

PRIMED

Teacher resource

Year

8

HASS



Department of Primary Industries and Regional Development
Department of Training and Workforce Development
Department of Education

PRIMED8TL001 | HASS | Economics and Business | The business of food production | Teaching resource
© Department of Education WA 2021

Any *Western Australian Curriculum* content in this resource is used with the permission of the School Curriculum and Standards Authority; this permission does not constitute Authority endorsement of the resource. The Authority accepts no liability for any errors or damages arising from reliance on its content. The *Western Australian Curriculum* content may be freely copied, or communicated on an intranet, for non-commercial purposes in educational institutions, provided that the Authority is acknowledged as the copyright owner. Copying or communication for any other purpose can be done only within the terms of the *Copyright Act 1968* or with prior written permission of the Authority. Any *Australian Curriculum* content in the *Western Australian Curriculum* is used by the Authority under the terms of the [Creative Commons Attribution – NonCommercial 3.0 Australia licence](#).



Teaching guide: The business of food production

Resources overview

PRIMED mission

To increase student understanding of agriculture, fisheries, fibre, forestry and food (primary industries) careers to enable Year 7–12 students to make informed career-pathway choices.

The business of food production

These activities challenge students to engage with the *Western Australian Humanities and Social Science Curriculum* through the Economics and Business course for year 8 students. These resources consider the different types of business structures, the ways that food production businesses have responded to opportunities and the influences on the way people work in primary industries.

Curriculum links

This resource is designed to be a learning pathway for Year 8 HASS students to develop their understanding of the Western Australian Curriculum **Economics and Business** content descriptors:

- Types of businesses (e.g. sole trader, partnership, corporation, cooperative, franchise) and the ways that businesses respond to opportunities in Australia ([ACHEK030](#))
- Influences on the ways people work (e.g. technological change, outsourced labour in the global economy, rapid communication changes and factors that might affect work in the future) ([ACHEK031](#))

It also gives opportunity for students to develop the General Capabilities of:

- Personal and social capability
- Ethical understanding
- Literacy
- Critical and creative thinking
- Information and Communication Technology (ICT) capability

It further allows development of the **HASS Inquiry Skills** integral to the WA Curriculum.



| Types of businesses | | |
|--|--|--|
| Educational process | Teaching and learning focus | Resources |
| Engage Engage students and elicit prior knowledge | Module 1: As an introductory activity, students are required to list all the businesses they know of. The teacher will direct a discussion to determine what they know about the businesses listed. For example, size, ownership, other locations etc. Students will group businesses based on, what they think are, the common elements. The teacher will provide brief definitions of the types of business structures common in Australia and ask students to reclassify their lists based on structure/ownership. Homework for next lesson: Students to gather information regarding local businesses. | Student worksheets: <ul style="list-style-type: none"> Student worksheet 1.1 Student worksheet 2.1 |
| Explore Find out more about the concept, topic or idea | Module 2: To find out more about the types of business structures, a guest speaker would be a valuable resource (if it is possible) to explain an example in your local area. Discuss survey results from class members and collate results. Do the results support the statement below? 'Sole traders account for approximately 64% of businesses in WA.' | Online resources: <ul style="list-style-type: none"> Australian Bureau of Statistics (ABS) an interactive map showing the number of businesses in each statistical or local government area. Small Business Development Corporation Student worksheet: <ul style="list-style-type: none"> Student worksheet 2.1 |

| | | |
|--|--|--|
| <p>Explain</p> <p>Use a variety of methods to collect relevant information and/or data from a range of appropriate sources, such as print, digital, audio, visual and fieldwork</p> | <p>Module 3:</p> <p>Students will research information regarding each type of business structure using either their prescribed textbook or the websites provided. They will be given a scenario and required to define the business structure, and list the advantages and disadvantages of that structure.</p> | <p>Online resources:</p> <ul style="list-style-type: none"> • 101 GUIDE Business Structures – choosing your business structure • 101 GUIDE Business Structures - franchises • Business Victoria (n.d.) Setting up a business • Business Tasmania (n.d) Managing a business • Small Business Development Corporation <p>Student worksheet:</p> <ul style="list-style-type: none"> • Student worksheet 3.1 |
| <p>Elaborate</p> <p>Extend understanding to a new context or make connections to additional concepts through a student-planned investigation</p> | <p>Module 4</p> <p>Students investigate an example of a cooperative to determine how they address the advantages and disadvantages of that business structure.</p> <p>The example included is for a cooperative – Cooperative Bulk Handling (CBH).</p> | <p>Online resources:</p> <ul style="list-style-type: none"> • CBH Group <p>Student worksheets:</p> <ul style="list-style-type: none"> • Student worksheet 4.1 • Student worksheet 4.2 |
| <p>Evaluate</p> <p>Students re-represent their understanding and reflect on their learning journey, and teachers collect evidence about the achievement of outcomes</p> | <p>Module 5</p> <p>As a plenary activity for this series of lessons, students use the Connect Extend Challenge thinking routine to make connections between prior knowledge and new ideas, construct questions and reflect on their learning.</p> | <p>Student worksheet:</p> <ul style="list-style-type: none"> • Student worksheet 5.1 |

