

COLD SNAP LAMBS TEACHER NOTES

This text has been designed to inform readers about an issue, often highlighted in the media, which can elicit an emotional response. While many links to various curriculum areas could be made, the following science links have been highlighted and used to develop the suggested activities. To support students in comprehending the text and understanding the underlying concepts, a guided or shared reading approach is suggested. The book aims to engage Year 5-8 students working at level 2-4.

Possible Science Achievement Objectives: (New Zealand Curriculum, 2007)

Strand	Level 1/2	Level 3/4
Nature of Science: Participating and Contributing (NS: PC)	Explore and act on issues and questions that link their science learning to their daily living	Use their growing science knowledge when considering issues of concern to them Explore various aspects of an issue and make decisions about possible actions
Nature of Science: Communicating in Science (NS: CS)	Build their language and develop their understandings of the many ways the natural world can be represented	Engage with a range of science texts and begin to question the purposes for which these texts are constructed
Living World (LW: LP) (LW:E)	Life Processes: recognise that all living things have certain requirements so they can stay alive Ecology: recognise that living things are suited to their particular habitat	Life Processes: recognise that there are life processes common to all living things and that these occur in different ways Ecology: explain how living things are suited to their particular habitat and how they respond to environmental changes both natural and human introduced
Planet Earth and Beyond (PEB: IS)	Interacting Systems: describe how natural features are changed and resources affected by natural events and human actions	Interacting systems: investigate the water cycle and its effect on climate landforms and life

Key Concepts: (KC)

- (i) Successful reproduction is the most important activity for the survival of a species. (LW:LP)
- (ii) Over generations living things have adapted to reproduce at optimal times for survival. (LW:E)
- (iii) Many animals, including sheep, are born in spring to increase their chances of survival into adulthood. In spring there is rapid new plant growth because of increasing temperature and available moisture so there is ample food supply for the ewe which then produces high quality milk. (LW:E)
- (iv) Spring weather is often unsettled: severe storms can occur which may threaten survival for new born lambs. (PEB:IS)
- (v) Over generations living things have adapted to survive in various environmental conditions. For sheep these include behavioural and physical adaptations. (LW:E; PEB:IS)
- (vi) All animals (including humans) have specific and common needs in order to survive: food, water, and shelter. (LW:LP)
- (vii) Farm animals are bred for a purpose; to provide food or other resources in order to meet human needs. (LW:LP)
- (viii) Farmers seek to manage the needs and natural behaviours of their animals in order to maximise production of food and other resources to meet human needs in an economical way. (LW:LP; PEB:IS; NS:PC)

INTERACTING WITH THE TEXT

Developing the Achievement Objectives and Key Concepts

Setting the scene:

What is a cold snap?

When there is a cold snap what do you think the farmers may have to do during this time?

Why do most animals give birth in spring?

Using the text:

P3 Why do you think the farmers pile dead lambs at the farm gate?

P4&5 In what ways does wool help sheep? In what ways is it a problem for them? What might a farmer need to think about in deciding when to shear sheep?

Shorn too early and the ewe will carry too much wool risking being cast or not seeking shelter with her lamb during a cold snap.

Shorn too late risking harming the unborn lamb or not having time to grow enough wool to protect herself from a cold snap.

P5 Look at the picture in the centre of the page. Notice the snow has been cleared in what looks like lines. Why do you think the farmer has done this? *Possibilities include for driving on or for feeding out.*

P6 Notice the lamb at the top of the page has paint/chalk on the side. What could this be for? *Sometimes farmers mark lambs especially twins so that they know they go together.*

P8 Compare the pictures at the top and bottom of the page. Which areas are more likely to have soiled or dirty wool? *Unfortunately we also have one species of blowfly in NZ that will lay their eggs on clean parts of the sheep.*

P9/10 Why do you think farmers prefer not to interfere with lambing sheep and new lambs? *Chasing a ewe or lamb can upset all of the sheep and lambs in a paddock and maybe some lambs will be injured or not find their mother.*

