



# Alpacas and the Marketing and Supply Chain

## TEACHER GUIDE

LESSON 3

YEAR 7–10

This resource has been developed by:



Primary Industries Education  
Foundation Australia



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AgriFutures  
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Australian Alpaca  
ASSOCIATION

## LESSON 3

# Alpacas and the Marketing and Supply Chain

## › LEARNING AREAS / YEAR LEVEL

Design and Technologies (Year 7–10)

## › AUSTRALIAN CURRICULUM CONTENT

Analyse how people in design and technologies occupations consider ethical and sustainability factors to design and produce products, services and environments (**AC9TDE8K01**)

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

Develop project plans to individually and collaboratively manage time, cost and production of designed solutions (**AC9TDE8P05**)


Analyse how people in design and technologies occupations consider ethical, security and sustainability factors to innovate and improve products, services and environments (**AC9TDE10K01**)

Analyse and make judgements on the ethical, secure and sustainable production and marketing of food and fibre enterprises (**AC9TDE10K04**)

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## > LESSON OBJECTIVE

Students will research how the Australian alpaca industry processes fibre and meat and create a flowchart to outline the steps involved to produce garments, other textiles and meat for consumers. They will also learn about the animal welfare considerations throughout the alpaca marketing and supply chain and produce a model farm suitable for housing alpacas.

## > LESSON OVERVIEW

**Activity 3.1 – Researching the Alpaca Marketing and Supply Chain** (60 minutes)

**Activity 3.2 – Alpaca Supply Chain Flowchart** (45 minutes)

**Activity 3.3 – Alpaca Welfare Throughout the Supply Chain** (60-80 minutes)

# Resources and Equipment

## ▶ **ACTIVITY 3.1 – Researching the Alpaca Marketing and Supply Chain**

1. **Worksheet 3.1a – Animal Supply Chain** (Brainstorming activity)
2. Butchers paper, markers
3. [Alpaca Farm and Wool Spinning in Australia](#) (4:33)
4. [Shearing and processing](#)
5. [Why Alpaca is the Smart Future for Australia](#) (7:06)
6. [Alpaca Fleece Processing](#)
7. [Wool Production and Processing](#) (3:09)
8. [Meat ‘Pacas – Landline – ABC](#) (5:37–7:50)
9. [Alpaca meat](#)
10. [Alpaca Market Assessment](#)
11. **Worksheet 3.1b – Flowchart Example** (Stimulus activity)
12. **Worksheet 3.1c – Alpaca Fibre and Meat. The Marketing and Supply Chain** (Research activity)

## ▶ **ACTIVITY 3.2 – Alpaca Supply Chain Flowchart**

1. [PIEFA Food and Fibre Card Game | Australian Alpaca Association Supply Chain Game Cards](#) (printed, cut into individual cards and preferably laminated). If using for the first time, laminator and scissors
2. [Instructions PIEFA Food and Fibre Card Game | Australian Alpaca Association Supply Chain](#)
3. **Worksheet 3.2a – Paddock-To-Plate Additional Game Cards** (Design activity)
4. Access to computer/digital device, design software (eg. Canva), printer, scissors OR coloured markers and scissors
5. [Meat ‘Pacas – Landline – ABC](#) (5:37–7:50)
6. [Alpaca meat](#)
7. [Alpaca Market Assessment](#) (pages 5-7)

*(Resources and Equipment continued following page...)*

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## > **ACTIVITY 3.3 – Alpaca Welfare Throughout the Supply Chain**

1. **Worksheet 3.3a – Alpaca Welfare** (Literacy activity)
2. [Animal Welfare – Australian Alpaca Association](#)
3. **Worksheet 3.3b – Alpaca Animal Welfare and Farm Design** (Modelling activity)
4. [Feedlot Stories](#)
5. A3 paper, ruler and pencil for 2D drawing or cardboard, playdough, tooth pics, sticky tape and paper for 3D model or [icograms education](#)

## > **Additional resources**

1. [Amazing Alpaca Shearing Technique – Alpaca Wool Processing in Factory – Harvesting Alpaca Fiber](#) (15:26)

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# Lesson Guide

## ➤ **ACTIVITY 3.1 – Researching the Alpaca Marketing and Supply Chain**

Students will learn about the process of converting alpacas and their fibre into products suitable for retail sale by conducting research using a variety of secondary sources. They will learn how Australia is producing and marketing quality fibre products as well as meat for consumption.

### **Background Information**

The processes used to process alpaca fibre into a luxurious end product are similar to those used for sheep wool. Shearing alpacas is, however, different than shearing sheep. Sheep are held by hand for shearing whereas alpacas are restrained (tied down) by their legs on a table or the floor as this is the safest way for both the alpacas and the shearer. This is standard practice in the alpaca industry.

