Poultry Activities for GCSE Geography

(age 14-16)

In association with

Introduction

LEAF Education was asked by the poultry industry to devise classroom materials which would help pupils to understand more about the chicken that they often eat - where it comes from and how it is produced.

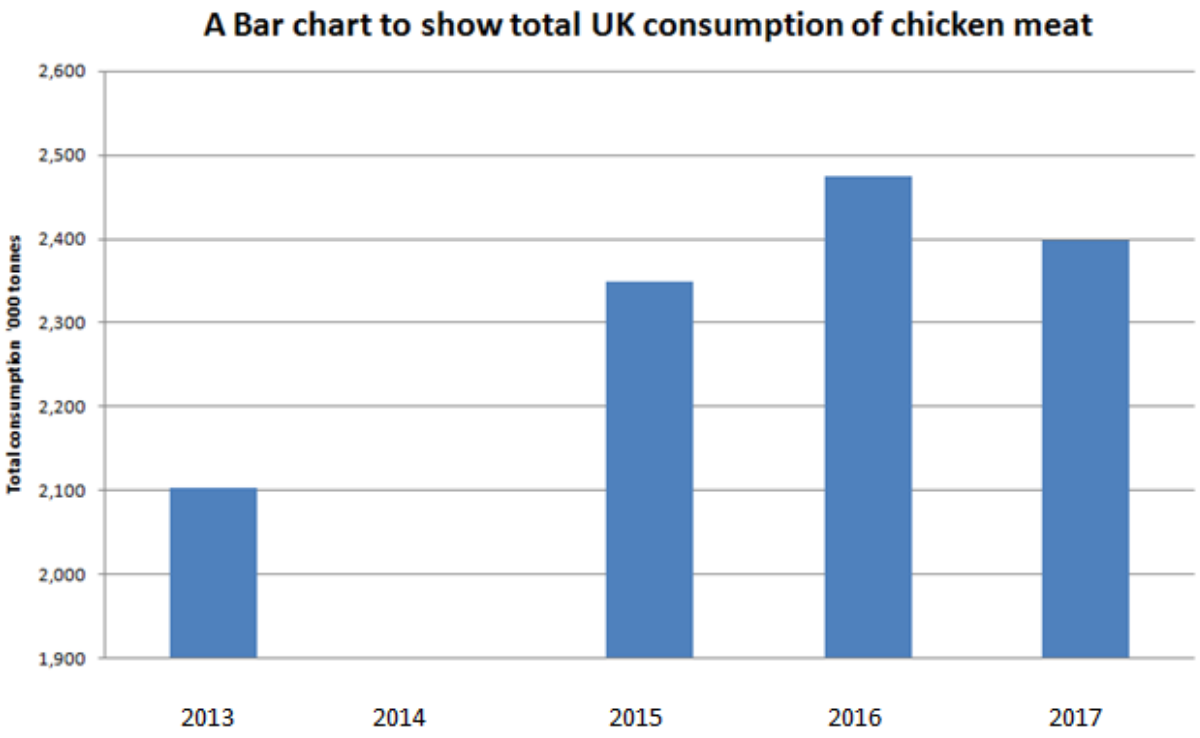
This document has been created for GCSE Geography students to help them investigate aspects of chicken meat production.

A mark scheme is included.

Chicken is the highest selling meat in the UK with adults consuming on average 26 kg (approximately 13 chickens per year); total UK consumption has been rising in recent years as the cost of production has made the price of chicken being sold more affordable.

1) Complete the bar chart below by adding in the missing information from the table of figures (Fig 1b) regarding total chicken meat consumption:

Fig 1a



(1mark)

2) Calculate the average total consumption from 2013-17 and add to the table below:

Fig 1b

	2013	2014	2015	2016	2017	Average
Total consumption of chicken meat in '000 tonnes. ***(Production + imports – exports)***	2,103	2,129	2,349	2,474	2,399	_____

AHDB, 2017

(1 mark)

Fig 1c

Broiler chick

weighs 42 g

Fully grown broiler chicken

weighs 2.6 kg

1) Calculate the increase in weight between a chick and fully grown broiler chicken .

