Agri Aware's Dig in!

MODULE 3

An Roinn Talmhaíochta, Bia agus Mara
Department of Agriculture, Food and the Marine

AGRI AWARE

Learning about life on the farm and in the countryside

www.agriaware.ie

Teacher guidelines
How to use this pack

Dig In! Learning about life on the farm and in the countryside is linked to the primary school curriculum or strands of it. It is divided into four modules. The modules are divided according to levels of ability.

Module 1 corresponds with the Junior and Senior Infants Curriculum

Module 2 corresponds with the First and Second Class Curriculum

Module 3 corresponds with the Third and Fourth Class Curriculum

Module 4 corresponds with the Fifth and Sixth Class Curriculum

The modules have been named Modules 1-4 in order to cater for students with **special needs, learning difficulties** and **foreign language students**. Should a teacher feel that a module is too advanced/basic for a particular class, a lower/higher module should be used.

Each module contains **twenty lesson plans**, each dealing with a different aspect of farming, the countryside, farm and electrical safety and the environment. The lesson plans are:

The Irish farmer	Poultry	Electrical safety	Soil
Healthy eating	Cereals and grasses	Farm animal safety	CAP
Cattle	Fruit and vegetables	The hedgerow	Sustainability
Sheep	Farm and countryside safety	Air and trees	Food security
Pigs	Machinery safety	Water	Agriculture in Africa

Each lesson plan is linked to strands of the **Science, Geography and SPHE curricula**. The suggested activities sections at the end of each lesson also allow for aspects of English, Maths, Art and Drama to be incorporated into the lesson.

For **Gaelscoileanna** or those wishing to teach the lesson through Irish, activity sheets ***as Gaeilge*** are available to download from www.agriaware.ie. All lessons and activity sheets in English can also be downloaded from www.agriaware.ie

Teachers, sign your class up to participate in the Farm Safe Schools programme! You can find out more information about this programme and how to register here: **www.farmsafeschools.ie**

About Agri Aware

Agri Aware is Ireland's independent agri-food educational body. The mission statement of Agri Aware is 'To create a national awareness of the value of modern agriculture and farming, the stewardship of the rural environment, animal welfare and the benefits of nutritious Irish food'. Agri Aware delivers educational programmes for students at primary, second and third level and for the general public.

Irish agriculture - The story of farming and food production in Ireland

On an Irish farm, you will find many different types of animals, including cattle, sheep, pigs, poultry and goats. All of these farm animals are cared for by the farmer. The farmer also looks after the beautiful green landscape and our rivers, ensuring that they are kept clean and safe, for both people and animals to enjoy. The food we enjoy each day for our breakfast, lunch and dinner comes from farms across Ireland. Our meat, milk, eggs, butter, bread and cheese all started life on the farm.

Almost all food produced on Irish farms is sent to shops and markets to be sold.

Beef is the name given to the meat that we get from cattle, for example roast beef, steak and minced beef. Irish beef is famous all over the world for being of very high quality.

Milk traditionally comes from cows and is used to make butter, cheese and yogurt. However, goats and sheep milk can also be used to make cheese.

Grain is grown in fields and is used to produce bread and breakfast cereals.

Eggs we usually eat are laid by hens and ducks and are used for baking. They are also enjoyed during meal times.

Fruit grown on the farm is enjoyed during various meals and is also used to make jams and fruit juices.

Vegetables are enjoyed as snacks or eaten with our dinner and they are also used in sauces.

A very busy job

Farming life is go-go-go! A farmer has lots of important work to do each day, such as caring for the animals, ensuring that they are healthy and happy and have lots of food, water and shelter. In winter, when it gets colder, animals are housed in sheds. Farmers harvest grass and crops during the year to feed the animals during the winter.

Along with caring for their animals and looking after their crops, farmers also have a responsibility to care for and protect the Irish landscape. They act as caretakers of the countryside, working to keep our environment safe, clean and green and to conserve the natural habitats that exist in Irish fields, hedgerows and rivers.

Farms in Ireland are very important to the community as food produced on the farm goes to the shops and markets for local people to buy. Bigger farms provide jobs for people living in the local community as there is often too much work for one farmer to do. Visitors to a farm include vets who check on the animals and delivery people who transport the fruit, vegetables and milk from the farm to factories and supermarkets.

How do farmers know what to do each day on the farm?

The main role of the farmer is to care for the animals and to produce quality food. To do so, he/she must draw on a wide range of knowledge and skills, for example using science, machinery and technology. Rules and guidelines set out by the Department of Agriculture help Irish farmers with this work, in order to produce quality, traceable and safe food to very high standards for people in Ireland and from across the world to enjoy each day.

All farmers in Ireland follow a '*Code of good farming practice*' which makes sure that farmers do their work the right way. This helps the farmer to follow the rules about how best to protect rivers and waterways, archaeological sites and wildlife habitats.

The Department of Agriculture, Food and the Marine inspects farms in Ireland to make sure that they are kept clean, that fences and walls are securely in place and that any chemicals or medicines used on the farm are handled with care.

Traceability of food is very important for the people that buy it. In Ireland, all sheep, cattle and pigs must wear a special tag in their ears. This tag acts like a passport for

the animal, allowing the movement of animals from farm to farm to be monitored. It is important to know how and when meat moves from one place to another, especially when it is being exported to lots of countries across the world.

Farm = Food! What would we do without it?

Some 40% of all the land on earth is farming land. There are approximately 7 billion people in the world today, and this is expected to grow to 9.8 billion people by 2050. As a result, food security is more important than ever and farmers have a really important role to play in feeding a growing population, whilst also caring for the land, animals, rivers and wildlife.

Ireland has long been a very important producer of world food with 81% of Irish land used for agriculture. The Irish countryside is green due to the high level of rainfall and mild temperatures experienced in Ireland. This makes Ireland a perfect place for growing green grass, which is very healthy for the animals to eat. Food produced from the animals that eat this healthy green grass is also very healthy for us.

Farming thousands of years ago and now – What has changed?

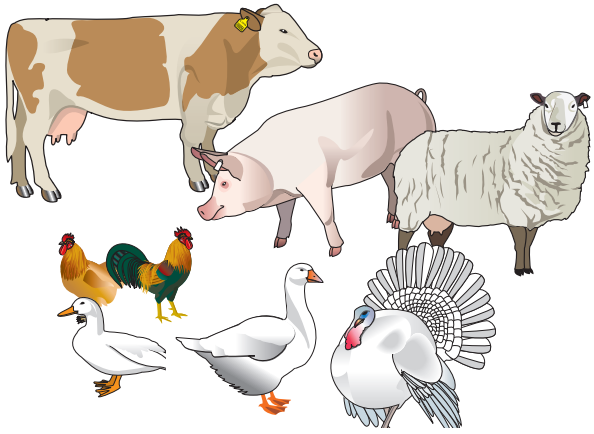
Farming methods were very different in Ireland many years ago when compared with farming today. Years ago, farmers only needed enough food for their own families and because of this they had a small number of animals and a few different crops growing on a small patch of land. It was also a time when much work was done by hand as there were no machines. This meant that farming was physically very hard work and required many hours and lots of people to complete tasks that are now considered quick and simple.

Much of the work previously done by hand has now been modernised to make life easier for farmers. Cows are now milked in a milking parlour with an electronic milking machine, while vehicles like tractors and other machinery remove the need for so much hard physical work by the farmer, which can be especially difficult as he/she gets older.

Education plays a key role in farming today as many farmers have learned about farming through school and third level education. All these changes mean that a farmer's purpose is no longer just to feed their own family; they now produce food for people across the world in a sustainable way, to meet today's needs without compromising those of tomorrow.

The long tradition of farming in Ireland means our animal population is much larger than our human population. There are 4.9 million people in Ireland but many more farm animals! As a result, we produce much more food than we need for our home population, particularly foods such as meat and dairy produce.

In Ireland there are: 6.5 million cattle (beef and dairy), 1.6 million pigs, 3.9 million sheep and 106 million poultry (chickens, roosters, ducks, geese and turkeys).



Food for thought:

- Farming plays a key role in Irish life
- The farmer is a **primary producer** i.e. the first link in the 'farm to fork' pathway of food
- There are **137,500** family fun farms, with the average farm size at **43 hectares** (ha) in Ireland
- In Ireland, 4.9 million ha of land is devoted to agriculture and food production
- Beef and dairy farms are the two largest sectors in Irish agriculture at present
- 1 in every 8 jobs in Ireland is farming related
- Farms in the south and east of Ireland are typically lowland, with rich fertile soil suitable for dairy or tillage farming
- Farms in the north and west of Ireland are less fertile, more rugged hilly grounds, which are more suitable for sheep and beef cattle
- Irish dairy farmers produce enough milk and dairy product each year to feed 52 million people in the world
- In 2019 agri-food exports were estimated to be a worth of **€14.5 billion**

The Irish farmer

Curriculum links:

- **Science** Living things; Environmental awareness and care
- **Geography** Human environments
- **SPHE** Myself and the wider world

Lesson objectives:

To revise material covered in previous modules. Introduce the students to the significance of seasons on the farm. To illustrate the seasonal changes in work that take place on the farm.

Teacher guidelines

It is suggested that teachers ensure that students are familiar with the vocabulary and concepts introduced in the previous modules before starting this lesson.

Keywords and concepts introduced in previous modules:

farmer **food** **factories** **packaged**

A farm is a place where animals like cattle, sheep, pigs and chickens live, and plants like fruit, vegetables and cereals are grown. Farmers work on farms where they care for the animals and grow the crops. Nearly all foods are grown on the farm and they are then sent to shops and markets to be sold. Some are sent to factories first, where they are packaged or made into other foods e.g. grain is made into bread.

After revision of the above, teachers could discuss the more detailed information below.

Keywords for this lesson:

seasons **spring** **lambing** **calving** **sow** **summer** **shear**
harvest **autumn** **ploughing** **fertilising** **winter** **hay**

Seasons

On the farm, there is lots of work to be done every day of the year, like feeding and caring for animals. However, as the seasons change, the farmer has different jobs to do.

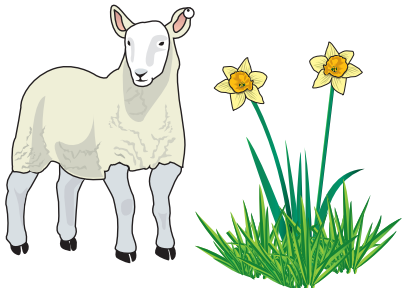
Spring

The **spring** months are February, March and April. In spring, the weather gets warmer and the days get longer. Spring is particularly busy time for the farmer, with the farm coming to life again.

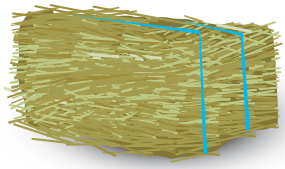
Lambing and **calving** take place during the spring months. The farmer must constantly check that the mother sheep and cows and their newborn lambs and calves are healthy. The cattle are moved out of the sheds and back into the fields when the weather conditions improve. In spring, the farmer must **sow** (plant)seeds for different crops (e.g. potatoes) to grow on the farm.

Summer

The summer months are May, June and July. Summer is usually the warmest season of the year with the longest days. During particularly hot summers, the farmer must water the crops to make sure they grow properly. The farmer also collects freshly cut grass and puts it into a pile and covers it with plastic. The freshly cut grass is conserved under the plastic cover and it turns into silage. Silage is used as a food source throughout winter months for animals when there is limited grass growth.



The good weather allows the farmer to **shear** (remove) the sheep's woolly coat, **harvest** (gather) strawberries and cereal crops and make **hay.** Hay is made by cutting grass and allowing it to dry.

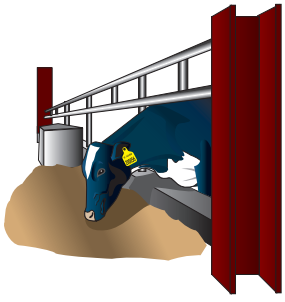


Autumn

The **autumn** months are August, September and October. In autumn, the days get shorter and the weather starts to get colder. The farmer finishes harvesting and begins to prepare the soil for the next crop. The farmer prepares the soil by **ploughing** (breaking up the soil) and **fertilising** it (adding nutrients).

Winter

The winter months of November, December and January are the coldest months of the year. During this time, the farmer brings the cattle in from the fields and houses the cattle in sheds where they will be fed silage/hay every day. Most sheep are left outside, as sheep are better equipped to withstand the cold. Cattle and sheep are fed silage or hay daily as there is very little grass growing in the fields, during the winter months.



Remember: The farm is not a playground! Be Safe. Always ask the farmer.

Suggested activities:

- Photocopy the activity sheet on page 41
- Discuss the fact that we are all dependent on the farmer to provide us with the food we eat each day. Ask the class to write an essay with the title "Life without farming"
- Make four wall charts, one for each season. Draw the weather and the changes that take place on the farm during each season
- Interview a farmer in class and get students to write essays with the titles: "Springtime on the farm", "Summer on the farm", "Autumn on the farm", "Winter on the farm"
- Teach students the way in which farmers grow crops by planting fruit and vegetables in the school garden (see www.incredibleedibles.ie)
- Discuss the interrelationship between people, animals and plants
- For extension material, see Module 4

Learning outcomes:

At the end of this lesson, students should be aware of the impact of seasons on the work that takes place on the farm.

Additional resources:

- www.agriaware.ie
- www.incredibleedibles.ie

Healthy eating

Curriculum links:

- **Science** — Living things; Environmental awareness and care
- **Geography** — Human environments
- **SPHE** — Myself and the wider world

Lesson objectives:

To revise material covered in previous modules. To introduce the food pyramid and to make students aware of the impact of the different food groups on our bodies.

Teacher guidelines

It is suggested that teachers ensure that students are familiar with the vocabulary and concepts introduced in the previous healthy eating modules before starting this lesson.

Keywords and concepts introduced in previous modules:

energy healthy fruit vegetables sugar salt oil snacks unsweetened

Food gives us the energy to think, move, walk and talk. Nearly all foods are grown on the farm and they are then sent to shops and markets to be sold. Some are firstly sent to factories where they are made into other foods e.g. grain is made into bread. It is important to choose healthy snacks like fruit and vegetables. We should only eat small amounts of foods that are high in sugar and salt or cooked in oil.

After revision of the above, teachers could discuss the more detailed information below.

Remember: Clean hands, clean kitchen, clean food!

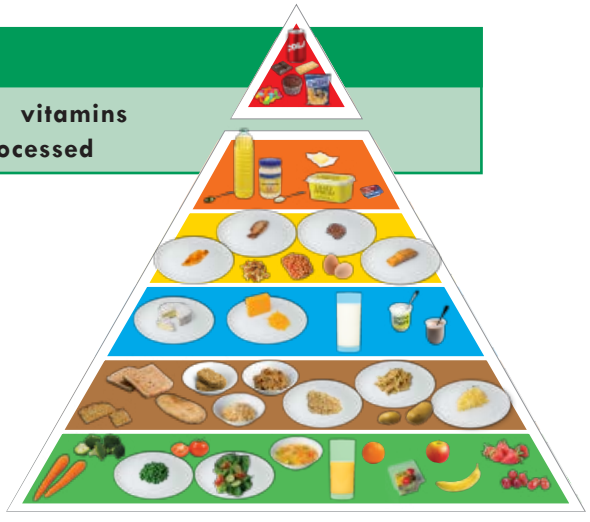
Keywords for this lesson:

food pyramid exercise balanced diet carbohydrates vitamins minerals dairy products calcium protein iron processed

Food pyramid

Eating a wide variety of nourishing foods from all the food groups provides the energy and nutrients you need every day to stay healthy. From pyramid to plate, it is important that we choose a variety of foods to have a balanced diet, and exercise regularly to stay fit and healthy.