| The ways businesses respond to opportunities | | |
|---|--|---|
| Educational process | Teaching and learning activities | Teacher resources/Student activities |
| Engage Engage students and elicit prior knowledge | Module 6 Students consider an example of a target market. The Western Australian government invests in research and development of agricultural businesses that have the potential to succeed in the Asian market. Teacher to provide background information based on current textbooks: <ul style="list-style-type: none"> Target market Demographics Competition Location | Student worksheet: <ul style="list-style-type: none"> Student worksheet 6.1 |
| Explore Find out more about the concept, topic or idea | Module 7 Explain how the government assists businesses to expand and take advantage of opportunities at a local, national and global level. In this activity, students will look at an example of a target market for West Australian agribusinesses via the Department of Primary Industries and Regional Development (DPIRD) website – Asian Market Success. | Online resources: <ul style="list-style-type: none"> Asian Market Success video DPIRD - background information for teachers Western Australian Asian Engagement Strategy 2019-2030 PDF and summary PDF. Other resources: <ul style="list-style-type: none"> Video transcript Student worksheet: <ul style="list-style-type: none"> Student worksheet 7.1 |
| Explain Use a variety of methods to collect relevant information and/or data from a range of appropriate sources, such as print, digital, audio, visual and fieldwork | Module 8 The government also provides opportunities for businesses to invest in new projects or expand current activities in order to increase productivity and create jobs. In this activity, students will view a video summary of examples showcasing how government grants have been used in a variety of businesses. | Online resources: <ul style="list-style-type: none"> DPIRD – Value Add Agribusiness Investment Attraction Fund (VAAIAF) grants video DPIRD - VAAIAF background information Student worksheet: <ul style="list-style-type: none"> Student worksheet 8.1 |

| | | |
|---|---|---|
| Elaborate Extend understanding to a new context or make connections to additional concepts through a student-planned investigation | Module 9 In the activity, students will be given the opportunity to research a business to determine which opportunities they have taken advantage of and present to the class. | Student worksheet: <ul style="list-style-type: none"> Student worksheet 9.1 |
| Evaluate Students re-represent their understanding and reflect on their learning journey, and teachers collect evidence about the achievement of outcomes | Module 10 In this activity, students are required to complete an extended writing task to demonstrate their understanding. A graphic organiser is provided for planning. | Student worksheet: <ul style="list-style-type: none"> Student worksheet 10.1 |

| Influences on the way people work | | |
|--|---|--|
| Educational process | Teaching and learning activities | Teacher resources/Student activities |
| Engage Engage students and elicit prior knowledge | Module 11 In this introductory activity, students consider how technology has influenced work in the school environment and in one aspect of agriculture. | Online resources: <ul style="list-style-type: none"> DPIRD Sheep Industry Business Innovation (SIBI) – 5 key technologies stories Student worksheet: <ul style="list-style-type: none"> Student worksheet 11.1 |
| Explore Find out more about the concept, topic or idea | Module 12 Students are provided with examples of how technology is used in agriculture. | Online resources: <ul style="list-style-type: none"> ABC Education <ol style="list-style-type: none"> Egg Farming: Ethics and Economics Is robotics the future of cattle farming? What are modular farms? How farmers use microchips on dairy farms Drones and bugs Student Worksheet: <ul style="list-style-type: none"> Student worksheet 12.1 |

| | | |
|--|---|--|
| <p>Explain</p> <p>Use a variety of methods to collect relevant information and/or data from a range of appropriate sources, such as print, digital, audio, visual and fieldwork</p> | <p>Module 13</p> <p>Students will view a PowerPoint presenting some of the technology used in agriculture.</p> | <p>Other resources:</p> <ul style="list-style-type: none"> PowerPoint 13.0 Agriculture and technology |
| <p>Elaborate</p> <p>Extend understanding to a new context or make connections to additional concepts through a student-planned investigation</p> | <p>Module 14:</p> <p>Students will research one of the technologies in agriculture and present their findings to the class.</p> | <p>Online resources:</p> <ul style="list-style-type: none"> AgriFutures Australia agrifutures.com.au <ol style="list-style-type: none"> Resources and publications <p>A list of examples has been included in the suggested activities.</p> <p>Student Worksheet:</p> <ul style="list-style-type: none"> Student worksheet 14.1 |
| <p>Evaluate</p> <p>Students re-represent their understanding and reflect on their learning journey, and teachers collect evidence about the achievement of outcomes</p> | <p>Module 15:</p> <p>Students demonstrate their understanding by completing a table showing how the work of farmers has changed due to technology.</p> | <p>Student Worksheet:</p> <ul style="list-style-type: none"> Student worksheet 15.1 |

Learning resources and sequence

Module 1:

(approximately 20-30 minutes)



Learning intentions

Students will be able to:

- List the types of business structures commonly found in Australia.

Background information

This activity is designed to introduce students to the terms associated with business structures. The next lesson looks at the details, advantage and disadvantages of each type.

The main business structures are sole trader, company, partnership and trust. Teachers can also introduce the terms franchise, cooperative, social enterprise and incorporated association (generally sporting clubs).

[Choosing your business structure | Small Business](#) Provides a brief definition of each structure.

[Definitions and data sources for small business in Australia: A quick guide](#)

Geoff Gilfillan
Statistics and Mapping Section

How do we define small business?

The Australian Bureau of Statistics (ABS) defines a small business as a business employing fewer than 20 people. Categories of small businesses include:

- Non-employing businesses (sole proprietorships and partnerships without employees)
- Micro-businesses (businesses employing between 1 and 4 people including non-employing businesses)
- Other small businesses (businesses that employ between 5 and 19 employees)

Small businesses are more likely to have independent ownership and be operated independently. Owners or managers of small businesses tend to have close control of operations, undertake principal decision making and contribute most of the operating capital.

