

# The Science of Sheep

## for primary teachers



**LEAF Education**

**Stoneleigh Park, Warwickshire, CV8 2LG**

# The Science of Sheep for primary teachers



## Contents

Introduction	Page 3
Sheep in the EYFS curriculum	Page 4
Sheep in the KS1:Y1 curriculum	Page 5
Sheep in the KS1:Y2 curriculum	Page 6
Sheep in the KS2:Y3 curriculum	Page 7
Sheep in the KS2:Y4 curriculum	Page 8
Sheep in the KS2:Y5 curriculum	Page 9
Sheep in the KS1:Y6 curriculum	Page 10
Further information and resources for teachers	Page 11
More sheep activities	Page 12
Appendix 1 Symptoms cards	Page 13
Appendix 2 Disease cards	Page 14
Appendix 3 Treatment cards	Page 15
Appendix 4 Sheep stratification students' copy	Pages 16-21
Appendix 5 Sheep stratification teacher's copy	Pages 22-27
LEAF Education and RBST	Page 28

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# The Science of Sheep for primary teachers



## Introduction

LEAF Education has worked with the Rare Breeds Survival Trust (RBST) to develop this e-booklet of ideas and activities for primary schools with a focus on sheep. LEAF Education is a fan of collaborative working and on this project shares its expertise in education with RBST'S knowledge of animal husbandry.

Particular thanks go to LEAF Education's East of England Consultant Gaina Dunsire with support from Gail Sprake, RBST's Chair of Trustees and Secretary of the Southdown Sheep Association .



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## Sheep in the EYFS curriculum

Year Group	Curriculum	Skills & Understanding	Activity Ideas
EYFS: Nursery & Reception	Anatomy	Name & identify  Compare, sort & group  Simple classification  Verbally communicate findings	Use a farm visit, your school's animals, stuffed toys, or images of animals and birds – ask the class to name and describe them, and the differences in the basic anatomy between sheep and the other animals <i>e.g. number of legs, wings, fur, teeth.</i>  <u>Animal hangman.</u> Give a picture of an animal to one student – the rest of the class have 5 questions to guess what animal it is <i>e.g. how many legs does it have?</i> The teacher draws the answers on the board to reveal the animal....hopefully!  Make <a href="#">sheep on sticks</a> (p9) or <a href="#">3D models</a> or use mime, stories, songs & card games to learn more about sheep & other animals' basic anatomy.



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# The Science of Sheep

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### Sheep in the KS1:Y1 curriculum

Year Group	Curriculum	Skills & Understanding	Activity Ideas
KS1: Year 1	Food Chains	<p>Simple classification</p> <p>Patterns &amp; relationships</p> <p>Communicate &amp; record findings</p>	<p>Discuss the body parts of a sheep – in particular its teeth and stomachs (simple diagrams are available online). Use real sheep or a skull if possible.</p> <p>Watch what, and how, a sheep eats (real sheep or film clip). Mime it! Is it a <i>herbivore</i>, <i>carnivore</i> or <i>omnivore</i>? Compare with other animals.</p> <p><u>“Flerd”</u></p> <p>On their hands &amp; knees mime <a href="#">how flocks of sheep eat</a> (nibble the grass with their teeth) and then <a href="#">how herds of cows eat</a> (pull the grass with their tongues, and lastly how dogs pant with excitement.</p> <p>Number the students and choose which numbers are to mime what e.g. odd numbers are sheep, even numbers are cows. They move around miming, eating in the correct way.</p> <p>Say they can’t all be mixed up into a ‘flerd’!! - the sheep belong in one field (choose a side of the room) and the cows belong in the other field (the other side of the room), so the dogs must separate them. Choose 2-3 random numbers to be dogs e.g. 3 &amp; 12 &amp; call them out - the dogs must chase and ‘tag’ the sheep and cows before they reach the wall on the correct side of the room.</p> <p>Repeat several times, changing which mime is odd &amp; even numbers, and with different numbers as the dogs.</p> <p><u>Who eats what?</u></p> <p>Match the plant, animal and human food items with the animal e.g empty packaging for milk, eggs, sausages. Record on a table using images/text/drawings</p>

