

CURRICULUM ALIGNMENT & CLASSROOM RESOURCES

AGRICULTURAL SCIENCES & STUDENT FERMENTED BEVERAGES



GRADE 7 - 12



COMPETITION OVERVIEW

The competition is a fun way to educate students about the importance of agriculture and producing quality products.

Competition classes include student wines and other non-wine beverages including cider, ginger beer and honey mead, as well as kombucha and kefir.

Classes 1 to 11 are open for competition to schools that incorporate winemaking or fermentation studies in Chemistry, Science, Agriculture, and Hospitality as part of their curriculum.

CONTACTS

Competition Enquiries

entries@rna.org.au

Education Content Enquiries

education@ekka.com.au

Ekka School & Group Bookings Enquiries

groupbookings@ekka.com.au

GRADE 7

VERSION 8.4

Science Understanding: Chemical Sciences

Mixtures, including solutions, contain a combination of pure substances that can be separated using a range of techniques ([ACSSU113](#))

Science Inquiry Skills

Collaboratively and individually plan and conduct a range of investigation types, including fieldwork and experiments, ensuring safety and ethical guidelines are followed ([AC SIS125](#))

Measure and control variables, select equipment appropriate to the task and collect data with accuracy ([AC SIS126](#))

Digital Technologies

Analyse how food and fibre are produced when designing managed environments and how these can become more sustainable ([ACTDEK032](#))

Analyse how characteristics and properties of food determine preparation techniques and presentation when designing solutions for healthy eating ([ACTDEK033](#))

VERSION 9

Achievement Standard

By the end of Year 7, students plan and conduct safe, reproducible investigations to test relationships and aspects of scientific models. They use equipment to generate and record data with precision.

Science Understanding: Chemical Sciences

Use a particle model to describe differences between pure substances and mixtures and apply understanding of properties of substances to separate mixtures ([AC9S7U06](#))

Science Inquiry Skills

Plan and conduct reproducible investigations to answer questions and test hypotheses, including identifying variables and assumptions and, as appropriate, recognising and managing risks, considering ethical issues and recognising key considerations regarding heritage sites and artefacts on Country/Place ([AC9S7I02](#))
Select and use equipment to generate and record data with precision, using digital tools as appropriate ([AC9S7I03](#))

Digital Technologies

Analyse how food and fibre are produced in managed environments and how these can become sustainable ([AC9TDE8K04](#))

Analyse how properties of foods determine preparation and presentation techniques when designing solutions for healthy eating ([AC9TDE8K05](#))



Creative & Critical Thinking



Ethical Understanding



Digital Literacy



Numeracy



Sustainability

GRADE 8

VERSION 8.4

Science Understanding: Chemical Sciences

Chemical change involves substances reacting to form new substances ([ACSSU225](#))

Science Inquiry Skills

Collaboratively and individually plan and conduct a range of investigation types, including fieldwork and experiments, ensuring safety and ethical guidelines are followed ([AC SIS140](#))

Measure and control variables, select equipment appropriate to the task and collect data with accuracy ([AC SIS141](#))

Digital Technologies

Analyse how food and fibre are produced when designing managed environments and how these can become more sustainable ([ACTDEK032](#))

Analyse how characteristics and properties of food determine preparation techniques and presentation when designing solutions for healthy eating ([ACTDEK033](#))

VERSION 9

Achievement Standard

By the end of Year 8, students plan and conduct safe, reproducible investigations to test relationships and explore models. They select and use equipment to generate and record data with precision.

Science Understanding: Chemical Sciences

Compare physical and chemical changes and identify indicators of energy change in chemical reactions ([AC9S8U07](#))

Science Inquiry Skills

Plan and conduct reproducible investigations to answer questions and test hypotheses, including identifying variables and assumptions and, as appropriate, recognising and managing risks, considering ethical issues and recognising key considerations regarding heritage sites and artefacts on Country/Place ([AC9S8I02](#))

Select and use equipment to generate and record data with precision, using digital tools as appropriate ([AC9S8I03](#))

Digital Technologies

Analyse how food and fibre are produced in managed environments and how these can become sustainable ([AC9TDE8K04](#))