The processes used to process alpaca meat are similar to those used for other red meat livestock, such as lamb, but on a much smaller scale. Animals are not sold via saleyards, but are often sold directly to specialist butchers and restaurants. Only wethers are sent to market, and these can vary in age from 18 months to 60 months. The carcasses are processed in an abattoir, and 100% of the animal is used (including offal) from the neck to the shanks. Prime alpaca cuts include strip loin, rump, shoulder roll, back straps and neck rosettes.

The commercial farming of alpaca, including the fibre, meat and hide industry, has proven that the Australian alpaca industry is more sustainable and viable in the long term and provides the producer with an additional income stream. Existing producers are able to 'move on' animals they can no longer use in their herd, and in return, purchase other genetics through matings or new females to improve their herds. Previously, apart from genetics sought by breeders to bolster their herds from other breeders, there was no defined market or avenue to move on excess animals other than the guardian animals or 'pets' on an ad hoc basis.

*(Activity 3.1 continued following page...)*

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1. Write the words ‘animal on a farm’ and ‘garment/end product’ at opposite ends of a central area, such as a whiteboard, or display **Worksheet 3.1a – Animal Supply Chain** (Brainstorming activity). As a class, discuss these terms and draw a long arrow between the two words. Brainstorm how animals (and their fibre) on farms are processed or turned into garments or other useful end products for humans to use (e.g. meat) and record students’ ideas. Encourage students to think about this as a series of steps. Questions to encourage discussion may include:
  - What is animal fibre?
  - Why do animals grow fibre?
  - How is animal fibre useful to humans?
  - What is a ‘garment’?
  - What things do you and your family wear or use that are made from animal fibre?
  - What is an end-product?
  - What else (besides garments) could alpacas be used for?
  - What are the series of steps that take place to turn on-farm fibre products, such as alpaca fleece or merino wool, into a product suitable for retail sale?
  - What are the series of steps that take place to turn animals, such as alpacas, into meat for humans to consume?

### Answers

2. Divide students into groups of two or three and distribute butchers paper and markers to each group. Explain that their task is to research the steps involved in turning an alpaca living on an Australian farm into end products they could purchase (such as garments and meat). Display or distribute **Worksheet 3.1b – Flowchart Example** (Stimulus activity) and discuss. Teachers may like to model the structuring of research.
3. Provide each group with **Worksheet 3.1c – Alpaca Fibre and Meat. The Marketing and Supply Chain** (Research activity). Students read or view each source, taking notes on butchers paper as they research and sequence each process to make a flowchart of the alpaca fibre and meat supply and marketing chain. This research will form the basis for Activity 3.2.

## ➤ ACTIVITY 3.2 – Alpaca Supply Chain Flowchart

Students will play a card game and create a flowchart to record the alpaca marketing and supply chain. They will design their own cards for the farm to meat aspect of the marketing and supply chain using either digital technology and design software, or paper and markers. These cards will be added to show all stages of the alpaca to consumer process.

1. Distribute [PIEFA Food and Fibre Card Game | Australian Alpaca Association Supply Chain Game Cards](#) (printed, cut into individual cards and preferably laminated).
2. Players play card game from the [Instructions PIEFA Food and Fibre Card Game | Australian Alpaca Association Supply Chain](#).

**Answers** 

3. Distribute **Worksheet 3.2a – Paddock-to-Plate Additional game cards** (Design activity) and allow students to design their own cards (at least four) for the alpaca farm-to-meat marketing and supply chain. Students may use digital technology and design software (e.g. Canva), or design cards on paper, similar to the cards used in the supply chain flowchart, using pencils, markers, etc. Remind students that they will need step cards as well as arrows and each step must have a name and detail about what happens at this step.

**Answers** 

4. Print and cut out each designed card and add it to the flowchart.

**Answers** 



## ➤ ACTIVITY 3.3 – Alpaca Welfare Throughout the Supply Chain

Students will learn about the importance of animal welfare to all stakeholders throughout the alpaca supply chain. They will learn about the five freedoms of animal welfare and use these to plan and design housing suitable for a small number of alpacas.

1. Distribute **Worksheet 3.3a – Animal Welfare** (Literacy activity). Students read the information about animal welfare from the Australian Alpaca Association [Animal Welfare – Australian Alpaca Association](#) to gain an understanding of the importance of alpaca welfare in Australia.
2. Divide students into groups of three to four and distribute **Worksheet 3.3b – Alpaca Animal Welfare and Farm Design** (Modelling activity). Assign groups the task of researching and outlining the five freedoms of animal welfare. Students view the source [Feedlot Stories](#) from Australian Good Meat and watch the five videos that explain the five freedoms of animal welfare, using cattle as an example.