In some situations farmers need to catch a ewe/lamb; how do you think farmers go about doing this? *Most farmers will have a very good dog, often called an "eye" dog. These dogs do not bite the ewe or lamb, they herd them and stare at them so the ewe or lamb does not know which way to run. This gives the farmer time to catch the ewe or lamb. Farmers use a metal or wooden hooked stick (crook) to catch the ewe or lamb around the neck or foot.*

P11/12 Weaning is a common occurrence for many animals, including humans: this aspect could be explored further.

Notice the ear tags on these lambs; why might a farmer need to identify sheep in this way?

P13/14 What reasons might there be for NZ flocks being larger than those overseas? *Some reasons include: there is more space in NZ; traditional farm holdings particularly in Europe are generally smaller and are close to their consumers; NZ is a long distance from large markets and therefore needs to produce more sheep as economically as possible; NZ has a better climate for sheep than hotter or colder countries etc. Students could research the influence of scientific research into pasture and flock development.*

P17 Look at the middle picture. Why might the woman be trimming the hooves of this sheep? *Sheep's hooves grow a bit like toenails. Hooves need to be kept in good condition to avoid footrot and other diseases. Drench kills the parasites ("worms") that grow inside the sheep. What other animals need to be treated for worms? Why?*

P17/19 Why do we need healthy farm animals?

Pulling it together:

Revisit the initial question as to why many animals are born in spring.

Look at the pictures in the text that show sheep finding shelter. Pages 3, 10, 15 what do you notice? *The shelter is low and dense.*

Design and complete a table showing the advantages and disadvantages for an animal being born in spring compared with being born at another time of year.

Design a chart highlighting the factors that assist sheep and lambs to survive a cold snap. Some things you should think about are: physical features of sheep, sheep behaviours and farmer actions.

What do you think is the purpose of this text? How do you know?

OTHER ACTIVITIES

The following suggestions are to enable students to consider what farmers need to do or think about as they farm animals. Students may gain greater understanding of these issues if they are encouraged to begin with the familiar: many students have pets and can discuss their needs.

1. What is a pet? What makes a pet different from other animals? What are some things that we as humans need to survive?

Home: shelter

Safety: protection/escape

Bed/bedroom: warmth, own space, hide

Food and water

Love and care

Recreation: playground, toys

Ventilation

Hygiene/Grooming/Handling

Company

Does a pet need these? Which of the above do farm animals need?

Why may they not need all of these? Are there other things they need that are different?

What do you do to make sure that your pets are cared for when you go on holiday? What happens when a farmer needs to go on holiday? (See Other Information)

(LW:LP; NS:PC; KC: vi)

2. You are a farmer and have just heard from the weather forecast that a cold snap is approaching. Make a list of the things you would do to minimise the effects on your sheep. From this list, and using your other ideas, identify things that you would have to do before the sheep have lambs that would help them survive a cold snap.

Ideas include: shelter belt planting, sites suitable as lambing paddocks, e.g. north facing since most cold snaps travel from the south, in high country farms, having breeding ewes at a lower level etc.

(LW:LP; NS:PC; KC: i, iv, vi)

3. Students gather weather forecasts over the spring and identify those that may imply a cold snap. From what direction does this weather usually come? How could a farmer use this information?

(NS:CS; PEB:IS; KC: iv)

4. Students observe and record changes in plant growth around the school in spring. How often do you mow the lawns in winter/summer? How does this compare to springtime?

(PEB:IS; LW:E; KC:ii, iii, iv)

5. Students collect newspaper and web articles to display about cold snaps. They choose one article and compare it with the Cold Snap Lambs text. Complete a Venn Diagram showing similarities and differences in purpose, structure and content of the texts.

Students write their own report, deciding on an audience and purpose, describing farmers' responses and preventative measures concerning cold snaps. This could involve interviewing or communicating directly with farmers.