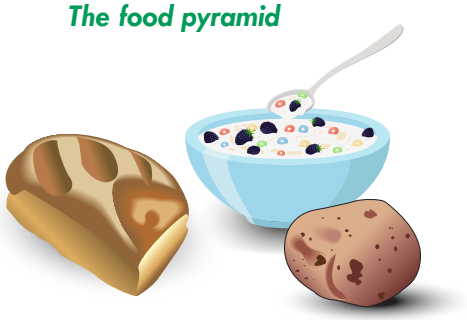
The Food Pyramid shows how much of what you eat overall should come from each shelf. The shape of the Food Pyramid shows the types of foods and drinks people need to eat most and less of. It is divided into six shelves; one for each food group. The bigger the shelf, the more of the different types of food we should eat.



The food pyramid

1. Vegetables, salad and fruit

Fruit and vegetables provide fibre as well as many important vitamins and minerals which are needed for good digestive health, our hair, skin, nails and eyes. It is recommended to have at least five or more servings each day.



2. Wholemeal cereals and breads, potatoes, pasta and rice

Wholemeal and wholegrain cereals are high-energy foods. The foods on this shelf are also known as carbohydrates and provide the best energy for your body to work. The number of servings depend on age, size, if you are a man or a woman and on your activity levels, however, it is recommended to have between three-five servings each day.

3. Milk, yogurt and cheese

Dairy products (foods made from milk), like milk, cheese and yogurt contain a mineral called calcium, which helps our teeth and bones to grow strong and healthy. We should aim to have three servings of dairy each day (five for children age 9-12).

4. Meat, poultry, fish, eggs, beans and nuts

Foods such as meat, poultry, fish, eggs, beans and nuts are rich in protein, which is required for growth. Meats like beef and pork are also a good source of iron, which is good for our blood and keeps us fit and healthy. We should eat 2 servings protein a day.

5. Fats, spreads and oils

Fats and oils are needed in small amounts for good health. Always cook with as little fat or oil as possible.

6. Foods and drinks high in fat, sugar and/or salt

All other foods are at the top of the pyramid. Many of these foods contain oil, salt and sugar and have been **processed**. Most people consume snacks high in fat, sugar and salt and sugar sweetened drinks up to six times a day (Healthy Ireland, 2016), however there is no recommended servings for 'Top-shelf' foods and drinks because they are not needed for good health.

Suggested activities:

- Photocopy the activity sheet on page 42
- Discuss the interrelationship between people, animals and plants and the way in which we rely on farming to provide us with food (See 'The Irish farmer' page 2)
- Conduct a class survey to find out the top five favourite foods. Discuss which food groups these are in and if they are healthy food
- Consider a processed (fast) food meal such as cheeseburger and chips with a milk shake and discuss how each of the individual ingredients can be traced to the farm; i.e. can I imagine it being grown or raised? How many ingredients does it have and do I recognize them? Discuss the healthier options and why processed food can be bad for us
- Ask each student to keep a food diary for a day. They should examine their diaries to see if they have been eating food from all recommended food groups and discussing portion sizes (How much should I eat?) from different food groups. They should then design a day's menu according to the food pyramid guidelines
- Get students to work in groups and use the food pyramid to design a daily meal plan, i.e. "**Rethink your plate**". Students should design a menu for three main meals (breakfast, lunch and dinner), including a healthy snack and drink.
- The class could be split into groups and assigned a particular food group. Each group would research and prepare a short presentation on their assigned food group. In addition, students could then paint, draw or collect pictures from magazines, of foods from their group. A giant class food pyramid could then be made or mobiles of the different food groups

Learning outcomes:

At the end of this lesson, students should know how to interpret the food pyramid and some of the effects of the different food groups on our bodies.

Additional resources

- www.agriaware.ie
- www.incredibleedibles.ie

Developed in conjunction with BORD BIA IRISH FOOD BOARD

Cattle

Curriculum links:

- **Science** — Living things; Environmental awareness and care
- **Geography** — Human environments
- **SPHE** — Myself and the wider world

Lesson objectives:

To revise material covered in previous modules. To develop awareness of different breeds of cattle. To become aware of the process of milking and associated dairy products.

Teacher guidelines

It is suggested that teachers ensure that students are familiar with the vocabulary and concepts introduced in the previous modules before starting this lesson.

Keywords and concepts introduced in previous modules:

cattle cow bull calf herd grazing beef milk cream butter cheese leather

For most of the year cattle live outside in fields but they can also be kept in sheds. Most cattle have horns but these are removed when the calf is young. We get leather, beef and milk from cattle. Beef can be eaten as a roast, steak, mince and burgers. We use milk to make cream, butter, cheese, yogurt, ice cream and chocolate.

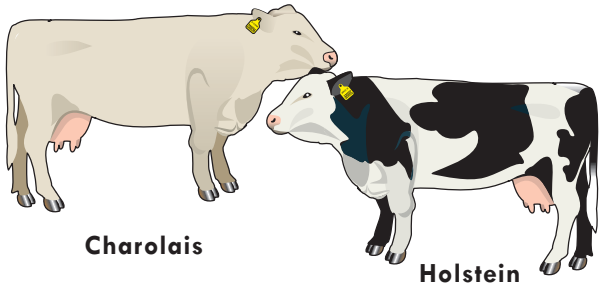
After revision of the above, teachers could discuss the more detailed information below.

Keywords for this lesson:

breed dairy udder milking parlour refrigerated churning pasteurised dairy products

Breeds

There are several hundred different breeds of cattle in the world today. They can be many different sizes and shapes. Some are better for producing milk and are called **dairy** cows. In Ireland, the most popular dairy cows are the black and white Holstein and Friesian breeds. Other cattle breeds are better for producing meat, for example, Charolais, Limousin, Angus and Hereford cattle.

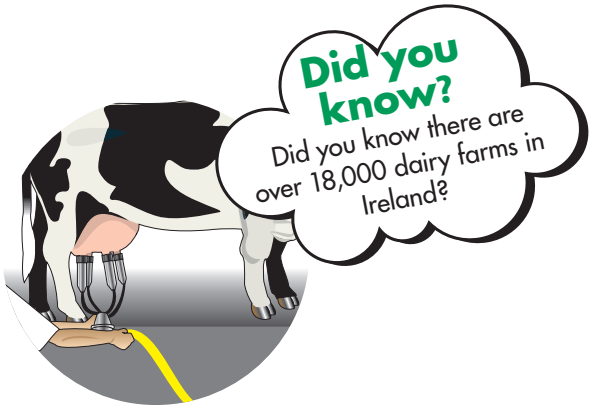


Charolais

Holstein

Milking

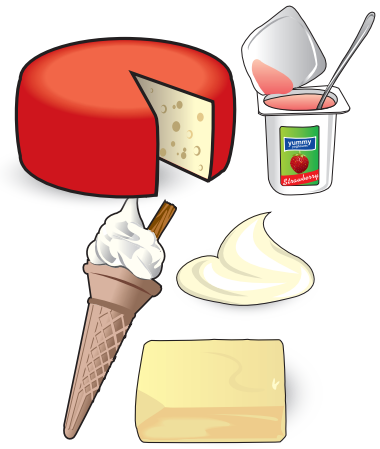
Like all mammals, cows feed milk to their calves. A newborn dairy calf feeds from the cow for three days and is then fed by the farmer. The cow will continue to produce milk for about 10 months and so she must be milked. Cows are milked twice each day, once in the morning and once in the evening. In the past, farmers milked cows by hand but today, milking is carried out by milking machines in a **milking parlour.** Before milking, the cow's **udder** is thoroughly washed by the farmer and the milking machine is attached. After milking, the milk is kept **refrigerated** until it is brought to the dairy by a milk tanker. At the dairy, it is **pasteurised**. Pasteurising is when the milk is heated and then cooled down to kill any bacteria that might cause disease.



Dairy products

Milk is a healthy food which can be used in many different ways for example to drink, with cereal and in baking (See Healthy eating, page 5). All foods made from milk are called **dairy products** these include cream, butter, cheese, yogurt and ice cream.

Long ago, cream was made by allowing milk to 'settle'. When milk settles, cream rises to the top. Today, a machine in the dairy separates the cream from the milk. To make butter, cream is shaken very hard for a long time until small pieces of butter form. This process is called '**churning**'.



Beef

Beef is the name given to the meat that comes from cattle. We can buy many different types of beef for example steak, round beef, minced beef and burgers. Irish beef is famous all over the world for being of very high quality. This is because the beef animals in Ireland live on a diet of grass, either fresh or in the form of silage and hay.

Did you know?

People from all over the world get to enjoy eating Irish beef and dairy products. Irish food and drink is sent to more than 180 countries all across the world!

Did you know?
In 2019, Ireland's dairy cows produced around 8 billion litres!

Suggested activities:

- Photocopy the activity sheet page 43
- Research the various different breeds of cattle found in Ireland e.g. Friesian, Charolais, Hereford, Angus. Compare and contrast their colour, size (and uses)
- Research Celtic festivals with links to cattle e.g. Samhain, when cattle were brought in for winter and *Bealtaine*, when cattle were put back out to graze
- Ask students to choose their favourite dairy product and research how it is made
- As a class, make a flow-chart showing the steps in the production of milk, cheese, yogurt and/or butter.
- Research the types of food Ireland exports and map where in the world they go
- Discuss the importance of dairy products in our diet (see Healthy Eating page 5)
- Discuss the interrelationship between people, animals and plants and the way in which we rely on farming to provide us with food (See 'The Irish Farmer' page 2)
- Discuss the different ways that beef can be cooked and eaten
- For extension material, see Module 4

Learning outcomes:

At the end of this lesson, students should be aware of the most common cattle breeds in Ireland and their uses. They should also know the steps in the production of milk and various dairy products.

Additional resources:

- www.agriaware.ie

Sheep

Curriculum links:

- **Science** Living things
  Environmental awareness and care
- **Geography** Human environments
- **SPHE** Myself and the wider world

Lesson objectives:

To revise material covered in previous modules. To learn the basic life processes in animals such as feeding and growing.

Teacher guidelines

It is suggested that teachers ensure that students are familiar with the vocabulary and concepts introduced in the previous modules before starting this lesson.

Keywords and concepts introduced in previous modules:

ewe ram lamb bleat flock wool meat fleece shearing shorn hoof sheepdog

Sheep provide us with wool, meat and milk which is used for making cheese. A sheep's fleece is shorn once a year in the spring. Farmers must trim sheep's hooves.

After revision of the above, teachers could discuss the more detailed information below.

Keywords for this lesson:

lambing spring docking molars grazing fodder dipping

Fun facts:

- A ewe recognises her own lamb, not by sight, but by smell and the sound the lamb makes
- Not all rams have horns, in fact, most rams in Ireland don't have horns

Lambing

Lambs are born in springtime, the lamb grows inside the ewe for five months. A newborn lamb weighs about five kilograms (five bags of sugar). Lambs feed from their mothers' milk for about 14 weeks.

A ewe can only feed two lambs at a time and most ewes will have one or two lambs each year. However, some ewes will have three or four lambs in a year and in this case, lambs may have to be adopted by another ewe. This is known as fostering. The farmer needs to select the right foster ewe. A good fostering ewe should be calm by nature, have a good milk supply and be in good condition (not thin or old). The fostering of lambs benefits not only the lamb, but also the ewe (mother) as she would not have enough milk to adequately feed all lambs, leaving her at risk of ill-health.

Preventing disease

When a lamb is a few days old (no more than 7), the farmer may remove its tail; this is called **docking**. Docking does not hurt the lamb and it is done for hygiene reasons and to prevent disease. Sheep farmers need to consider carefully whether tail docking within a particular flock is necessary. Sheep must also be given a bath in special liquid to remove any harmful parasites (ticks, lice, ringworm). This liquid is called sheep-dip. Sheep **dipping** takes place during the summer. Drenching can be applied to most farm animals; its not exclusive to sheep.

Teeth

Lambs are born with eight milk teeth. Two of their teeth fall out each year and are replaced by adult/permanent teeth. Sheep have no upper front teeth. They have a hard upper gum called a pad. The pad helps them to tear the grass. Their chewing teeth are called **molars**, these are at the back of the mouth (Link to humans: humans have cutting teeth at the front and molars at the back).

Did you know?
a farmer can tell the age of his sheep by counting the number of adult teeth they have?

Eating

Sheep can eat large amounts of food very quickly. For most of the year, they live in fields and eat grass; this is called **grazing**. In winter, when there is little grass, a sheep is given hay, nuts/concentrates made from cereals and crops (beets). This extra food is called **fodder**.
(For information on Chewing the cud, see Module 4).

Suggested activities:

- Photocopy activity sheet page 44
- With the help of the students, compile and display a list of key words relating to sheep
- Get students to list the proper names of the male, female and young of all farm animals
- Incorporate the topic of lambing into class work on spring. This could involve pictures of ewes and lambs surrounded by the spring flowers, green grass etc.
- Creative writing: This lesson could provide the background material for a creative writing exercise i.e. 'Springtime on the farm' or 'A day on the farm'
- Working in pairs, get students to test if wool is a better insulator than cotton, i.e. wrap a hot object in both and note which cools faster.
- Research and mark on a map the parts of Ireland where most sheep farming takes place, discussing the difference between mountain and lowland farming
- Discuss the interrelationships between people, animals and plants and the ways in which we rely on farming to provide us with food. (See 'The Irish Farmer' page 2)
- For extension material see Module 4

Learning outcomes:

At the end of this lesson, students should understand some of the basic life processes in sheep such as lambing, feeding and growing.

Additional resources:

- www.agriaware.ie

Pigs

Curriculum links:

- **Science** Living things
  Environmental awareness and care
- **Geography** Human environments
- **SPHE** Myself and the wider world

Lesson objectives:

To revise material covered in Modules 1 and 2. To understand the basic life processes in animals such as feeding and growing. To learn more about the products we get from pigs.

Teacher guidelines

It is suggested that teachers ensure that students are familiar with the vocabulary and concepts introduced in the previous modules before starting this lesson.

Keywords and concepts introduced in previous modules:

sow **boar** **piglet** **litter** **meal** **shed** **snout** **tail**
crubeen **meat** **ham** **rashers** **sausages**

A female pig is called a sow. A male pig is called a boar. A young pig is called a piglet.
Pigs provide us with meat like ham, rashers and sausages. Pigs eat meal, which is made up of cereals. Pigs are not dirty animals. They keep their beds very clean and go to the toilet in a dark corner away from where they sleep. A pig's foot is called a crubeen.

After revision of the above, teachers could discuss the more detailed information below.

Keywords for this lesson:

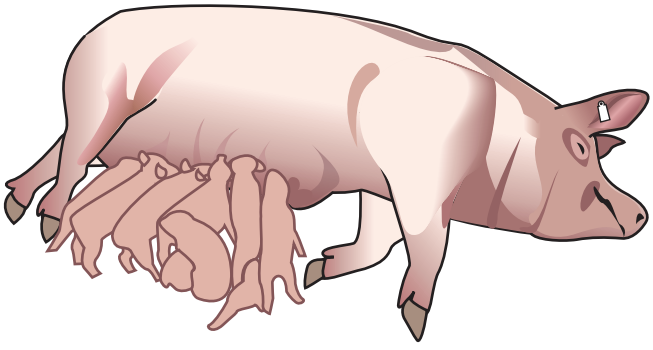
farrowing **teats** **pork** **bacon** **cured** **bristles** **leather**

Fun fact:

When piglets stop feeding from their mothers' milk they are called weaners. They are given this name until they are approximately 12 weeks old.