The five freedoms are:

1. freedom from hunger and thirst;
  2. freedom from discomfort;
  3. freedom from pain, injury and disease;
  4. freedom from fear and distress; and
  5. freedom to express normal behaviour.
3. Discuss that alpacas are herd, or pack animals and must be kept with other alpacas for their socialisation needs and their own security. The herd should have a minimum of three animals. Alpacas are usually housed in paddocks that have boundary fencing to keep predators out. Discuss what else these animals need using the five freedoms as a stimulus.

### **Answers**

4. Students plan and design housing suitable for ten alpacas on a small alpaca farm. Use the worksheet to plan and list the features and requirements of the alpacas, taking into consideration the five freedoms of animal welfare.
5. Students build their model in either 2D using A3 paper, rulers and pencils – or in 3D using a cardboard base and playdough or online design software such as [icograms education](#). Structures should be labelled, e.g. water supply, secure boundary fencing to keep predators out, etc. Toothpicks, paper and sticky tape can be used to label 3D models.

*Note: The model building task may be assigned as a project for completion by individuals or groups as homework.*

6. Allow time for students to view and discuss the models of the other groups.

# Student Resources

## ➤ ACTIVITY 3.1 – Researching the Alpaca Marketing and Supply Chain

Worksheet 3.1a – Animal Supply Chain (Brainstorming activity)

Worksheet 3.1b – Flowchart Example (Stimulus activity)

Worksheet 3.1c – Alpaca Fibre and Meat. The Marketing and Supply Chain (Research activity)

## ➤ ACTIVITY 3.2 – Alpaca Supply Chain Flowchart

[PIEFA Food and Fibre Card Game | Australian Alpaca Association Supply Chain Game Cards](#)

[Instructions PIEFA Food and Fibre Card Game | Australian Alpaca Association Supply Chain](#)

Worksheet 3.2a – Paddock-To-Plate Additional Game Cards (Design activity)

## ➤ ACTIVITY 3.3 – Alpaca Welfare Throughout the Supply Chain

Worksheet 3.3a – Alpaca Welfare (Literacy activity)

Worksheet 3.3b – Alpaca Animal Welfare and Farm Design (Modelling activity)

## Acknowledgments

- Gayle Herring, Fibre Naturally Alpaca Woollen Mill
- Waratah Alpaca Fibre
- Mulberry Park Alpaca Stud
- Coolawarra Storybook Alpaca Stud
- Ambersun Alpaca Stud
- EP Cambridge Alpaca Stud
- Mlilduck Alpaca Stud
- Dairy Road Alpaca Stud
- Wedgetail Rise Alpaca Stud
- Barrooka Alpaca Stud
- Precision Alpaca Stud
- Australian Alpaca Association
- Tirrikee Alpaca Stud
- Fleurieu Prime Alpaca
- Malakai Alpaca Stud
- Yaringa Alpaca stud

# Answers

## ▶ **ACTIVITY 3.1 – Researching the Alpaca Marketing and Supply Chain**

### 1. **What is animal fibre?**

- Natural fibres grown by certain animals including hair, fur, wool, fleece, feathers, silk, etc.

### **Why do animals grow fibre?**

- To keep themselves protected from their environment. Fibre keeps them warm, cool, and protects them from the rain and wind. Feathers enable birds to fly. Fibre also offer camouflage.

### **How is animal fibre useful to humans?**

- Making clothes, blankets, etc. to keep us warm and comfortable.
- Softens floors (carpets and rugs), etc.

### **What is a ‘garment’?**

- An item of clothing.

### **What is an end-product?**

- The final result or the finished product of a process. In this context, it is the meat, a garment, animal hide, a pair of shoes, etc.

### **What things do you and your family wear or use that are made from animal fibre?**

- Various responses, including jumpers, socks, scarves, hats, doona/duvet/quilt, carpet, etc.

### **What else (besides garments) could alpacas be used for?**

- Meat, hide products such as children’s toys, slippers, carpets, doonas, blankets, underlays, dog beds, pillows etc.

### **What are the series of steps that take place to turn on-farm fibre products, such as alpaca fleece or merino wool into a product suitable for retail sale?**

