



Linking the paddock to the plate

Curriculum connections

Use of this learning and teaching activity may contribute to achievement of the Standards. Indications of relevant Domains and Levels in the Victorian Essential Learning Standards are provided to assist teachers to make decisions about the appropriateness of the activity for their students.

Summary

This activity enables students to understand the processes involved in linking the dairy, meat, fruit, fisheries, forestry, grain and wool industries from the paddock to the plate.

Student outcomes

This activity will enable students to:

- Investigate food and fibre production chains from paddock to plate
- Consider the impact of a number of factors on these supply chains
- Learn about some of the careers available in food and fibre production.

Background notes for teachers

Much of the food we eat and the clothes we wear are produced from agriculture. The dairy, meat, fruit, vegetable, grain and wool industries in Victoria are important sources of food and fibre. This activity allows students to investigate the processes involved in these supply chains. Answers are provided in the Farm Web Information Tables at the end of this activity.

Materials

- A4 Farm Web Cards laminated to enable multiple use (printing instructions and suggestions for which cards to use with your class are provided on the *Farm Web cards and printing instructions* information sheet at the end of this activity)
- String or wool (allow one ball per industry investigated)

The activity

1. To begin this activity, discuss with students the different types of food and fibre they consume daily. Make a list of these on the board and identify which industry each of these comes from (for example dairy, meat, fruit, fisheries, forestry, grain and wool).
2. Discuss with the class the different processes involved in getting food from the farm to the table using the fisheries industry cards as an example. Ask students to put the cards in order from table to farm. **Answer:** Seafood, Fish monger, Fish processor, Fisher, Fish.
3. Hand out the Farm Web cards (one per student). You may wish to use the cards from one, two or three different industries depending on how many students are in your class. Check the *Farm Web cards and printing instructions* for suggestions for suggestions as to which cards to use with your students.

Victorian Essential Learning Standards Domains and (Levels):

Interpersonal Development (2,3)
Humanities (2,3)
Thinking Processes (2)

Duration: 1 - 1.5 hours

Setting: The classroom or outdoors.

4. Ask students to look at their card and then walk around the room to see what other parts of different supply chains they may link with. After five minutes ask students to form industry groups (**Hint:** each industry has the same colour border). You may wish to place objects around the room that students can gather around for example milk bottle - dairy, apple - fruit, woollen jumper - wool.
5. Ask students to identify one of the cards that has an end product on it (for example butter, bread, meat - these have a star on them). Working in their industry groups, ask students to decide what the next stage in the production chain would be working from the plate to the paddock. Use the prompting questions in the *Farm Web Information Tables* to help students work out the next step in the chain. Students can pass string or wool to each other to visibly show the connections. (To assist students to work out the order, you may wish to cut the edges of the cards so that they fit into each other like a puzzle and only one card may precede another).
6. Once students have finished putting their industry supply chains in order ask the 'industry groups' to decide if they have any need for transport or food scientists in their chain. Groups should pick up a transport card if required and add it to their chain (an indication of where these could fit in the chain are given in the *Farm Web Information Tables*). Groups can then present their 'supply' chains to the other students in the class. (**Note:** there is no right or wrong order, students may put the farmer before the tree, this will lead to an interesting discussion).
7. After students have created their industry webs, discuss with students the impact of a number of events on each industry for example drought, pests and disease, increasing petrol prices, buying local vs buying imported products, salinity (salt affected soil) or erosion (weathering of land).
8. Discuss what will happen at each stage of the production chain starting from the paddock (for example cow, fruit tree) and ending with the plate (final product for example butter, tinned fruit). Students who are holding cards depicting a stage or person that be negatively impacted should sit down.
9. Discuss with students what can be done to reduce the impact of these events on our food and fibre production industries. Students should stand up if these activities help the situation of the card they hold.
 - Drought (be careful not to waste water, install a grey water system at home)
 - Pests and Disease (take notice of quarantine information when travelling – fruit fly bins)
 - Increasing petrol prices (buy products produced locally to reduce the cost of transport to shops)
 - Buying local vs buying imported products (buy local produce to support Australian jobs)
 - Salinity (plant trees or reduce the amount of land clearing)
10. Discuss as a class the role of agriculture in Victoria and the ways in which their choices affect food production, the environment and their lives. As a class you could also brainstorm other careers that may be dependent on the food and fibre production chains for example vets, shop assistants, mechanics, factory workers.

Related LandLearn activities

'Fruit Fly Game' from **Fruit Fly Frenzy**, 'Food, Fibre and Us' from **Biodiversity in Balance**, and 'Red or Green Tomatoes' and 'Food Miles' from **Learning in the Garden** on the *LandLearning CD*.



'Have You Ever Eaten Grass?' and 'Squeezing Oil from Seeds' from the *Super Seeds! CD*.