Farrowing

A sow's pregnancy normally lasts three months, three weeks and three days. When pigs give birth, it is called **farrowing**. Most sows have approximately 13 piglets but they can have more. As soon as they are born, piglets walk around to one of the teats on their mother's stomach and start drinking milk. Some of the **teats** give more milk than others and as the piglets grow, there is often much squealing and pushing at feeding time as they fight for the best teat. Piglets can eat solid food by the time they are three weeks old.

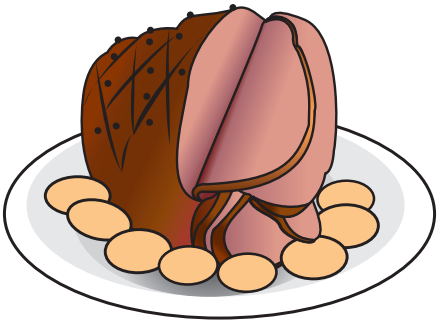


Piglets

There are three things the farmer must do for the piglets in their first few weeks of life. As with lambs, the piglet's tail may be docked (see 'Sheep', page 9), half of the tail is removed in order to prevent tail biting. The farmer may also cut their front teeth to prevent damage to the sow while feeding. Finally, the farmer must give the piglet an iron injection because a sow's milk does not contain iron (iron discussed in "Healthy eating" page 5).

Pig meat

Pig meat is the most widely eaten meat in the world accounting for over one-third of world meat intake. There are two kinds of pig meat, **pork** and **bacon**. Pork is fresh meat e.g. pork chops, pork fillet and shoulder of pork. Bacon is pig meat that is **cured** (salted) or preserved and therefore keeps longer than pork e.g. rashers, boiled bacon and baked ham, which is a traditional dish eaten in Ireland at Christmas.



Other products from pigs

Other foods we get from pigs are sausages, black pudding and white pudding. Pigs have long hairs called **bristles** and these can be used to make artist's brushes. In addition, we get **leather** from pig skin which is used to make work gloves, shoes, boots, sportswear, handbags, saddle seats, belts and other apparel.

Suggested activities:

- Photocopy the activity sheet on, page 45
- By way of introduction to the lesson, sections of "Charlotte's Web" by E.B. Whyte, could be read by the class or to the class
- As a class, get students to list all the products they can get from pigs
- Students could make "The little book of pigs". This should detail as many facts as they can remember as well as illustrated vocabulary lists
- Write the instructions for making the perfect ham sandwich outlining the many processes of ham production from 'farm to fork'
- Research the parts of Ireland where pig farming takes place. Mark these on a map of Ireland with pig illustrations made in class
- Visit a pig farm or book Agri Aware's Mobile farm to visit your school
- Discuss the interrelationship between people, animals and plants and the ways in which we rely on farming to provide us with food (See 'The Irish farmer', page 2)
- For extension material, see Module 4

Learning outcomes:

At the end of this lesson, students should understand some of the basic life processes in relation to pigs (farrowing and feeding). They should also be aware that we get meat products, leather and bristles from pigs.

Additional resources:

- www.agriaware.ie

Poultry

Curriculum links:

- **Science** — Living things; Environmental awareness and care
- **Geography** — Human environments
- **SPHE** — Myself and the wider world

Lesson objectives:

To revise material covered in previous modules. To discuss the products we get from poultry.
To become aware of basic life processes, such as feeding (using chickens as an example).

Teacher guidelines

It is suggested that teachers ensure that students are familiar with the vocabulary and concepts introduced in the previous modules before starting this lesson.

Keywords and concepts introduced in previous modules:

chicken hen cock chick flock meat eggs feathers wings poultry turkey duck goose claw beak bill webbed feet

The hen, cock and chick are the names for the female, male and young chicken. Birds that provide us with meat or eggs are called poultry e.g. chickens, turkeys, ducks and geese. Chickens and turkeys have claws for scratching and beaks for eating. Ducks and geese have webbed feet to help them to swim and bills for eating. Chickens are not good at flying but ducks and geese can fly very well.

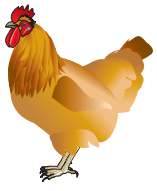
After revision of the above, teachers could discuss the more detailed information below.

Keywords for this lesson:

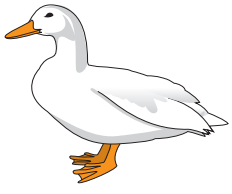
quills pecking Omega-3 Gizzard down

Did you know?

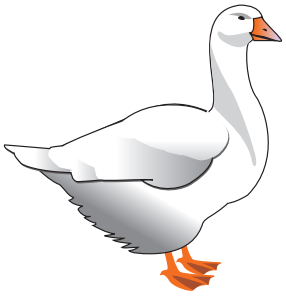
Chickens will lay fewer, but larger eggs as they grow older!



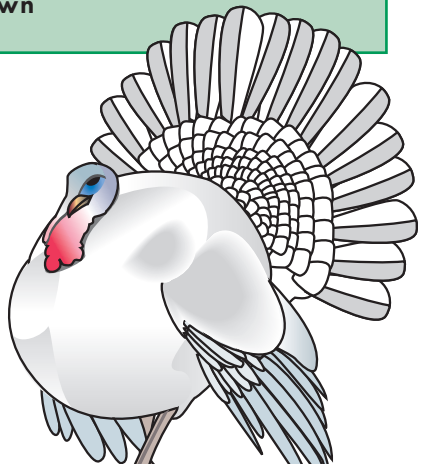
Chicken



Duck



Goose



Turkey

What do we get from poultry?

Birds that provide us with meat or eggs are called poultry e.g. chickens, turkeys, ducks and geese. Eggs from chickens, ducks and geese are eaten and used to make many different meals. (See Module 4 for egg production).

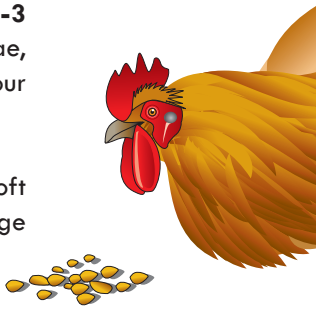
While chicken meat is the most popular, the meat of all four birds is eaten. Roast turkey is a traditional dish at Christmas in Ireland, although in certain parts of the country, a goose is the more traditional Christmas dish.

The feathers from ducks and geese are known as **down**, and can be used to make clothes, blankets and pillows. Feathers from geese and turkeys have been used for many years as pens. These special pens are called **quills** and are dipped in ink before writing.

Feeding

Note: This section focuses on how chickens feed but the process is similar in other poultry birds.

Chickens drink lots of water. They do not swallow, instead, they dip their beaks into the water and lift their heads up high enough for the water to slide down their throats. Chickens eat by **pecking**.
Their beaks are sharp and pointed for picking up grain, seeds, scraps and insects. Omega-(ω)-3 enriched eggs and meat are produced from hens whose diets has been supplemented with **omega-3** fatty acids in the form of marine (things found in the sea) sources, example fish-oils and microalgae, and linseed, rapeseed and other grains. When we eat omega-3 enriched foods, we help protect our heart, our brain and our eyesight.



Birds do not have teeth. When chickens feed, the food passes unchewed, down the throat into a soft pouch called the **crop**. Sometimes they eat so much that the crop gets full and you can see a bulge in their neck under the feathers.

The food passes down into the **gizzard** which is full of tiny stones that the bird has picked up while feeding. The gizzard squeezes and grinds up the food so that it can be digested.

Suggested activities:

- Photocopy the activity sheet, on page 46
- List the collective nouns for farm animals e.g. flock of chickens, flock of turkeys, flock of ducks, gaggle of geese, herd of cattle, flock of sheep. An extension to this could be to list their young and discuss the sounds that they make
- Ask students to record the amount and type of chicken and egg products that are used in their home over a week noting if any products are enriched with Omega-3. Compile a class chart showing the results and discuss the benefits of eating omega-3 enriched foods in the diet
- Research and discuss the wide range of recipes that have chicken or eggs as their main ingredient – e.g. quiche, omelette, meringue or chicken curry. Discuss how eggs are used in baking
- Get students to conduct a survey at home and list all the things that are related to poultry in some way e.g. pillows, duvets, cakes, chicken dishes etc. Make an illustrated list of these items
- Compare and contrast the different types of common poultry found in Ireland
- Discuss the interrelationship between people, animals and plants and the ways in which we rely on farming to provide us with food. (See 'The Irish farmer', page 2)
- For extension material, see Module 4

Learning outcomes:

At the end of this lesson, students should have an awareness of the process of feeding for chickens.

They should also be aware that we get meat, eggs and feathers from poultry.

Additional resources:

- www.agriaware.ie

Cereals and grasses

Curriculum links:

- **Science** Living things; Environmental awareness and care
- **Geography** Human environments
- **SPHE** Myself and the wider world

Lesson objectives:

To make students aware of the uses for grass and to learn that it can be preserved in the form of hay and silage. To revise the most common cereals and some of their products.

Teacher guidelines

It is suggested that teachers ensure that students are familiar with the vocabulary and concepts introduced in the previous module before starting this lesson.

Keywords and concepts introduced in previous modules:

grass cereals grain wheat oats barley

Grass is the most common plant in the world. It is very important because it is used to feed many animals. Cereals are types of grass, with grains that can be used for food for humans and animals. The main cereals grown in Ireland are wheat, used to make bread, flour and pasta; oats, used to make porridge, muesli and biscuits and barley used in the production of beer. All cereals have an ear, a stalk, grains and leaves.

Keywords for this lesson:

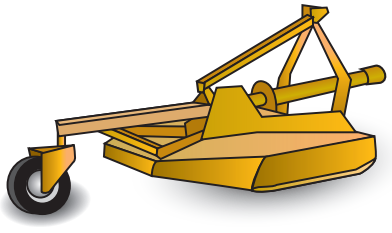
crop hay silage fertilizer manure bales silage fermented round bales silage pit rice maize (corn)

Did you know?

Grasses enabled cavemen to become farmers rather than hunters! Grasses provide all of our cereal crops and the grazing for domesticated farm animals!

Grass

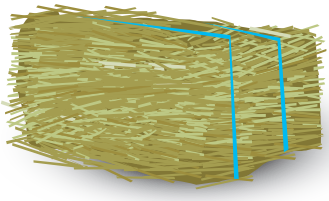
Grass is the most important **crop** in Ireland. Just like humans, grass needs certain nutrients to grow well and is affected by climate, soil type and system of farming. To give grass nutrients, the farmer uses natural **fertiliser like manure** (animal dung) or chemical fertilisers made in factories. Grass growth depends on heat and rainfall and it grows best during spring and summer. This grass is cut and preserved as hay or **silage** to feed animals during the winter.



Rotary mower

Hay

To make hay, grass is cut with a **rotary mower** (pictured above) turned and left to dry in the sun. It is then collected and made into **bales**. Hay making requires fine weather and if the hay is rained upon too often, it cannot be used to feed the animals.

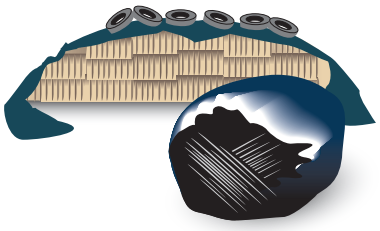


Bale

Remember: Never play near farm machinery or silage pits!

(See Farm machinery safety, page 20)

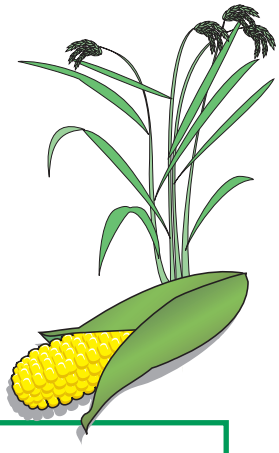
Silage



To make silage, grass is cut and then baled and wrapped or covered with coloured plastic (usually black), leaving no room for air. Under the plastic, the grass becomes '**fermented**'. This preserves the grass so that it can be kept for a number of months. Silage is either kept in large round **bales** that are easy to transport or it is kept in a **silage pit**. Good weather is not required for silage-making. Silage can also be made from cereal crops like barley, oats and wheat.

Cereals

Cereals are types of grass with starchy seeds known as grains that can be eaten or used to make other foods. Each cereal plant is made up of ears, stalks and leaves. The main cereals grown in Ireland are wheat, barley and oats. Two other cereals which we eat a lot of in Ireland are **rice** and **maize (corn)**.



Rice does not grow in Ireland but it is an important cereal. Rice needs heat and a lot of water to grow. It is grown in many countries but is generally associated with countries in East and South East Asia where it is grown in fields called 'paddy fields'. This name comes from the Malaysian word 'padi' which means 'growing rice'. Rice can be eaten as part of a main meal or it can used to make products such as Rice Krispies, rice cakes and rice desserts etc.

Some maize (corn) is grown in Ireland but this is generally used as animal feed. The maize that we eat comes from other countries (imported). There are lots of different types of maize, from sweetcorn to popcorn and maize that can be used to make corn flakes and other breakfast cereals.

Suggested activities:

- Photocopy the activity sheet, on page 47
- Discuss where in the world grass grows and the types of animals that eat grass. Discuss where these animals live in winter and summer and what they eat at these times
- Make your own hay and silage – cut a number of grass samples. Place one sample in a warm dry place and place the second sample in a black plastic bag, squeeze out all the air and seal tightly. Observe the changes in colour, weight and smell over time
- Discuss how most of the food used by humans comes from grass e.g. grass is used to feed animals like cattle, which then provides us with meat and milk (see Cattle, page 6), cereals are used to feed animals and to make food for humans
- Examine various breakfast cereals (packaging) to find out which cereal crops they are made from
- Make an illustrated list of all the products we get from cereals
- Ask students to record their weekly consumption of cereals/cereal products and compare this to recommended guidelines (see the Food Pyramid, page 4 and 5). Create a bar chart to illustrate the eating pattern of each student and discuss ways in which they could improve their diet (i.e. wholegrain)
- Discuss the interrelationship between people, animals and plants and the ways in which we rely on farming to provide us with food (See 'The Irish farmer', page 2)
- For extension material, see Module 4

Learning outcomes:

At the end of this lesson, students should know what grass is used for and how it can be preserved in the form of hay and silage. They should know what rice and maize are and know what their associated products are.

Additional resources:

- www.agriaware.ie

Fruit and vegetables

Curriculum links:

- **Science** Living things
  Environmental awareness and care
- **Geography** Human environments
- **SPHE** Myself and the wider world

Lesson objectives:

To revise material covered in previous modules and introduce students to the different classifications of fruit and vegetables.

Teacher guidelines

It is suggested that teachers ensure that students are familiar with the vocabulary and concepts introduced in the previous modules before starting this lesson.

Keywords and concepts introduced in previous modules:

healthy fruit vegetables apple stalk seeds core potato root crisps chips waffles

We should eat at least five portions of fruit and vegetables each day, as they are healthy foods. Fruits grow on trees and bushes and are generally sweeter than vegetables. We grow apples, strawberries and other berries in Ireland. Apples can be used in baking, to drink as juice or in sauces. A vegetable is part of a plant that we eat. The most popular crops grown in Ireland are potatoes and mushrooms. Crisps, chips and waffles are also made from potatoes.

