



# SESSION 1

## Introduction to British farming



# Where does farming take place in the UK?

This is a **topographic map** of the UK.

The colours show the **elevation** of the land (the height above the level of the sea).

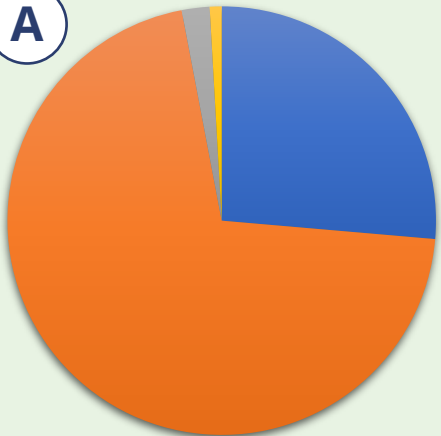
What do you notice from the map?



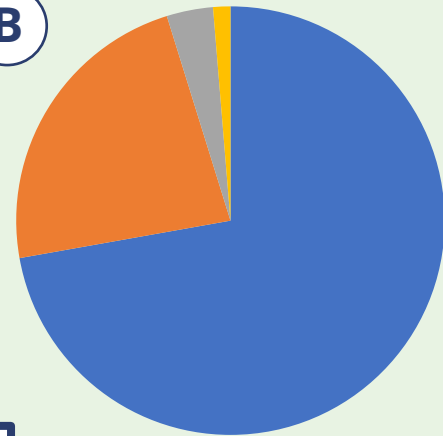
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A



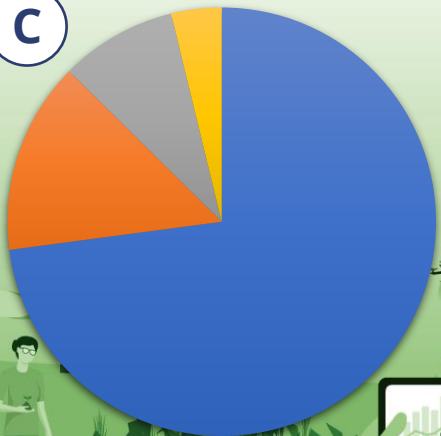
B



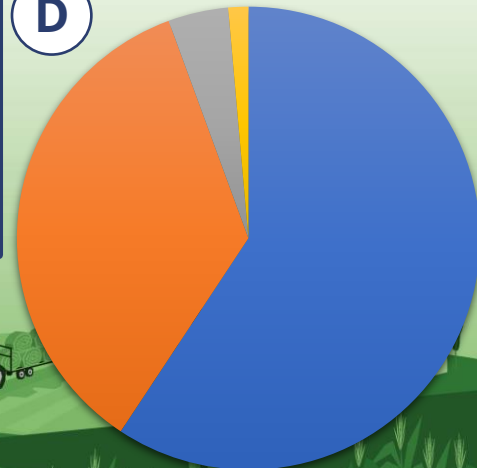
Someone has forgotten to label these pie charts showing land use in England, Scotland, Wales and Northern Ireland.

Can you work out which pie chart represents which country? Justify your answer.

C



D



Region	Farmland (%)	Natural (%)	Built on (%)	Green urban areas (%)
England	72.9	14.5	8.8	3.8
Northern Ireland	72.2	23.0	3.5	1.3
Scotland	26.4	70.6	2.1	0.9
Wales	59.3	35.1	4.2	1.4

Farmland

Natural

Built on

Green Urban



# What type of farming do we have in the UK and why? What does the data tell us?

Region	Farmland	Natural	Built on and green urban areas
England	72.9%	14.5%	12.6%
Northern Ireland	72.2%	23.0%	4.8%
Scotland	26.4%	70.6%	3.0%
Wales	59.3%	35.1%	5.6%

Which country has the most farmland?

What interesting things do you notice in this data?



