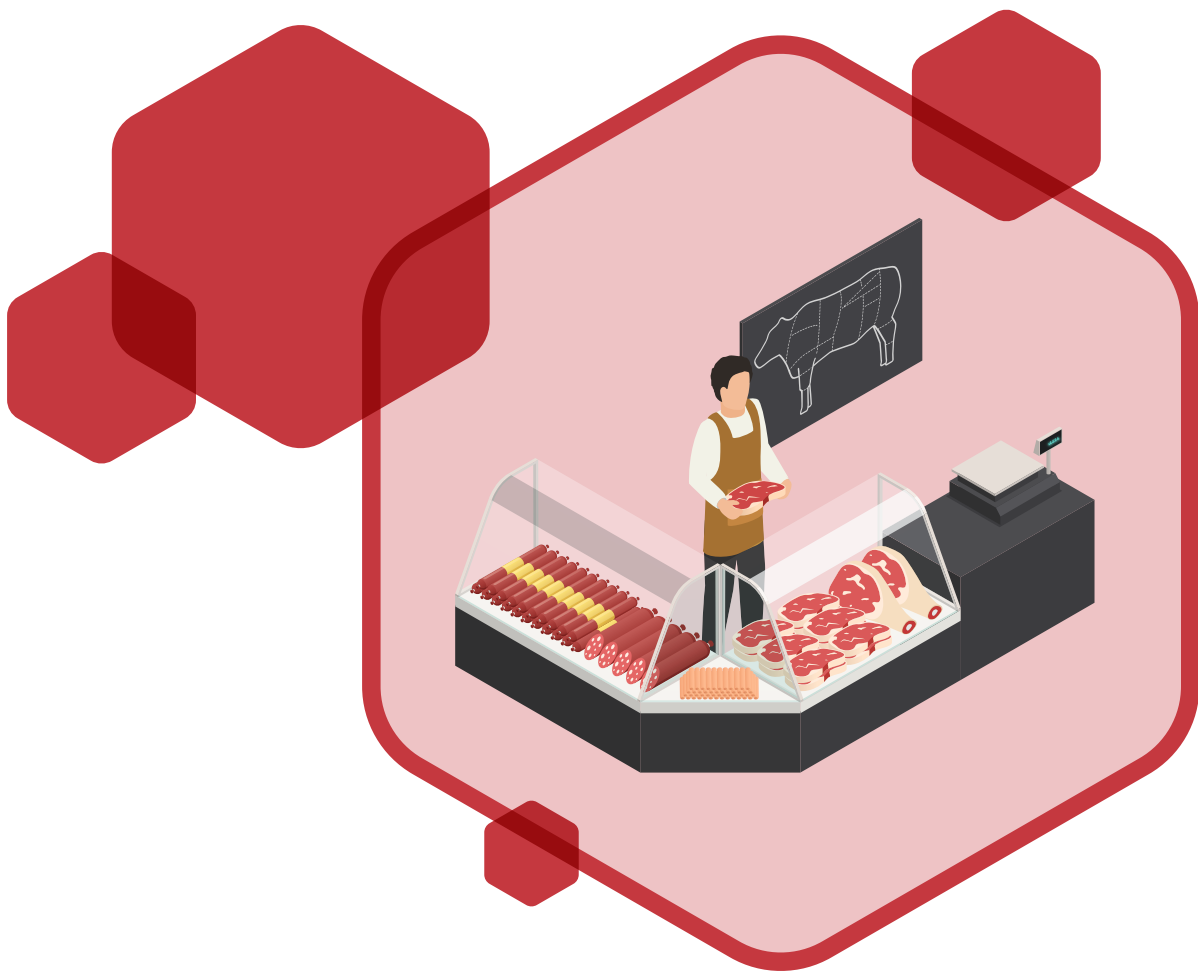
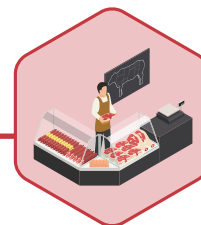


# TEACHER'S TOOLKIT



This project has been created in partnership between Quality Meat Scotland (QMS) and Food & Drink Federation (FDF) Scotland based on Bathgate Academy's Make it With Meat Project.



