

Happy hens

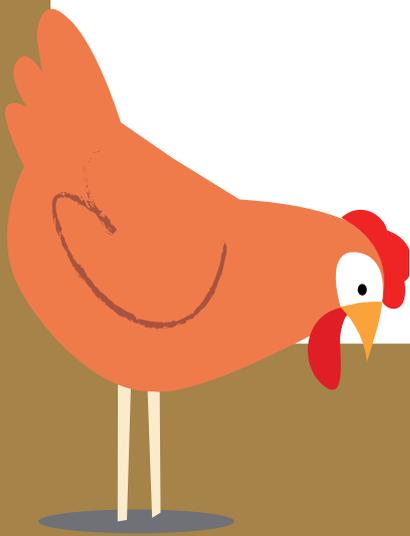
Introduction

These materials are intended to provide lesson ideas for Science, D&T and Literacy. The ideas and materials are suitable for children at KS1 and KS2 although some differentiation will be necessary for the youngest children. In particular, younger children will not be able to follow the written instructions on the pupil sheets. However, they should be able to manage the practical activities with support.

The materials focus on keeping hens for producing eggs.

Project overview

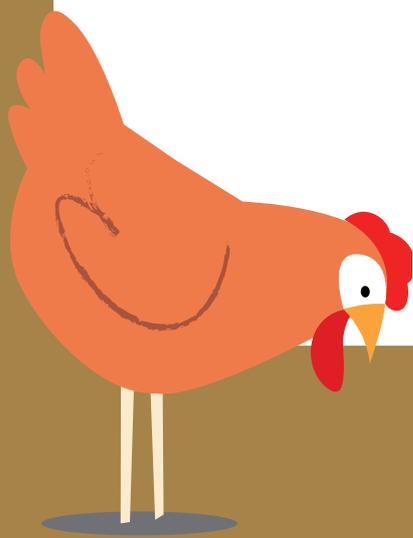
Stage	Time	Overview
1: Main presentation	10-15 mins	A presentation describing different types of egg farming and what hens need to flourish.
2: Practical work	20-120 mins	<p>There are two practical activities relating to keeping hens. Along with the presentation, these support children with information helpful for them to design an environment for a flock of 100 laying hens.</p> <p>Activity 1: In this activity, children learn about features of a good hen feeder. They then make and test a model hen feeder using craft materials. The feeder uses rice to model food pellets. Uncooked rice is harmful to hens because it swells up in their stomachs. Please mention this to the children.</p> <p>Activity 2: In this activity, children learn about water dispensers. They make and test a model water dispenser using a glass tumbler and dish.</p>



Presentation notes

These notes also appear on the PowerPoint 'notes' pages.

<p>Slide 2: Types of egg-farming</p>	<p>For eggs to be classed as 'free-range', the hens must have access to the outdoors. Flocks may be up to 32,000 hens. Organic free-range eggs must be produced by hens in a flock size of 3,000 or fewer hens that have access to organic land and be fed an organic diet. The photograph at the top of the slide is an idealised depiction of free-range hens.</p> <p>Barn eggs are produced by hens that remain indoors but can roam freely within the barn.</p> <p>Colony caged hens remain in wire cages.</p>
<p>Slide 3: What do hens need?</p>	<p>Hens have similar needs to most animals (including humans). They need shelter from the weather and predators, space within the shelter and outside, water and food containing the right nutrients.</p>
<p>Slide 4: Features of a good henhouse</p>	<p>Self-explanatory</p>
<p>Slide 5: Features of a good chicken run</p>	<p>A chicken run is designed to enclose the chickens whilst giving them space to move around and forage. This prevents them from wandering too far away or falling prey to predators such as foxes. It also prevents them from using 'secret' places to lay their eggs.</p>
<p>Slide 6: Food and drink</p>	<p>A hen's diet must include the correct nutrients, vitamins and minerals. Grit helps hens to digest food. Oyster shells contain calcium carbonate which is needed to make eggshells. Egg-producing hens need a high protein diet and lots of water. Hen feeders are designed to provide a continuous flow of food whilst avoiding spoilage.</p> <p>Water dispensers are also designed to provide a continuous supply of water without spoilage.</p>
<p>Slide 7: Can you design a henhouse to keep hens happy and safe?</p>	<p>A stimulus picture to start children thinking about what a henhouse for happy hens might look like.</p>



The activities

Activity 1: Hen feeders

Suggested equipment and materials:

Student sheet, shallow dish (such as a petri-dish) or cream or yoghurt pot with a base diameter of about 8-10cm, kitchen roll tube, PVA glue or hot glue gun, scissors, cocktail stick, string or thread, scissors, rice.

Activity overview:

In this activity, children learn about features of a good hen feeder. They then make a model hen feeder using craft materials and test it. The feeder uses rice to model food pellets. Uncooked rice is harmful to hens because it swells up in their stomachs. Please mention this to the children.

The shallow dish needs to be about 1.5 to 2cm deep. Children may need help to cut the cardboard tube and cream/yoghurt pot.

As an extension activity, you could challenge children to improve the feeder design, and then make and their improved feeder.