After revision of the above, teachers could discuss the more detailed information below.

Keywords for this lesson:

stems leaves climate greenhouses pip citrus rind exotic bulb roots flowers

Did you know?

Nuts are fruits too! Nuts are strictly a particular kind of dry fruit that has a single seed, a hard shell and a protective husk! Most edible nuts, like chestnuts and hazelnuts, grow on trees (tree nuts), are found within fruits that grow on trees i.e. almonds and cashew (seeds) while, peanuts grow in pods that mature underground and are classified as a legume like lentils and peas.

Climate

The **climate** of a country plays a very important role in determining the type of fruit and vegetables that can be grown there, e.g. oranges cannot be grown in Ireland as they need a lot of sunshine. The use of plastic tunnels and **greenhouses** to control the temperature, makes it possible to grow many different fruit and vegetables in most countries.

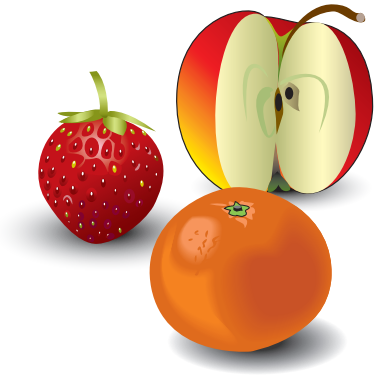
Types of fruit:

Fruit is the sweet and fleshy part of a tree/plant that forms from a flower and contains seeds.

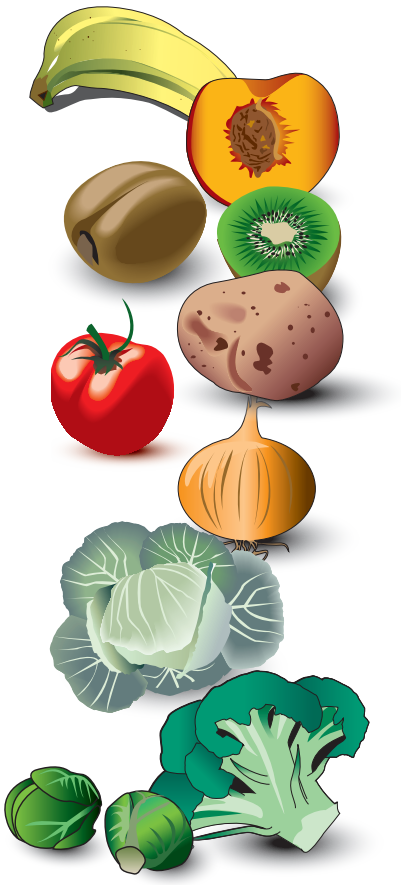
Pip fruits: The **pips** inside these fruits are the seeds. They are stored inside the core e.g. apples, grapes, pears.

Berries: These are grown on plants or bushes e.g. strawberries, raspberries, gooseberries.

Citrus fruits: **Citrus** fruits are juicy and have a thick **rind** e.g. oranges, grapefruits, lemons, limes, mandarins.



Stone fruits: Stone fruits have a large seed inside called a stone e.g. cherries, peaches, apricots.
Exotic fruits: **Exotic** fruits are only grown in certain parts of the world e.g. kiwis in New Zealand and bananas, dragon fruit and pineapple in countries in Asia, Africa and South America.



Types of vegetables:

Vegetables are the edible part of a plant. These include the **stems** (celery), **leaves** (lettuce), **roots** (carrot), **tubers** (potato), **bulbs** (onion) and **flowers** (broccoli). The use of greenhouses means that almost all vegetables can be grown in Ireland.
Stem vegetables – stem vegetables refer to the above-the-ground stems, shoots or stalks such as celery, asparagus, rhubarb and Swiss-chard
Leafy vegetables – can be eaten raw or cooked; e.g. cabbage, kale, lettuce and spinach
Root vegetables – are plant roots that we eat, including, carrots, parsnips, turnips, leek, celery, beetroot and sugar beet
Tuber vegetables – are enlarged sections of the stem or root structure that store nutrients and water. These include potatoes and sweet potatoes
Bulb vegetables – included plants of which the bulbs are used as food, e.g. garlic and onion
Fruit vegetables – are non-sweet fruit containing seeds, e.g. tomatoes, cucumbers, courgettes, watermelons, peppers, pumpkins and squash. Like true fruits, they store their seeds inside and are mainly made up of water
Flower vegetables – are plants of which the flowers are used as food, e.g. artichoke, broccoli, cauliflower and courgettes flower
Buds – are the edible flower buds of a plant e.g. Brussels sprouts and caper

Suggested activities:

- Photocopy activity sheet, page 48
- Make a rainbow fruit salad in class. Discuss the different fruits and why we eat them
- Bring in a selection of different vegetables. Put them in a sack and ask students to choose one at random. Ask each student to discuss their vegetable and what part of the plant it is from
- Pips are seeds. Plant a variety of pips e.g. apple pips, orange pips etc. See which sprout and which don't discussing the role of germination and the connection between the pip-seed, the tree and the fruit
- Research which countries citrus fruits and exotic fruits grow. Illustrate these countries on a world map and discuss why they can't be grown in Ireland
- Ask students to collect various seeds of different fruits – compare and contrast them by size and ask the class to match the seed to the fruit
- Ask each student to list their top-five favourite fruit and vegetables. Illustrate the results on a bar chart showing the highest and lowest scoring fruit and vegetables and discuss the reasons why
- Discuss the interrelationship between people, animals and plants and the ways in which we rely on farming to provide us with food (See 'The Irish farmer', page 2)
- For extension material, see Module 4

Learning outcomes:

At the end of this lesson, students should be aware of the different classifications of fruit and vegetables and that the type of fruit and vegetables grown in a country depends on the climate.

Additional resources:

• www.agriaware.ie • www.incredibleedibles.ie • www.potato.ie • www.bestinseason.ie

Farm and countryside safety

Curriculum links:

- **Science** — Living things; Environmental awareness and care
- **Geography** — Natural environments; Human environments
- **SPHE** — Myself

Lesson objectives:

To highlight the importance of staying safe in the countryside and on the farm. To highlight the dangers of climbing on round bales, trespassing and littering.

Teacher guidelines

The fatality rate in agriculture is far higher than other workplace, with the young exceptionally vulnerable to fatalities and injury on Irish farms. In 2019, 19 people died in farm accidents (HSA, Ireland). The most common cause of farm accidents in Ireland is from tractors and other farm machinery. Tractors, vehicles and machinery accounted for a total of 81% of all children farm accidents between 2010-2019 (HSA, Ireland). With that said, some children in Irish classrooms may be affected by farm and countryside accidents, and as such, this may be a sensitive subject for some children. It is suggested that the teacher introduces students to the basic concept of farm and countryside safety before starting the lesson.

Keywords and concepts introduced in previous modules:

rivers **lakes** **ponds** **streams** **environment** **barrel** **silage** **slurry**

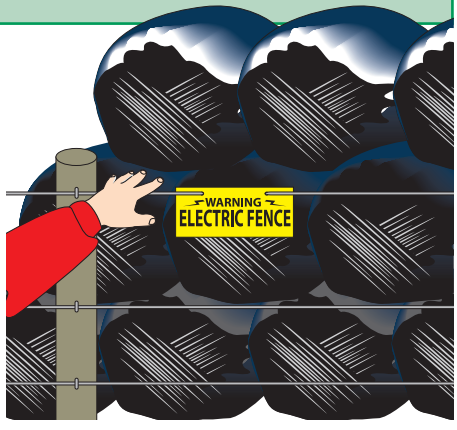
Water can be found in many places in the countryside including lakes, ponds, streams, rivers and containers on farms. It is important to stay away from water as we never know how deep it is. You can get into difficulty very easily when playing near water.

Keywords for this lesson:

bales **electric fences** **litter** **disease** **trespassing**

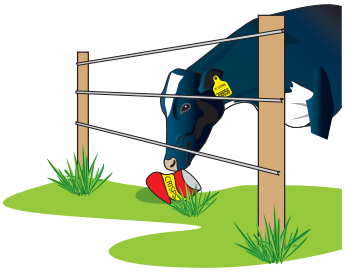
Be safe around hay, straw and bales

Baled silage is now made on over two-thirds of all farms in Ireland. If round **bales** must be stacked the maximum height of the stack should be two-to-three bales high, while square bales should be stacked no more than one and a half times the width of the base. Many farmers erect **electric fences** around areas where round bales are stored. If you touch these fences, you will get an electric shock which can injure you. Farmers put up these fences to keep animals out so do not climb over them as you may damage them or get hurt. Farmers must also prevent access to danger areas of heights. Do not climb on bales of hay, straw or silage as you could fall between them and get trapped.



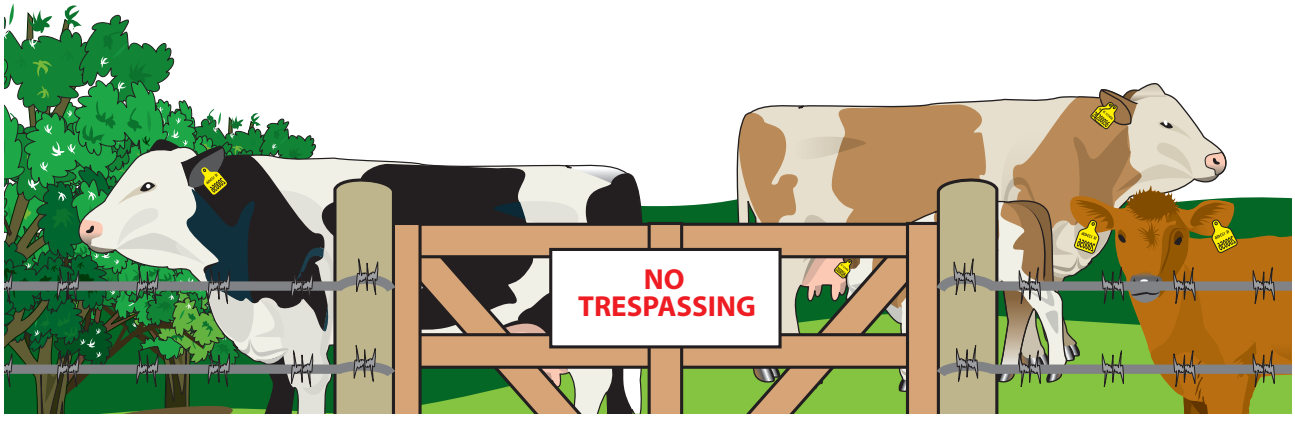
Protect our countryside from litter

Litter is bad for our environment. We have a responsibility to protect our countryside now and for future generations, so make sure you do not harm animals, birds, plants or trees by littering. Litter and leftover food does not just spoil the beauty of the countryside, it can be dangerous to wildlife and farm animals and can spread **disease**. You should take your litter home with you. Litter can be dangerous to animals as they may think that it is food, eat it and choke.



No trespassing

When we visit the countryside we should respect it, the people working there and the animals that live there. The best way to protect you, your family and everyone working or visiting the farm is to know where hazards occur. Children should never be allowed in to a farmyard unless supervised by an adult. Do not walk through fields where crops are growing as you could damage them. Use gates where possible and adhere to **warning signs**. If you try to climb over hedges or fences you could damage them and hurt yourself. If there is a '**No trespassing**' sign, do not enter the field or area as this sign means that you are not allowed in. The farmer does not want anyone to get hurt or injured on the farm.



Suggested activities:

- Photocopy the activity sheet, on page 49
- On the way home from school, look out for litter. Are there some areas worse than others? Why do you think this is the case? What could be done to raise awareness of littering?
- Investigate which types of litter rot more easily than others. Examine biodegradable and non-biodegradable products making a list of common items under each category
- Take the students outside and collect any rubbish they can see, examine the types of litter and how they can be disposed of e.g. dry plastic recyclables or food waste (compost)
- Watch the film 'Wall-E' about a rubbish collecting robot
- Watch Agri Aware's 'Once Upon a Farm' and discuss the potential dangers of bales on farms
- Discuss areas where you might find a 'No trespassing' sign
- Design a 'No trespassing' poster or farm safety sign to show dangerous areas such as water, dump areas and where animals are
- For extension material, see Module 4
- Sign your class up to participate in the "Farm Safe Schools" interactive programme. For more information on how to register your class, visit: www.farmsafeschools.ie

Learning outcomes:

At the end of this lesson, students should understand the potential dangers of bales of hay and straw. They should also understand the importance of the 'No trespassing' sign seen on farms and in the countryside.

Additional resources:

- www.agriaware.ie/farmsafety
- www.agrikids.ie
- Check out Agri Aware's 'Once Upon a Farm' video on YouTube

Machinery safety

Curriculum links:

- **Science** — Energy and forces; Environmental awareness and care
- **Geography** — Human environments; Natural environments
- **SPHE** — Myself; Myself and the wider world

Lesson objectives:

To explore different types of farm machinery found on Irish farms and how we can stay safe around them.

Teacher guidelines

In 2019, 19 people died in farm accidents (HSA, Ireland). Tractors and machinery are the most common cause of farm accidents in Ireland. With that said, some children in Irish classrooms may be affected by farm and countryside accidents, and as such, this may be a sensitive subject for some children. It is suggested that the teacher introduces students to the basic concept of machinery before starting the lesson.

Keywords and concepts introduced in previous modules:

wheels **trapped** **safety belt** **drawbar** **ignition** **handbrake**

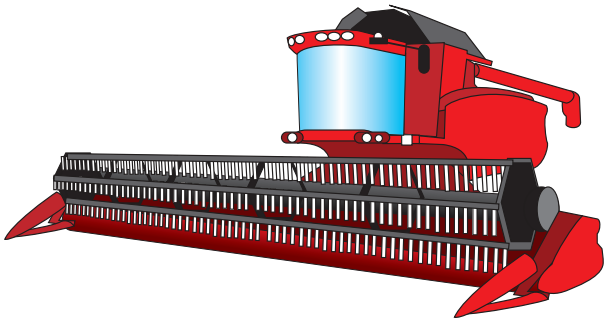
Tractors are very important for the farmer, helping him/her to carry out everyday tasks on the farm. Tractors are potentially dangerous if you climb onto them, take lifts on them or play around them.

Keywords for this lesson:

harvesting **combine harvester** **blades** **hopper** **trailers** **loaders** **spikes**

IMPORTANT: The farmer must ensure that unattended tractors and other farm machinery are locked and that all moving parts are properly guarded and secure.

Combine harvesters



Harvesting is a very busy time for the farmer and it is important that you stay a safe distance from machinery when they are being used. The farmer may have sown wheat, oats, barley or corn. When it is time to harvest crops, the farmer uses a machine called a **combine harvester**. Combine harvesters can be very dangerous machines to be around on the farm. They have large **blades** and cutting tools which you could get trapped in if you do not stay away from the machine. The front part of the combine, the **header**, pulls the plants into a bar that cuts them off. The combine then removes the grain from the stem and leaves. The grain is stored in a **hopper** on the combine. The stems and leaves are thrown back out on the ground. When the hopper on the combine is full, the grain is unloaded into a trailer and the farmer takes it away to a storage area on the farm until the entire field has been harvested and the farmer is ready to sell it or feed it to his or her animals.

Did you know?

A young person must be 14 years old to operate a tractor on a farm and 16 years old to drive it on a road?