# Using the data, draw a pie chart to show how land is used across the entire UK.

Region	Farmland	Natural	Built on and green urban areas
England	72.9%	14.5%	12.6%
Northern Ireland	72.2%	23.0%	4.8%
Scotland	26.4%	70.6%	3.0%
Wales	59.3%	35.1%	5.6%

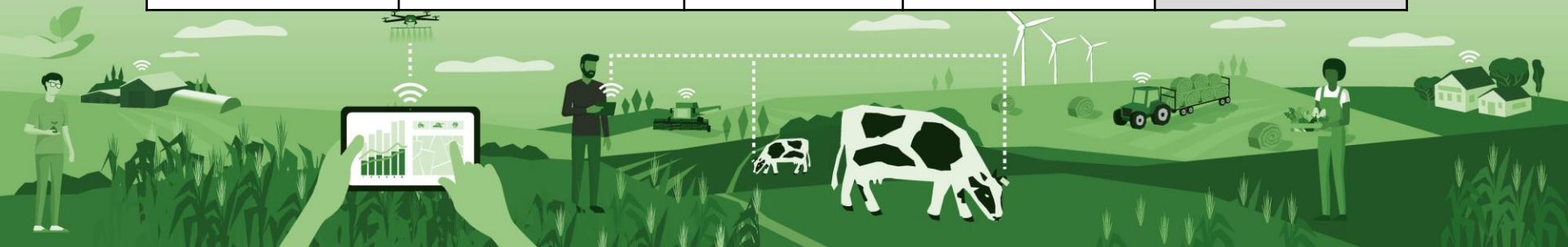
1. Calculate the UK total percentage of land used per category.
2. Use a ratio table to construct a pie chart.
3. Draw your pie chart with an appropriate title and key.



# UK land use by nation

## Percentage of land used per category

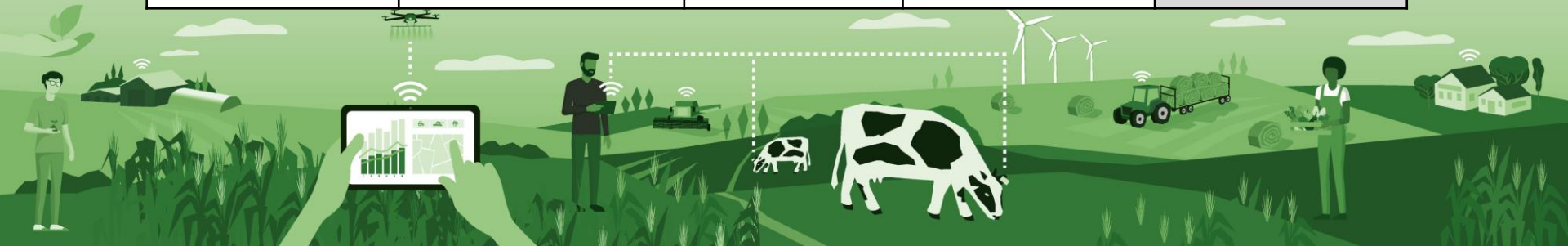
Region	Farmland (%)	Natural (%)	Built on and green urban areas (%)	Total (%)
England	72.9	14.5	12.6	
Northern Ireland	72.2	23.0	4.8	
Scotland	26.4	70.6	3.0	
Wales	59.3	35.1	5.6	



# UK land use by nation

## Percentage of land used per category

Region	Farmland (%)	Natural (%)	Built on and green urban areas (%)	Total (%)
England	72.9	14.5	12.6	100
Northern Ireland	72.2	23.0	4.8	100
Scotland	26.4	70.6	3.0	100
Wales	59.3	35.1	5.6	100



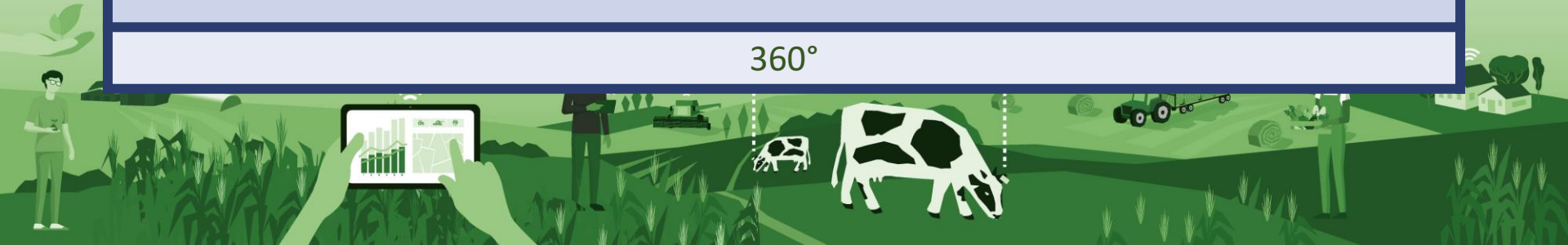
How might this ratio table help you to construct a pie chart to represent the data?