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### Sheep in the KS1:Y2 curriculum

Year Group	Curriculum	Skills & Understanding	Activity Ideas
KS1: Year 2	Life Cycles & Seasons	<p>Observing changes over time</p> <p>Patterns &amp; relationships</p> <p>Communicate &amp; record findings</p>	<p>Visit your sheep and lambs <a href="#">Sheep farming year pie chart</a></p> <p>Discuss what time of year lambs are born and why - the life-cycle of sheep links with the seasons. Create a pie chart with drawings, collage, text, images etc.</p> <p><u>Autumn:</u> The male (Ram) is put with the female (Ewes) whilst they graze the grass. All the sheep are given medicine to stop them getting worms.</p> <p><u>Winter:</u> The ewes eat grass but are also given hay (dried grass with seeds for protein) so they grow strong &amp; healthy. The ewes are vaccinated to prevent disease. Some breeds are put in a barn in bad weather.</p> <p><u>Spring:</u> The ewes give birth to lambs – usually 1 or 2. The lamb drinks its mothers’ milk which contains nutrients and anti-bodies against disease. Ewes are given worm medicine, lambs are given vaccinations.</p> <p><u>Summer:</u> The ewes are sheared for their wool. The lambs eat grass and grow fast. Some will be sold for meat, some will be kept to breed more sheep. All the sheep are treated to prevent flies attacking their skin.</p> <p><a href="#">More information about a sheep’s year</a></p>

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### Sheep in the KS2 Y3 curriculum

Year Group	Curriculum	Skills & Understanding	Activity Ideas
KS2: Year 3	Habitats	<p>Relationship between living things &amp; their environment</p> <p>Presenting findings</p>	<p>Visit your sheep and lambs (or use film clips) and (and/or other animals). Discuss their (and our!) basic needs; food, water, shelter, health &amp; safety. Show images of them in a farm/wild environment.</p> <p><u>Mini-fields &amp; barns</u> In groups, students create a habitat which includes a sheep's (or other animals') basic needs. This can be done outside, or using a cardboard box inside to recreate a barn. Students collect twigs, leaves etc for fences &amp; shelter, dried grass for hay, small pots with water, moss for hedges etc. Their work is presented and explained to the class.</p> <p><u>School Wildlife Assessment</u> Watch a film about <a href="#">farms as habitats for wildlife too</a></p> <p>What wildlife can students find in your school grounds?</p>

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### Sheep in the KS2 Y4 curriculum

Year Group	Curriculum	Skills & Understanding	Activity Ideas
KS2: Year 4	Use of Materials	<p>Textures</p> <p>Comparative fair testing</p> <p>Appropriate enquiries</p> <p>Secondary Sources</p>	<p>Visit your sheep and feel the texture of their fleece. Describe it - dry, wet, greasy, soft?</p> <p><u>Student-designed experiments</u></p> <p>For example:</p> <ul style="list-style-type: none"> <li>test the strength of wool in different forms - fleece, spun single thread, 3 threads, knitted etc using weights or other methods</li> <li>test how waterproof fleece is unwashed or washed, or compared to other materials feathers, cotton, plastic etc</li> <li>test how insulating wool is compared to other materials e.g. measure the temperature of water as it cools</li> </ul> <p>Investigate the different uses for wool and lanolin using secondary sources.</p> <p>Sheep shearing – how is it done &amp; why? <a href="#">Video clip</a></p> <p>How much is wool worth (historically compared to now)?</p> <p><a href="#">Sheep &amp; wool craft activities</a></p>

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### Sheep in the KS2: Y5 curriculum