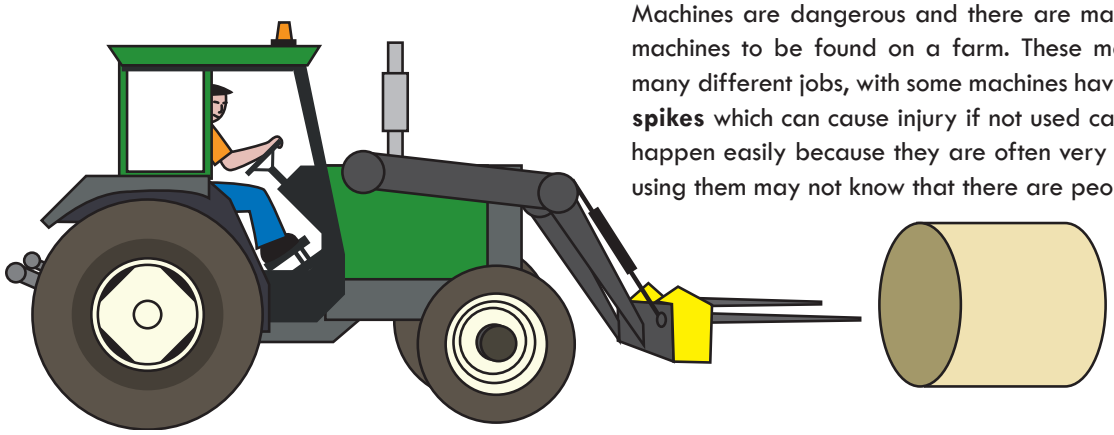
Trailers and loaders

Trailers and **loaders** are used for the transportation of goods, animals or other machines on and off the farm. You should never ride on the drawbar of a trailer or on the trailer or loader itself, as this is very dangerous. Stay out of the farmer's way when he/she is loading animals or machinery onto trailers. When on the farm, do not stand where the farmer cannot see you.

REMEMBER: When on the farm, do not stand where the farmer cannot see you.

Stay away from dangerous machines

Most serious accidents involve tractors and farm machinery. Machines are dangerous and there are many different types of machines to be found on a farm. These machines are used for many different jobs, with some machines having sharp blades and **spikes** which can cause injury if not used carefully. Accidents can happen easily because they are often very noisy and the person using them may not know that there are people close by.



Suggested activities:

- Photocopy the activity sheet, on page 50
- Split the class into groups of four and get them to create a drama on staying safe on the farm. When one group performs their drama piece, ask the other group how these accidents could have been prevented
- Discuss other types of machinery found on the farm and how they too could be dangerous
- Watch Agri Aware's 'Once Upon a Farm' and discuss the potential dangers of farm machinery
- For extension material, see Module 4
- Sign your class up to participate in the "Farm Safe Schools" interactive programme. For more information on how to register your class, visit: www.farmsafeschools.ie

Learning outcomes:

At the end of this lesson, students should know the dangers of the combine harvester, trailers and loaders.

Additional resources:

- www.agriaware.ie/farmsafety
- Check out Agri Aware's 'Once Upon a Farm' video on YouTube
- www.agrikids.ie

Electrical safety

Curriculum links:

- **Science** Energy and forces
- **Geography** Human environments
- **SPHE** Myself and the wider world

Lesson objectives:

To learn about the potential dangers of electricity in our environment and the precautions necessary for safety.

Teacher guidelines

Some children in Irish classrooms may be affected by electrical accidents, and as such, this may be a sensitive subject for some children. It is suggested that the teacher ensures that students are familiar with the vocabulary and the concepts introduced in the previous module before starting this lesson.

Keywords and concepts Introduced in previous modules:

warning **signs** **electric fences** **red light** **overhead electricity wires**

Electricity has many uses in the home and on the farm. There are warning signs to look out for that give danger warnings for the presence of electricity, such as overhead electricity wires

Keywords for this lesson:

pylons **poles** **volts** **sub-stations** **wires** **flow** **minipillars**

Stay safe around electricity, pylons and sub-stations

Do not climb or play near **pylons** or electricity **poles**. Electricity is measured in **volts**. The poles used to transport electricity carry thousands of volts and you risk getting a fatal shock by going near them. Even if you do not touch the power lines directly, the electricity could jump through the air and electrocute you. Electricity **sub-stations** contain dangerous equipment and should never be entered.

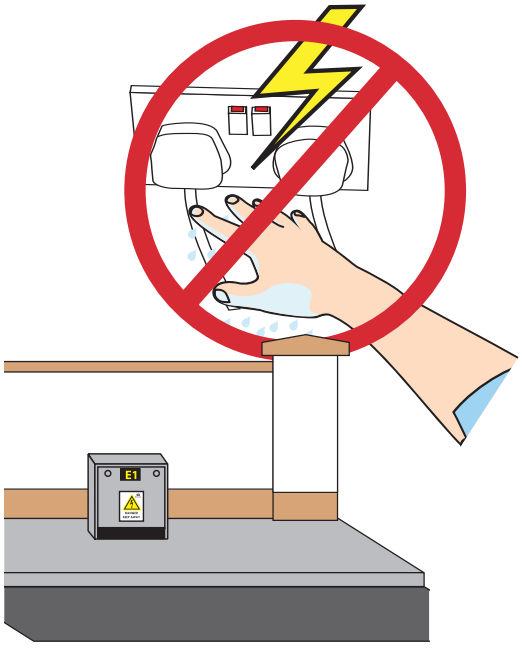
Watch out for overhead electricity wires

In stormy weather, electrical **wires** may fall in the farmyard or in the fields. Fallen wires can be very dangerous, do not touch or go near them. Alert an adult or call ESB Networks on the emergency line 1850-372-999 immediately. Touching or coming close to electric wires can kill. Farmers and builders take care when driving high machinery like tractors with loaders or tipping trailers or diggers near overhead **electricity wires**.

Do not fly kites or toy planes under overhead electricity wires. Do not attempt to free any objects which have become stuck on power lines or any other electrical equipment. If you go fishing, check that there are no overhead electricity wires nearby before you begin, as a rod or fishing line that comes into contact with a power line could kill you. Never climb a tree that is near an overhead electricity wires or you could be electrocuted.

Electricity and water

It is very important to keep electrical appliances and tools away from water. Never touch any electrical appliances or tools with wet hands or while standing in water. Electricity flows easily through water and can **flow** from an appliance through your wet hands and into your body, which can be very dangerous and can cause serious injury. Never bring electrical appliances into the bathroom. Some electrical appliances such as electric kettles and washing machines are specially made for using water, but you should always take care when using electrical products.



Stay safe, Stay clear around electricity distribution boxes (minipillars)

In towns and villages and housing estates, electricity is often brought into the houses using underground cables. These cables are connected to the main power supply by metal boxes that are often positioned on the footpath or beside garden walls. These are called **minipillars** and have a 'Danger' warning sign on the door. Never interfere with these boxes as you could get seriously injured or killed.

Suggested activities:

- Photocopy the activity sheet, on page 51
- Examine how appliances have changed and evolved through the years
- Use a battery to make a bulb light up in science class
- Discuss what you should do if someone is injured by electricity
- Bend some water. Turn a tap on. Use a comb to create static energy and hold it near the water. Watch the water bend
- Watch Agri Aware's 'Once Upon a Farm' and discuss electrical dangers on a farm
- Log onto www.esbnetworks.ie/education to learn more about electrical safety and play Match3 online game
- For extension material, see Module 4
- Sign your class up to participate in the "Farm Safe Schools" interactive programme. For more information on how to register your class, visit: www.farmsafeschools.ie

Learning outcomes:

At the end of this lesson, students should be able to identify electrical warning signs.

Know what electricity pylons and minipillars are and that they are dangerous.

Additional resources:

- www.agriaware.ie/farmsafety • www.agrikids.ie
- Check out Agri Aware's 'Once Upon a Farm' video on YouTube
- For safety posters showing electrical hazards, 6 safety tips, as well as activities, lesson plans, competitions, online Match3 game and electrical Safety videos, see www.esbnetworks.ie/education

Developed with:

ESB NETWORKS

Farm animal safety

Curriculum Links:

- **Science** Living things
- **Geography** Human environments
- **SPHE** Myself
  Myself and the wider world
- **Maths** Shape and space

Lesson objectives:

To explore the concept of farm safety around dangerous animals (e.g. a bull or a cow that has given birth to a calf). To identify dangers that exist around the farm in places like sheds or barns and to teach students about the meaning of safety signs that can be found on a farm.

Teacher guidelines

90% of farm accidents involve an unsafe act. Livestock (farm animals) are the third most common cause of farm accidents in Ireland. It is suggested that the teacher revises the different types of farm animals examined in previous lesson plans as well as introducing pupils to the vocabulary and basic concepts of safety before starting the lesson.

Keywords and concepts introduced in previous modules:

birth **newborn** **protective** **chicks** **ducklings** **feeding**

In order for us to stay safe around animals at times when they are giving birth to their young, we must listen to the farmer's instructions and stay a safe distance from the animals. New mothers are very protective of their young and if they are approached they could kick, bite or peck you.

Keywords for this lesson:

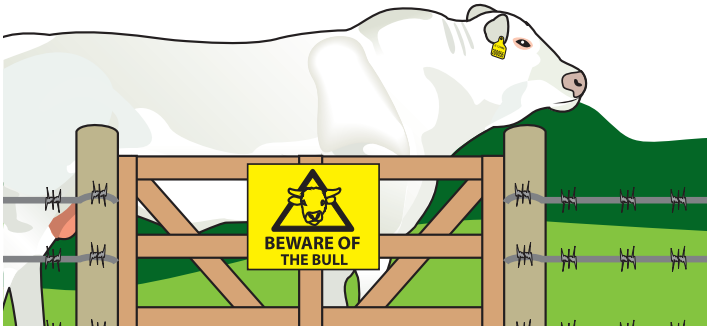
aggressive **dangerous** **bull** **taunt** **attack**
signs **warning** **sheds** **fences** **chemicals**

Bulls and potentially aggressive animals

The male of many farm animals can act in an **aggressive,** unpredictable and **dangerous** way. One of the most dangerous animals found on the farm is the **bull**. Cows, in particular, new mothers who are protective of their young may also be unpredictable and can be aggressive. Many lives have been lost due to sudden bull/cow attacks. You should always treat all farm animals with respect, do not annoy or **taunt** a bull in any way as it could **attack** you. The farmer will dehorn the bull at a young age as horns can grow very big and become dangerous. The farmer also places **signs** on field fences where a bull is present as a **warning** to people passing by.

What can you do to stay safe around a bull?

- Never enter a field where a bull is
- Never turn your back on a bull
- Only let the farmer handle the bull
- Never tease a bull
- Close all farm gates behind you



Fields, fences and sheds used for livestock

Always check with the farmer to find out if there are any animals in **sheds**, barns or fields before entering them. In winter, many farmers keep their cows inside slatted houses. They may be divided up into different pens. Don't go into any animal pen no matter how friendly the animal might appear. If the animal gets nervous or afraid, it could attack or kick you. Children should never play in these sheds as they could become trapped, trampled or crushed. Do not climb over **fences**, gates or enter fields where potentially dangerous animals may be. After visiting the farm, always wash your hands. Never touch any **chemicals** or dangerous materials that might be stored on the farm.

Recognising signage on the farm

The farmer wants to make sure that both adults and children are safe on his/her farm. By putting up warning signs, they are warning people about the dangers on the farm. It is up to you to be alert and know and understand what these signs mean. Here are some of the signs found on many Irish farms:

This sign means that there is a possibility of cows crossing in the area.

We must keep this gate closed at all times.

After touching, petting or handling the animals we must wash our hands.

General farm safety sign.

Stay on the lookout for tractors. Do not get in their way. The farmer may not be able to see you from the tractor.

The farmer is cutting hedges. Stay away from the tractor and hedge cutter as they are very dangerous.

Suggested activities:

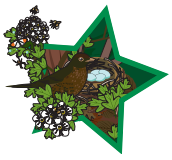
- Complete the activity sheet, on page 52
- Design a safety poster for staying safe on the farm
- Watch Agri Aware's 'Once Upon a Farm' and create a new farm safety sign in art class
- Create a new farm safety sign in art class
- Look out for other signs (e.g in the swimming pool or on the road). Discuss the signs' colour, shape, symbols etc.
- As part of a maths lesson, discuss different shapes and patterns seen on safety signs
- List ten ways to stay safe on the farm
- Divide the class into groups of four and give each group a topic e.g. staying safe around sheds on the farm, staying safe around a bull on the farm. Each group has to write a rap, poem or create a drama on their topic and perform it for the class
- For extension material, see Module 4
- Sign your class up to participate in the "Farm Safe Schools" interactive programme. For more information on how to register your class, visit: www.farmsafeschools.ie

Learning outcomes:

At the end of this lesson, students should understand that the bull is the most dangerous animal on the farm, along with cows that have given birth to calves. They should know the parameters of the farm and how to recognise warning signs.

Additional resources:

- www.agriaware.ie/farmsafety
- Check out Agri Aware's 'Once Upon a Farm' video on YouTube
- www.agrikids.ie



The hedgerow

Curriculum links:

- **Science** — Living things; Environmental awareness and care
- **Geography** — Human environments
- **SPHE** — Myself and the wider world

Lesson objectives:

To explore the concept of the hedgerow as a habitat with many communities living within it. To identify the four layers that exist in the hedgerow and to recognise the function of each.

Teacher guidelines

It is suggested that the teacher ensures that students are familiar with the vocabulary and concepts introduced in the previous modules before starting this lesson.

Keywords and concepts Introduced in previous modules:

shrubs **wildlife** **shelter** **nests**

Hedgerows are very important on the farm as they are home to many animals, insects, plants and birds. All these creatures are linked together by what they eat and how they get their energy in an order called a 'food chain'. Many food chains exist within the hedgerow.

Keywords for this lesson:

habitat **community** **ground layer** **grassy layer** **pollinator**
shrub layer **canopy layer** **insecticides** **biodiversity**

The hedgerow as a habitat

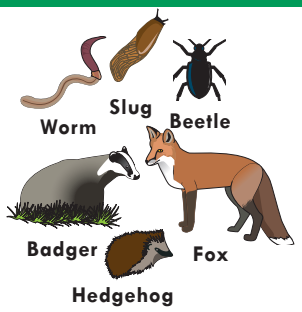
Hedgerows are an ever-present feature of the Irish countryside and provide a very important **habitat** for wildlife. It is estimated that Irish hedgerows are home to 37 species of shrubs and trees and 105 species of wild flora. If you look at a hedgerow closely, you will see it is also home to a wide range of insects, birds, and mammals, i.e. rabbit, hedgehog, fox and badger. Habitats are environments where they live. Living together, all these living things form a **community**. Communities are very important as all the plants and animals living within them depend on each other. Hedgerows are not the only habitat on the farm, the field, the pond, and the tree are all habitats containing communities.

The four layers of the hedgerow

The hedgerow may look like one big habitat, but when you look closer, it is made up of four layers. Different members of the community live in different layers of the hedgerow.

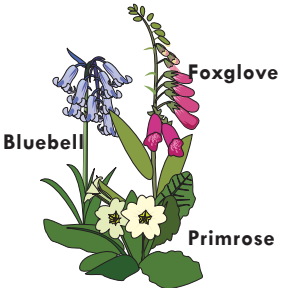
The ground layer

Some of the smallest, and largest animals, build their homes in the ground layer. Here, insects such as beetles and slugs feed on soil and dead plants. These insects are very important. They keep the bottom layer tidy because they don't let old plants build up on the floor of the hedgerow. They also act as food for other larger animals which live in the bottom layer. Foxes live deep underground in an area known as a 'den' while badgers live in large underground tunnel systems called 'setts'. Hedgehogs build nests of moss, leaves and grass under vegetation around farmland, woodland and pastures.