<b>% Land use</b>	<b>400</b>	<b>100</b>	<b>1</b>	<b>26</b>	<b>143</b>	<b>231</b>
Angle size (°)	360°	90	0.9			

Which of these two representations, if any, do you find more helpful?

How else could you construct your pie chart?

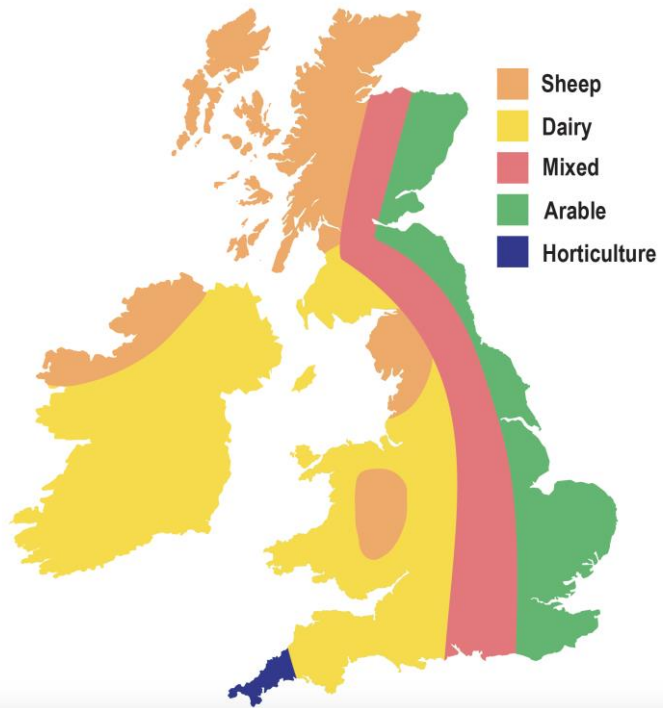
<b>231</b>	<b>143</b>	<b>26</b>
400		
360°		





# Are all farms the same?

This map shows what **type of farming** takes place in different areas of the UK.



What do you think might happen on these different types of farms?

What do you notice about where different types of farming take place?



# Where are you?

Which region of the UK do you live in?

Have you noticed what type of farming takes place in this region?



Search box

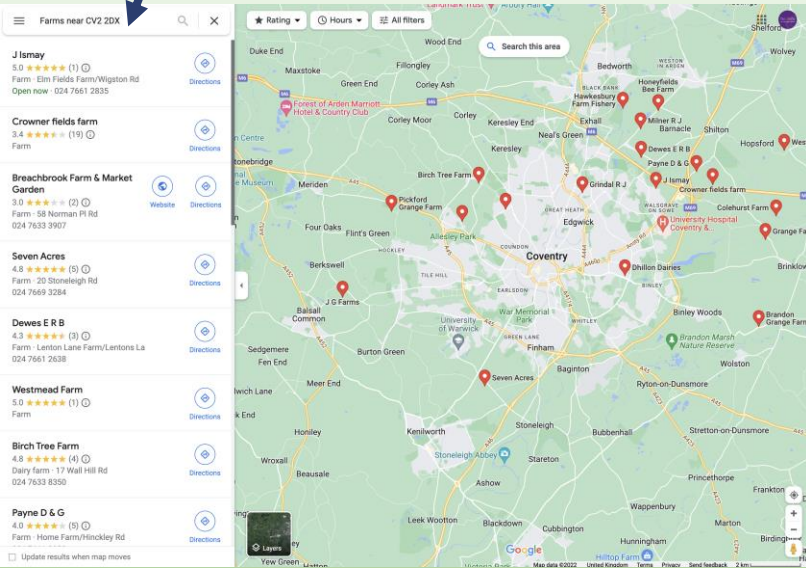
# What sort of farms are near you?

Visit <https://maps.google.com>

In the search box type: 'Farms near [insert your town or city]'.

How many farms appear in your search?

Make a tally of the different types of farms near you.