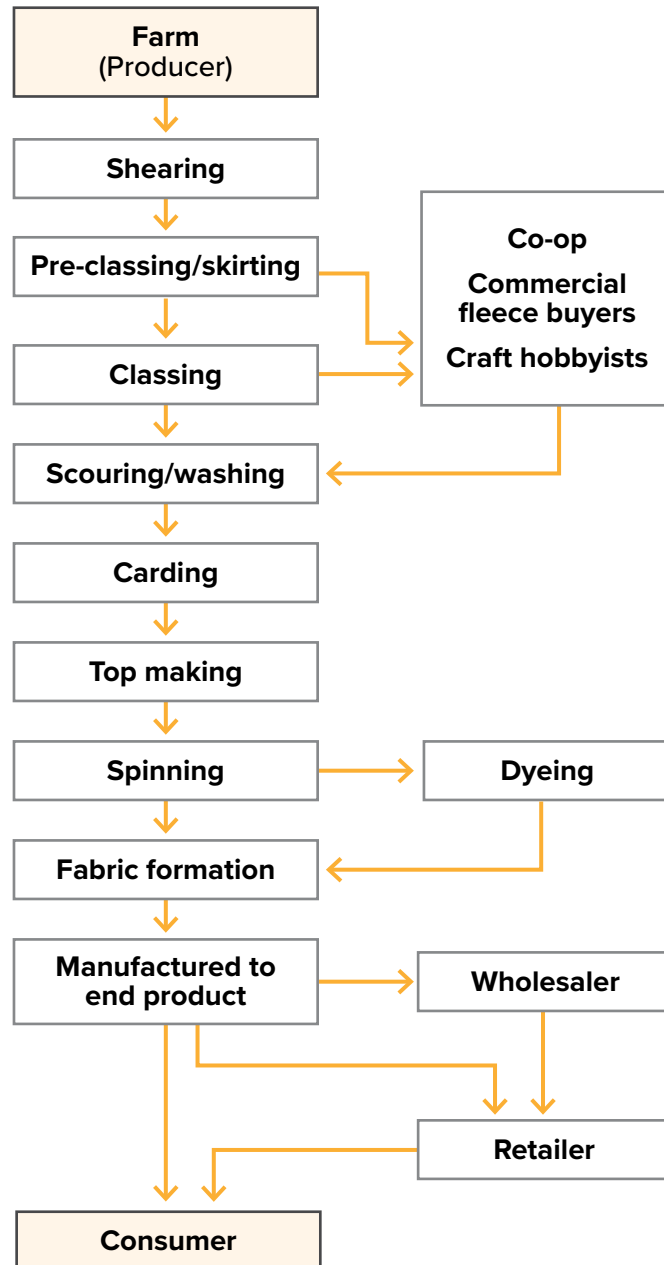
- See the flowchart in Activity 3.2, number 1 below. Students will most likely name only a few of these.

### **What are the series of steps that take place to turn animals, such as alpacas, into meat for humans to consume?**

- See the flowchart in Activity 3.2, number 3 below. Meat processing is on the left hand side.

## ACTIVITY 3.2 – Alpaca Supply Chain Flowchart

2.



(Answers to Activity 3.2 continued following page...)

3. **Worksheet 3.2a – Paddock-to-Plate additional game cards** (Design activity)

Answers will vary.

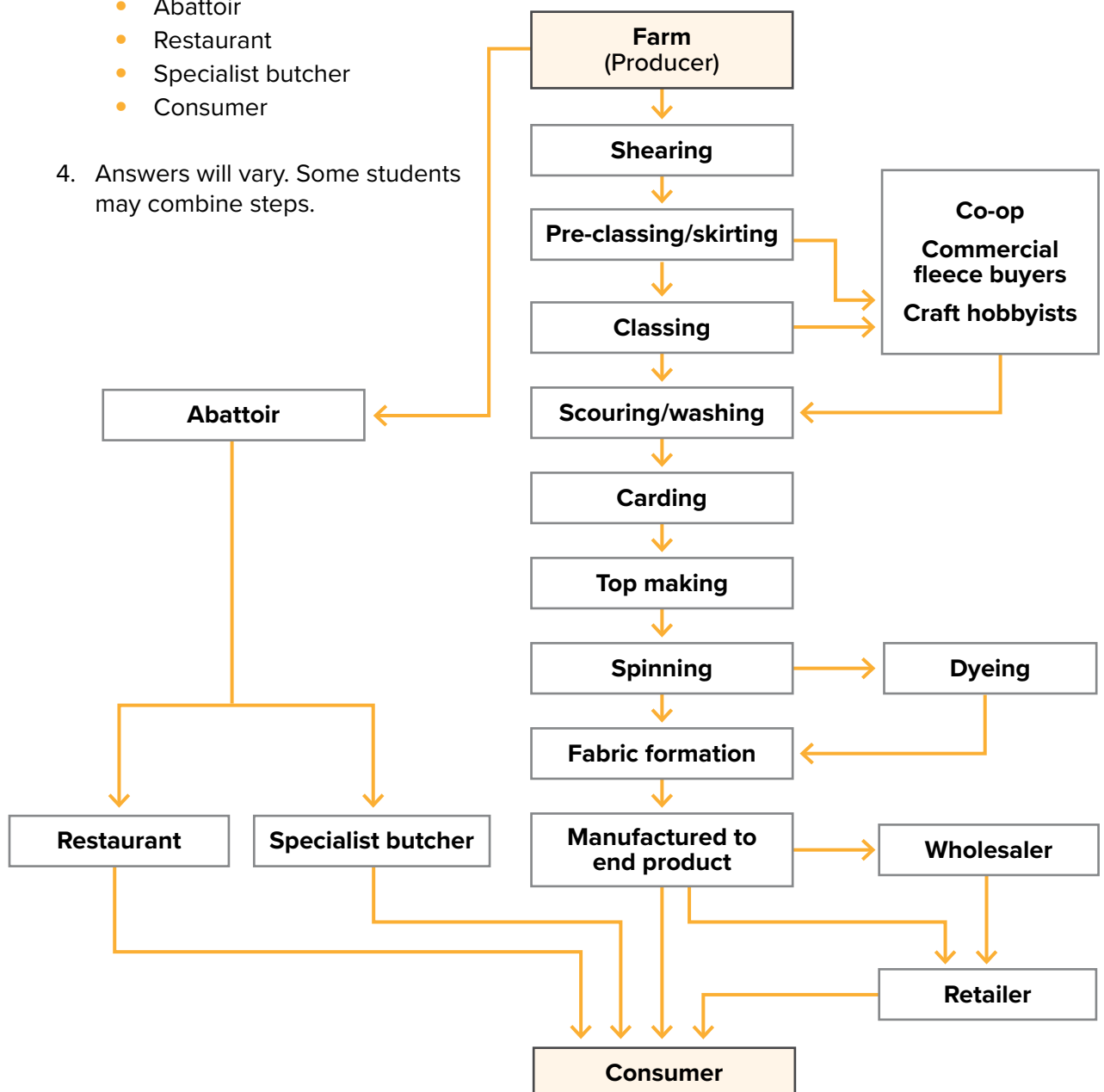
Processors arrange transport to the abattoir either themselves or through a transportation company that specialises in live transport. Processing occurs at the abattoir where animals are slaughtered. Processors remove the hide, remove the offal and cut the carcase into various prime cuts. The alpaca meat is then transported in cold storage vehicles to specialist restaurants and boutique/specialised butchers for sale to consumers.

