PRIMED Teacher resource





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

PRIMED8TL001 | Technologies | Production to consumption | Teaching guide © Department of Education WA 2021



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Teaching guide: Production to consumption

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.

About the resource set

These resources provide rich tasks focused on the *Western Australian Design Technologies Curriculum* within a primary industries context.

This series of activities challenges students to explore the supply chain for sustainable production of food and fibre products. Throughout this series of activities students will explore how consumer buying decisions and opinion can influence components of the supply chain.

Teachers will have access to industry examples, which focus on sustainable food and fibre supply systems in Western Australia.

Students will apply their knowledge of supply chains to design products using locally produced commodities and explore the journey of food or fibre commodities from farm to fork/fashion.

Teachers could adapt this unit of work to provide students with practical food or textiles activities they see suitable to the resources and facilities available at their school.







Curriculum links

This resource is designed to be a learning pathway for Year 8 Technologies students to develop their understanding of the *Western Australian Curriculum* **Design and Technologies** content descriptions:

Context:

Food and fibre production (ACTDEK032)

Knowledge and understandings

Technologies and society (ACTDEK029) and (ACTDEK030)

Processes and production skills:

- Investigating and defining (WATPPS46), (WATPPS47) and (WATPPS48)
- Designing (WATPPS49) and (WATPPS50)
- Producing and implementing (WATPPS51)
- Evaluating (WATPPS52)
- Collaborating and managing (WATPPS53)

Resource set structure

The resource set is structured around constructivist learning principles using a 5-E instructional model: engage, explore, explain, elaborate and evaluate.

With this combined approach:

- 1. Students' interest and minds are **engaged** in thinking about the origin of food items.
- 2. Students **explore** the products produced in Western Australia and the supply chain process, from primary production to consumption.
- 3. Students **explain** how raw commodities are processed to become value-added products and consider the factors that influence consumers buying decisions.
- 4. Students undertake a design challenge to **elaborate** on a range of concepts, such as:
 - where and how raw commodities are produced and processed in Western Australia
 - the supply chain process these raw commodities go through
 - primary and secondary processing techniques used to produce value–added products.
- 5. Students **evaluate** their learning and application of the design process.



Educational process	Teaching and learning focus	Resources
Engage	Module 1: Food journey (1-2 hours) This module requires students to read packaging labels to determine the origin of the ingredients in common food items. Alternative context: Teachers could complete this task with clothing items. Ask students to use clothing labels to identify what the garments are made of and where they were produced.	Online resources: • Refresh Ed Food Journey Activity Additional task: Student worksheet: • 1.1 SPC #MyFamilyCan Case Study
Explore	Module 2: Local produce and supply chains (2-3 hours) This module explores what produce is grown in Western Australia and which primary industries produce each commodity. Students will then explore the concept of the supply chain and identify the steps commodities take from production to consumption.	Online resources: • Agriculture in Western Australia Map • Overview of Western Australian Agriculture PDF • Our State on a Plate – Market City video • Refresh. ED Food Supply Chain activity • Additional task: Farm to Fork ECU game Classroom resource: • 2.0 The Supply Chain Video: • PRIMED Supply Chain - Video Student worksheet: • 2.1 Locally produced food and fibre • 2.2 Western Australian supply chains • 2.3 Who made my dinner?
Explain 1	Module 3: Value-added products (1-2 hours) This module introduces students to value-added agriculture and encourages them to source local examples of value-added food products.	PowerPoint presentation • 3.0 Western Australian food production Student Worksheet: • 3.1 Western Australian food production
Explain 2	Module 4: Consumer decisions (1-2 hours) This module guides students to identify the social, environmental and economic factors that influence consumers buying decisions.	PowerPoint presentation: • 4.0 Factors that influence our buying decisions Student Worksheets: • 4.1 What did you buy? • 4.2 Consumer decisions



Educational process	Teaching and learning focus	Resources
Elaborate	Module 5: Design challenge - The food and fibre journey (5-6 hours) This module encourages students to apply their knowledge of Western Australian produced food and fibre commodities to investigate the journey they take from production to consumption.	Student Worksheets: Design challenge – The food and fibre journey. Design challenge response document S.3 Commodity investigation – Student research organiser
Evaluate	Module 6: Self-reflection (1hour) Students complete a self-reflection using the given criteria to evaluate their design process and solution undertaken in Module 5.	Student Worksheet: • Design challenge – The food and fibre journey • 5.2 Design challenge response document



Learning resources and sequence

Module 1: Food journey

(approximately 1-2 hours)



Learning intentions

Students will be able to:

- read packaging labels and identify the origin of products.
- identify locally produced food and fibre commodities and products.