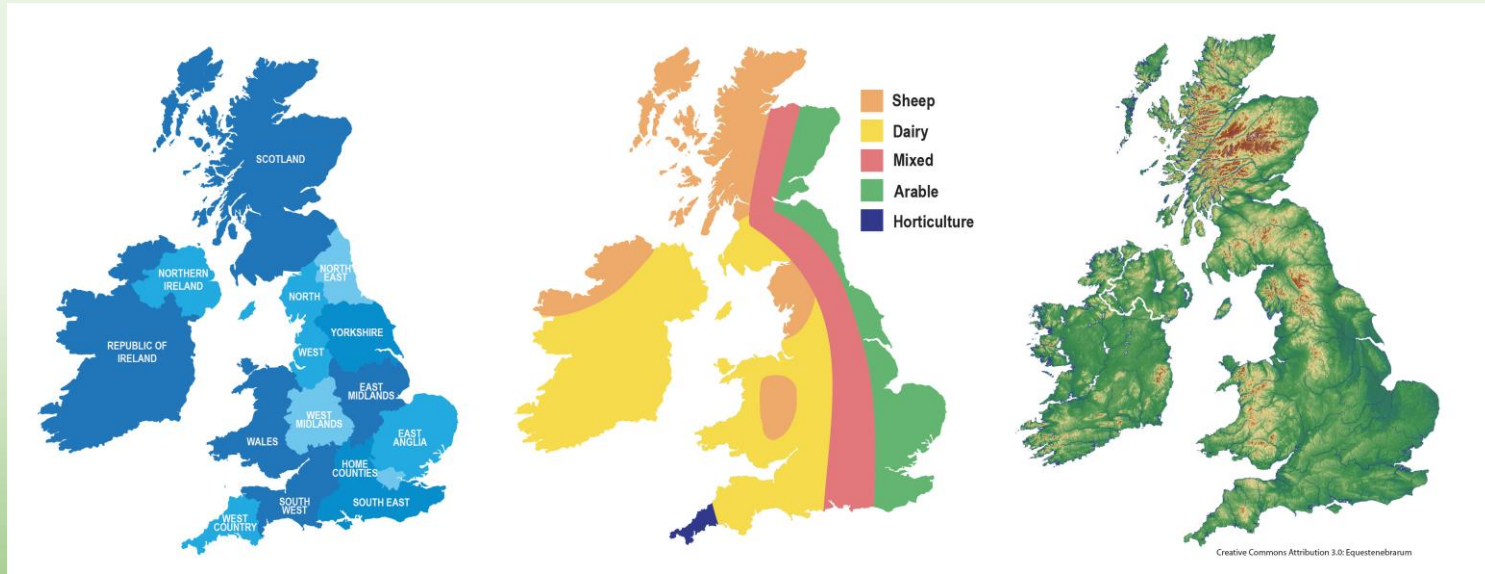
# Compare farming in this region with farming in other regions of the UK.

	% of farmland area		
	Arable	Dairy	Other
United Kingdom	49%	9%	42%
North West	52%	14%	34%
West Midlands	21%	25%	54%
South West	41%	39%	20%
South East	55%	6%	39%
Scotland	10%	11%	79%

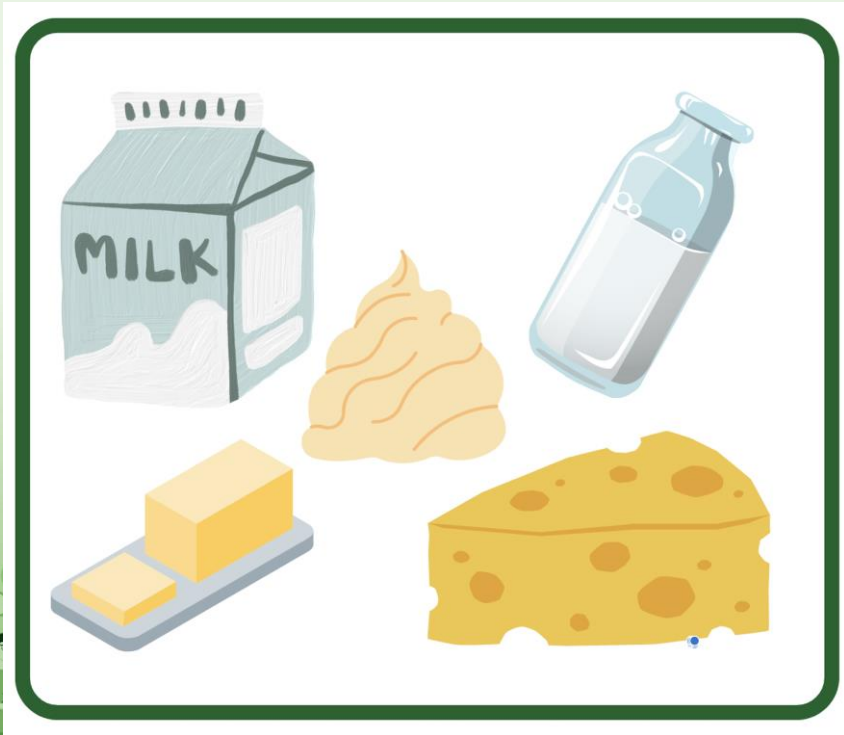
Draw a bar chart to compare the percentage of land used for **dairy farms** in each region.