'A Bit of Butter' and 'Curds and Whey' from **Grow and Gobble** and 'Measuring Tree Height' from **Biodiversity in Bushland, Community and Agricultural Landscapes** from the *LandLearn Resource Booklets CD*.

Farm Web Information Tables

Dairy Industry Web (6 stages + 1 transport + 1 food scientist)

Farm web cards	Prompt questions
Butter	What are some other examples of dairy products? Where do we buy butter from?
Supermarket	How does butter get to the shop?
Transport	What is butter made from? Where does it get made into butter?
Dairy factory	Who ensures the quality of the butter processed at the factory?
Food scientist	How is milk transported to the factory?
Milk tanker	Who sells milk to the tanker driver?
Dairy farmer	Where does the farmer get the milk?
Dairy cow	

Issues to discuss and consider

Butter is produced from churning milk or cream. It is possible to make butter in the classroom by shaking a container of heavy whipping cream vigorously for 10 - 15 minutes. This is possible because cream is a combination of butterfat and water molecules, the butterfat being suspended in the water. When the liquid is shaken, the molecules of butterfat collide and stick together. The clumps get bigger and bigger until butter is formed! Special trucks are needed to transport milk from the farmers properties to the dairy factory to pick up milk that we will later drink! This truck needs a tank on the back that is 100% clean.

Fruit Industry Web (7 stages + 3 transport + 1 food scientist)

Farm web cards	Prompt questions
Tinned fruit	What are some examples of fruit products? Where do we buy tinned fruit from?
Supermarket	How does fruit get to the shop?
Transport	Where is the fruit washed, cut and canned?
Fruit canning factory	Who ensures the quality of the fruit processed at the factory?
Food scientist	How does fruit get to the canning factory?
Transport	How is fruit stored before it goes to the canning factory? Where is fruit stored?
Cool Store	How does the fruit get to the Cool Store?
Transport	Who harvests/picks the fruit?
Fruit picker	Who grows the fruit?
Orchardist	Where does fruit come from?
Fruit trees	

Issues to discuss and consider

Fruit and vegetables are produced seasonally, for examples tomatoes are ready in summer, while apples ripen naturally in autumn. However, Australia-grown fruit and vegetables can be purchased year round from greengrocers and shops. This is possible because fruit is often picked before it is ripe, and held in controlled gas conditions in Cool Stores. This minimises the ethylene produced by the fruit (ethylene is responsible for the ripening of fruit). The fruit is then exposed to ethylene to ripen it just before taking it to market. Students can observe the effect of ethylene in ripening fruit by undertaking experiments with red and green tomatoes or unripe avocados using the 'Red or Green Tomatoes' activity. This is found on the LandLearn Website www.landlearn.net.au > newsletters > past newsletters > term 1 2007.

Meat Industry Web (6 stages + 3 transport + 1 food scientist)

Farm web cards	Prompt questions
Meat	What are some examples of meat products? Where do we buy meat from?
Butcher	How does meat get to the butcher shop?
Transport	Where does the meat come from before it is sent to the butcher?
Meat distribution centre	How does meat get to the distribution centre?
Transport	Before it is on our plates, what is meat? (animals) Where does the meat come from before it is sent to the meat distribution centre?
Meat processing plant/abattoir	Who ensures the quality of the meat processed at the abattoir?
Food Scientist	How do the animals get to the abattoir?
Transport	Who grows the animals and sends them to the abattoir?
Meat farmer	What types of animals does the farmer grow for meat?
Animals for meat	

Issues to discuss and consider

Students may not be aware of the animals that different types of meat come from. A simple word match of the animal and meat may familiarise students with the origins of meat, eg. Cow (Veal, Beef steak), Chicken (Chicken wings, nuggets), Sheep (Mutton, Lamb chops), Deer (Venison) and Pig (Bacon, Ham).

Grain Industry Web (7 stages + 2 transport + 1 food scientist)

Farm web cards	Prompt questions
Bread	What are some examples of other grain products? Where do we buy bread from?
Bakery	Who bakes the bread?
Baker	What does the baker make the bread out of? (Flour) How does the flour get to the bakery?
Transport	What is flour made from? (Ground up wheat seeds - grain) Where are the wheat seeds/grains processed?
Grain processor	Who ensures the quality of the grain processed at the grain processor?
Food scientist	How does the wheat seeds/grain get to the processing factory?
Transport	How is the wheat harvested?
Grain harvester	Who grows the wheat?
Grain farmer	Where does wheat seeds/grain come from?
Wheat plant	

Issues to discuss and consider

Flour is made from ground up wheat seeds. Students can observe how this is done on a small scale by examining the features of grasses including wheat and grinding wheat seeds using the LandLearn 'Have You Ever Eaten Grass?' activity. This is found on the LandLearn Website www.landlearn.net.au > newsletters > past newsletters > term 4 2005.