Analyse how properties of foods determine preparation and presentation techniques when designing solutions for healthy eating ([AC9TDE8K05](#))



Creative & Critical Thinking



Ethical Understanding



Digital Literacy



Numeracy



Sustainability



CLASSROOM RESOURCES

PIEFA National Ag Week with Wine Australia

Within the resource, teachers can access a series of short Australian curriculum-aligned videos and accompanying student worksheets celebrating STEM and innovation in food and fibre production. Five curriculum-aligned questions have been answered by inspiring stakeholders working in viticulture within the Australian agricultural sector. Access the videos to hear about the technologies and innovation helping them sustainably produce Australian wine.

primezone.edu.au/resource/wine-ag-week-2023-digital-learning-kit/



PIEFA Investigating Australian Food and Fibres: Cape Jaffa Wines

Anna Hooper is a winemaker with Cape Jaffa Wines in South Australia. Anna discusses the 63 different wine regions which are defined by climate, geography and soil types. White and red wine varieties are grown at her vineyard, using biodynamic production techniques avoiding the use of chemicals, pesticides, and herbicides, choosing instead to use natural ways to control pests. The video also includes information on the wine making process and the marketing of the wines.

primezone.edu.au/resource/investigating-food-and-fibres-video-and-worksheet/



ABC Education: Growing Grapes and Making Wine

Wine is an important agricultural industry in Australia, with over one billion litres of wine made here each year. There are more than 2,000 wineries in Australia and about 65 wine regions, found mostly in cooler southern parts of the country. But how are grapes turned into wine? Tim Thompson and his students make wine as part of an agriculture subject at their school. Join them as they show us all the steps that go into winemaking, from growing healthy grapevines to testing, harvesting, crushing and fermenting the grapes. We learn how wine is pressed, stored and bottled, and we visit a large Yarra Valley winery nearby, which has a partnership with the school.

www.abc.net.au/education/growing-grapes-and-making-wine/14105430



GRADE 9

VERSION 8.4

Science Understanding: Chemical Sciences

Chemical reactions involve rearranging atoms to form new substances; during a chemical reaction mass is not created or destroyed ([ACSSU178](#))

Chemical reactions, including combustion and the reactions of acids, are important in both non-living and living systems and involve energy transfer ([ACSSU179](#))

Science Inquiry Skills

Plan, select and use appropriate investigation types, including field work and laboratory experimentation, to collect reliable data; assess risk and address ethical issues associated with these methods

([AC SIS165](#))

Select and use appropriate equipment, including digital technologies, to collect and record data systematically and accurately ([AC SIS166](#))

Digital Technologies

Investigate and make judgements on how the principles of food safety, preservation, preparation, presentation and sensory perceptions influence the creation of food solutions for healthy eating

([ACTDEK045](#))

VERSION 9

Achievement Standard

By the end of Year 9, students explain observable chemical processes in terms of changes in atomic structure, atomic rearrangement and mass. Students plan and conduct safe, reproducible investigations to test or identify relationships and models. They select and use equipment to generate and record replicable data with precision.

Science Understanding: Chemical Sciences

Model the rearrangement of atoms in chemical reactions using a range of representations, including word and simple balanced chemical equations, and use these to demonstrate the law of conservation of mass ([AC9S9U07](#))

Science Inquiry Skills

Plan and conduct valid, reproducible investigations to answer questions and test hypotheses, including identifying and controlling for possible sources of error and, as appropriate, developing and following risk assessments, considering ethical issues, and addressing key considerations regarding heritage sites and artefacts on Country/Place ([AC9S9I02](#))

Select and use equipment to generate and record data with precision to obtain useful sample sizes and replicable data, using digital tools as appropriate ([AC9S9I03](#))



*Creative & Critical
Thinking*



*Ethical
Understanding*



Digital Literacy



Numeracy

GRADE 10

VERSION 8.4

Science Understanding: Chemical Sciences

Different types of chemical reactions are used to produce a range of products and can occur at different rates ([ACSSU187](#))

Science Inquiry Skills

Plan, select and use appropriate investigation types, including field work and laboratory experimentation, to collect reliable data; assess risk and address ethical issues associated with these methods ([ACSIS199](#))

Select and use appropriate equipment, including digital technologies, to collect and record data systematically and accurately ([ACSIS200](#))

Digital Technologies

Investigate and make judgements on how the principles of food safety, preservation, preparation, presentation and sensory perceptions influence the creation of food solutions for healthy eating ([ACTDEK045](#))

VERSION 9

Achievement Standard

By the end of Year 10, students plan and conduct safe, valid and reproducible investigations to test relationships or develop explanatory models. They select equipment and use it efficiently to generate and record appropriate sample sizes and replicable data with precision.