(NS:PC; NS:CS; PEB:IS; KC: iv, vi, viii)

6. Students make a list of behavioural and physical features of sheep. Discuss how these contribute to their survival as a species. What traits would a farmer or scientist be looking for in sheep used for breeding to improve survival and productivity?

(LW:LP; LW:E; KC: i, ii, iii, v, vi, vii, viii)

7. Students locate NZ scientific research that assists farmers. Invite scientific researchers in to talk with students and/or answer their questions.

(NS:PC; KC: vii, viii)

8. Students arrange a debate on the pros and cons of whether farm animals in NZ should be housed. (NS:PC; LW:LP; KC vii, viii)

9. Students could explore and compare food miles and carbon footprints of barn or paddock raised sheep products. Which is a better measure of environmental impact: food miles or carbon footprint? Why? (NS:PC; KC: vii, viii)

MORE RESOURCES

Caring for Animals: a guide for teachers, early childhood educators and students. Ministry of Education:
http://www.tki.org.nz/r/science/caring_for_animals/

Building Science Concepts Series (Ministry of Education):

The following activities from the Building Science Concept and Making Better Sense resources, available in all primary schools, would be useful in developing the following related concepts:

Resource	Concept	Activity
BSC Book 4: Animal Life Histories	Young animals need to eat a lot to grow into adults.	Activity 2, p16
BSC Book 4: Animal Life Histories	Many baby animals are cared for by one or both of their parents. Most parent animals can look after a few babies at a time successfully	Activity 2, p19
BSC Book 48: Fabrics	Parts of some plants and the coats of some animals can be used to make fabrics that people can wear	Activity 1, p9
BSC Book 48: Fabrics	Different fabrics have different properties	Activity 3, p10
Making Better sense of the Material World	Different fabrics have different properties	Activity 3 , p103
BSC Book 46: Keeping Warm	Mammals get their energy and warmth by eating food Heat energy will flow out of any body that is warmer than its surroundings but this heat loss can be slowed down.	Most activities in this book link appropriately.
BSC Book 43: Spring	In spring we experience many changes around us: weather, plant growth, and baby animals.	Most activities in this book link appropriately.
BSC Book 44: Spring is a season	In spring we experience many changes around us: weather, plant growth, and baby animals.	Activity 1, p9 Activity 1, p13

MORE ABOUT SHEEP

A female sheep is called a ewe, a male sheep a ram, and a baby a lamb. Most farmed sheep live for between 5 - 6 years. They usually live together in flocks. They have cloven hooves. They have eyes on the side of their head and in the wild are preyed on by other animals. (In NZ dogs can attack sheep.) They are farmed for their meat (mutton, lamb, hogget) wool, and milk. Wool grows continually so sheep must be shorn every year. Ewes are pregnant for approximately 147 days. They frequently have twins however triplets are rare. Farmers breed for ewes that have twins.

Lambs have baby teeth. At the end of their first year they lose two front teeth and grow two new adult teeth to replace them (two tooth) At the end of their second year they lose two more teeth and grow two new adult teeth to replace them (four tooth). They have their full set of adult teeth at age six with eight front teeth on the lower jaw and a dental pad on the top. They have molars at the back of the mouth.

Sheep are herbivores, eating mostly grasses which are hard to digest. They are also ruminants. A ruminant, is any mammal that digests its food in two steps, first by eating the raw material and then by regurgitating a semi-digested form known as cud (chew the cud). The process of chewing the cud to break down the plant matter and stimulate digestion is called rumination.

OTHER INFORMATION

The Animal Welfare Act 1999 is based the “five freedoms”. They are:

- Proper and sufficient food and water;
- adequate shelter;
- the opportunity to display normal patterns of behaviour;
- appropriate physical handling; and
- protection from, and rapid diagnosis of, injury and disease

Teacher Notes