Further investigation of other uses of grains may lead to the discovery of seeds/grains as a source of oil. The activity 'Squeezing Oil from Seeds' from the LandLearn teaching and learning resource *Super Seeds!*, allows student to design a process to extract oil from seeds.

Wool Industry Web (7 stages + 3 transport)

Farm web cards	Prompt questions
Woollen jumper	What are some examples of other woollen products? Where do we buy woollen jumpers from?
Clothing store	How do woollen jumpers get to shops?
Transport	Who makes woollen jumpers?
Designer/manufacturer	How does the wool get to the designer?
Transport	What needs to be done to the wool before it is made into clothing? (cleaned, spun and woven) Where do the designers get their wool from?
Wool processor	How does the wool processor get the wool?
Transport	Who supplies the wool processor with wool before it is cleaned, spun and woven?
Sheep farmer	Who cuts the wool from the sheep?
Shearer	Where does the wool come from?
Sheep	

Issues to discuss and consider: Wool that has been cleaned and spun feels very different to wool that is unprocessed. If you have access to unprocessed wool, allow students to feel the difference. This is an important stage to highlight as students may not realise that wool from a sheep must go through this processing stage. Much of the wool processing occurs overseas, discuss the implications of this for transportation costs. For further information and activities about the wool industry go to www.landlearn.net.au > newsletters > past newsletters > term 3 2006.

Forestry Industry Web (9 stages + 4 transport)

Farm web cards	Prompt questions
Wooden table	What are some examples of other wood products? Where do we buy furniture from?
Furniture store	How does the furniture get here?
Transport	Who makes the furniture?
Carpenter	What does the carpenter make the furniture out of? How does the wood get here?
Transport	Where does the wood come from?
Timber yard	How does the wood get here?
Transport	What needs to be done to the wood before it is sold in the timber yard? (bark removed, saw logs cut, wood dried) Where does the timber yard get the wood from?
Sawmill	How do the saw logs get to the saw mill?
Transport	Who cuts the saw logs?
Tree harvester	Who maintains the trees in the plantation?
Tree pruner	Who grows the trees in the plantation?
Farm forester	Where does the wood come from?
Tree	

Issues to discuss and consider: Measuring trees provides students with an insight into the work of farm foresters and other scientists working in natural resource management. Students can measure trees using activities found on the LandLearn website at www.landlearn.net.au > curriculum > for classroom use > action science > tree measurements in the school grounds & beyond.



Linking the paddock to the plate: Farm Web cards and printing instructions.

Suggestions of which Farm Web cards to use dependant on class size:

Depending on the size of your class you may wish to only investigate 1-4 industries. Suggestions are provided below as to which industries and which cards can be handed out to students to complete the activity as a class (with one card provided to each student).

No. of students	Farm Web cards – which industries to use?	No. of students	Farm Web cards – which industries to use?
5	Fisheries	18	Dairy + T + FS and Meat + 3T + FS
6	Meat or Dairy	19	Dairy and Meat and Wool
7	Grain or Wool or Fruit	20	Wool and Grain and Dairy
8	Dairy + T + FS	21	Wool and Grain and Fruit
9	Forestry	22	Meat and Fruit and Forestry
10	Grain + 2T + FS	23	Grain and Fruit and Forestry
11	Fruit + 3T + FS	24	Forestry + 4T and Fruit + 3T + FS
12	Meat and Dairy	25	Dairy and Meat and Forestry + 4T
13	Forestry + 4T	26	Dairy and Meat and Grain and Fruit
14	Dairy and Fruit	27	Grain and Wool and Fruit and Dairy
15	Forestry and Meat	28	Dairy + T + FS and Meat + 3T + FS and Grain + 2T + FS
16	Forestry and Grain	29	Dairy + T + FS and Fruit + 3T + FS and Wool + 3T
17	Dairy + T + FS and Forestry	30	Forestry and wool and Fruit and Grain

T = Transport cards

FS = Food Scientist card

Printing instructions for Farm Web cards:

Farm Web cards are organised by industry. Choose which industries you wish to investigate with your students and print off these cards, single sided and then laminate to enable multiple use. You may wish to print two cards to a page to save paper!

The number of Transport and Food Scientist cards you will require for each industry is indicated in the Farm Web Information Tables. Should you wish to print out and investigate all industries you will need to print 16 Transport cards and 4 Food Scientist cards.

Other resources to use in the classroom:

Ollie's Island: Looking at where stuff comes from, how we use it, and how this affects our world. Sustain Ability International Pty Ltd. (2007)
www.olliesworld.com

Future Harvest. Museum Victoria (2004)

www.museum.vic.gov.au > Virtual Showcase > History and Technology > Future Harvest. (Case studies and activities (linked to CSFII) exploring the future of farming.)

Young Explorer. MarketFresh (2007) www.marketfresh.com.au > Young Explorer

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