The Australian Taxation Office (ATO) uses a different definition of small business. According to the ATO, a small business entity is an individual, partnership, company or trust that is carrying on a business and has less than \$2 million in aggregated turnover. Aggregated turnover is the annual turnover from a current business and any annual turnover from other businesses that an individual is connected or affiliated with. Note that a business that has less than \$2 million in turnover may have 20 employees or more while a business with fewer than 20 employees may have turnover that exceeds \$2 million per annum. The ATO also define a micro business as having total business income of less than \$2 million while a small business has business income of between \$2 and \$10 million per annum.

Resources and equipment

Student worksheets:

- Student worksheet 1.1
- Student worksheet 2.1

Instructions for suggested activities

- 1) Brainstorm the names of all the businesses students know. This could be done individually, in pairs or as a whole class activity. Prompt students to think about the main street, shopping centres, where they or other family members work or the services they use.
- 2) Ask students how they would classify the businesses. For example, size, number of employees, income, locally owned, Australian owned or a multinational cooperation.
- 3) Provide the definitions for sole trader, company, partnership, trust and franchise and ask students to reclassify the business.
- 4) Conduct a discussion to determine prior knowledge and what they have learnt.
 Suggestions:
 What criteria did you use to classify the businesses?
 Did your ideas agree with the official definitions?
 Did you change any of your classifications?
 Did you know the terms used to describe business structures?

Survey:

Students need to complete student worksheet 2.1 prior to the next module. Students can physically collect data or use google maps/street view to investigate an area. Therefore, the activity can be issued as homework or completed in class using computers.

Idea: Set up a cloud based spreadsheet that the students can contribute to and use to graph and discuss results.

Module 2:**(approximately 20-30 minutes)****Learning intentions**

Students will be able to:

- Use a variety of methods to collect relevant data.
- Translate information and/or data from one format to another.

Background information

[Facts and statistics | Small Business](#) provides a graphic representation of the contribution that small business makes to Western Australia. The statistics classify businesses based on size but it does show that sole traders account for 64.4% of all businesses in Western Australia.

[Counts of Australian Businesses, Entries and Exits, 2019-20 \(arcgis.com\)](#) is an interactive map showing the number of business in each statistical or local government areas. It does not differentiate between types of businesses but does state the main industry.

Resources and equipment

Student worksheet:

- Student worksheet 2.1

Instructions for suggested activities

- 1) Present the statement
'Sole traders account for approximately 64% of businesses in Western Australia.'

(Teachers could also show the graphic from the [Facts and statistics | Small Business](#))
- 2) Collate and graph survey results. This can be done individually or as a class – it will depend on how the teacher has set up the survey).
- 3) Discuss: do the survey results support the statement?
- 4) If possible, invite a guest speaker from a local business to explain the structure they have adopted for their business.

Module 3:**(approximately 20-30 minutes)****Learning intentions**

Students will be able to:

- Outline the advantages and disadvantages of the different business structures common in Australia.

Background information

This lesson is the 'theory' lesson and students will use a textbook or internet sources to research the advantages and disadvantages of each type of business structure.

Change the scenarios to suit your cohort/location. The point of the exercise is to highlight the advantages and disadvantages of each business structure. The second column can be completed for the students if necessary. An answer sheet has been included.

Resources and equipment

- [101 GUIDE Business Structures](#)
- [101 GUIDE Business Structures and Types: Franchises](#)
- [Business Victoria](#) (n.d.) Setting up a business
- [Business Tasmania](#) (n.d) Managing a business
- [Small Business Development Corporation](#)

Student worksheet:

- Student worksheet 3.1

Instructions for suggested activities

- 1) Distribute Student worksheet 3.1 and read through the scenarios.
- 2) Students to complete 'Type of business structure', suggesting an appropriate business structure for the given scenario.
- 3) Direct students to available resources, to complete the 'advantages' and 'disadvantages' columns. (Use a structure that suits your cohort.)
- 4) Compare answers and add any relevant information.

Module 4:**(approximately 30-40 minutes)****Learning intentions**

Students will be able to:

- Use an example to demonstrate how cooperatives address the advantages and disadvantages of the business structure.

Background information

Cooperative Bulk Handling (CBH) is Australia's largest cooperative in the grain industry and has operations along the supply chain. It is owned and controlled by approximately 3,700 WA grain growers within the wheat belt region of South West Western Australia.

Resources and equipment

Online resources:

- [CBH](#)

Student worksheets:

- Student worksheet 4.1
- Student worksheet 4.2

Instructions for suggested activities

- 1) Use the [CBH webpage](#) to introduce the cooperative CBH - Cooperative Bulk Handling and provide an overview of the business.
- 2) Distribute Student worksheet 4.1. Revise the advantages and disadvantages of cooperatives.
- 3) Use student worksheet 4.2 (CBH Infographic) and/or the CBH Group website to answer the questions on worksheet 4.1.
- 4) Students to prepare an 'About us' paragraph to be used on the CBH website.

Module 5:**(approximately 20-30 minutes)****Learning intentions**

Students will be able to:

- Reflect on learning to review original understandings

Background information

This thinking routine provides a structure to help students **CONNECT** ideas to what they know, reflect on what they have learnt to **EXTEND** their thinking and apply their knowledge by considering a **CHALLENGE**.