# Make it With Meat Teacher's Toolkit

## Project Overview

This project is aimed at pupils working at Level 3 and aims to cover a range of learning outcomes (listed in Lesson Overview) using the core concept of creating a burger.

Each lesson will have links to videos, PowerPoints & interactive resources and each will have a 'go further' section which can be used in class, for at home learning or for fast finishers.

There are six lessons and the project has been designed to be adapted by teachers so you can pick and choose the lessons which meet your teaching requirements. Teach them in sequence or alter the sequence as required/class time allows.

## Case Study

Partnering with FDF Scotland and their "A Future in Food" initiative, Quality Meat Scotland have worked with Bathgate Academy for several years in their Make it With Meat project for S2 students. This project is based on Bathgate's original project which you can find out more about in the case study at [https://www.qmscotland.co.uk/sites/default/files/ff\\_to\\_food\\_production\\_case\\_study.pdf](https://www.qmscotland.co.uk/sites/default/files/ff_to_food_production_case_study.pdf).

As you will read, partnership working has meant Bathgate Academy pupils have been able to broaden their knowledge and experience through industry talks and visits to learn about the careers behind the scenes.

## Making the Project Your Own

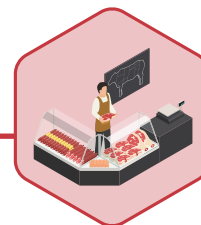
If you wish to incorporate the industry into the project to link pupil's classroom learnings to the food and drink industry, we can assist you. This can be done through videos, talks, demonstrations, and visits.

If you need support in linking with local businesses, contact your local DYW coordinator at <https://www.dyw.scot/contact.html> or FDF Scotland at <https://www.fdfscotland.org.uk/fdf/contact-us>

If you would like to arrange a Royal Highland Education Trust (RHET) farm visit or classroom talk you can do so at <https://www.rhet.org.uk/teachers>

Emma  
Aitken, Home  
Economics teacher at  
Bathgate Academy said:

"The Make It with Meat challenge is an exciting learning experience for our pupils to learn about the farm to fork process. It teaches pupils where the meat they eat comes from, how it is processed and how it is developed into a consumable product. The challenge also provides pupils with an insight into the different jobs and skills required in the food industry. Our S2 pupils have thoroughly enjoyed this challenge and created some innovative flavour combinations."



## Lessons & The Worksheets

The editable PDF worksheets that accompany this project have been designed as a teaching aid which allow pupils to record their learnings, ideas, and to create their burger recipes.

The burger design element of the project can be completed in groups or as individuals.

## Project Support - QMS Meat Voucher

To help with the purchase of meat for the burger making part of the project, a meat voucher is available from Quality Meat Scotland (QMS) - the scheme opens for applications at the start of each academic year.

Every Home Economics department in secondary schools across Scotland are entitled to a QMS Meat Voucher. The value of the voucher ranges from £20 - £180 (depending on the school roll).

## Evaluation of Understanding

At the end of the project workbook there is a link to a quiz which covers all the key learnings of the project to assess the pupil's understanding.

## Feedback

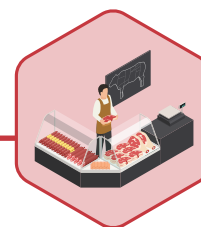
This project will naturally evolve as the workbook is a living document so if you have any feedback or suggestions for improvements the creators would value your feedback. See contact details below.