Science Understanding: Chemical Sciences

Identify patterns in synthesis, decomposition and displacement reactions and investigate the factors that affect reaction rates ([AC9S10U07](#))

Science Inquiry Skills

Plan and conduct valid, reproducible investigations to answer questions and test hypotheses, including identifying and controlling for possible sources of error and, as appropriate, developing and following risk assessments, considering ethical issues, and addressing key considerations regarding heritage sites and artefacts on Country/Place ([AC9S10I02](#))

Select and use equipment to generate and record data with precision to obtain useful sample sizes and replicable data, using digital tools as appropriate ([AC9S10I03](#))



Creative & Critical Thinking



Ethical Understanding



Digital Literacy



Numeracy



CLASSROOM RESOURCES

PIEFA National Ag Week with Wine Australia

Within the resource, teachers can access a series of short Australian curriculum-aligned videos and accompanying student worksheets celebrating STEM and innovation in food and fibre production. Five curriculum-aligned questions have been answered by inspiring stakeholders working in viticulture within the Australian agricultural sector. Access the videos to hear about the technologies and innovation helping them sustainably produce Australian wine.

primezone.edu.au/resource/wine-ag-week-2023-digital-learning-kit/

PIEFA Investigating Australian Food and Fibres: Cape Jaffa Wines

Anna Hooper is a winemaker with Cape Jaffa Wines in South Australia. Anna discusses the 63 different wine regions which are defined by climate, geography and soil types. White and red wine varieties are grown at her vineyard, using biodynamic production techniques avoiding the use of chemicals, pesticides, and herbicides, choosing instead to use natural ways to control pests. The video also includes information on the wine making process and the marketing of the wines.

primezone.edu.au/resource/investigating-food-and-fibres-video-and-worksheet/

ABC Education: Growing Grapes and Making Wine

Wine is an important agricultural industry in Australia, with over one billion litres of wine made here each year. There are more than 2,000 wineries in Australia and about 65 wine regions, found mostly in cooler southern parts of the country. But how are grapes turned into wine? Tim Thompson and his students make wine as part of an agriculture subject at their school. Join them as they show us all the steps that go into winemaking, from growing healthy grapevines to testing, harvesting, crushing and fermenting the grapes. We learn how wine is pressed, stored and bottled, and we visit a large Yarra Valley winery nearby, which has a partnership with the school.

www.abc.net.au/education/growing-grapes-and-making-wine/14105430

ABC Education: The Business of Winemaking

Visit Yering Station vineyard and learn about growing grapes and winemaking. Check out a grape harvesting machine, find out how grapes are protected from the cold and discover some of the ways vineyard and winery waste is being managed.

www.abc.net.au/education/the-business-of-winemaking/101899468



GRADE 11 & 12

CHEMISTRY 2025

Syllabus Objectives

2. Apply Understanding

Students use scientific concepts, theories, models and systems within their limitations. They use algebraic, visual and graphical representations of scientific relationships and data to determine unknown scientific quantities or features. They explain phenomena, concepts, theories, models, systems and modifications to methodologies.

5. Evaluate Conclusions, Claims and Processes

Students critically reflect on the available evidence and make judgments about its application to research questions. They extrapolate findings to support or refute claims. They use the quality of the evidence to evaluate the validity and reliability of inquiry processes and suggest improvements and extensions for further investigation.

6. Investigate Phenomena

Students develop rationales and research questions for experiments and investigations. They modify methodologies to collect primary data and select secondary sources. They manage risks, environmental and ethical issues and acknowledge sources of information.

Additional Subject-Specific Information

Science Inquiry

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'.