Resources and equipment

Student worksheet:

- Student worksheet 5.1

Instructions for suggested activities

- 1) Class brainstorm 'What have you learnt about business structures?'
- 2) Distribute Student worksheet 5.1. Students can work individually, in pairs or groups to answer the prompts.
- 3) Share responses from the **CHALLENGE** section.

Module 6:**(approximately 15-20 minutes)****Learning intentions**

Students will be able to:

- List examples of how the State government and Western Australian businesses cooperate to expand into the Asian market.

Background information

The Oxford and Jacaranda textbooks cover the following broad topics as opportunities for businesses in Australia:

- Target market
- Demographics
- Competition
- Location

For this series of activities, students will investigate how the government assists businesses to reach their target market and provide funding for expansion of businesses.

Resources and equipment

Student worksheets:

- Student worksheet 6.1

Instructions for suggested activities

- 1) Discuss the elements listed above with the class to provide some background information.
- 2) Distribute Student worksheet 6.1 and complete using a strategy suitable for your class e.g. think, pair, share; brainstorm or small group discussion.
- 3) Collate student ideas as a whole class, sorting into two groups – possible now, not possible yet – using a student majority vote.
- 4) Create a 'snakes and ladders' game.

Students can work individually or in pairs to choose four strategies (from their ideas or the class discussion) for the 'ladders' and four possible pitfalls a business might face by expanding into new markets.

Swap and play games.

Module 7:**(approximately 30-40 minutes)****Learning intentions**

Students will be able to:

- List the advantages of identifying a target market.

Background information

The video referenced for this activity was made in 2016; however, the program has been extended until 2023 with an allocation in the 2019/2020 budget. The background information was updated in 2020.

Resources and equipment

Online resources:

- [Asian Market Success/ Department of Agriculture and Food WA](#)
- [Asian Market Success](#)
- [Grants for Asian Market Export Program](#)
- [Western Australian Engagement Strategy 2019 – 2030](#)

Other resources:

- Video transcript

Student worksheets:

- Student worksheet 7.1

Instructions for suggested activities

- 1) Teacher to provide background information regarding the Asian Market being a target market for WA businesses.
- 2) Watch the video and complete the first table on Student worksheet 7.1. Discuss answers (provided on the transcript).
- 3) Using a format that suits your cohort, complete the second part of the worksheet (benefits to the stakeholders).
- 4) Discuss and consider future target markets for WA produce.

Module 8:**(approximately 50-60 minutes)****Learning intentions**

Students will be able to:

- Explain how the government provides opportunities for businesses in WA.

Background information

Businesses can apply to the government for funding to invest in expansion, relocation or value adding to processing or production facilities. The aim is to support WA industry, provide jobs and secure target markets locally, nationally and overseas.

The DPIRD link provided outlines the value of investments and has a link to the application package. Use the information relevant to your cohort. There is also a list of successful applicants so you can check to see if a business in your region has been successful in applying for a grant.

Resources and equipment

Online resources:

- [VAAIAF grants video](#)
- [Value Add Agribusiness Investment Attraction Fund - Successful Recipients](#)

Student worksheets:

- Student worksheet 8.1

Instructions for suggested activities

- 1) Provide background information regarding the grants available.
- 2) Watch the video provided, and complete Student worksheet 8.1 and discuss answers.
- 3) Discuss the benefits of the program, the implications for the businesses and the alternative if they did not receive the grant.

Module 9:**(approximately 60 - 120 minutes)****Learning intentions**

Students will be able to:

- Use a variety of methods to collect relevant information and/or data from a range of appropriate sources, such as print, digital, audio, visual and fieldwork
- Represent information and/or data using appropriate formats to suit audience and purpose

Background information

The report provides background information for the teacher.

[Western Australia's Asian Engagement Strategy 2019-2030 - Our future with Asia \(www.wa.gov.au\)](http://www.wa.gov.au)

Resources and equipment

Online resources:

- [Western Australia's Asian Engagement Strategy](#)
 - WA Asian Engagement Strategy Summary 2019-2030
[wa-asian-engagement-strategy-summary-2019-2030.pdf \(www.wa.gov.au\)](#)
- The **Actions** referred to on the worksheet are on this document.

Student worksheets:

- Student worksheet 9.1

Instructions for suggested activities

- 1) Distribute Student worksheet 9.1.
- 2) Discuss businesses in the local area that might be suitable to investigate. They could be production, wholesale or retail businesses.
- 3) Students work individually, or in pairs, to complete the research.
- 4) Presentations to the class.
- 5) Discuss the findings and suggestions and summarise main points.

Module 10:**(approximately 50-60 minutes)****Learning intentions**

Students will be able to:

- Reflect on learning to review original understandings.

Background information

This activity provides an opportunity for students to plan and prepare an extended written response. Depending on the cohort, students may only complete the planning.

Resources and equipment

Student worksheet 10.1

Instructions for suggested activities

- 1) Class discussion activity to summarise what the students have learnt in this series of lessons. For example, brainstorm, 'give one, get one', 'think, pair, share'.
- 2) Distribute Student worksheet 10.1 and discuss requirements.
- 3) Use the ideas from step 1 to complete the graphic organiser.
- 4) Optional activity: students prepare an extended response.

Module 11:**(approximately 20-30 minutes)****Learning intentions**

Students will be able to:

- List examples of how new technology, available to sheep producers, influences the way farmers work.

Background information

DPIRD provides background information regarding the use of technology in the sheep industry on <https://agric.wa.gov.au/n/6320>. The examples show farms that have made savings in labour costs and had maintained or improved stock numbers.