Year Group	Curriculum	Skills & Understanding	Activity Ideas
KS2: Year 5	Health & Nutrition	<p>Using evidence to justify &amp; explain</p> <p>Communicate &amp; Report findings</p> <p>Secondary Sources</p>	<p>Visit your sheep (and/or other animals).</p> <p><u>Vet for the day</u></p> <p>Discuss what would you look for to check your animal is comfortable and healthy?</p> <p>Eyes, teeth, tongue, wool condition, feet, position, energy, appetite, noise, temperature. In the classroom; Students work in pairs.</p> <p>One is the farmer – who chooses a Symptoms card and reads it to their partner.</p> <p>Their partner, who is the Vet, looks at the Disease cards and decides what the sheep has, and tells the farmer about the disease.</p> <p>The farmer and the vet look at the Treatment cards together to decide what they have to do to look after their sheep and the rest of the flock.</p> <p>Students choose <u>one</u> of their diagnoses &amp; treatments and writes up their findings in the style of a report for the farmer, more detail could be added using research from secondary sources.</p> <p>Feedback their findings to the class as a role-play</p>

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## for primary teachers



### Sheep in the KS2:Y6 curriculum

Year Group	Curriculum	Skills & Understanding	Activity Ideas
KS2: Year 6	Breeding & Genetics	<p>Systematically use more complex classification</p> <p>Using secondary sources</p> <p>Understand &amp; predict</p> <p>Presenting data</p>	<p>Discuss genes &amp; genetics using humans then sheep as examples. Show how sheep have changed over time and geography – e.g. compare sheep from Egypt to Shetland – why do they look so different?</p> <p>Sheep and the UK landscape – what is the role and purpose of sheep farming? (meat, wool, soil fertility, land management, employment etc)</p> <p><u>Stratification Task (See Appendices 4 and 5)</u></p> <p>Study the key features of your sheep. Are you able to identify which breed your school's sheep is?! Are they a lowland, upland or hills breed?</p> <p>Investigate the <i>stratified breeding system</i> to understand how genetic differences are used by scientists and farmers to breed sheep which are suited to different topography &amp; climate, and for different commercial purposes e.g. meat, wool or breeding.</p> <p>In groups, students are given a farm in an area of the UK (give them a large simple UK map with the various farms numbered).</p> <p>Students study the different sheep profiles and decide which breed is best suited for their farm. Explain their choice verbally to the class.</p> <p>Can you improve your sheep's productivity whilst making sure it is still suitable for your climate &amp; topography by 'crossing' different breeds? Show your choice using a flow chart, annotate the different features you predict the resulting sheep would have.</p>

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## Further information & resources for teachers

[Countryside Classroom](#)

[National Sheep Association](#)

[Rare Breed Survival Trust](#)

[British Wool](#)

[FACE/NFU](#) – *Why Farming Matters to the South Downs* p.15-19

[RSPCA](#)

[Twinkl](#)

[AHDB Beef & Lamb](#)