Within this syllabus, it is expected that students will engage in aspects of the work of a scientist by engaging in scientific inquiry. This expectation can be seen, for example, by the inclusion of practicals and investigations in the subject matter, and in the internal assessments.

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 2015).

Unit 3: Equilibrium, Acids and Redox Reactions

In Unit 3, students explore the reversibility of reactions in a variety of chemical systems at different scales; acid-base equilibrium systems and their applications; the principles of oxidation and reduction reactions; and the production of electricity from electrochemical cells. Processes that are reversible will respond to a range of factors and can achieve a state of dynamic equilibrium, while contemporary models can be used to explain the nature of acids and bases, and their properties and uses.



CHEMISTRY 2025

Students conduct investigations on electrochemical cells and volumetric analysis applications. They examine qualitative and quantitative data about acids, equilibrium and redox to analyse trends and draw conclusions.

They participate in experiments and investigations related to the principles of dynamic chemical equilibrium and how these can be applied to chemical processes and systems; electrochemical cells, the choice of materials used and the voltage produced by these cells; pH scale and the extent of dissociation of acids and bases; and the concentrations of ions in an aqueous solution. Collaborative experimental work allows students to progressively develop their science inquiry skills, while gaining an enhanced appreciation of the importance of equilibrium and redox in the real world.

Contexts that could be investigated include environmental issues, such as acid rain and oceanic acidification; food or wine production; the historical development of theories about acids, corrosion and corrosion prevention; fuel cells; and uses of electrochemistry. Through the investigation of appropriate contexts, students explore the ways in which models and theories related to acid-base and redox reactions, and their applications, have developed over time, and the ways in which chemistry contributes to contemporary debate in industrial and environmental contexts, including the use of energy, evaluation of risk and action for sustainability

Topic 1: Chemical Equilibrium Systems

The following subject matter may be assessed in the internal assessments.

- Appreciate that the production of wine, along with that of many other food products, relies on the successful control of a range of reversible reactions in order to maintain the required chemical balance within the product.
- Explore the chemistry of wine

[QCAA Chemistry 2025 v1.0 General Senior Syllabus](#)



CLASSROOM RESOURCES

PIEFA National Ag Week with Wine Australia

Within the resource, teachers can access a series of short Australian curriculum-aligned videos and accompanying student worksheets celebrating STEM and innovation in food and fibre production. Five curriculum-aligned questions have been answered by inspiring stakeholders working in viticulture within the Australian agricultural sector. Access the videos to hear about the technologies and innovation helping them sustainably produce Australian wine.

primezone.edu.au/resource/wine-ag-week-2023-digital-learning-kit/



Visible Farmer: Episode 13 - To Her Own Tune with Suzie Muntz

What do wine grapes and bagpipes have in common? They take a lot of practice to hit the sweet spot and Suzie loves them both. She is a country girl who always wanted to be outdoors and grow things. University gave her the chance she needed. Suzie realised you don't need to own a farm to study agriculture and went for it, studying hard and taking every opportunity to get her hands dirty. Picked by Wine Australia in 2015 as one of their Future Leaders, Suzie still is one of only a handful of female grape growers in the country. She is encouraging more women to join her. Watch Episode 13 of Visible Farmer to hear her story.

www.visiblefarmer.com/Women/



ADDITIONAL RESOURCES

Career Harvest & Wine Australia: Careers in Wine/Viticulture

Career Harvest is a one-stop shop for prospective students to discover rewarding careers in Agriculture. Wine Australia supports a prosperous Australian grape and wine community - and they've released a series of videos about the many career opportunities in viticulture. Take a look at the three videos online and encourage further exploration into career opportunities.

www.careerharvest.com.au/career-videos/wine-viticulture-careers



Ekka

EDUCATION

INTERNATIONAL AWARD WINNERS

The Royal Queensland Show (Ekka) is recognised for its excellence, over many years, by winning numerous awards at the International Fairs & Expos (IAFE) Awards.

IAFE has more than 1,000 members representing agricultural fairs from the United States, Canada, the United Kingdom, and Australia.

These awards represent the continued dedication the Ekka plays in bridging the country city divide, and educating the next generation on the essential role farming and agriculture plays in their everyday lives.



www.ekka.com.au