The video link provided for this lesson shows five case studies in one video clip. It is possible to access the individual case studies via the above link. There are also documents available explaining each case study that can be utilised for a literacy task.

Examples of technology in primary industry from your local area would be a suitable alternative.

Resources and equipment

Online resources:

- [SIBI – 5 key technology changes](#)

Student worksheets:

- Student worksheet 11.1

Instructions for suggested activities

- 1) Initial class discussion, in a format that suits your cohort, to complete the top half of the table.
- 2) Provide a brief overview of the new farm technology available for sheep producers, explaining terms that are unfamiliar to your cohort.
- 3) Show the SIBI video presenting the five case studies.
- 4) Complete the second half of the table.
- 5) Discuss student responses.

Terms related to Sheep farming – mentioned in [SIBI: 5 Technology Stories](#)

| | | |
|--|--|--|
| Troughs | A watering trough (or artificial watering point) is a man-made or natural receptacle intended to provide drinking water to livestock on farms. Watering troughs are established so sheep, cattle and other domesticated animals can drink. | Top Tip – Placement of water troughs can alter the behaviour of livestock and limit land degradation (as result of camping or over grazing). |
| Troughs (meteorological) | A trough (meteorological) is an elongated area of lower air pressure. Pressure is closely linked to wind. There are often changes in wind direction across a trough. | |
| Sheep work | Any activity that involves the handling and management of sheep. Including - but not restricted to - shearing, drenching, tagging and shifting sheep to different paddocks (better pastures). | |
| Laneways (on farms) | Farm infrastructure intended to facilitate the movement of livestock and machinery around the farm. Laneways will be fenced on both sides and well-designed laneways will have a drain on both sides to collect water. | Top tip! Well-designed laneways can significantly reduce the demand for labour to move animals as well as reduce the amount of stress for the animals when moving them from one location to another. |
| Electronic Identification Tag or EID tag | An electronic button installed in the ear of registerable livestock. The electronic button has a 15 digit number that can be read by scanning the tag with an appropriate electronic reader. EIDs allow us to trace disease and residue issues in food animals from birth to slaughter and is used to secure markets and prevent diseased meat entering the food supply. | NLIS and Identification - Sheep |
| Seed stock rams | Seed stock is an alternative name for breeding stock. Seed stock have been bred to have favourable physical attributes and the ability to pass on those attributes genetically to the next generation. | |
| Drench | A dose of medicine (liquid) forcibly administered to an animal orally. Drenches are administered to sheep to control internal parasites – worms etc. | |
| Drench gun | A drench gun is a handheld metal automatic syringe capable of delivering, via the mouth a pre-set dose of medicine most commonly an anti-worming medication. | |
| Weighing (in reference to wool) | Weighing unprocessed shorn fleece to measure and evaluate the ASBV values of individual sheep. | In the video, they are using EID technology and electronic scales to assess the quality of individual animals' wool production against ASBV values with a view to achieving genetic gain. |
| Wool cut | Is a flocks' average of the kilograms of clean fleece 'cut' or shorn from a single animal (per head). | |

| | | |
|---|---|---|
| Clean Fleece | A clean fleece is a fleece that has been shorn from an animal, 'skirts removed' | |
| Australian Sheep Breeding Values (ASBV) | <p>ASBV describe a particular sheep's breeding value for a certain trait, for example fleece weight, body weight or fibre diameter, and express the relative breeding value of sheep across different breeding flocks of that breed.</p> <p>ASBV are available for many traits such as growth rate, wool, reproduction, internal parasite (worm) resistance, dags and body conformational traits such as wrinkle and breech cover. ASBV are directly comparable across flocks within a breed.</p> | Genetic Selection and using Australian Sheep Breeding Values (ASBV) |
| Genetic gain | Genetic gain from selection, or simply "genetic gain," the improvement in average genetic value in a population or the improvement in average physical attributes due to selection within a population over cycles of breeding (Hazel and Lush, 1942). Genetic gains sought in sheep include faster growth, larger animals, finer micron wool, and skin that resists fly infestation. | |
| Nucleus flock | Livestock with the best genetics available to a business (expressed as ASBV) out of the lower base flock to identify the preferred genetics to be spread out into the larger sheep population through breeding. Specialist breeders use this tool so they can sell higher performing sheep with better genetics at a premium price. | |
| Lower base flock | The unimproved flock owned by the business. These animals have - at a point in time - the best available genetics and physical attributes, but not necessarily the best for the future. Businesses may buy in better genetics (and therefore attributes) through Artificial Insemination programs or the purchase of rams with a higher ASBV for the preferred attributes. | |

Module 12:**(approximately 30-60 minutes)****Learning intentions**

Students will be able to:

- Discuss the positive and negative aspects of technologies used in various forms of agriculture.

Background information

ABC Splash Education has a range of short videos available. Below is a selection of examples that can be used to discuss the use of technology in agriculture. There are other examples available if you want to change the selection. The examples discuss technology in a general sense and students will make the connection to how technology influences work in module 15. Alternatively, invite a guest speaker to visit the school to explain how technology has impacted their work.

Resources and equipment

Online resources:

- [Egg farming: Ethics and Economics](#)
- [Is robotics the future for cattle farming?](#)
- [What are modular farms?](#)
- [How farmers use microchips on dairy farms](#)
- [Drones and bugs](#)

Student Worksheet:

- Student worksheet 12.1

Instructions for suggested activities

- 1) Distribute student worksheet 12.1 and discuss the requirements. Plus = positive aspects, Minus = negative aspects, for example; time, cost and number of trials required to develop technology; Interesting = student ideas.
- 2) Watch some or all of the examples provided and then complete the worksheet.
- 3) Discuss student responses.