Students should design sufficient arrow cards.

Process cards may include:

- Abattoir
- Restaurant
- Specialist butcher
- Consumer

4. Answers will vary. Some students may combine steps.



### > ACTIVITY 3.3 – Alpaca Welfare Throughout the Supply Chain

3.
  - Provision of food and water of suitable quality and quantity to sustain physiological needs, good health and vitality;
  - Allowing camelids to display normal behaviours including social contact with other camelids, grazing, grooming (dust baths), and the freedom to move about if confined in yards;
  - Protection from predation;
  - Protection from disease, including disease that can be exacerbated by management;
  - Protection from extremes of climate, natural disasters and atmospheric contaminants;
  - Protection from pain, suffering and injury;
  - Provision of handling facilities which, under normal usage, do not cause injury and which minimise stress to camelids;
  - Placing sound welfare practices ahead of financial gain;
  - A willingness to seek assistance from skilled and competent people, such as veterinarians, to meet the above criteria.

*(Australian Veterinary Association, 2016)*

4. Students should address the needs listed above in their design.

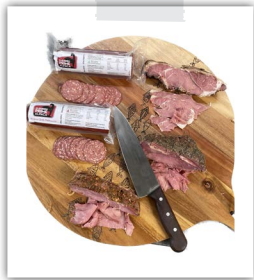
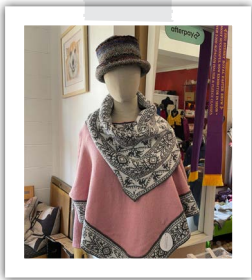
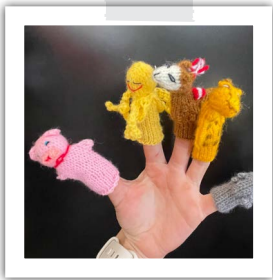
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BRAINSTORMING ACTIVITY