## Contact Details

If you have any queries or require support with this project, please contact either of the partnership organisations involved:

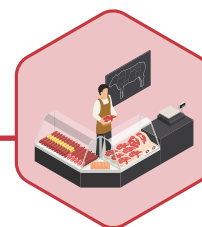
Quality Meat Scotland  
[education@qmscotland.co.uk](mailto:education@qmscotland.co.uk)

FDf Scotland  
[skills@fdscotland.org.uk](mailto:skills@fdscotland.org.uk)



## Project Overview

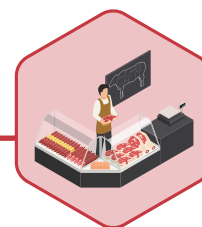
Lesson	Content	
<b>Lesson 1</b>	<b>Introduction</b>	
	Lesson Content	<ul style="list-style-type: none"> <li>• Introduction to Make it With Meat Project</li> <li>• Finding Out About Meat - From Farm to Fork</li> <li>• Class Discussion About Meat</li> </ul>
	E's & O's	HWB 3-34a
	Worksheet	<a href="https://www.qmscotland.co.uk/sites/default/files/miwm_lesson_1_pupil_worksheet.pdf">https://www.qmscotland.co.uk/sites/default/files/miwm_lesson_1_pupil_worksheet.pdf</a>
	Go Further	<ul style="list-style-type: none"> <li>• Find the Facts Interactive Game: <a href="https://education.qmscotland.co.uk/FarmingFoodsteps/4">https://education.qmscotland.co.uk/FarmingFoodsteps/4</a></li> <li>• From Farm Lesson Quiz: <a href="https://education.qmscotland.co.uk/FarmingFoodsteps/8">https://education.qmscotland.co.uk/FarmingFoodsteps/8</a></li> <li>• To Field Lesson Quiz: <a href="https://education.qmscotland.co.uk/FarmingFoodsteps/15">https://education.qmscotland.co.uk/FarmingFoodsteps/15</a></li> <li>• Farming Videos: <a href="https://education.qmscotland.co.uk/FarmingFoodsteps/7">https://education.qmscotland.co.uk/FarmingFoodsteps/7</a></li> </ul>
<b>Lesson 2</b>	<b>Health &amp; Nutrition</b>	
	Lesson Content	<ul style="list-style-type: none"> <li>• QMS 'The Meat We Eat' Health Video</li> <li>• Making Healthier Burgers</li> <li>• Nutrition Considerations</li> </ul>
	E's & O's	HWB 3-34a HWB 3-36a
	Worksheet	<a href="https://www.qmscotland.co.uk/sites/default/files/miwm_lesson_2_pupil_worksheet.pdf">https://www.qmscotland.co.uk/sites/default/files/miwm_lesson_2_pupil_worksheet.pdf</a>
	Go Further	<ul style="list-style-type: none"> <li>• Farming Foodsteps 'To Health' Quiz: <a href="https://education.qmscotland.co.uk/FarmingFoodsteps/29">https://education.qmscotland.co.uk/FarmingFoodsteps/29</a></li> <li>• Make it a Match Game: <a href="https://education.qmscotland.co.uk/FarmingFoodsteps/26">https://education.qmscotland.co.uk/FarmingFoodsteps/26</a></li> <li>• Know Your Cuts Interactive Resource: <a href="https://education.qmscotland.co.uk/FarmingFoodsteps/32">https://education.qmscotland.co.uk/FarmingFoodsteps/32</a></li> </ul>
<b>Lesson 3</b>	<b>Go Further with Reformulation</b>	
	Lesson Content	<ul style="list-style-type: none"> <li>• Food Reformulation</li> <li>• Reformulation Project Case Study</li> <li>• Evaluation</li> </ul>
	E's & O's	TCH 3-05a
	Worksheet	<a href="https://www.qmscotland.co.uk/sites/default/files/miwm_lesson_3_pupil_worksheet.pdf">https://www.qmscotland.co.uk/sites/default/files/miwm_lesson_3_pupil_worksheet.pdf</a>
	Go Further	<ul style="list-style-type: none"> <li>• 8 Principles of Reformulation: <a href="https://www.fdfscotland.org.uk/dfd/what-we-do/diet-and-health/reformulation-and-portion-size/reformulation-support-for-scotland">https://www.fdfscotland.org.uk/dfd/what-we-do/diet-and-health/reformulation-and-portion-size/reformulation-support-for-scotland</a></li> </ul>