Module 13:**(approximately 15-20 minutes)****Learning intentions**

Students will be able to:

- Describe examples of technology used in agriculture.

Background information

A Curtin University lecturer provided a PowerPoint summarising some of the technologies emerging in Agriculture. It has been adapted for use in the classroom. Edit as necessary for your cohort. It is based on information from a report compiled by AgriFutures Australia (see links below).

- [Emerging Technologies in Agriculture](#)
- [AgriFutures Publications & Resources](#)

Resources and equipment

- PowerPoint – 13.0 Agriculture and technology

Please note: there is no student worksheet for this module

Instructions for suggested activities

The PowerPoint presents some further examples of technology in agriculture. After presenting to the class, students will research some of the options in the next module.

Module 14:**(approximately 30-60 minutes)****Learning intentions**

Students will be able to:

- Apply subject specific skills and concepts in familiar and new situations.

Background information

AgriFutures also have a series of factsheets related to primary industries and space-based technology. Use these to assist with research or in an activity such as a round robin or jigsaw.

The first group of links are two-page PDFs providing a simplified version of the information contained in the report referenced in the previous module. The second set of links are one page infographics with images and dot points. They were published in 2016 so students may need to conduct further research to see how the technologies have progressed.

Students could work in groups of 2-3 if you decide to use the PDFs available.

Resources and equipment

Online resources:

- [Extensive livestock farming and space-based technologies](#)
- [Broadacre cropping and space-based technologies](#)
- [Horticulture and space-based technologies](#)
- [Fishing and space-based technologies](#)
- [AgriFutures Australia](#)
- [Transformative Technology Infographic: Gene Editing](#)
- [Transformative Technology Infographic: Robots](#)
- [Transformative Technology Infographic: Sensors](#)
- [Transformative Technology Infographic: Artificial Intelligence](#)
- [Transformative Technology Infographic: Internet of Things](#)
- [Transformative Technology Infographic: Synthetic Biology](#)
- [Transformative Technology Infographic: Nanomaterials](#)
- [Transformative Technology Infographic: 3D Printing](#)

Student worksheets:

Student worksheet 14.1

Instructions for suggested activities

Discuss and list the technologies in agriculture that were mentioned in modules 11, 12 and 13.

- 1) Distribute Student worksheet 14.1 to students and discuss requirements.
- 2) Students complete their research and present to class.
- 3) Discuss the advantages and disadvantages of implementing new technologies.
- 4) Possible activity: Class vote:- most interesting technology, most useful technology, most expensive technology etc.

Module 15:**(approximately 20-30 minutes)****Learning intentions**

Students will be able to:

- Explain the influence of technology on the ways farmers work.

Background information

The curriculum descriptor for this series of lessons is 'influences on the way people work'. Students demonstrate their understanding by suggesting the ways farmers worked before and after the technologies were introduced.

Resources and equipment

Student Worksheet:

- Student worksheet 15.1

Instructions for suggested activities

- 1) Recap the technologies that have been implemented in farming.
- 2) Distribute Student worksheet 15.1 – students to complete using resources from previous modules 11-14.
- 3) Discuss responses.

Acknowledgements

1. Australian Bureau of Statistics, (n.d.) *Counts of Australian Businesses, Entries and Exits, 2019-20* [interactive map] <<https://absstats.maps.arcgis.com/apps/MapSeries/index.html?appid=7fe915ad339041a8a79d1e07392c7d54>> accessed on 19 April 2021
2. Small Business Development Corporation (2021), *Small Business Development Corporation*, website, <www.smallbusiness.wa.gov.au> accessed on 10 March 2021
3. Australian Government Business (n.d) *Business Structures and Types*, website<<https://business.gov.au/planning/business-structures-and-types/business-structures>> accessed on 10 March 2021
4. Australian Government Business (n.d) *Business Structures and Types: Franchising* Commonwealth of Australia, website <<https://www.business.gov.au/planning/business-structures-and-types/franchising>> accessed on 24 June 2020
5. Business Victoria (n.d) *Business Structures* website, Victoria State Government , website <<https://business.vic.gov.au/business-information/start-a-business/business-structures>> accessed on 14 June 2021
6. Business Tasmania (n.d) *Choosing a Business Structure* website, <https://www.business.tas.gov.au/manage_a_business/tax/choosing_a_business_structure> accessed on 14 June 2021
7. CBH Group, (n.d.), *Co-operative Bulk Handling, Perth* <<https://www.cbh.com.au/>>, accessed on 19 April 2021
8. Department of Primary Industries and Regional Development (n.d) *Asian Market Success*, website <<https://www.agric.wa.gov.au/r4r/asian-market-success?page=0%2C1>> accessed on 14 June
9. Government of Western Australia (2017 – 2021) *Western Australia's Engagement Strategy 2019 – 2030 – Our Future with Asia*, website <<https://www.wa.gov.au/government/publications/western-australias-asian-engagement-strategy-2019-2030-our-future-asia>> accessed on 14 March 2021
10. Government of Western Australia (2020) *Western Australia's Asian Engagement Strategy 2019 – 2030* [PDF 441 KB] <[wa-asian-engagement-strategy-summary-2019-2030.pdf](https://www.wa.gov.au/government/publications/western-australias-asian-engagement-strategy-2019-2030-our-future-asia)> accessed on 14 March 2021
11. Department of Primary Industries and Regional Development (28 February 2020) *VAAIAF grants / Department of Primary Industries and Regional Development* <<https://youtu.be/wrQTXnX4ycU>> Youtube, accessed on 14 June 2021
12. Department of Primary Industries and Regional Development (2020) *Value Add Agribusiness Investment Attraction Fund – Successful Recipients* website <<https://www.agric.wa.gov.au/food-beverages/value-add-agribusiness-investment-attraction-fund-successful-recipients>> accessed on 14 June 2021
13. Department of Primary Industry and Regional Development (n.d) *Agriculture and Food* <www.agric.wa.gov.au> accessed on July 2020
14. Australian Broadcasting Commission (2020) *ABC Education, Egg farming: ethics and economics*, website <<https://education.abc.net.au/home#!/media/3817799/>> accessed on July 2020