# Animal Supply Chain

## Animal on a farm



## Garment/End product

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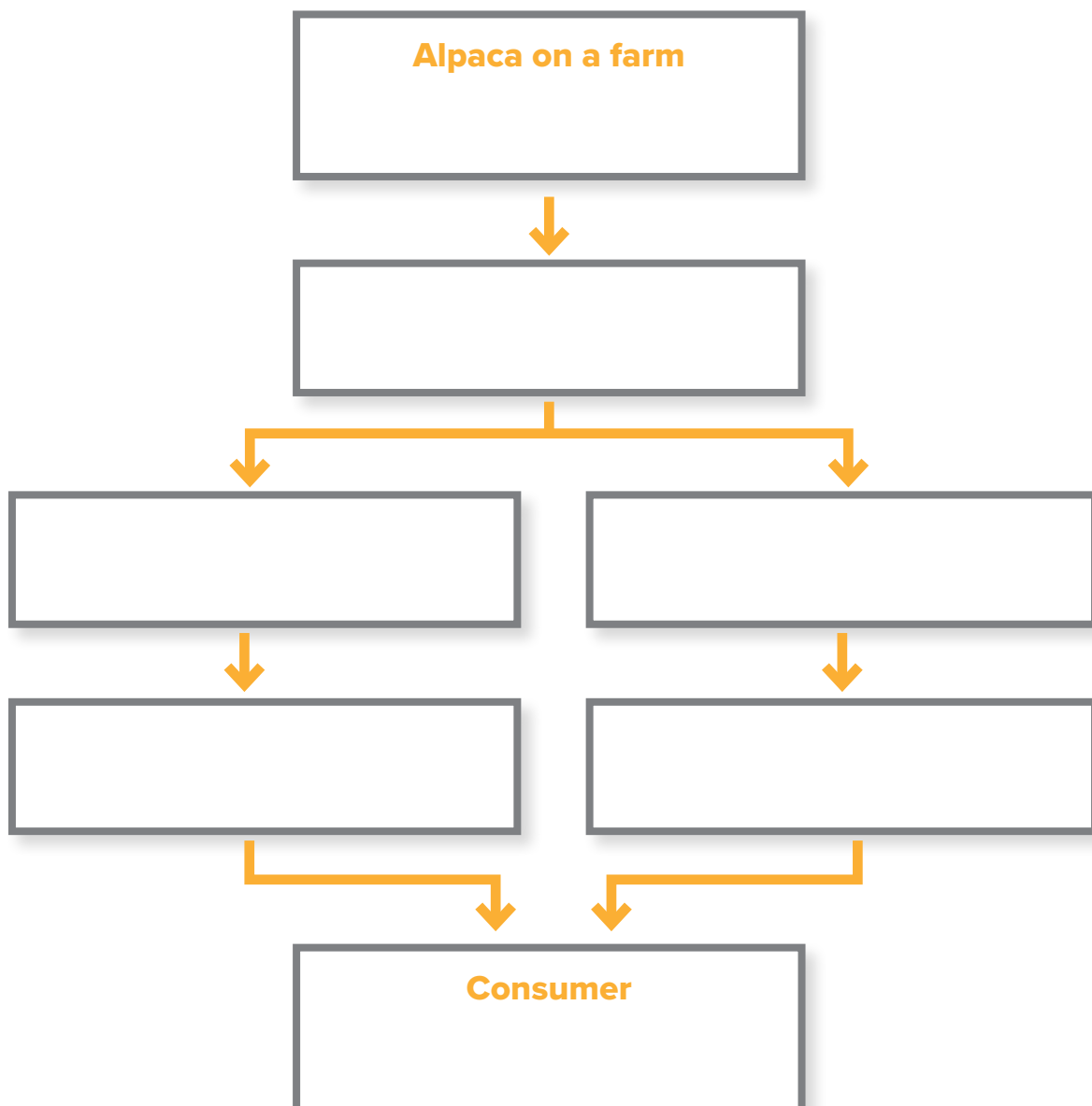


## STIMULUS ACTIVITY

# Flowchart Example

Research the marketing and supply chain for alpacas. Start with alpacas on a farm and finish with the consumer (the person who uses the end products of alpacas).

Lay your research out in a flowchart like the example below (It will not look exactly like this). As part of your research, record the name and what occurs at each process or step and the order in which they occur to produce alpaca end products.



This resource has been developed by:

RESEARCH ACTIVITY

# Alpaca Fibre and Meat. The Marketing and Supply Chain

Scan the QR codes or click on the links below and on the following page to view the various source materials focused on the alpaca marketing and supply chain. Record the name and what occurs at each step and the order in which they occur to produce alpaca end products.

1.



▶ Alpaca Farm and Wool Spinning in Australia (4:33) <https://www.youtube.com/watch?v=BunhoMgSGVA>

2.



▶ Shearing and processing <https://tas.alpaca.asn.au/resources/shearing-and-processing/>

3.



▶ Why Alpaca is the Smart Future for Australia (7:06) <https://www.youtube.com/watch?v=quXELeJI7bc&t=4s>



4.



▶ Alpaca Fleece Processing <https://alpaca.asn.au/alpaca-resources/processing/>

5.



▶ Meat 'Pacas – Landline – ABC (view from 5:37-7:50) <https://www.abc.net.au/local/archives/landline/content/2013/s3812656.htm>

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RESEARCH ACTIVITY

# Alpaca Fibre and Meat. The Marketing and Supply Chain (cont.)

6.



## ▶ Wool Production and Processing

*Note:* This information refers to the processing of sheep wool. The processes used to process alpaca fibre into a luxurious end product are similar to those used for sheep wool. Shearing differs between alpacas and sheep.