The grassy layer

In the **grassy layer** you will find flowers such as bluebells, primroses and foxgloves. These flowers give the hedgerow it's bright colour, attracting many **pollinators** such as butterflies, hoverflies and bees. Bluebells with their long, thin leaves and blue flower come out in early spring. The yellow primroses and cowslips come into bloom between March and May. In the summer, you will see honeysuckles and pink and purple foxgloves. If you look closer you will find insects such as caterpillars living on many of these flowers. Areas of long grass also provides shelter and nesting for many insects. Some birds will also fly into this layer to eat seeds from the plants and/or insects.



The shrub layer

In the **shrub layer** you will find the most common shrub of the Irish hedgerow, the hawthorn. In early spring, this plant is covered with a creamy white blossom. This is why it is known in Irish as the 'Sceach geal' or bright bush. Blackthorn and holly can also be found in the shrub layer, both of which produce berries in the winter. A wide variety of shrubs and trees in a hedgerow can indicate that the hedgerow has been there for some time.

Did you know?

It is estimated that Ireland has a hedgerow length of around 300,000km.

The canopy layer

The top layer is called the **canopy layer** where the birds, bats and bees live. Old hedgerow trees are often the most valuable because their many branches, fissured bark and hollowed trunks provide nesting and rooting spaces for birds. Bats also like to roost in old trees and hunt for insects along the hedge itself. Wild rare birds such as the barn owl also make their nests here.

New wildlife

The farmer is careful to manage and promote the growth of hedgerows by trimming them back at certain times of the year (when birds are not nesting) and by hedgelaying to encourage new growth. Farmers are also encouraged to grow different species of plants and trees on the farm. The new wildlife will build homes and create food chains. The presence of this wildlife encourages **biodiversity** on the farm, from the smallest insects to the biggest forest mammals.

Suggested activities

- Complete the activity sheet, on page 53
- Get students to draw a picture of the different layers of the hedgerow in art class
- Get the class to create a biodiversity map of the school grounds. Identify the different habitats on the map and list all the plants, trees, insects, birds and mammals you can see or find. Compare your habitats to that of a farm. Would you expect to find the same plants, trees, insects and mammals?
- Using the information gathered, get the class to draw an example of a food chain from a selected habitat above
- Get the class to discuss the word 'community' and to discuss the community that they live in. The students' community has various types of people, houses and amenities, just like in the hedgerow where there are different plants and animals
- Divide the class into four groups. Each group should be assigned one layer of the hedgerow and asked to present their story to the rest of the class about all the different animals and activities that occur there

Learning outcomes: At the end of this lesson, students should know the four layers of the hedgerow and what animals and plants live in each layer

Additional resources: • www.agriaware.ie

Air and trees

Curriculum links:

- **Science** — Living things; Environmental awareness and care
- **Geography** — Human environments
- **SPHE** — Myself and the wider world

Lesson objectives:

To explore how humans and animals get their oxygen supply. To be able to identify the different trees that grow in Ireland. To develop an understanding of renewable energy, including how it works and its advantages over fossil fuels.

Teacher guidelines

It is suggested that teachers ensure that students are familiar with the vocabulary and concepts introduced in the previous modules before starting this lesson.

Keywords and concepts introduced in previous modules:

herbivore **carnivore** **omnivore** **shelter** **drained**

Trees are very important on the farm. Lots of food chains exist within the tree and it provides shelter to animals, big and small. Trees also help to keep the air clean and they benefit the soil by keeping it well drained and healthy.

Keywords for this lesson:

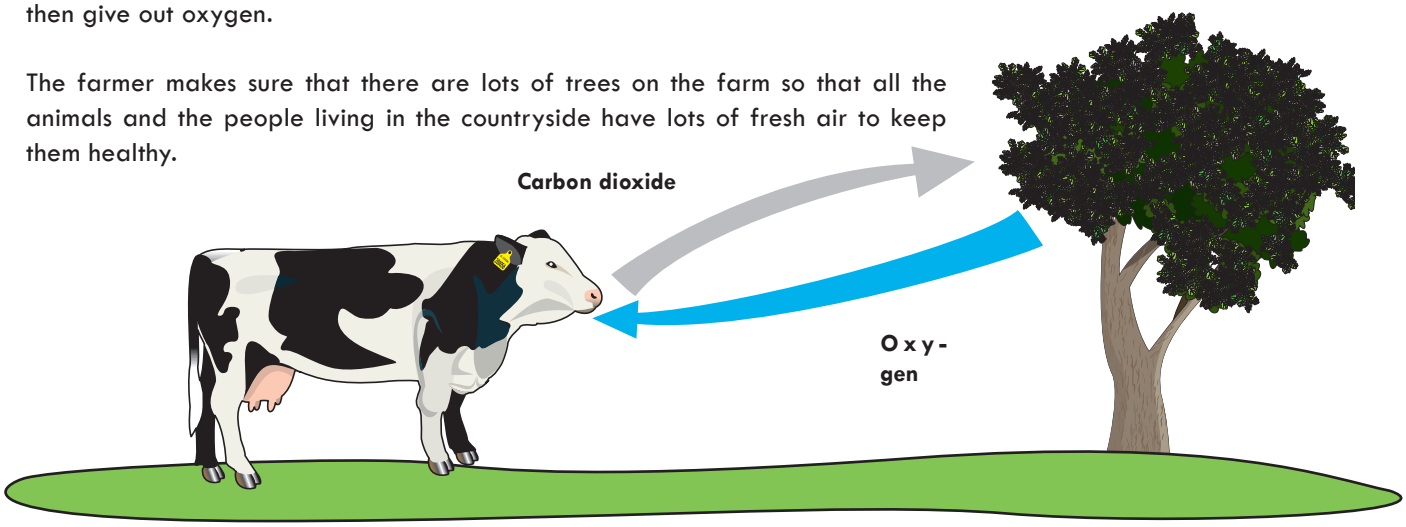
oxygen **carbon dioxide** **fossil fuels** **non-renewable energy source** **wind turbines**

Healthy trees, healthy air

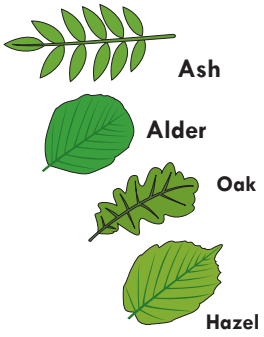
Everybody, take a deep breath, in through your nose and out through your mouth. Did you know that the air you breathe in is rich in **oxygen** and the air you breathe out is rich in **carbon dioxide**? The animals on the farm also inhale oxygen and exhale carbon dioxide. Animals and humans need oxygen to stay alive and healthy.

How do we get this oxygen? Plants and trees work in the opposite way to humans and animals. Humans and animals create the gas that the trees and plants need to live, carbon dioxide, and in return, they produce the important oxygen gas that we need to survive. The leaves on trees take in carbon dioxide to make food and they then give out oxygen.

The farmer makes sure that there are lots of trees on the farm so that all the animals and the people living in the countryside have lots of fresh air to keep them healthy.



Irish trees



Ireland was once covered in forest. The beauty of the Irish landscape is mainly due to the many trees that exist. Trees provide habitats for wildlife, absorb and lock up greenhouse gases in the soil and help prevent flooding. Trees can be found all over the country, but it is Co. Wicklow that has the most trees. Native Irish trees include the ash, alder, oak and hazel.

Ash: The wood of the ash tree is the wood used in hurley sticks, snooker cues, hockey sticks and boat oars.

Alder: Some of your furniture at home is made from alder wood, which is also known as 'Irish mahogany'. Alders are found in damp areas, beside freshwater loughs and along river banks, where their strong roots can help to keep the bank in place.

Oak: The oak is known as the king of the forest and there are many oak woodlands across the country. They can be found in Killarney, Co. Kerry; Glen of the Downs, Co. Wicklow and Glenveagh, Co. Donegal.

Hazel: Hazel woodland often cover areas of limestone, particularly on the Burren of north Clare. You will recognise the hazel tree from its yellow 'lambs tail' catkins which appear in spring.

Agroforestry

Ireland has the highest proportion of land under grass in the EU (48%), and the second lowest amount of woodland cover (11%). Agroforestry consists of combining forestry and productive grassland on the same land allowing farmers to maintain grass or crops but also plant trees. Apples, various walnuts, sweet chestnuts, hazelnuts, willow and oaks are commonly planted. Agroforestry has the potential to curb greenhouse gas emissions and soil degradation, as well as improve the ecosystem services (water retention). Wood such as willow can also be used as a renewable fuel to heat our houses and create electricity.

Creating electricity

When we switch on the light bulb at night, electricity keeps the light shining bright. But how do we get this electricity? For years, humans have been using fossil fuels to make electricity. **Fossil fuels** are fuels such as coal, oil and natural gas which have been buried in the earth for millions of years. However, there are two problems with this way of making electricity. Fossil fuels are **non-renewable sources of energy**, which means that they cannot be made again. Humans are using fossil fuels faster than they are being created, so there is a real danger that they could run out soon. Burning these fossil fuels creates lots of carbon dioxide, which is not good for the environment. Irish farmers are working hard to create cleaner and more natural sources of renewable energy (See Module 3 on electrical safety for more information).

Wind energy

Renewable energy comes from sources that will never run out and can be used again and again, such as wind and water. Wind will always blow and water will never run out. Many Irish farmers are now creating electricity on their farms. The next time you are in the countryside, look out for **wind turbines,** when a big gust of wind blows, the fans on the wind turbine move so strong and fast that electricity is created (Find out more about renewable energy on pages 30 and 31 'Water').

Suggested activities

- Complete the activity sheet on page 54
- Get the students to draw a diagram of plants and trees exhaling oxygen and humans inhaling it and vice versa with carbon dioxide
- Go on a nature walk and identify different types of trees in your area
- Separate renewable and non-renewable sources of energy in two columns
- Get the class to do some research about fossil fuels that can be found in Ireland
- Do some research to find out if there are any wind turbines in your area
- Get the class to write an essay on the importance of using renewable sources of energy
- Get the students to create their own wind fan. Cut out a square which is 14cm each side on a blank sheet of paper. Draw two diagonal lines on it so you have a cross shape. Make a point on each line, 2cm from the centre cross. Get a scissors and carefully cut along each line from the outside, until you reach the 2cm mark. Bend each corner into the centre so it looks like a fan. Carefully secure the four triangular shapes together at the centre with a pin. Get a pencil with a rubber on top and push the pin into the rubber. Even a small gust of wind will get the wind fan moving
- For extension material, see Module 4

Learning outcomes:

At the end of this lesson, students should know how we get oxygen, the different types of Irish trees and how electricity is created.

Additional resources:

- www.agriaware.ie

Water

Curriculum Links:

- **Science** — Living things; Environmental awareness and care
- **Geography** — Human environments
- **SPHE** — Myself and the wider world

Lesson objectives:

To explore the water cycle in detail and to learn the different phases that occur. To appreciate the farmer's role in producing renewable energy.

Teacher guidelines

It is suggested that teachers ensure that students are familiar with the vocabulary and concepts introduced in the previous modules before starting this lesson.

Keywords and concepts introduced in previous modules:

water vapour **fences** **manure** **food chains**

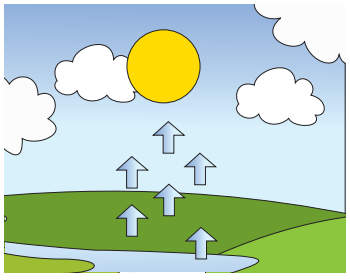
Like in the hedgerow, food chains exist in water. The farmer protects these food chains and all the animals on the farm by ensuring that there is clean water. The farmer puts fences around the waterways and is very careful when he or she is spreading manure.

Keywords for this lesson:

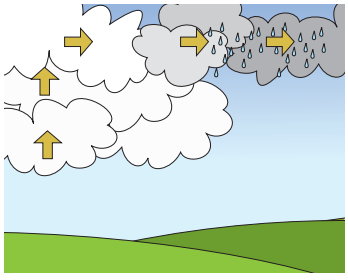
evaporation **condensation** **precipitation** **mechanical energy** **electrical energy**

The water cycle on the farm

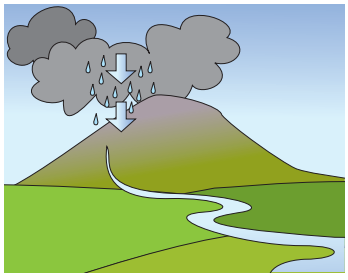
Water on the farm goes around in a cycle. Sun heats water on the ground and turns it into water vapour or steam, this is called **evaporation**. This water vapour then rises into the sky and forms clouds, as the clouds get higher and higher they get colder and so the water vapour changes back into drops of water. This process is called **condensation**. When the clouds get very heavy and full, they began to leak and these drops of water then fall back to the ground as rain, this is called **precipitation**. This cycle is continuous.



Evaporation



Condensation



Precipitation

Renewable energy

Water is all around us and is constantly being re-formed (think of the water cycle). As such, it is an excellent source of renewable energy. We have already learned in Module 3 – 'Air and Trees' that renewable energy such as water and wind energy, are more environmentally friendly than non-renewable energy e.g. coal and oil. Irish farmers are very aware of this so they use renewable energy as much as possible. This is why some Irish farmers now have watermills on their farm to produce electricity. Water will become increasingly more important energy resource as the amount of non-renewable energy sources deplete over time.

Creating energy

How is renewable energy made? Think of the force of a really strong wave, this moving power is called tidal energy and it so strong that it can generate **mechanical energy**. Mechanical energy is the energy of motion to perform work, this mechanical energy is then converted into **electrical energy** or electricity.

Wind energy works in the same way, getting its force from strong gusts of wind. There are many advantages for farmers who can either create water or wind energy on their farm or obtain it from a nearby source, it is good for the environment and helps the farmer to save money.

Why renewable energy?

- Wind and water energy is clean
- Wind and water energy is safe
- Wind and water energy is renewable, meaning it can never run out
- It is a secure and stable long term energy supply
- The farmer knows that it is cheaper and more environmentally friendly to generate water or wind electricity on the farm, than buying coal, natural gas or any other expensive type of fuel to generate energy.

Suggested activities

- Complete the activity sheet, on page 55
- Write a poem with all the new words you have learned from the water cycle such as precipitation, evaporation and condensation
- Match these words with their everyday comparisons

Evaporation	falling water
Condensation	just like heating water in a kettle
Precipitation	just like steam in the bathroom hitting the mirror

- Discuss the different types of machines powered by wind or water in class
- Discuss how water can create enough force to move a water mill and create energy
- Get the class to set up their own water cycle by putting a saucer of water beside the classroom window and putting one in a fridge also. Measure the amount of water that is present in the morning

and again in the evening. Compare this to the saucer in the fridge

- Get the class to do an experiment to show that all living things need water. Get two flower pots and plant broad beans in each. Water one each day but do not water the other. Keep all the conditions the same and within a few days or weeks, the students will see that the plant without water has died
- For extension material, see Module 4

Learning outcomes:

At the end of this lesson, students should know about evaporation, condensation, precipitation and renewable energy.