Background information

Origin labelling

There is a range of government policies and marketing campaigns that help consumers identify locally produced products and products, which are grown or manufactured overseas. Use the links below to support discussions about country of origin labelling with your students:

- Australian Made website
- Australian Competition & Consumer Commission Country of origin website
- Buy West Eat Best program

Other ways to recognise locally produced items include:

- Non-packaged items have in-store or point-of-sale labelling, which identifies the country of origin on the price ticket or shelf label
- Buying direct from the producer, either at the farm gate or a certified farmers' market
- Reading the packaging and finding the company or producer's address
- Clothing labels state the country of manufacture

Refresh.ED Food & Nutrition Teaching Resources Website

Refresh.ED has an extensive range of teaching resources which are free to download. You will need to REGISTER with Refresh.ED to access the recommended free resources.

Resources and equipment

- A range of packaged food items for students to review, for example bread, breakfast cereals, biscuits, snack bars, fresh fruit stickers, milk bottles
- Student Activity 1.0 <u>Refresh Ed Food Journey Activity</u> Downloaded from Refresh.ED Online Food and Nutrition Resources website
- Additional activity
- Video SPC #MyFamilyCan Case Study or read the case study transcript here.

Instructions for suggested activities

Introduction - Recognising Australian and Western Australian produce.

Provide students with some background information on government policies and marketing campaigns that help consumers to make informed decisions about where their food comes from.

Examples of these are -

- Australian Made
- Country of origin labelling regulations
- Buy West Eat Best program

Discuss what other ways we can find out where our food or clothing comes from using the background information notes as a guide.



Activity 1 – Food Journey

Provide students with a range of packaged food items, for example – bread, breakfast cereals, biscuits, snack bars, fresh fruit stickers, milk bottles.

In pairs or small groups, students are to read the labels and complete the Refresh.ED -Food Journey activity.

Additional activity

SPC #MyFamilyCan Case Study – Exploring the label changes for SPC tinned fruit and vegetables.

Students watch the Video <u>SPC #MyFamilyCan Case Study</u> or read the case study < https://causemarketing.com/case-study/spc-myfamilycan/> and complete Student worksheet 1.1 SPC #MyFamilyCan Case Study.



Module 2: Local produce and supply chains

(approximately 2-3 hours)



Learning intentions

Students will be able to:

- recognise the primary industries involved in producing food and fibre in Western Australia.
- identify the steps involved in a basic supply chain.

Background information

Local produce

Within the regional development zones of Western Australia, a large number of primary industries take place including, but not exclusive, to:

- poultry and eggs
- fibre
- dairy
- aguaculture and seafood
- grain
- grape and wine
- horticulture
- meat and livestock
- forestry/timber

Suggested supporting resources:

- WA Open for Business website
- Overview of Western Australian Agriculture PDF available on the Ag Academy website which requires teachers to ENROL for free to download resources.

Ag Academy is a program to educate primary school children about Agriculture in Western Australia. Some of the resources available on the teacher login section could be used to support teachers to understand Western Australian Agriculture and help deliver this module.

Supply chains

The supply chain is a series of steps a commodity goes through from production to consumption.

It is important to note that the supply chain process is different for every commodity but we can categorise the steps into 5 basic sections.

- Primary production
- Processing
- Distribution
- Access
- Consumption

Some commodities have a short supply chain from farm to consumption, for example, fresh vegetables purchased at a certified farmers' market. Others have a longer supply chain from farm to consumption, for example, wheat needs to be processed into flour, processed again to make bread then packaged and transported for sale at a store.