<https://www.youtube.com/watch?v=ezcniHyoJ7E&t=189s>

7.



## ▶ Alpaca Meat

<https://alpaca.asn.au/alpaca-resources/alpaca-meat/>



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DESIGN ACTIVITY

# Paddock-to-Plate Additional Game Cards

**Design cards for the alpaca ‘farm-to-meat’ or ‘paddock-to-plate’ marketing and supply chain.**

Use digital technology and design software, e.g. Canva, or design cards using the template. The cards should be similar to the cards used in the supply chain flowchart. Some will be step or process cards with the name of the process and information about what occurs at that step, and others will be arrow cards.

Revisit the following links if necessary for information on alpaca meat production:

1.



▶ **Meat ‘Pacas – Landline – ABC**

(view from 5:37-7:50)

<https://www.abc.net.au/local/archives/landline/content/2013/s3812656.htm>

2.



▶ **Alpaca Meat**

<https://alpaca.asn.au/alpaca-resources/alpaca-meat/>

3.

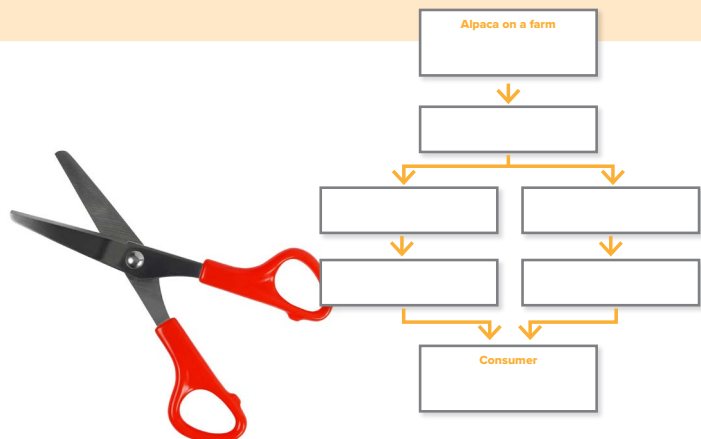


▶ **Alpaca Market Assessment**

(pages 5-7)

<https://agrifutures.com.au/wp-content/uploads/publications/17-010.pdf>

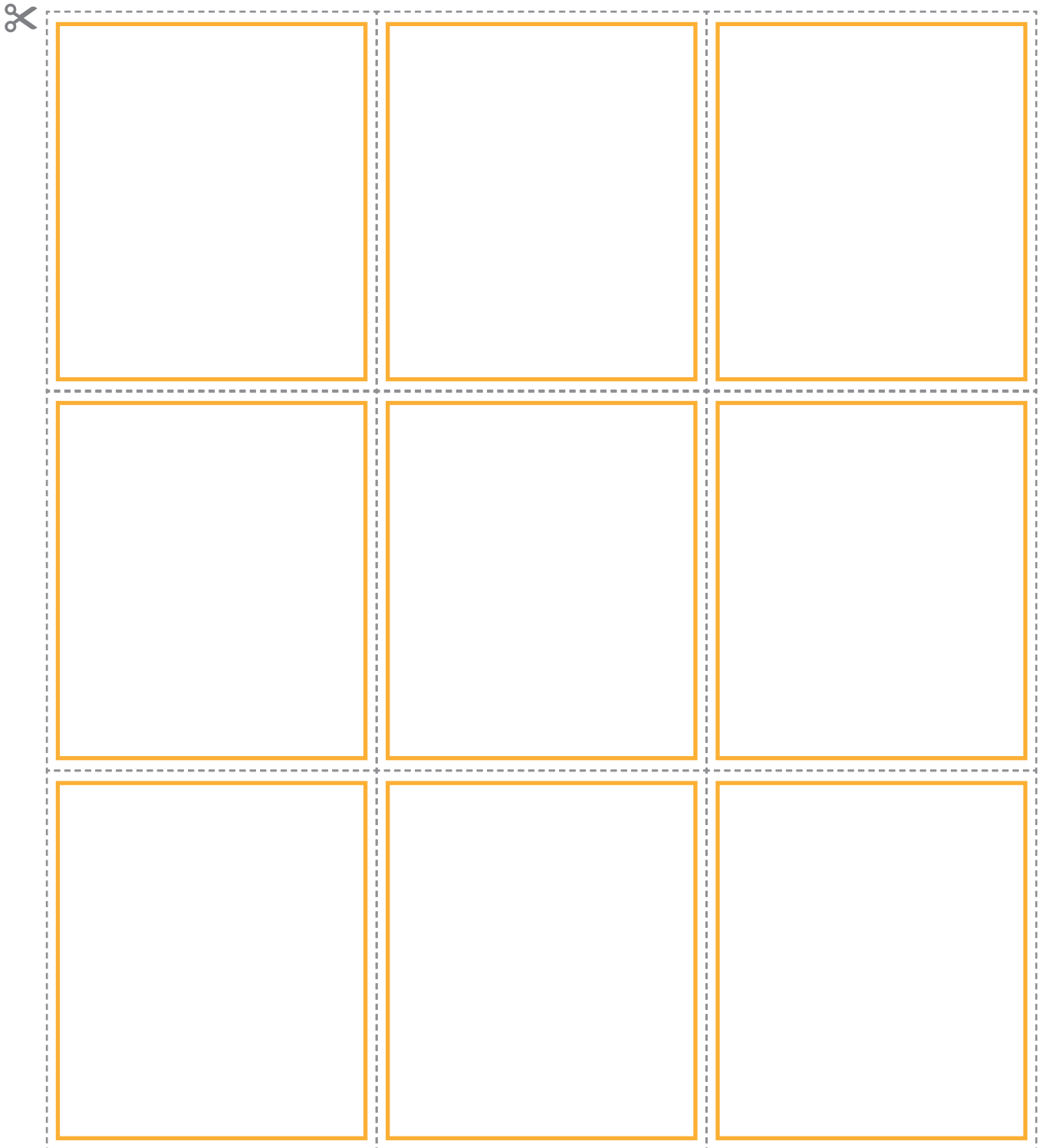
Once the cards have been designed, cut them out and add them to the supply chain flowchart.