Safety guidance

Children must not use a hot glue gun as the glue is molten plastic at about 200°C and can give nasty burns. Younger children will need help to cut cream or yoghurt pots.

Activity 2: Water dispensers

Suggested equipment and materials:

Student sheet, glass tumbler or narrow jam-jar, shallow dish (such as a petri-dish) or cream or yoghurt pot with a base diameter of about 8cm, supports (you could use large buttons or pennies), dropping (teat) pipette, cloths to mop up spills.

Activity overview:

In this activity, children learn about water dispensers. They make and test a model water dispenser using a glass tumbler and dish. As an extension activity, you could challenge children to improve the water dispenser design, and then make their improved version.

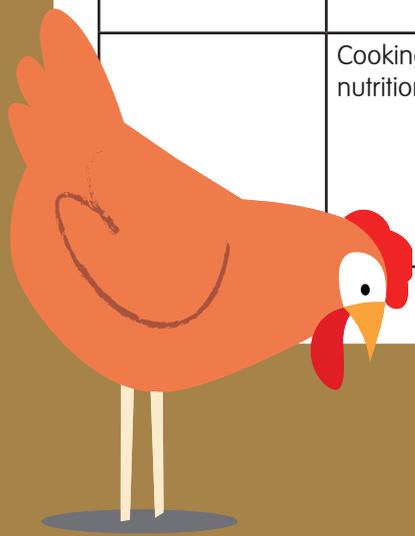


Safety guidance

Glass tumblers are easily broken, and children should be warned against clearing up broken glass. You may wish to consider using plastic 'glasses' or beakers if available. The dishes need to be at least 3cm wider than the tumbler. Younger children will need help to cut cream or yoghurt pots.

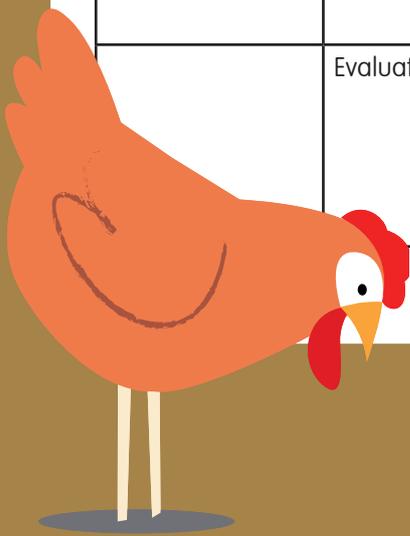
Possible links to the English National Curriculum

Stage/subject	Topic	National Curriculum statements
KS1: Science	Y2 Living things in their habitats	<ul style="list-style-type: none"> Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.
	Y2: Animals, including humans	<ul style="list-style-type: none"> Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).
	KS1 Working Scientifically	<ul style="list-style-type: none"> Asking simple questions and recognising that they can be answered in different ways. Performing simple tests. Using their observations and ideas to suggest answers to questions.
KS1 Design and technology	Design	<ul style="list-style-type: none"> Design purposeful, functional, appealing products for themselves and other users based on design criteria. Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.
	Make	<ul style="list-style-type: none"> Select from and use a range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing). Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.
	Evaluate	<ul style="list-style-type: none"> Explore and evaluate a range of existing products. Evaluate their ideas and products against design criteria.
	Cooking and nutrition	<ul style="list-style-type: none"> Use the basic principles of a healthy and varied diet to prepare dishes. Understand where food comes from.



LKS2 Science	Y3: Animals including humans	<ul style="list-style-type: none"> Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat.
	Y4: Animals including humans	<ul style="list-style-type: none"> Construct and interpret a variety of food chains, identifying producers, predators and prey.
	LKS2 Working Scientifically	<ul style="list-style-type: none"> Asking relevant questions and using different types of scientific enquiries to answer them. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.
UKS2 Science	Y6: Animals including humans	<ul style="list-style-type: none"> Describe the ways in which nutrients and water are transported within animals, including humans.
	UKS2 Working Scientifically	<ul style="list-style-type: none"> Using test results to make predictions to set up further comparative and fair tests. Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. Identifying scientific evidence that has been used to support or refute ideas or arguments.

KS2 Design and technology	Design	<ul style="list-style-type: none"> Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.
	Make	<ul style="list-style-type: none"> Select from and use a wider range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing), accurately. Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities.
	Evaluate	<ul style="list-style-type: none"> Investigate and analyse a range of existing products. Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. Understand how key events and individuals in design and technology have helped shape the world.



	Cooking and nutrition	<ul style="list-style-type: none"> • Understand and apply the principles of a healthy and varied diet. • Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques • Understand seasonality.
KS1-KS2: 6.3: Language and literacy		The writing they [pupils] do should include narratives, explanations, descriptions, comparisons, summaries and evaluations: such writing supports them in rehearsing, understanding and consolidating what they have heard or read.

Useful links

British Egg Industry Council <http://www.britisheggindustryCouncil.co.uk/about-us/>

Egg info - everything from nutrition and health news to the story of the British Lion scheme and more <https://www.egginfo.co.uk/>

RSPCA <https://www.rspca.org.uk/adviceandwelfare/farm/layinghens/farming>

Compassion in World Farming <https://www.ciwf.org.uk/farm-animals/chickens/egg-laying-hens/>