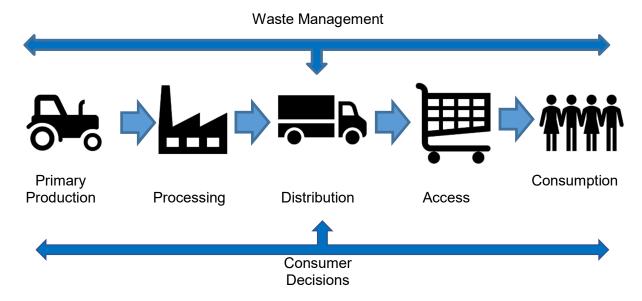
Waste occurs along all sections of the supply chain. The longer the supply chain the more chance there is for waste to be produced.

Consumer decisions can influence the supply chain. The choices consumers make about where they buy their produce, how they buy it, who they buy it from and what they buy influences all aspects of the supply chain.

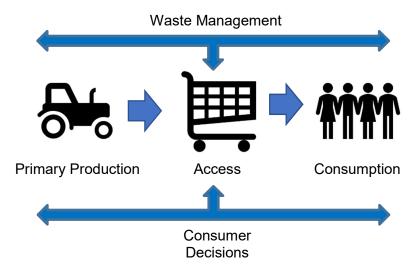
Refer to Classroom resource: 2.3 The Supply Chain for a summary of the supply chain.



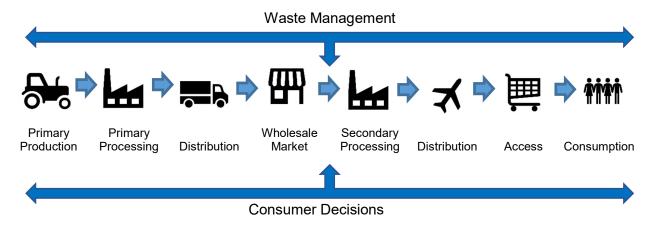
Basic Supply Chain



Short Supply Chain – Fresh produce from farmers' market or farm gate



Long Supply Chain – Imported value-added product.





Suggested supporting resources:

Refresh.ED Teacher information sheets

- How to Teach Food Systems
- · Refresh.ED Food System

Drawing a flow chart

You can provide students with tips on how to draw a flow chart to assist them to complete student worksheet 2.1 Western Australian supply chains.

For example:

Smart Draw provide samples of flow chart symbols, display these symbols in your classroom to assist students to produce a supply chain diagram. Flow Chart Symbols

Resources and equipment

- Facilities to screen share
 - o Agriculture in Western Australia Map
 - o PRIMED Dairy Supply Chain video
 - Our State on a Plate <u>Market City Video</u>
 - Classroom resource 2.0 The Supply Chain
- 5-6 sets of cards printed from Refresh.ED Food Supply Chain activity
- Student worksheets
 - o 2.1 Locally produced food and fibre
 - o 2.2 Western Australian supply chains
 - o 2.3 Who made my dinner?

Instructions for suggested activities

Prior knowledge:

- Ask students Do you know what produce is grown in Western Australia?
- Use the <u>Agriculture in Western Australia Map</u> to guide students through the diverse produce grown in Western Australia.
- Students take notes on Worksheet 2.1 Locally produced food and fibre, listing what is produced in Western Australia and which primary industry the commodity comes from.

Introducing the supply chain:

- Brainstorm with the class where we can buy fresh produce, for example, online, farm gate, grocery stores, supermarkets, farmers markets, local markets.
- Ask students if they know how our produce gets to the shops. Discuss responses as a class.
- Watch the video Our State on a Plate Market City YouTube Video
- Discuss wholesale produce markets and their role in our food supply.

The supply chain:

- Complete the Refresh.ED Food Supply Chain activity.
- Explain primary production, distribution, transportation, access and consumption.
- Explain short and long supply chains.