15. Australian Broadcasting Commission (2020) *ABC Education, Is robotics the future of cattle farming?* website < <https://education.abc.net.au/home#!/media/3377195/> > accessed on July 2020
16. Australian Broadcasting Commission (2020) *ABC Education: What are modular farms?* website < <https://education.abc.net.au/home#!/media/3023686/> > accessed on July 2020
17. Australian Broadcasting Commission (2020) *ABC Education: How farmers use microchips on dairy farms* website < <https://education.abc.net.au/home#!/media/3817863/> > accessed on July 2020
18. Australian Broadcasting Commission (2020) *ABC Education: Drones and bugs* website < <https://education.abc.net.au/home#!/media/2441241/> > accessed on July 2020
19. Department of Primary Industry and Regional Development (2021) *NLIS and identification – sheep* website < <https://www.agric.wa.gov.au/livestock-biosecurity/nlis-and-identification-sheep> > accessed on June 2021
20. Department of Primary Industry and Regional Development (2020) *Genetic selection and using Australian Sheep Breeding Values (ASBV)* website < <https://www.agric.wa.gov.au/livestock-biosecurity/nlis-and-identification-sheep> > accessed on June 2021
21. AgriFutures Australia (1989) *Publications & Resources* AgriFutures Australia, website, < https://agrifutures.com.au/publications-resources/publications/?fwp_per_page=64 > accessed on 24 March 2021
22. Geoff Gilfillan (2015) '[Definitions and data sources for small business in Australia: a quick guide](#)' Parliament of Australia, < www.aph.gov.au > accessed on 10 May 2021
23. Department of Primary Industry and Regional Development (2019) *New on-farm technology for sheep producers*, Government of Western Australia < <https://www.agric.wa.gov.au/feeding-nutrition/new-farm-technology-sheep-producers> > accessed on June 2021
24. Atkin, Owen et al. (2021) *Fact Sheet: Extensive livestock farming and space-based technologies* AgriFutures Australia, website, < <https://www.agrifutures.com.au/product/fact-sheet-extensive-livestock-farming-and-space-based-technologies/> > accessed on 8 March 2021
25. Atkin, Owen et al. (2021) *Fact sheet: Broadacre cropping and space-based technologies* AgriFutures Australia, website, < <https://www.agrifutures.com.au/product/fact-sheet-broadacre-cropping-and-space-based-technologies/> > accessed on 8 March 2021
26. Atkin, Owen et al. (2021) *Fact sheet: Horticulture and space-based technologies* AgriFutures Australia, website, < <https://www.agrifutures.com.au/product/fact-sheet-horticulture-and-space-based-technologies/> > accessed 8 March 2021
27. Atkin, Owen et al. (2021) *Fact sheet: Fishing and space-based technologies* AgriFutures Australia, website, < <https://www.agrifutures.com.au/product/fact-sheet-fishing-and-space-based-technologies/> > accessed 8 March 2021
28. AgriFutures Australia (1989) AgriFutures Australia, website < <https://www.agrifutures.com.au/?file=wp-content%2Fuploads%2F2021%2F04%2F21-045.pdf> > accessed on 8 March 2021

29. Taylor, Victoria (2016) *Transformative Technology Infographic – Gene Editing* AgriFutures Australia <<https://www.agrifutures.com.au/product/transformative-technology-infographic-gene-editing/>> accessed on 10 March 2021
30. Taylor, Victoria (2016) *Transformative Technology Infographic – Robots* AgriFutures Australia < <https://www.agrifutures.com.au/product/transformative-technology-infographic-robots/>>accessed> on 10 March 2021
31. Taylor, Victoria (2016) *Transformative Technology Infographic – Sensors* AgriFutures Australia < <https://www.agrifutures.com.au/product/transformative-technology-infographic-sensors/>> accessed on 10 March 2021
32. Taylor, Victoria (2016) *Transformative Technology Infographic – Artificial Intelligence* AgriFutures Australia <<https://www.agrifutures.com.au/product/transformative-technology-infographic-artificial-intelligence/>> accessed on 10 March 2021
33. Taylor, Victoria (2016) *Transformative Technology Infographic – Internet of Things* AgriFutures Australia <<https://www.agrifutures.com.au/product/transformative-technology-infographic-internet-of-things/>> accessed on 10 March 2021
34. Taylor, Victoria (2016) *Transformative Technology Infographic – Synthetic Biology* AgriFutures Australia < <https://www.agrifutures.com.au/product/transformative-technology-infographic-synthetic-biology/>> accessed on 10 March 2021
35. Taylor, Victoria (2016) *Transformative Technology Infographic – Nanomaterials* AgriFutures Australia <<https://www.agrifutures.com.au/product/transformative-technology-infographic-nanomaterials/>> accessed on 10 March 2021
36. Taylor, Victoria (2016) *Transformative Technology Infographic – 3D Printing* AgriFutures Australia < <https://www.agrifutures.com.au/product/transformative-technology-infographic-3d-printing/>> accessed on 10 March 2021
37. GHD and AGThenics (2018) *Emerging Technologies in Agriculture: Consumer Perception around Emerging AgTech* [PDF 6.41MB] <<https://www.agrifutures.com.au/wp-content/uploads/2019/01/18-048.pdf>> accessed on 3 May 2021