Lesson 4		Product Development & Testing
	Lesson Content	<ul style="list-style-type: none"> <li>• The Design Brief</li> <li>• Brainstorming</li> <li>• Concept Screening</li> <li>• Product Evaluation</li> </ul>
	E's & O's	TCH 3-04c TCH 3-04a, HWB 3-30a (if cooking)
	Worksheet	<a href="https://www.qmscotland.co.uk/sites/default/files/miwm_lesson_4_pupil_worksheet.pdf">https://www.qmscotland.co.uk/sites/default/files/miwm_lesson_4_pupil_worksheet.pdf</a>
	Go Further	Cook the burgers and conduct a taste testing session

Lesson 5		Labelling & Costing
	Lesson Content	<ul style="list-style-type: none"> <li>• Labelling</li> <li>• Costing</li> </ul>
	E's & O's	MNU 3-01a HWB 3-36a
	Worksheet	<a href="https://www.qmscotland.co.uk/sites/default/files/miwm_lesson_5_pupil_worksheet.pdf">https://www.qmscotland.co.uk/sites/default/files/miwm_lesson_5_pupil_worksheet.pdf</a>
	Go Further	<ul style="list-style-type: none"> <li>• Make it Informed Interactive Resource: <a href="https://education.qmscotland.co.uk/FarmingFoodsteps/18">https://education.qmscotland.co.uk/FarmingFoodsteps/18</a></li> </ul>

Lesson 6		Careers
	Lesson Content	<ul style="list-style-type: none"> <li>• Career Opportunities</li> <li>• Job Profiles</li> <li>• Careers Videos</li> <li>• Make it With Meat Bumper Quiz: <a href="https://take.quiz-maker.com/QMD60MU72">https://take.quiz-maker.com/QMD60MU72</a></li> </ul>
	E's & O's	HWB 3-19a
	Worksheet	<a href="https://www.qmscotland.co.uk/sites/default/files/miwm_lesson_6_pupil_worksheet.pdf">https://www.qmscotland.co.uk/sites/default/files/miwm_lesson_6_pupil_worksheet.pdf</a>
	Go Further	Evaluation



## LESSON 1: Scottish Livestock Farming

Discuss the project with pupils - you may want to let them know if they are to work in teams or as individuals for the burger design element of the project.

Arranging a Royal Highland Education Trust (RHET) farm visit is a great way to bring the story of food production to life. For more information on RHET farm visits, classroom talks and resources visit the RHET website at <https://www.rhet.org.uk/teachers>.

Check out our Farming Foodsteps From Farm presentation:  
<https://education.qmscotland.co.uk/FarmingFoodsteps/5>

Show the Farming Circle of Life video - <https://www.youtube.com/watch?v=PgNzXuB1Qxo> - to pupils and ask them to complete the questions on the accompanying worksheet - answers are below.

1. What % of land in Scotland is rough grazing which isn't suitable for crops but ideal for growing grass - the main food for livestock? *Tick the correct answer*

around 60%		around 70%		around 80%	<input checked="" type="checkbox"/>
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2. What does grass absorb from the atmosphere and store in the soil?

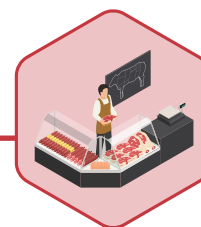
Carbon dioxide (CO<sub>2</sub>) is absorbed through the grass.