For example:

- Buying locally grown oranges directly from the farm gate or farmers market.
- Buying locally grown oranges from a store.
- Buying oranges imported from the USA from a store.
- Ask students to use the supply chain cards to map out a short and long supply chain of the scenarios above.
- Display these in your classroom for future reference.



Western Australian supply chain examples:

- Watch PRIMED Supply Chain video
- Complete Student worksheet 2.2 Western Australian supply chains

Plenary activity:

Complete Student worksheet 2.3 'Who made my dinner?'

Additional Activity – Farm to Fork ECU game for iPad.

"By playing 'Farm to Fork', the student manages the potato food system from farm to fork, thus increasing students' awareness of the food system and sustainable food production, distribution and marketing. Information provided in the game and challenge quizzes are designed to increase nutrition knowledge and ultimately to encourage students to make healthier and more sustainable food choices."

Source: Farm to Form ECU Game Classroom Teacher Reference Guide

The game is available free from the App Store Download from the App Store

Additional information about Farm to Fork ECU.



Module 3: Value-added products

(approximately 1-2 hours)



Learning intentions

Students will be able to:

- define and identify value-added products
- · identify primary and secondary processing techniques

Background information

Useful definitions:

- The Oxford University Press dictionary (<u>Lexico.com</u>) (2021) defines commodity as a raw material or primary agricultural product that can be bought and sold, such as copper or coffee.
- The US Department of Agriculture defines value-added agriculture as a change in the physical state or form of the product (such as milling wheat into flour or making strawberries into jam).

Additional information on Western Australian food production:

- <u>Food and Beverage Capabilities Guides</u> showcasing Western Australian food and beverage manufacturers
- Western Australian processed foods industry snapshot

Resources and equipment

- Facilities to project PowerPoint: 3.0 Western Australian food production
- Access to online research to complete Student worksheet: 3.1 Western Australian food production

Instructions for suggested activities

Use PowerPoint 3.0 Western Australian food production to:

- guide students through defining the terms commodity and value-added agriculture/products.
- discuss primary and secondary food processing techniques
- identify companies that process food in Western Australian.

Students search online to find companies that manufacture value-added food in Western Australia and complete worksheet 3.1 Western Australian food production.



Module 4: Consumer decisions

(approximately 1-2 hours)



Learning intentions

Students will be able to:

- identify if a purchase is a need or a want.
- identify social, environmental and economic factors that influence our buying decisions.

Background information

Factors that influence our buying decisions can be categorised as social, economic and environmental.

Social (People) How socially responsible are consumers?	Economic (Profit) How driven by cost are consumers?	Environmental (Planet) How environmentally conscious are consumers?
Do consumers make buying decisions based on ethical beliefs and social considerations? For example, • employee conditions • the company/brand reputation • fair work practices • equal opportunities • fair trade • social justice • nutritional value • organic produce • local produce vs imported • emotional connection to products or producers	Do consumers make buying decisions based on the price of goods? The cost that determine the end price of items include: Iabour costs utput costs, including waste, transportation cost of infrastructure cost of technology cost of production cost of materials/resources sale price of end product cost of marketing A company must consider all overhead costs when setting a price for their end product, as well as knowing what customers are willing to pay for a product.	Businesses are using natural resources and raw materials to manufacture products; therefore, they must pay attention to the condition of our planet. Environmental aspects consumers might consider are: • companies use of natural resources • energy efficiency of the production • limiting greenhouse gases • prevention of contamination • reduction of waste • packaging of products • replacement of depleted resources • repair of ecosystems • Food miles Being environmentally responsible can give a company an advantage in the market when customers are looking for environmentally responsible products to purchase.

Resources and equipment

- 5-6 cartons of eggs of various brands and types, for example free range, barn laid and caged.
- Student Worksheet 4.1 What did you buy?
- Student Worksheet 4.2 Consumer decisions
- Facilities to project PowerPoint 4.0 Factors that influence our buying decisions



Instructions for suggested activities

Activity 1 - What did you buy?

Students can complete Student worksheet 4.1 'What did you buy?' to guide this activity. Or

Facilitate this activity as a Think – Pair – Share, small group discussion.