Student worksheet 3.1 ANSWERS

Business structures in Australia

Complete the following table using your textbook and internet sources,. Read the scenario and select the type of business structure you would recommend. Outline the advantages and disadvantages of the business structure you have suggested.

| Scenario | Type of business structure | Advantages | Disadvantages |
|--|----------------------------|---|---|
| Sanjiya wants to set up a small business to sell honey that her partner produces on their property. She wants to make all the decisions herself and keep all the profit. | sole trader | <ul style="list-style-type: none"> • Simple to set up • Retain control of assets and decisions • Fewer reporting requirements • Loss offset against income • Can use individual TFN • No payroll tax, super contributions or workers' compensation on income from business • Easy to change | <ul style="list-style-type: none"> • Unlimited liability – personal assets at risk • Little opportunity for tax planning |
| Georgia wants to set up a hamburger business but she does not want to compete with well-known brands. She has a limited amount of money to invest. | franchise | <ul style="list-style-type: none"> • An established product or service • An existing reputation and image • A pool of resources to fund advertising • Economies of scale when purchasing supplies | <ul style="list-style-type: none"> • Franchise agreements often include termination rights in favour of the franchisor. • You cannot always resell or renew the franchise. • The franchisor can act in their own commercial interest. Even if this reduces the income of franchisees, it may not be against the law. |
| A group of six farmers, committed to regenerative farming practices, want to share resources, knowledge and infrastructure in order to sell their products to the broader community. They all want to contribute to the running of the business. | cooperative | <ul style="list-style-type: none"> • Generally inexpensive to register. • All members must be active in the co-operative. • Members have an equal vote at general meetings regardless of their level of investment or involvement. • Other than directors, members can be aged under 18 years. These members cannot stand for office and do not have voting rights. | <ul style="list-style-type: none"> • As co-operatives are formed to provide a service to members rather than a return on investment, it may be difficult to attract potential members seeking a financial return. • There is usually limited distribution of profits to members and some co-operatives may prohibit the distribution of any surplus. • Members providing greater involvement or investment than others will still only get one vote. • Requires ongoing education programs for members. |

| | | | |
|--|---------|--|--|
| Wyatt wants to set up a new milk processing plant in the SW of WA. He anticipates that it could become a very valuable business. He wants to register the business as a separate entity. | company | <ul style="list-style-type: none"> Limited liability for shareholders. Well understood and accepted structure. Able to raise significant capital. Can carry forward losses indefinitely to offset against future profits. Easy to sell and pass on ownership. Profits can be reinvested in the company or paid to the shareholders as dividends. | <ul style="list-style-type: none"> Significant set-up and maintenance costs. Do not retain complete control. Complex reporting requirements. Cannot distribute losses to its shareholders. |
| Jian wants to set up a business that his children will benefit from in the future. | trust | <ul style="list-style-type: none"> Reduced liability especially if corporate trustee. Assets are protected. Flexibility of asset and income distribution. | <ul style="list-style-type: none"> Can be expensive and complex to establish and administer. Difficult to dissolve, dismantle, or make changes once established particularly where children are involved. Any profits retained to reinvest into the business will incur penalty tax rates. Cannot distribute losses, only profits. |

<https://www.smallbusiness.wa.gov.au/business-advice/business-structure>

<https://www.business.gov.au/planning/business-structures-and-types/franchising/buying-a-franchise>

Student worksheet 7.1 ANSWERS

Target market – Asia

The DPIRD website provides the following information regarding **The Asian Market Success Project**:

In 2015-16, the (now) Department of Primary Industries and Regional Development commenced a three-year, \$6 million Asian Market Success project funded by the State Government's Royalties for Regions program. The project provided WA agrifood businesses with the confidence to invest in accessing and developing high value, premium export markets in Asia.

The future of the WA agrifood sector is highly dependent on exporting. The Asian Market Success project provides assistance to WA agrifood businesses so that they are internationally competitive and therefore able to capture Asia's high value, premium export markets.

Watch the video [Asian Market Success](#) and complete the table below:

| | |
|---|--|
| <p>WHO?</p> <p>Managed by Department of Agriculture and food initially, now DPIRD</p> | <p>WHAT?</p> <p>Three-year \$6 million project funded by Royalties for regions</p> <p>Premium products are the focus</p> |
| <p>WHY?</p> <p>Boost confidence and capacity of WA agrifood businesses to build premium export markets in Asia</p> <p>Generate income for WA</p> | <p>WHERE?</p> <p>South East Asia Middle East Japan India</p> |
| <p>WHEN?</p> <p>2015- 2025 and beyond</p> | <p>HOW?</p> <p>Actively engaging businesses Sourcing export opportunities Equip exporters Develop target market opportunities Reliable sources of quality info In market partners Grants Trade officers in key target markets</p> |