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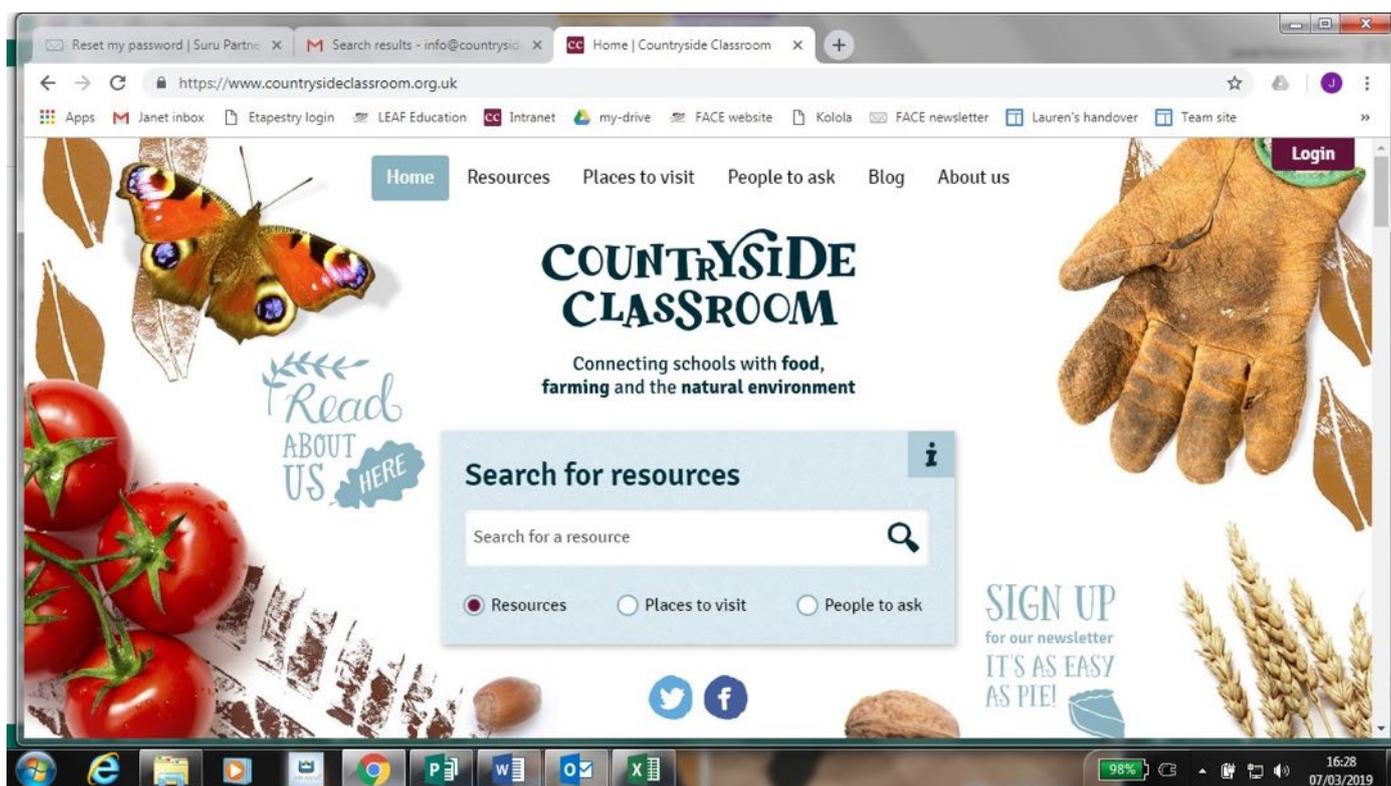
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## More sheep activities

This booklet contains links to a variety of resources with a sheep theme. Most of these can be found on the Countryside Classroom website - just do a search for sheep in the resources section!

[www.countrysideclassroom.org.uk](http://www.countrysideclassroom.org.uk)



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## Appendix 1

### Symptoms cards

(Cut into individual cards and mix them up)

SYMPTOMS	SYMPTOMS	SYMPTOMS	SYMPTOMS
My sheep....	My sheep....	My sheep....	My sheep....
<ul style="list-style-type: none"> <li>• Is eating less</li> <li>• Is stamping its feet</li> <li>• Is trying to scratch its back</li> <li>• Is smelly</li> <li>• Has maggots on its fleece</li> </ul>	<ul style="list-style-type: none"> <li>• Is limping on one of its back legs</li> <li>• Is smelly</li> </ul>	<ul style="list-style-type: none"> <li>• Is limping on its back legs</li> <li>• Is eating less and drooling</li> <li>• Has pus coming from its nose</li> <li>• Is just lying around</li> <li>• Has a weird coloured tongue which is swollen</li> </ul>	<ul style="list-style-type: none"> <li>• Is eating less</li> <li>• Is making a lot of noise and stares at me</li> <li>• Is coughing</li> <li>• Has a swollen neck</li> <li>• Has diarrhoea with blood in it</li> </ul>

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# The Science of Sheep for primary teachers