Students think about the last 2 things they purchased.

Ask:

- Would you consider your last purchases a need or a want?
- What were the reasons you purchased these products?

Students discuss their responses with their partner then share their reflection with the group.

Activity 2 - Buying decisions

Complete a continuum activity as a class and reflect on buying decisions. Tell students that the left side of the room is <u>Strongly Agree</u> and the right is <u>Strongly Disagree</u>. Ask students to stand on the continuum in a position that indicates their opinion on each statement.

Suggested reflection questions:

- If you were to buy a t-shirt, would you check the label to see where it was made?
- If you were to buy an apple, would you check the store label to see where it was grown?
- If you were to buy a t-shirt, would you check the label to see what it was made of?
- Do you consider how environmentally friendly the packaging is when you buy items?
- Do you consider cost when buying items at the school canteen?

Activity 3 - Discussion

Use PowerPoint 4.0 – Factors that influence our buying decisions, to assist a class discussion about examples of social, environmental and environmental buying decisions.

Activity 4 – Worksheet 4.2 Consumer decisions - Egg Investigation

In this activity, students will review egg packaging and review the factors that people might consider when purchasing fresh eggs from the market/store.

- 1. Provide a range of egg cartons from different brands, covering barn laid, caged and free range. Place these egg cartons on display for the class to review.
- Allow time for students to review the packaging and vote on which egg carton they would buy from the shop to use at home. Students should also consider why they made this choice.
- Free Range

 Five R
- 3. Count the votes and record them on the board. Then ask students to discuss why they made this choice. Write their reasoning on the board for all to see.
- 4. Add a price tag to each egg carton and ask students to review their choice. Does the price impact their choice? Why/why not?
- 5. Watch the videos What about barn-laid eggs and Free range eggs or cage eggs? from The Egg Farmers Australia website.
- 6. Students take notes on their worksheet 4.2 Consumer decisions.
- 7. Review the factors that consumers considered when making purchasing decisions about eggs and categorise these ideas into social, environmental or economic factors.





Module 5: Design challenge - The food and fibre journey (approximately 5-6 hours)



Learning intentions

Students will be able to:

- identify raw commodities produced in Western Australia.
- map the journey food and fibre commodities take from production to consumption.
- present their findings in an engaging and informative manner.

Background information

Buy West Eat Best website provides a summary of locally produced food with sample recipes.

Teachers might like to provide examples to students about how locally grown food can be used in restaurants to display Western Australian produce.

For example:

- The Treasury Lounge and Bar Menu
- Plating Up WA with Chef Melissa Palinkas, Young George –YouTube Video

Learn about Wool website has a range of resources on the production of wool and wool garments.

Resources and equipment

- Student worksheet:
 - 5.1 Design challenge The food and fibre journey
 - 5.2 Design challenge response document
 - 5.3 Commodity investigation graphic organiser
- Facilities for individual student research

Instructions for suggested activities

- Guide students through 5.1 Design challenge The food and fibre journey and ensure they have a clear understanding of the criteria.
- Encourage students to find a creative way to present their findings.

Note:

A design challenge task (5.1) and a design challenge response document (5.2), with a graphic organiser (5.3), are provided. You can choose to use the format that best suits the needs of your students.

The task provided is a guide that you can adapt to suit the needs of your students and the resources available to you. You may choose to:

- have students complete the challenge in pairs or small groups
- have students use the graphic organiser or guide students to use a notebook or folio to record their research
- have students present their research in a format that best suits your requirements
- provide students with the opportunity to prepare their chosen meal or textile product and take photos of the meal for use in their information package.



Module 6: Self-reflection

(approximately 1-2 hours)



Learning intentions

Students will be able reflect on:

- their learning
- the application of the design process for their design solution.

Background information

The guided self-reflection in worksheet 5.1 can be used or students can develop their own evaluation criteria to evaluate their work.

Resources and equipment

Student worksheet:

- Design challenge The food and fibre journey. Step 5
- Design challenge response document

Instructions for suggested activities

Students are to individually complete Step 5 Evaluating.



Acknowledgements

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