Data on other regions

# Look at where we find the most dairy farms in the UK? Why might that be?



# Think about the products from dairy farms



How many products can you list that are made from milk?

Rank these products in terms of high and low lactose content.

Product	Lactose content (g/100g of product)
Butter	0.5-1
Cheddar	0.5-0.6
Mozarella	1-3
Cream	4
Milk	4-5
Ice Cream	3-8
Condensed milk	10-16
Milk chocolate	4
Yoghurt	2-7

**Lactose** – a sugar found in milk and milk products.

**Lactose intolerance** – when your digestive system can't digest lactose.

**Use the data to check your ranking of dairy products.**



Product	Calcium content (mg/100g of product)
Butter	24
Cheddar	721
Mozarella	731
Cream	96
Milk	125
Ice Cream	128
Condensed milk	284
Milk chocolate	189
Yoghurt	110

**Calcium** – is a mineral that we need to eat for healthy bones and teeth. Children between the ages of 9 and 18 need 1300mg of calcium a day.

**Draw a bar chart to compare the amounts of calcium in different dairy products.**





1 Grazing



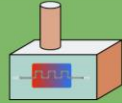
2 Collecting



3 Separating



4 Pasteurising & processing



5 Packaging



6 Transporting



# What happens on Dairy Farms?

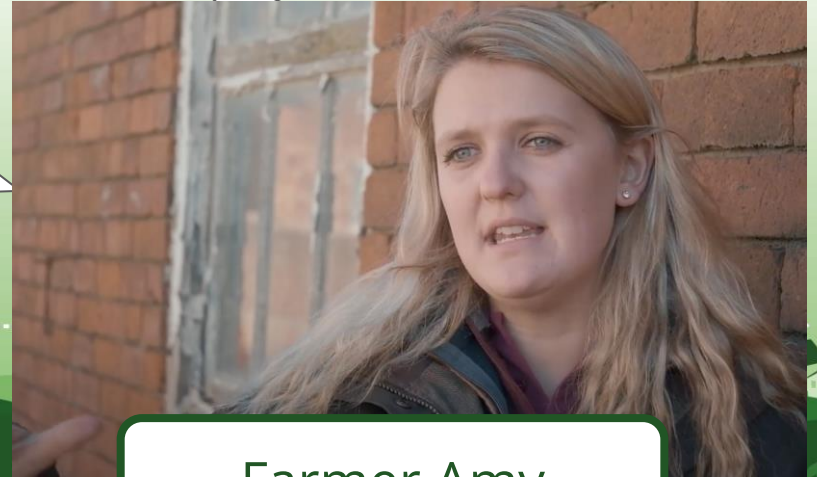


*"The environment is a big concern with an increasing focus on sustainability. We are looking for ways to give back to the environment as much as we can".*

Summarise the main problems that dairy farmers face.

*" The most important job for us is to keep cows happy and healthy. They need a constant supply of good food and clean water as well as clean and suitable living conditions, either outside or indoors".*

*"Costs on the farm are always a problem. It costs money to improve conditions of cows or to introduce new practices to protect the environment as we move forwards as an industry, but we are a business, and we need to keep costs down to be profitable".*



Farmer Amy

You are going to be agri engineers that work to solve problems on dairy farms.



What questions would you ask to find out more about what happens on dairy farms?



# How do engineers work with farmers to solve problems in farming?

Agri engineers work through the **Engineering Design Process**.

Use the infographic to identify the four different stages in the Engineering Design Process.



A single cow produces an average of 28 litres of milk per day – that's about 128 glasses.

Cows eat up to 25kg of food a day – that's the equivalent of 150 peanut butter sandwiches.

Cows have almost 360-degree vision, but they do have some trouble looking head-on.

British dairy farmers produce around 14 billion litres of milk every year – that's enough to fill about 78 million bath tubs.

Cows hate music – some studies have shown that if music is playing cows produce less milk.

Cows can drink up to a half a bath tub of water a day or 30 litres.

Cows cannot see the colour red. They are red-green colour blind.

A cow's sense of smell is much stronger than a human's. Cows can pick up scents from up to 6 miles away.

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