## Appendix 2 Disease cards

DISEASE	DISEASE	DISEASE	DISEASE
<p><b>Flystrike</b></p> <p>Flystrike is caused by flies laying their eggs on a sheep's skin</p> <p>It can make sheep stamp their feet and try to scratch where the maggots are</p> <p>They might not eat very much</p> <p>In bad cases you can see the maggots and smell the rotting skin</p>	<p><b>Footrot</b></p> <p>Footrot is caused by two bacteria which live in the soil and sheep manure, but can live in a sheep's hoof</p> <p>Footrot has a bad smell</p> <p>Sheep with footrot will limp on one or more of their feet</p>	<p><b>Blue tongue</b></p> <p>Blue tongue is a virus which is spread by midges which are sometimes blown by the wind from Europe to the UK</p> <p>Sheep with the virus will have a high temperature and drool</p> <p>They will have a swollen mouth, head or neck and pus coming from its eyes and nose</p> <p>It might be lame in its back legs</p>	<p><b>Anthrax</b></p> <p>Anthrax is caused by bacteria and spread by breathing them in, or touching them</p> <p>Sheep will have a high temperature and shiver</p> <p>They will cough, eat less and have stomach ache</p> <p>Their eyes go bright and staring</p> <p>They have blood in their nostrils or dung</p>

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### Appendix 3

### Treatment cards

TREATMENT	TREATMENT	TREATMENT	TREATMENT
<ul style="list-style-type: none"> <li>• Take the sheep away from the rest of the flock</li> <li>• Remove and kill the maggots</li> <li>• Shave the area</li> <li>• Apply a chemical “insecticide” to kill the eggs</li> </ul>	<ul style="list-style-type: none"> <li>• Take the sheep away from the rest of the flock—it is very contagious!</li> <li>• Trim the infected hoof</li> <li>• Soak the foot in an anti-bacterial wash</li> <li>• Think about vaccinating</li> </ul>	<ul style="list-style-type: none"> <li>• Take temperature and look in its mouth for ulcers</li> <li>• This disease must be reported immediately to Defra (the government)</li> <li>• Keep it away from other sheep</li> <li>• There is no cure so it might die</li> <li>• Think about vaccinating the rest of the flock</li> </ul>	<ul style="list-style-type: none"> <li>• Do not move it and keep other sheep away</li> <li>• Take its temperature but <u>wear gloves</u></li> <li>• Clean the area with disinfectant</li> <li>• The disease must be reported immediately to Defra (the government)</li> <li>• Keep other sheep away</li> </ul>

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## Appendix 4 Sheep stratification Students' copy

(Cut into individual cards and mix them up)

### Herdwick



Britain's hardest breed  
Strong and agile (moves quickly and easily)  
Very waterproof fleece  
Good mothers  
Slow growing  
Can live off just grass

*Rams weigh up to 90kg  
Ewes weigh up to 60kg*

### Swalesdale



Strong feet and teeth  
Small sheep  
Can cope with wild areas and very harsh weather  
Strong and brave  
Good for both meat and wool

*Rams weigh up to 73kg  
Ewes weigh up to 54kg*

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## Student Cards

### Whitefaced Dartmoor



Hardy sheep – they can live on land up to 600m high  
Can live off just grass  
Excellent mothers  
Curly fleece

*Rams weigh up to 75kg  
Ewes weigh up to 54kg*

### Derbyshire Gritstone



Big and strong  
Agile (moves quickly and easily)  
Very waterproof and good quality fleece  
Good mothers

*Rams weigh up to 110kg  
Ewes weigh up to 74kg*

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## Student Cards

### Bluefaced Leicester



Produces lots of lambs  
Fast growing  
Can live on land up 300-500m  
Good for crossing with hill breeds

*Rams weigh up to 150kg  
Ewes weigh up to 86kg*

### Clun Forest



Very alert, good mothers  
Can adapt to different environments  
Need little extra food as they are good foragers  
Live a long time

*Rams weigh up to 90kg  
Ewes weigh up to 65kg*

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## Student Cards

### Kerry Hill



Hardy breed – can live on land up to 500m  
high  
Thick fleece  
Adaptable to different environments  
Good mothers