3. What are farmers doing to be more sustainable? *List as many as you can*

- Testing and managing soils
- Adding animal dung to the soil
- Taking steps to prevent soil erosion
- Managing and preserving existing farm woodlands
- Protecting and where necessary restoring wetlands including flood plan management
- Protecting peatland and moorland from damage by avoiding ploughing, drainage and over grazing
- Cultivating activities to protect farm soils and reduce carbon losses
- Reducing on farm carbon footprint by conducting regular carbon audits
- Planting more trees and wildflowers
- Creating wildlife corridors along water margins, field margins and headlands
- Ensuring farms are run efficiently - generally, a more efficient farm is a more sustainable farm
- Recycle waste products (plastic) and use up waste from other industries
- Restricting access to farm animals to protective native species e.g., ground-nesting birds

4. How many compartments does a cow have to its stomach? *Tick the correct answer*

1		2		3		4	<input checked="" type="checkbox"/>
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**5. What are the three main types of red meat produced in Scotland?**

Beef	Lamb	Pork
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**Class Discussion**

“Does it matter where the meat we eat in Scotland is from?”

Here are a few questions for consideration (adapt to your class as required):

- How does UK meat production compare to global meat production?
- Are there different systems of meat production?
- How do you know how your meat is produced and where it’s from?
- Does the distance the food has travelled matter (food miles)?
- Are animal welfare standards the same across the world?
- Other issues to consider are traceability, food safety, food security and traceability

**LESSON 2: Health & Nutrition**

Useful links for this lesson

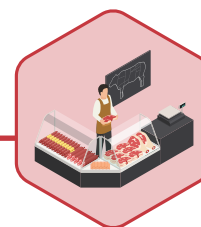
- The Food Standards Scotland Eatwell Guide:  
<https://www.foodstandards.gov.scot/consumers/healthy-eating/eatwell>
- ‘The Meat we Eat’ Video created by QMS (2.21 mins):  
<https://www.youtube.com/watch?v=-EYQ8OTsKgA>
- Red Meat Nutrition Key Facts: [https://www.qmscotland.co.uk/sites/default/files/20180720\\_red\\_meat\\_nutrition\\_-\\_key\\_facts\\_a4\\_final\\_jr.pdf](https://www.qmscotland.co.uk/sites/default/files/20180720_red_meat_nutrition_-_key_facts_a4_final_jr.pdf)
- Red Meat characteristics and Cooking Farming Foodsteps Presentation:  
[https://www.qmscotland.co.uk/sites/default/files/farming\\_foodsteps\\_to\\_fork\\_presentation.pdf](https://www.qmscotland.co.uk/sites/default/files/farming_foodsteps_to_fork_presentation.pdf)
- Scottish Dietary Goals:  
[https://www.foodstandards.gov.scot/downloads/Scottish\\_Dietary\\_Goals\\_-\\_Adapt\\_it\\_sheet.pdf](https://www.foodstandards.gov.scot/downloads/Scottish_Dietary_Goals_-_Adapt_it_sheet.pdf)

**1. What nutrients do we get from red meat?**

- Protein is the main nutrient found in red meat along with a range of vitamins and minerals. To check the main ones and their function refer to Red Meat Nutrition Key facts at [https://www.qmscotland.co.uk/sites/default/files/20180720\\_red\\_meat\\_nutrition\\_-\\_key\\_facts\\_a4\\_final\\_jr.pdf](https://www.qmscotland.co.uk/sites/default/files/20180720_red_meat_nutrition_-_key_facts_a4_final_jr.pdf)

**2. Select one of these nutrients and explain the benefits of it.**

- Refer to Red Meat Nutrition Key Facts at [https://www.qmscotland.co.uk/sites/default/files/20180720\\_red\\_meat\\_nutrition\\_-\\_key\\_facts\\_a4\\_final\\_jr.pdf](https://www.qmscotland.co.uk/sites/default/files/20180720_red_meat_nutrition_-_key_facts_a4_final_jr.pdf)



3. Around half of teenage girls and a quarter of adult women in the UK don't get enough of which nutrient in their diet?

Iron

4. What is the recommended allowance of red meat (cooked weight) per week? *Tick the correct answer*

around 200g		around 500g	✓	around 800g	
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### Nutrition Considerations in Producing Burgers

Investigate mince that you can purchase in the supermarket or from a butcher. Look at the colour difference between beef, pork and lamb mince initially - why do you think there is a difference?