_____

_____

(1 mark)

1) Using your results from question 3 and information from Fig 1d complete the table below by adding in the growth rates for each of the three different farming systems:

Fig 1d

	Indoor production system	Free range farming system	Organic farming system
Stocking density	39 kg/sq m	27.5 kg/sq m	21 kg/ sq m
	Approximately 15 chickens	Approximately 10 chickens	Approximately 8 chickens
Average age of chicken when they reach slaughter weight	42 days	56 days	81 days
Growth rate	_____g/day	_____g/day	_____g/day
Average price	£3.15	£7.20	£11.43

It is important to note that in each system, the UK poultry industry ensures high welfare standards. Welfare in the UK is world-class, heavily regulated, science based and continually improving. Welfare should be measured by welfare outcomes provided by good management practices, highly skilled people practising good animal husbandry and following the guiding principles of stockmanship.

(3 marks)

1) Annotate the pictures below to highlight differences between indoor production and free range farming conditions for the chickens.

Fig2a

Nick and Claire Bragg - Frogmary farm Somerset (Indoor production))

Fig 2b

(3 marks)

Alec Mercer - Packington Farm Staffordshire (Free Range)

(3 marks)

Fig 3a

There are three ways that chicken can be farmed:

Indoor production - which involves using species which grow quickly, chickens typically reaching slaughter weight after 6 weeks. The chickens are kept in their thousands in large sheds. The sheds are carefully controlled so that temperature, relative humidity and air quality are all kept to an optimum level for the age of the chicken so that they are warm and comfortable at all times; food and water is constantly replenished via mechanical feeding stations that operate 24 hours a day. Antibiotics can be added to the water should the chickens fall ill.

Free range – which involves using slower growing species, free range chickens typically reach slaughter weight at 8 weeks, and will be housed either in large sheds or smaller mobile sheds which may or may not have natural lighting; for a minimum 1/3 of their lives the chickens will have access to the outdoors and food and water are replenished by the farmer. Antibiotics can also be used in the water or injected should the chickens fall ill.

Organic - organic chickens typically live 11-12 weeks and have a slower growth rate. Organic farmers have to follow guidelines on what the chickens are fed , how they are transported and the use of antibiotics is heavily restricted.

1) Using information from figures 1a – 3a to justify your answer, write a statement to explain what you consider to be the benefits and drawbacks of each type of farming method.

(9 marks)

Extra space

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References:

- https://pork.ahdb.org.uk/media/275384/poultry-pocketbook-2018.pdf
- https://www.fwi.co.uk/poultry/free-range-chicken-meets-the-challenges Farmers weekly 2013
- https://www.britishpoultry.org.uk/a-manifesto-for-great-british-food-values/

Mark scheme

1) Bar needs to be no higher than half way and above the 2100 line for 1 mark
2) Average - 2290.8
3) 2600 grams – 42 grams = 2558 grams
4) Indoor production = 60.90 g/day
   Free Range = 45.68 g/day
   Organic = 31.58 g/day
5) Credit any reference to number or density of chickens, reference to space abundance, indoor or outdoor environment, number of feeding and water stations, straw/hay bales, windows or open air, green fields.
6) **Indicative content**
   The question requires candidates to make appropriate links between content from the different figures. Responses must use evidence from the resources to establish benefits and drawbacks of each type of system.

Level	Marks	Description
3 **(detailed)**	6-9	Demonstrates application of knowledge and understanding by making full analysis of the resources, deconstructing information and making detailed links between content.
2 **(Clear)**	3-5	Demonstrates clear understanding of the benefits and drawbacks by making reasonable analysis of the resource, deconstructing information and making clear links between content.
1 **(Basic)**	1-2	Demonstrates basic understanding of the benefits and drawbacks of by making limited analysis of the resource, deconstructing information and making basic links between content.
	0	No relevant content