*Rams weigh up to 80kg  
Ewes weigh up to 65kg*

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## Student Cards

### Suffolk



Big and fast growing  
Good quality meat  
Not hardy but has hard hooves  
Ewes give birth easily and produce lots of milk

*Rams weigh up to 150kg  
Ewes weigh up to 90kg*

### Romney



Likes grassland, can live on marshy land  
Water resistant fleece  
Thick, heavy wool  
Generally healthy but slower growing  
Good quality meat

*Rams weigh up to 77kg  
Ewes weigh up to 64kg*

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## Student Cards

**Lincoln Longwool**



Big sheep  
Very long, thick wool  
Suited to cold but dry climates  
Gentle character

*Rams weigh up to 114kg  
Ewes weigh up to 91kg*

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## Appendix 5 Sheep stratification Teacher's copy

### Hill Farm Sheep (above 500m)

#### 1. Herdwick



Britain's hardest breed  
Strong and agile (moves quickly and easily)  
Very waterproof fleece  
Good mothers  
Slow growing  
Can live off just grass

*Rams weigh up to 90kg  
Ewes weigh up to 60kg*

#### 2. Swaledale



Strong feet and teeth  
Small sheep  
Can cope with wild areas and very harsh weather  
Strong and brave  
Good for both meat and wool

*Rams weigh up to 73kg  
Ewes weigh up to 54kg*

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## Hill Farm Sheep (above 500m)

### 3. Whitefaced Dartmoor



Hardy sheep – they can live on land up to 600m high  
Can live off just grass  
Excellent mothers  
Curly fleece

*Rams weigh up to 75kg  
Ewes weigh up to 54kg*

### 4. Derbyshire Gritstone



Big and strong  
Agile (moves quickly and easily)  
Very waterproof and good quality fleece  
Good mothers

*Rams weigh up to 110kg  
Ewes weigh up to 74kg*

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## Upland Sheep (300-500m)

### 5. Bluefaced Leicester



Produces lots of lambs  
Fast growing  
Can live on land up 300-500m  
Good for crossing with hill breeds

*Rams weigh up to 150kg  
Ewes weigh up to 86kg*

### 6. Clun Forest



Very alert, good mothers  
Can adapt to different environments  
Need little extra food as they are good foragers  
Live a long time

*Rams weigh up to 90kg  
Ewes weigh up to 65kg*

# The Science of Sheep for primary teachers



## Upland Sheep (300-500m)

### 7. Kerry Hill



Hardy breed – can live on land up to  
500m high  
Thick fleece  
Adaptable to different environments  
Good mothers

*Rams weigh up to 80kg  
Ewes weigh up to 65kg*

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## Lowland Sheep (below 300m)

### 8. Suffolk



Big and fast growing  
Good quality meat  
Not hardy but has hard hooves  
Ewes give birth easily and produce lots of milk

*Rams weigh up to 150kg  
Ewes weigh up to 90kg*

### 9. Romney



Likes grassland, can live on marshy land  
Water resistant fleece  
Thick, heavy wool  
Generally healthy but slower growing  
Good quality meat

*Rams weigh up to 77kg  
Ewes weigh up to 64kg*

# The Science of Sheep for primary teachers



## Lowland Sheep (below 300m)

### 10. Lincoln Longwool



Big sheep  
Very long, thick wool  
Suited to cold but dry climates  
Gentle character

*Rams weigh up to 114kg  
Ewes weigh up to 91kg*

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## LEAF Education and RBST

LEAF Education (formerly Farming and Countryside Education) works with school communities to help children and young adults understand the connection between farming and their daily lives.

[Linking Environment and Farming](#) (charity number 1045781).

### [Rare Breeds Survival Trust](#)

RBST is the only UK charity dedicated to securing the future of our rare and native breeds of farm livestock. RBST saves genetics in its Gene Bank. If a breed were to become extinct, this can be used to revive a breed. In emergencies, RBST will buy genetically important stock and place it in approved breeding centres. RBST promotes rare and native farm breeds and provides a network of knowledge to support and encourage breeders.

Contact [LEAF Education](#)

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