Additional resources:

- www.agriaware.ie

Soil

Curriculum links:

- **Science** Living things
  Environmental awareness and care
- **Geography** Natural environments-rocks and soils
- **SPHE** Myself and the wider world

Lesson objectives:

To understand why the farmer ploughs the field. To understand that the earthworm can benefit the farmer and to explore its movement in the soil.

Teacher guidelines

It is suggested that teachers ensure that students are familiar with the vocabulary and concepts introduced in the previous modules before starting this lesson.

Keywords and concepts introduced in previous modules:

earthworms **millipedes** **centipedes** **nutrients** **fertile**

The soil is home to many animals and insects. The farmer works hard to keep soil healthy and often adds manure to it ensuring that it is nutrient rich.

Keywords for this lesson:

plough **aerate** **bristles** **moist** **burrow**

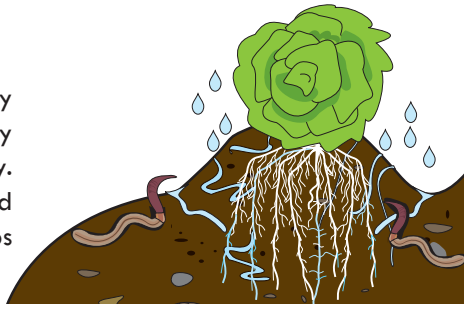
The earthworm – why is it the farmer's friend?

Many insects live in soil. However, the farmer considers the earthworm to be one of the most important.

This is because the earthworms helps to **plough** the soil. To plough the soil, the farmer must turn it upside down so that air and water are distributed evenly throughout. This produces a layer of soil which is loose and good for plant roots to grow in.

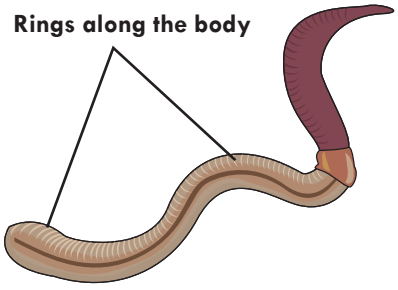
Ploughing the land

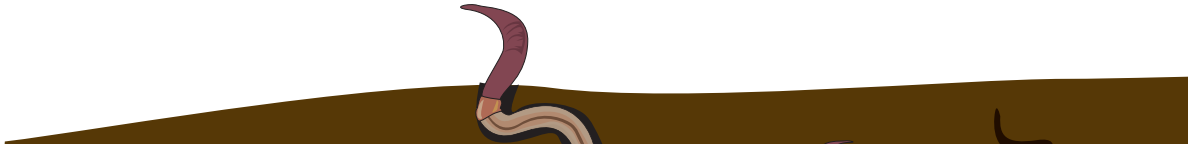
The earthworms are expert engineers. The worm ploughs the land by making tunnels in the soil. These tunnels help to **aerate** the soil as they loosen it, allowing air and water in. The soil becomes soft and crumbly. As the earthworm moves, it eats mouthfuls of earth which contains dead plants. Worms then produce casts produce food for plants. This helps the earthworm to produce nutrients for the soil, making plants grow.



The structure of the earthworm

The earthworm can plough the land because of its body structure, being long and slimy with many rings. These rings contract in waves which start at the top of the body and travel to the bottom of the body. These waves of contractions help it to move and make tunnels in the soil. Earthworms have no legs, but they can crawl along using the tiny **bristles** underneath their body. Soil is the perfect home for the earthworm, it does not like sunlight or heat as it can dry up their **moist** skin. During summer days, the earthworm hides in a cool **burrow**, safe from birds, frogs and hedgehogs. In the winter, the earthworm travels deep into the soil. The earthworm curls up to sleep and only wakes up in the spring.





Suggested activities

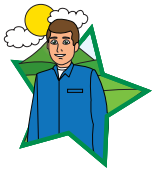
- Complete the activity sheet, on page 56
- Give the students a sample of soil and get them to 'plough' it with their fingers. This will help them to see the benefits of turning the soil as air gets evenly distributed
- Develop a wormery in your school garden and put some chalk in the soil. As the earthworm creates tunnels in the soil, they ingest chalk, leaving a white trail behind
- Place an earthworm on a sheet of paper so the students can see how it moves
- Shine a lamp on the top of the soil and watch the earthworm burrow his way into the cool soil quickly
- Create a food chain which includes the earthworm and illustrate this
- Write a poem about the earthworm
- A person that loves reading books is often called a book worm. Can you suggest how this name came about?

Learning outcomes:

At the end of this lesson, students should know about the earthworm and how important it is to plough the land.

Additional resources:

- www.agriaware.ie



Dig in to CAP!

Curriculum Links:

- **Science** Living things
  Environmental awareness and care
- **Geography** Natural environments
- **SPHE** Myself and the wider world

Lesson objectives:

To illustrate the important role of the Common Agricultural Policy (CAP) to the life of an Irish person, including the role that CAP plays in: (a) assisting farmers in making quality food affordable for people; (b) keeping our countryside beautiful, which is enjoyed by Irish people and also attracts tourists to Ireland; (c) contributing to the Irish economy, as many jobs come from agriculture, and (d) making sure that our animals are well cared for.

Teacher guidelines

It is suggested that teachers ensure students are familiar with the vocabulary and concepts introduced in previous modules before starting this lesson.

Keywords and concepts introduced in previous modules:

farmer **job** **community** **food** **countryside**

CAP is the name given to a set of rules for farmers and the role of CAP is to ensure that the farmer can produce enough high quality food for everybody to eat and for people to be able to afford to buy this food. CAP shows the farmer how to care for the countryside and how to provide a safe home for the farm animals in their care. The farmer works with lots of different people in the community.

After revision of the above, teachers should discuss more keywords for this lesson as detailed below.

Keywords for this lesson:

environment **protection** **population** **affordability** **export**

Food production and the environment

Farming methods were very different in Ireland many years ago, when compared with farming methods today. Farmers only needed to produce enough food for their own families, and because of this, they had a smaller number of animals and a few different crops growing on a small patch of land.

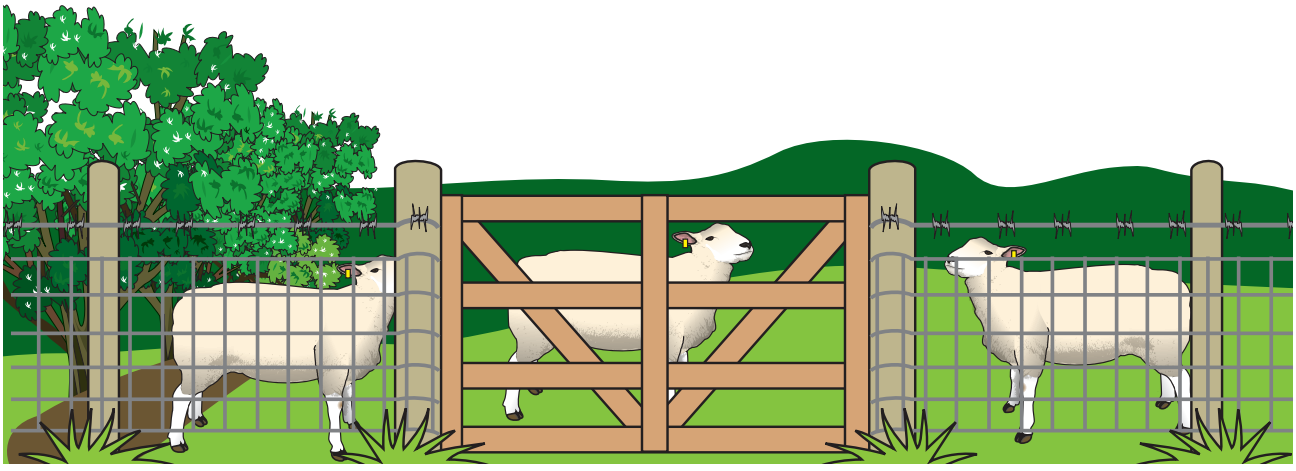
Food produced on Irish farms is exported all over the world today. Each year, 137,500 Irish farmer produce food products that is exported to over 180 countries worldwide!

This is where CAP plays an important role. The Common Agricultural Policy (CAP) helps farmers to gain the skills needed to improve their farms and continue to provide the people of Ireland and the rest of the world with high quality food. The CAP also teaches farmers how to care for the air, water and soil in the countryside. Farmers play an important role on the farm, in terms of quality food production, biodiversity and food safety.

Farmers look after the fields so that there is good quality soil to grow crops and grass for animals to eat.

The protection that the farmer provides for the environment is also important to those who live in the countryside and those who visit as tourists to see Ireland's naturally lush and green landscape. Farmers protect the environment using a number of guidelines, such as limiting the number of chemicals used on farms and ensuring that they are used safely and correctly. Farmers follow strict guidelines on the spreading of organic fertiliser (slurry) which must be stored correctly and must not be spread on the land during the winter months. This is to prevent pollution in Ireland's lakes and rivers. Farmers also protect the environment by caring for the hedgerows, which ensures that biodiversity is protected.

Biodiversity means the variety and number of living things on earth – for example, animals, birds, plants, insects and other small creatures.



Suggested activities

- Photocopy the activity sheet on page 57
- Discuss what the class do when on holiday. Get students to create a 'My local area' brochure using illustration and giving advice on where tourists could go to see the interesting local sights in your area (lake, open farm, country walk, castle etc.)
- Interview someone involved in your local area, such as a member of the Tidy Towns committee or a staff member at the local tourist office and discuss the role that tourism plays in the local community
- Write a short story on a trip to the farm and what the student may like to do or see there
- Discuss where food in the student's lunchbox comes from
- For extension material, see Module 4. For revision material, see Modules 1 and 2

Learning outcomes:

At the end of this lesson, students should understand the significant role that the farmer plays in protecting the environment and the important role that CAP plays in ensuring this.

Additional resources:

- www.agriaware.ie/CAP

Sustainability

Curriculum Links:

- **Science** Environmental awareness and care
- **Geography** Human environments
- **SPHE** Myself and the wider world

Lesson objectives:

To revise material covered in previous modules. To introduce students to the effect of global warming and the important role of sustainable agriculture for the future of our planet.

Teacher guidelines

It is suggested that teachers ensure that students are familiar with the vocabulary and concepts introduced in the previous modules before starting this lesson.

Keywords and concepts introduced in previous modules:

environment **future** **fossil fuels** **greenhouse gasses** **renewable** **non-renewable** **atmosphere** **sustainability** **earth**

The earth provides us with fresh air, clean water and food. To protect the earth for future generations, we must take care of it. Energy is required for everything we do and by limiting our use of non-renewable energy sources, we can ensure that the earth can provide for everyone.

After revision of the above, teachers should discuss more keywords for this lesson as detailed below.

Keywords for this lesson:

population **climate change** **global warming** **agriculture**

Rising populations and rising temperatures

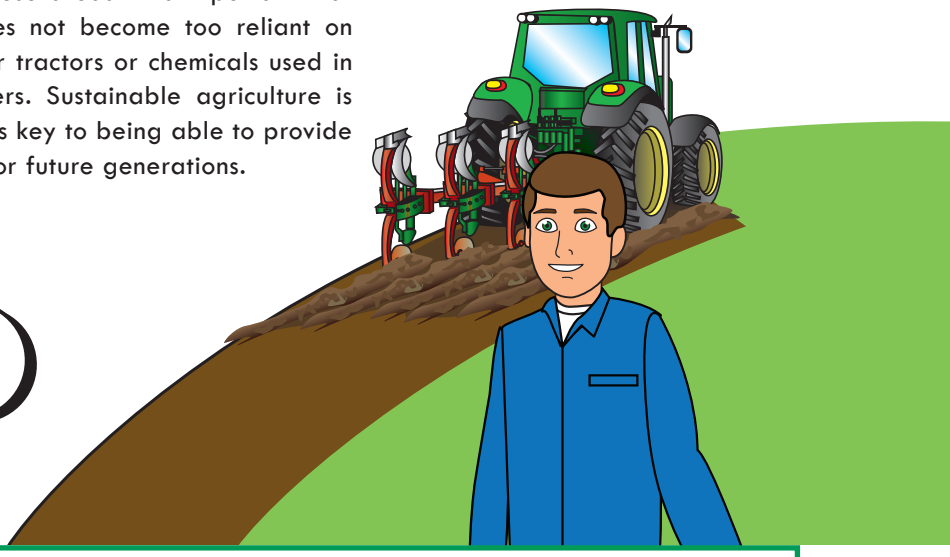
Today the world population is approximately 7.1 billion people. This is estimated to increase to 9 billion people by 2050. An increase in population means that there will be a much greater demand for water, air and food. The earth will be under greater pressure to provide sustainable resources.

With an ever increasing demand for food, it is estimated that we will need to produce 70% more food than is currently produced to feed the growing population. As discussed in Module 2, the use of fossil fuels releases greenhouse gases, which contributes to global warming by trapping the sun's rays inside the earth's atmosphere, leading to hotter climates around the world.

The increased use of fossil fuels will place continued strain on farmers to produce sustainable food supplies. Global warming causes extremes of weather, for example heavy rainfall which causes the soil to erode, often leaving it unsuitable for growing crops. As the world population continues to rise, there will be increased demand on farmers to produce sufficient, sustainable supplies of food. There will also be increased demand for global water supplies. The extreme weather patterns caused by global warming often lead to an insufficient supply of water and food.

Sustainable agriculture

Farming methods have modernised over the past century, with many farmers producing more food from less resources by becoming more efficient. Advances in farming means that farming is now safer and more food can be produced. In developing countries, many small farmers cannot compete with large farmers and are forced to abandon the land, leading to food shortages in these areas. It is important that agriculture, like all other industries, does not become too reliant on non-renewable resources, such as fuel for tractors or chemicals used in animal medicine, pesticides and fertilisers. Sustainable agriculture is required to protect our environment and is key to being able to provide a sustainable source of food and water for future generations.



Did you know?
Ireland exports almost 90% of the food produced in the country

Suggested activities

- Photocopy the activity sheet, on page 58
- Make a wall chart with all the seasons and discuss what type of weather we would expect

in each season. Discuss how humans and animals prepare for these seasons

- Discuss the importance of farming in protecting the environment, linking material from 'The Irish farmer', page 2
- Discuss the student's favourite farm product and ask each student to research how it gets from the farm to their lunchbox/dinner plate
- Illustrate the 'Power of one' by getting each student to identify ways in which they live sustainably each day and creating a class poster collating all their individual actions
- For extension material, see Module 4

Learning outcomes:

At the end of this lesson, students should understand the impact of global warming and the important role that sustainable agriculture plays for future generations.

Additional resources:

- www.agriaware.ie
- www.origingreen.ie

Developed in consultation with:

BORD BIA IRISH FOOD BOARD

Origin Green IRELAND Working with nature

Food security

Curriculum Links:

- **Science** Living things, Environmental awareness and care
- **Geography** Human environments
- **SPHE** Myself and the wider world

Lesson objectives:

To revise material covered in previous modules. To teach students about malnutrition and its impact on communities.

Teacher guidelines

It is suggested that teachers should ensure that their students are familiar with the vocabulary and concepts introduced in the previous modules before starting this lesson.

Keywords and concepts introduced in previous modules:

hunger **aid** **food** **trade** **drought** **supermarket** **business**

Food security is when every person in a country has enough food to eat to have a healthy diet and an active life at all times. Farming in developing countries is usually on a very small scale and it is very important to feed the farmer's family. The small size of farms means that farmers are very susceptible to extremes of weather. This weather can destroy food supplies, leaving families starving.