The colour is due to the protein called myoglobin and some haemoglobin. Some meats contain more red pigments than others. There are a number of factors that can affect the colour of meat including: age and exercise of the animal, the muscle function and atmospheric conditions.

### LESSON 3: Reformulation

Learn more about reformulation and how it is used within the Scottish Food & Drink Industry on the FDF Scotland reformulation webpage. <https://www.fdfscotland.org.uk/fdf/what-we-do/diet-and-health/reformulation-and-portion-size/reformulation-support-for-scotland>

Case Study: Read this Reformulation Case Study to find out how one butcher has been involved in a reformulation project to redesign some popular red meat products, and the impact it has had on her business. <https://www.fdfscotland.org.uk/globalassets/resources/case-studies/fdf-scotland/coopers.pdf>

What prompted Laura to consider making some changes to her products?

When Laura joined the business, she wanted to diversify their product range. From hearing friends talk about Slimming World and Weight Watchers, she knew people were becoming interested in healthier eating and nutrition, and they developed a line of low-fat ready meals.

What 3 main areas did she focus on?

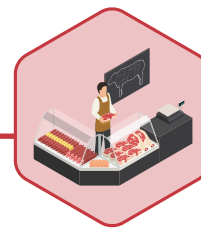
1. Reducing the fat content of their sausages and burgers
2. Replacing ingredients, such as salt, with healthier alternatives
3. Developing clear, accurate information and labelling about nutritional content and calories

Did the changes have an impact on sales?

In the year to October 2020, revenues from their slimming ready meals, low-fat sausages and burgers were approximately £100,000

Over 60% of their uplift in sales in 2020 has come from low-fat sausages and burgers.





### How did Laura get her customers involved?

- Talked with customers
- Made small batches and listened to feedback from customers
- Tweak recipes based on feedback
- Social media

### Evaluation

Potential changes to burger recipes (not inclusive):

- Reduce the size of the burger
- Use a mince with a different fat content
- Add other healthy ingredients into the burger
- Cooking techniques - grilling healthier than frying
- Combine with healthy accompaniments

## LESSON 4: Product Development & Testing

The Make it With Meat video created by chef Daniela has been created specifically for this project. Make sure pupils know the project brief before watching the video so they can start to consider their own burger design. <https://www.youtube.com/watch?v=T3I2eC0fwB8>

### Design a Burger

The brief: **To develop a new burger product to be sold within the school canteen.**

Discuss with the pupils if they will be working individually or in teams.

Recipe inspiration is available on the Make it Scotch Website - <https://makeitscotch.com> - and other recipe and inspiration sites.

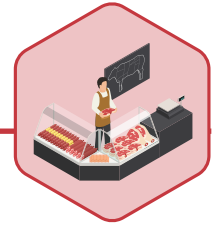
### Cooking

We understand that cooking with the whole class may not be possible. Alternative options:

- Work in teams and cook a few of the burgers created
- Conduct a cooking demonstration of the top 3 burgers and let the pupils taste the finished burgers

If resources do not allow cooking in the class, pupils can create a burger virtually using the Food a Fact for Life Gourmet Burger Maker:

<https://www.foodafactoflife.org.uk/11-14-years/cooking/gourmet-burger-builder>



## LESSON 5: Labelling and Costing

Useful links for this lesson

- FDF Scotland Labelling presentation:  
[https://www.fdfscotland.org.uk/globalassets/resources/publications/careers-resources---fdf-scotland/fdf-scotland\\_understanding-and-using-food-labels\\_website2.pdf](https://www.fdfscotland.org.uk/globalassets/resources/publications/careers-resources---fdf-scotland/fdf-scotland_understanding-and-using-food-labels_website2.pdf)
- Farming Foodsteps Make it Informed Video:  
<https://www.youtube.com/watch?v=v7xvdByKwHY>
- FDF Scotland Food & Drink Industry Websites Wakelet:  
<https://wakelet.com/wake/bryn8BqBlv9BIB-nidYoA>
- School Food and Drink regulations which are set by the Government:  
<https://www.gov.scot/publications/healthy-eating-schools-guidance-2020/documents>
- Food Standard Scotland's Natasha's Law video:  
<https://www.youtube.com/watch?v=R8ZqSwO2qXs>

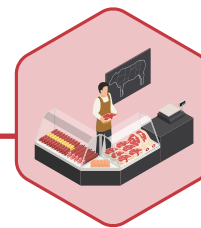
## LESSON 6: Careers

Useful links for this lesson

- The Red Meat Journey Careers Path Poster:  
[https://www.qmscotland.co.uk/sites/default/files/red\\_meat\\_journey\\_poster\\_a2\\_landscape.pdf](https://www.qmscotland.co.uk/sites/default/files/red_meat_journey_poster_a2_landscape.pdf)
- Tasty Careers Interactive Resource:  
<https://tastycareers.org.uk/map>
- Butchery Careers Website:  
<https://butcherycareers.co.uk>
- Make it With Meat Bumper Quiz:  
<https://take.quiz-maker.com/QMD60MU72>

### Careers involved in creating a burger (not inclusive)

Farmer	Agronomist
General Farm Worker	Herdsperson
Abattoir Operative	Pig technician
Butcher	Brand manager
Meat Hygiene Inspector	Category manager
Quality Control Officer	Communications staff
Human Resources Staff	Marketing staff
Haulier	Research Assistant
Supply Chain manager	Food Scientist
Warehouse manager	New Product Development Staff
Warehouse operative	Engineer
Agricultural inspector	IT Staff
Agricultural scientist	Technicians



**Careers involved in creating a burger (not inclusive)**

<p>Process Technologist Quality Assurance staff Accountants/Bookkeepers Finance Staff Packaging designer Auctioneer Nutritionist Shepherd Animal Nutritionist Animal Welfare Officer Laboratory Technician</p>	<p>Process Manager Technical staff Food Standards Staff Chef Waiter Auction Staff Cleaning Staff Machinery Operative Vet Distribution &amp; Logistics Staff Management Staff</p>
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**Career Videos**

- Lantra A Career in Agriculture Video:  
<https://www.youtube.com/watch?v=CJswalxL1gU>
- Lantra A Day in the Life of a Land-based Engineer:  
<https://www.youtube.com/watch?v=7qnG7v1BRzA>
- Take a Real Look at Butchery Video:  
[https://www.youtube.com/watch?v=vX5Y\\_c1mRSE](https://www.youtube.com/watch?v=vX5Y_c1mRSE)
- Abertay Food Science - Is it for you? Video:  
<https://www.youtube.com/watch?v=JYinFmtXG4Q>
- Technical Services Scientist Video:  
<https://www.youtube.com/watch?v=VnCho0XIyQc>
- My World of Work Chef Careers Video:  
<https://www.myworldofwork.co.uk/my-career-options/job-profiles/chef>
- Scottish Apprenticeships Chef Careers Video:  
<https://www.youtube.com/watch?v=pcjoEZMhcyg>
- Chef Daniela talking about Maillard reaction & Careers:  
<https://www.youtube.com/watch?v=SLAz3oiMi8Q>

# M MAKE IT WITH MEAT

EXPLORING THE BURGER MAKING PROCESS

