

Journey of Food Change and Adapt



Suggested Participants - Primary 5/6/7 pupils

All the food we eat comes on a journey to reach us. To produce food farmers need to constantly change and adapt how they look after animals and grow crops. There are many factors out with the control of farmers when they are producing food, for example the weather.

What this pack contains:

- All the resources to undertake the some change and adapt activities with your p5/6/7 class.
- Learning Intentions, Success Criteria and Suggested Experiences & Outcomes,
- Learning for Sustainability links
- Lesson plan
- Suggested additional activities

Learning Outcomes

- We are learning how science impacts on every aspect of our lives.
- We are learning to collect, organise and display data accurately.
- We are learning to identify where different ingredients come from.

Success Criteria

- I can interpret information to solve problems
- I can use problem solving skills
- I can give examples of locally produced foods
- I can make links between farmers and the food I eat
- I can describe the journey of food from source to plate

Experiences and Outcomes

- **SCN 2-20a** Through research and discussion, I have an appreciation of the contribution that individuals are making to scientific discovery and invention and the impact this has made on society.
- **SOC 2-08a** I can discuss the environmental impact of human activity and suggest ways in which we can live in a more environmentally responsible way.
- **MNU 2-20a** Having discussed the variety of ways and range of media used to present data, I can interpret and draw conclusions from the information displayed, recognising that the presentation may be misleading.

Learning for Sustainability

- **Goal 4** Quality education: achieve literacy and numeracy.
- **Goal 12** Responsible consumption and production: Promote public procurement practices that are sustainable.



Change and Adapt

Farmers produce food for us to eat. Along the way, they have a wide range of problems to solve and they need to be able to change and adapt as they go along. These teacher activity sheets share some problems and let you see if you can find the solutions to them with your class.

Activity 1: Milking cows

Over time, farmers have changed how they milk dairy cows. In the past, dairy cows were milked by hand. Milking cows by hand takes a long time and the number of cows you can milk this way is limited. Nowadays dairy cows are milked using machines and in some cases robots.

You can find out more about how cows are milked with robots in [this video](#) with Pam and Jura.

You can find out more about the volume of milk from 3 cows in 1903 using this [historic milk yield worksheet](#).

What you will need

- Source of water
- Basins
- Measuring jugs

What to do

1. Look at the volume of milk produced by Mouse and cow #1964 on the 23rd May.
2. Measure out the volumes using water into basins. How does the volume compare?
3. Work through the rest of the worksheet.
4. [Meet cow 991](#) who is a milking cow in 2025.

Discussion points

How has the volume of milk dairy cows produce changed over time?

Why do you think that is the case? There is more than one reason - although the method of milking has changed so has the breeding of the dairy cows. They have been selected over time to produce more milk. The cows today are larger, have bigger udders and produce more milk. By choosing the cows producing the most milk over time the dairy cow has been bred to produce milk. If you compare the dairy cow with the beef cow, she has less muscle and fat with her energy being focused on producing milk rather than producing muscle for meat like the beef cow does.

Further activity

Get involved in our [Maths on the Dairy farm](#) project and can get an update from the dairy farm each month with activities for you to do in class.



Activity 2: Sprouting seeds

When a farmer plants seeds, they want to make sure that as many of them as possible grow into healthy plants. To do this, they carry out germination tests where they take a set number of seeds and see what percentage of them sprout. The higher the percentage the better and farmers don't use seed if the germination rate is below 78%.

What you will need

- 2 packets of seed - one new and one old (you can request these if required)
- Paper towels

What to do

1. Wet 2 paper towels.
2. On one paper towel lay out 20 seeds from the new packet and on the second paper towel lay out 20 seeds from the old packet.
3. Place the paper towels in a drawer and keep the towels damp over a 20 day period.
4. At the end of the 20 days count how many of the seeds have sprouted.
5. The results of the test determine the seed germination rate as a percentage.

6. Use this calculation to determine seed germination rate:

(Number of seeds sprouted X 100) / Total number of seeds tested = Germination rate %

Discussion points

Did more seeds sprout from the old or the new packet? Why do you think this is the case? Different seeds are viable for different lengths of time. Some seeds remain viable for many years.

Did either of the packets of seed provide a germinate rate of under 78%? Why do you think a farmer would not want to plant these?

Farmers will need to change what seeds they plant if the germination rates are low when they carry out the germination tests.

Further activity

Get involved in our [Grow your own loaf](#) project.



Activity 3: Wildlife on the farm

Farmers manage land not just for their crops and animals but also for wildlife. Over time they have had to change and adapt how they use the land. This has an impact on the wildlife using the farm.

What you will need

- A whiteboard
- Our [farming landscape](#)

What to do

1. Watch our farming landscapes [short video](#).
2. We have shared a [farming landscape](#) with you. Project this onto the whiteboard.
3. You need to think about the different competing uses for space in a busy landscape.

There are a selection of different items for you to drag into the landscape:

Birds - these are curlews and they are wading birds that come inland to breed. They like rough grass where they can find worms and nest on the ground.

Wind turbines - these help us generate clean energy. They need windy areas that are not too high up as too much wind can damage the turbine. They need to avoid areas that lots of birds use as birds can fly into the turbine blades.

Polytunnels - some crops like strawberries need the shelter of polytunnels to grow well. Polytunnels don't like the wind and are easiest to construct on flat ground.

Trees - are important for wildlife and can produce timber when they are planted in the right place. The best quality land needs to be kept for growing crops like cereals and vegetables so the corners of fields and gentle slopes can be good for trees.

Hedges - help connect up the landscape for wildlife providing corridors for creatures to move around in. They can also provide shelter for farm animals. They can be planted along the edge of fields and around buildings.

Beetles - as well as hedges farmers can have beetle banks. These are areas of rough grass around the edges or up the middle of fields where beetles and other insects can live. These beetles can help eat pests in the crops and also provide food for creatures like birds to eat!

When you have finished can you return the objects to the top for the next class.

Discussion points

Where do all the different items go in the landscape?

Are there different places they could go?

Why have you chosen the locations you have?

Do you think it is easy to manage the land with so many competing land uses?

Further activity

[Hear from a farmer](#) about what they are doing to help nature on their farm.