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DESIGN ACTIVITY

# Paddock-to-Plate Additional Game Cards (cont.)



A 3x3 grid of nine empty rectangular boxes, each outlined with a solid orange border. The grid is enclosed within a dashed grey border. A scissors icon is located at the top left corner of the dashed border, indicating where to cut out the cards.

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LITERACY ACTIVITY

# Animal Welfare



Scan the QR code or click on the [link](https://alpaca.asn.au/animal-welfare/) to read the information provided by the Australian Alpaca Association on the following pages.

▶ **Animal Welfare – Australian Alpaca Association**  
<https://alpaca.asn.au/animal-welfare/>

## From the Australian Alpaca Association:

Australian alpaca producers depend for their livelihood on the good health and welfare of their animals. Producers recognise that animal health and animal welfare go hand-in-hand and, because of their regular interaction with their animals, are best equipped to monitor the wellbeing of their animals within their care and to summon veterinary input when needed.

Animal welfare is a key priority for the Australian Alpaca Association (AAA), and as the peak national body for the alpaca industry in Australia, they believe that the industry will benefit from a united approach to animal welfare. Individuals involved in the alpaca industry and its supply chains must take a proactive approach to ensure that a positive welfare state is achieved for each animal in their care. AAA encourages industry stakeholders to adopt this statement as their own.

## Our position

Welfare is a broad term that is not easily defined, but it is a state that exists within every animal and therefore must incorporate the physical and mental well-being of the animal. Animal welfare is a responsibility that encompasses all aspects of animal wellbeing. This includes, but is not limited to adequate housing, management, nutrition, humane handling, and veterinary treatment. An animal is in a positive state of welfare when it is healthy, comfortable, well nourished, safe, and able to express natural behaviours, indicated by science-based evidence.



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LITERACY ACTIVITY

# Animal Welfare (cont.)

## From the Australian Alpaca Association:

Good husbandry and veterinary practices and sufficient availability of resources enable a positive welfare status to be achieved. All husbandry activities should be conducted to the highest possible welfare standards, and only be conducted when the lifelong benefit to the animal outweighs any short-term adverse welfare impacts. **It is the responsibility of every person involved in Australia's alpaca industry to achieve high animal welfare.**

AAA adopts the Five Domains of Animal Welfare Model. The model provides a foundation to guide welfare management objectives that achieve a positive welfare state for each individual animal. They support unbiased scientific, evidence-based approaches to determine clearly defined and measurable welfare states.

AAA demonstrates an ongoing commitment to the positive welfare states of animals in the alpaca industry through their policy and advocacy efforts.



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MODELLING ACTIVITY

# Alpaca Animal Welfare and Farm Design



Australian Good Meat has produced five short videos that can be viewed on Youtube that explain, in simple terms, the five freedoms of animal welfare.

Scan the QR code or click on the [link](#) to view the source material.

▶ Australian Good Meat

<https://www.youtube.com/playlist?list=PL7a3T42VoqLZckueaSa0d4LPQLXIKYA1j>



Outline the five freedoms of animal welfare.

1.

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2.

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3.

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4.

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5.

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MODELLING ACTIVITY

# Alpaca Animal Welfare and Farm Design (cont.)

**Consider the five freedoms of animal welfare.**

Design housing suitable for 10 alpacas on a small alpaca farm.

Use the space below to plan and list the features and requirements of the alpacas, taking into consideration the five freedoms of animal welfare.



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