and plant/animal produce system to describe inputs, processes and interactions (focussing on content areas)
H2.2 describes the inputs, processes and interactions of animal production systems	Information report – as above but an alternate chosen plant/animal to describe inputs, processes and interactions (focussing on content areas) Seminar
H3.1 assesses the general business principles and decision-making processes involved in sustainable farm management and marketing of farm products	Report on specific product study
H3.2 critically assesses the marketing of a plant OR animal product	Develop a flowchart depicting the marketing chain for a plant or animal product from the farm gate to the consumer.
H3.3 critically examines the technologies and technological innovations employed in the production and marketing of agricultural products	Exposition to critically analyse a specific technology in use
H3.4 evaluates the management of the processes in agricultural systems	Exam questions
H4.1 applies appropriate experimental techniques, technologies, research methods and data presentation and analysis in relation to agricultural problems and situations	Trial write up or evaluation of previous trial (via exam) Practical tests
H5.1 evaluates the impact of innovation, ethics and current issues on Australian agricultural systems	Debate current issues

Step 3: Review assessment requirements in Board syllabuses

Refer to Assessment components, weightings and tasks in section 12, Assessment and Reporting, of the syllabus.

Draw up a table which allows the teacher to map how each assessment task addresses the syllabus outcomes, content, and assessment components and weightings. Below are shown sample tables for each course. Steps 4-8 will assist you to complete the assessment table.

Preliminary course Syllabus components, weightings and related outcomes	Task1: Outcomes: Content: Date:	Task2: Outcomes: Content: Date:	Task3: Outcomes: Content: Date:	Task4: Outcomes: Content: Date:	Task5: Outcomes: Content: Date:
Overview 15%					
Plant Production 30%					
Animal Production 30%					
Farm Case Study 25%					
Total 100%					

Agriculture Preliminary course sample assessment table

HSC course Syllabus components, weightings and related outcomes	Task1: Outcomes: Content: Date:	Task2: Outcomes: Content: Date:	Task3: Outcomes: Content: Date:	Task4: Outcomes: Content: Date:	Task5: Outcomes Content: Date:
Plant / Animal Production 45%					
Farm product study 25%					
Research Project 30% OR Elective 1. 15% and Elective 2. 15%					
Total 100%					

Agriculture HSC course sample assessment table

In the top line of each table:

- Task refers to the name of the task
- Date refers to the scheduled date the task is due
- Outcomes refers to the syllabus outcomes addressed by the task and should have the number of each outcome listed
- Content area refers to the syllabus content area addressed by the task.

Step 4: Cluster or group the course outcomes

Agriculture has 8 outcomes for the preliminary and 9 outcomes for the HSC course.. If all outcomes are to be addressed in an assessment task, then most, if not all tasks will need to assess a number of outcomes. This is best achieved by clustering or grouping the outcomes.

Steps 1 and 2 assist in this process. Outcomes may be clustered together because they are best assessed by a similar type of task. For example, some outcomes lend themselves better to research and analysis tasks whilst others may be more suited to demonstrations, experimentations or other forms of practical work.

Each clustered group of outcomes will form the basis of one task.

- Is the number of tasks manageable(3-5)?
- Are all course outcomes being addressed?

Step 5: Select the task type.

Decide on the most appropriate task type to use for each cluster of outcomes.

Ask the following questions when completing this step.

- What type of task will best assess student achievement of these outcomes?
- Does the task type give your students the best chance to demonstrate achievement of the outcome?
- Is a range of task types being used across the course to allow students to demonstrate achievement of outcomes in a variety of ways?
- Do the task types fit within the overall teaching and learning program?

Step 6: Outline each of the assessment tasks

At this stage in the development of an assessment program, it is important to develop an outline of the task. The detailed task description and marking scheme do not need to be completed. In your task outline you will need to ensure that:

- a manageable number of outcomes is being assessed
- the task chosen will enable the outcomes to be assessed effectively
- the task will measure what you want it to assess
- students will have the best opportunity to demonstrate what they know and can do.

Insert the information regarding each of the tasks into an assessment grid such as that shown under step 3.

Step 7 Allocate the weighting for each task

Insert the weighting information regarding each task into the assessment program.

- Does each task weighting follow the weightings required by the syllabus and the relative importance of the task?
- Is each task weighted at between ten and forty per cent?

Add each column across and down to ensure that the total value of the task is 100% and the value of each component is appropriate.

Step 8: Schedule each task

Decide on the timing of each task. Consider:

- the school calendar of events
- the amount of teaching time needed to ensure that students have had the opportunity to achieve the outcomes before being assessed
- the capacity of all classes in the school that are undertaking the same course to be assessed with the same or equivalent tasks.

Insert the date for each task into the assessment program.

Step 9: Check that your assessment program meets all requirements

Does your internal assessment program for the HSC Agriculture course:

- include 3-5 tasks?
- include a range and balance of task types?
- address all course outcomes?
- focus on a manageable number of specified outcomes in each task?
- adequately reflect the practical intent of the syllabus, especially those outcomes (H3.2, H3.3, H4.1) which are not readily assessed by the external examination?
- reflect syllabus assessment components and weightings of
    - plant/animal production – 45%?
    - farm/product study – 25%?
    - research project or electives – 30%?
- weight individual tasks between 10% and 40%?
- schedule tasks so that students have ample opportunities to achieve the specified outcomes before being assessed in the task?
- schedule tasks so that later tasks carry more weight?

Step 10: Develop each assessment task and marking guidelines

When designing and fully developing each assessment task it is important to consider the following key questions.

- Does the task fit into the overall teaching and learning program?
- Does each task take place after students have had structured learning experiences to achieve the specified outcomes?
- Does it follow the weightings or components required by the syllabus?
- What outcomes will the task assess?
- Does this type of task best assess student achievement?
- Will I be able to mark the task to reflect student achievement of the outcomes assessed by the task?
- Does the wording of the task provide clear directions to students about what they are expected to do?
- Will the students understand the language?
- Is the language consistent with the Board of Studies glossary of keywords?
- Does the task allow students to show a range of achievement levels?

When developing the marking scheme it is important to consider the following questions.

- Does my marking scheme address the range of outcomes addressed in the task?
- Do the marking guidelines reflect the information provided to students about the task?
- Does my marking scheme indicate the marks to be awarded for different levels of performance?
- Is the marking scheme feasible to apply and can it be used fairly and equitably?
- Do the marking guidelines provide feedback to students about their standard of performance and indicate areas for improvement?

In reviewing how the task will be presented to students you need to consider the following.

- Have I provided students with clear information and expectations about the task?
- Do the students know what they have to do to be awarded marks?

When considering the type of feedback that will be provided to students by the task, you need to consider the following.

- Does the task provide opportunities for feedback to students which will assist them in their learning?
- In what form will feedback be provided to the students?
- Will the task provide useful feedback on the effectiveness of the teaching program?