After revision of the above, teachers should discuss more keywords for this lesson, as detailed below.

Keywords for this lesson:

developing **countries** **poverty** **malnutrition**

About 815 million people are currently suffering from hunger worldwide.

What is hidden hunger?

Often when we hear the word 'hunger', we think of someone not having enough to eat. Many people are suffering from what is known as 'hidden hunger'. These people, whilst having enough food to satisfy hunger, are not eating a healthy balanced diet (see 'Healthy eating', page 4). In developing countries, people generally eat maize, rice and beans, but people eat very little meat, eggs, fruit or vegetables. Farmers in developing countries may grow various crops and keep farm animals, which would provide food for a well balanced, healthy diet. However, they often have to sell these foods to make extra money to buy farm materials, medicines and to pay for their children to attend school.

Harvesting Cassava crops

When a person eats a diet that does not contain the correct amount of important nutrients and vitamins, they may often feel weak and fall ill. In young children who are not getting appropriate nutrition, this can lead to growth problems.

In developing countries, when a natural disaster occurs and crops and livestock are depleted, much crisis farming takes place. This means that farmers grow survival crops with the sole purpose of

fighting the immediate battle of hunger. The problem with growing survival crops is that the methods used do not ensure a regular supply of food and there will be no surplus left to sow for the coming year. It also means that there is often not enough food left to feed livestock.

People suffering from hidden hunger eat whatever food is readily available to them, but their diet is not balanced. If they do not eat, they could suffer from starvation and die. It is very difficult for farmers in these areas to create opportunities to re-establish a food supply for the community.

Agricultural and Food systems for food security

To meet the goal of global food security, the world must deal with various challenges, such as:

- A growing world population. To feed the 9 billion people expected by 2050 (2 billion more people than now), 70% to 100% more food will be needed than at present
- An increasing demand for processed food (meat, dairy etc.) as per capita wealth increases
- An increasing use of agricultural products and land for energy production
- Increasing threats caused by climate change
- Greater competition for land and water

Therefore, meeting the growing demand for food in a changing global context and in an environmentally and socially sustainable way, demands innovative approaches with respect to food production, processing, distribution and access. Increasing food system productivity seems the most immediate response. For example, soil degradation is a major threat to sustainable crop production in Africa while increasing population density is another reason for more land cultivated by annual crops. Soils are often exposed to extreme weather conditions (flooding and droughts) and cultural farming practices without any soil cover and prone to erosion and loss of soil fertility. Improved soil management and education will decrease the need for new land, increase and stabilize growing processes and food production and improve food security and income at household level (see Module 3: the story of agriculture in Africa).

Suggested activities

- Photocopy the activity sheet on page 59
- Compare the average daily diet of an Irish child to that of a child in the developing world by researching their diets. Get the students to make a table, comparing the diet of an Irish child to that of a child in the developing world
- Discuss the importance of having a healthy diet with the students
- To celebrate 'World Food Day', get each student to focus on a particular country, their food and their tradition. Get students to present their findings to the class
- Get students to discuss how food secure Ireland is and what Ireland does to maintain this
- For extension material, see Module 4

Learning outcomes:

At the end of this lesson, students should understand the importance of nutrition and the difference between hunger and hidden hunger.

Additional resources:

- www.agriaware.ie

The story of agriculture in Africa

Farming in Africa is tough. Hot climate, poor soils and small plots that must be farmed with very basic hand-tools make it difficult for families to make a living from the land. But they must, because more people in Africa depend on farming for their survival. Did you know that nearly 70% of people in Africa live on small farms?

Gorta-Self Help Africa is an Irish development charity that has been supporting African farmers for over half a century. Working in nine core countries, the charity applies a 'self-help' approach to its work – providing people with skills, knowledge and practical help – so that they can work their way out of poverty and build better lives for their families and communities.

Gorta-Self Help Africa helps farming families to grow more and earn more from the produce that they grow on their farms. This help includes supporting farmers so that they have good quality seed to plant, and different seed that will enable them to grow different crops.

The charity helps farmers to organise into producer organisations, in much the same way Irish farmers have joined with agricultural cooperatives in recent times. This has allowed small-scale farmers in Africa to work together, so that they can source new and profitable markets for their produce, and can organize better transport and storage for their produce.

Support is also provided to farming families to grow crops that are more nutritious and healthy, meaning that people have better quality food to eat, and are stronger and healthier as a result.

For further information, visit www.selfhelpafrica.org/ie/

Stephen's story:

Stephen Kangwa is 12. He dreams of being a soldier. Last year he said he'd like to be a priest when he grows up.

Like dozens of other young teenagers in Malela village in Northern Zambia, Stephen Kangwa has hopes and dreams.

Stephen's family is now growing more food and earning a better living from their small plot of land.

Stephen finished primary school in his village last year, and has just started in secondary school. Neither of his parents went to school beyond primary school, because his parents couldn't afford the fees.

Stephen helps on his family's small farm. "I check that the cow and the goats are okay in the morning, and make sure that they have water. I do this before leaving for school," he says.

Stephen, like all of the other boys and girls in Malela, must walk for more than 40 minutes every morning to get school.

"It is okay. I like going to school, but I also like coming home in the afternoon," he says.

Stephen eats twice a day. It used to be only once, in the afternoon. "Now, we are growing more food, so I have a bowl of nshima (cassava porridge) in the morning for breakfast, and then some nshima with green leaves in the afternoon."

'Circle time' activity

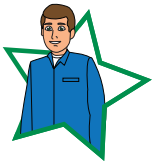
Teacher guidelines: After reading Stephen's story, students should discuss what they have just heard and talk about how it differs to their own life.

Circle time discussion questions:

1. How far do you travel to school each day? How do you get there?
2. What would you like to be when you grow up?
3. How many times a day do you eat a meal? How does your diet differ from that of Stephen's (breakfast and dinner).

Developed in consultation with:

gorta make hunger history



The Irish farmer

Name: _____

Date: _____

Did you know?
Most farmers work seven days a week, all year round!

1 **Farmers work through all seasons –** spring, summer, autumn and winter.

In which season do the following take place?

The farmer makes hay, shears the sheep and may have to water the crops.	_____
The farmer has to feed the animals every day. The cattle are often in sheds at this time.	_____
The farmer finishes the harvest, ploughs and fertilises the fields to prepare for the next crop.	_____
The farmer puts the cattle back out to the fields and sows new crops. Lambs are born at this time.	_____

2 **Almost all of our food begins on the farm. Draw the foods that we eat in each season.** Don't forget: ice-cream, soup, salad, sandwiches for school, turkey, Easter eggs (remember milk is used to make chocolate!)

Spring	Summer
Autumn	Winter

***To be used with teacher guidelines, page 2**

Healthy eating

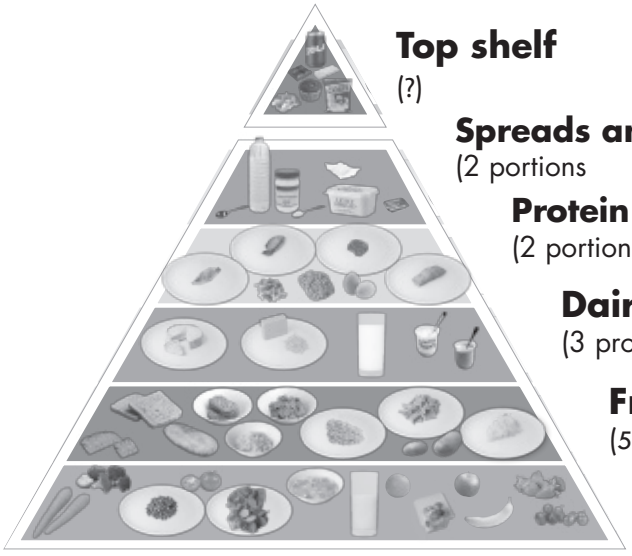
Name: _____

Date: _____

1 Portions:

Complete this illustration of the food pyramid by drawing pictures of the following foods on the appropriate shelves:

potato egg apple
carrot cheese rice



Top shelf
(?)

Spreads and oils
(2 portions

Protein
(2 portions)

Dairy products
(3 products)

Fruit/veg
(5 portions)

Carbohydrates
(+6 portions)

Spreads and oils
Protein foods
Dairy products
Fruit and vegetables
Carbohydrates

2 Use these words to fill in the blanks below:

dairy products, iron, carbohydrates, vitamins, protein

Meat, fish and eggs are a source of _____ which is needed for growth. Beef and pork are sources of _____ which we need for healthy blood.

The foods on the third shelf provide us with calcium, which is good for teeth and bones. These foods are called _____.

Fruit and vegetables are good for our hair, skin and eyes. They contain _____ and minerals.

Cereals and breads are full of energy. These types of food are called _____.

*To be used with teacher guidelines, page 4

Cattle

Name: _____

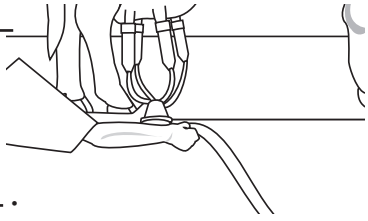
Date: _____

1 Use the words below to fill the blanks in 'The story of milk'

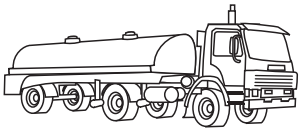
refrigerated, dairy, pasteurisation, dairy products, milking parlour, cartons, milk tanker, udder

Did you know?
A cow's udder can hold up to 15 litres of milk!

Cows are milked twice a day in the _____ . The farmer attaches the milking machine to the cow's _____.

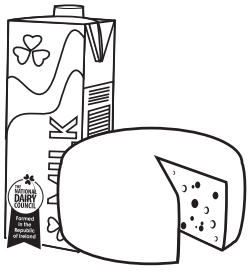


After milking, the milk is _____. It is brought to the dairy in a _____ _____.



At the _____ , the milk is heated to kill bacteria that could cause disease. This is called _____.

The milk is ready to be put into _____ and sold in the shops. It could also be used to make cream, butter, cheese or other _____ _____.



2 Read the description below and match it to the correct dairy product.

When milk is allowed to settle, this dairy product rises to the top.

When cream is shaken for a long time (churned), small pieces of this dairy product are formed.

Milk and flavours like strawberry, hazelnut, and chocolate are used to make this dairy product.

Yogurt

Cream

Butter

Did you know?
An Irish cow eats an average of 12 tonnes of grass per year!

***To be used with teacher guidelines, page 6**

Sheep

Name: _____

Date: _____

1

A group of sheep is called a	☐ flock	☐ herd	☐ pack
A sheep	☐ barks	☐ lows	☐ bleats
A sheep's coat is made of	☐ wool	☐ fur	☐ feathers
The shorn wool from a sheep is called a	☐ coat	☐ fleece	☐ shell
A farmer must trim a sheep's	☐ ears	☐ hooves	☐ legs
Sheep do not give you	☐ cheese	☐ meat	☐ potatoes

2

Use the words below to complete the crossword:
five, teeth, fodder, grazing, spring, tail, milk, molars

Did you know?
Sheep must get their haircut once a year, which is called shearing!

Across

1. The extra food the farmer gives sheep is called _ _ _ _ _ _

2. Sheep eat grass. This is called _ _ _ _ _ _ _

3. Sheep have no upper front _ _ _ _ _

4. Like humans, their chewing teeth are called _ _ _ _ _ _

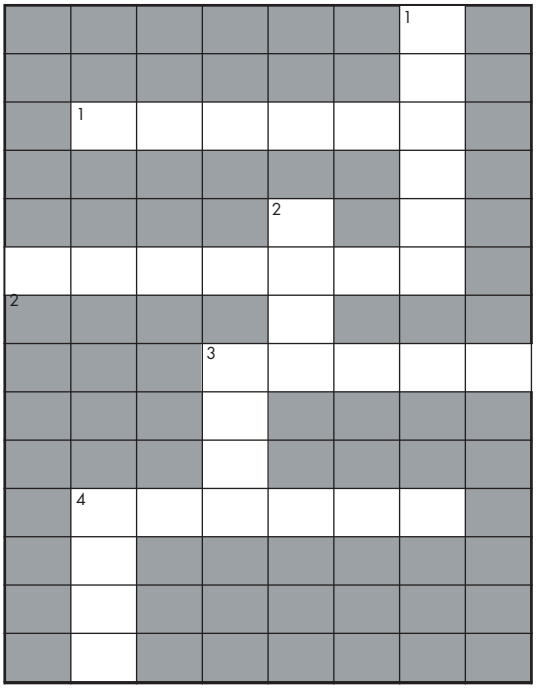
Down

1. Lambs are born in _ _ _ _ _ _

2. A lamb grows inside a ewe for _ _ _ _ months.

3. When a lamb is young, the farmer must remove its _ _ _ _. This is called docking.

4. Lambs drink their mother's _ _ _ _ for 14 weeks.



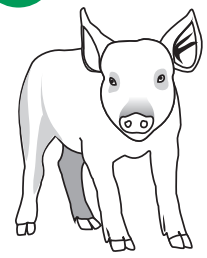
***To be used with teacher guidelines, page 8**

Pigs

Name: _____

Date: _____

1



Help me match the word with the phrase!"

A group of young pigs	piglet
A male pig	crubeen
A female pig	snout
A young pig	boar
A pig's foot	litter
A pig's nose	sow

Did you know?
Animal experts say that pigs are easier to train than cats or dogs!

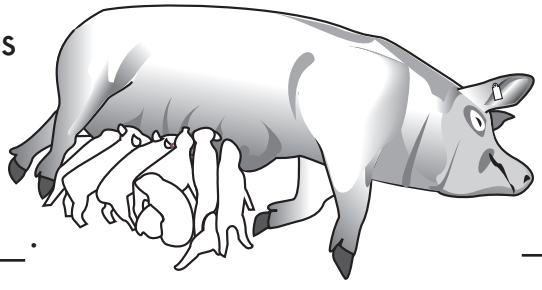
2 Use these words below to fill in the blanks:

three, teats, piglets, meal, sow, farrowing

A _____ is pregnant for three months, three weeks and three days.

The piglets drink milk from the _____ on the sow's stomach.

When a sow gives birth, this is called _____.



The piglets begin to eat solid food by the time they are _____ weeks old.

The sow has about twelve _____.

Pigs eat _____ which is made from cereals.

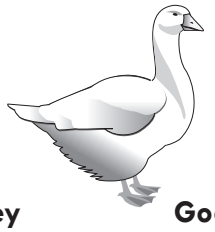
***To be used with teacher guidelines, page 10**

Poultry

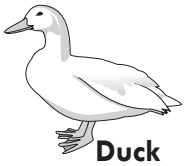
Name: _____

Date: _____


Turkey


Goose


Chicken


Duck

1 What do you know about poultry?

What name is given to farm birds that give us eggs or meat? (clue: it begins with P) _____

Which two birds are best at flying and have webbed feet?

_____ _____

Which two birds have claws to scratch for food?

_____ _____

What three products do we get from poultry?

_____ _____ _____

Did you know?
One of the reasons birds do not have teeth is because it would make them too heavy to fly!

2 Use the clues to solve the crossword

Across

3. When a chicken drinks water, it slides straight down her throat. Chickens do not _ _ _ _ _ _ _ (7)

4. These can be found in the chicken's gizzard. They help grind up the food. (6)

6. A product of poultry that can be boiled, fried or scrambled! (4)

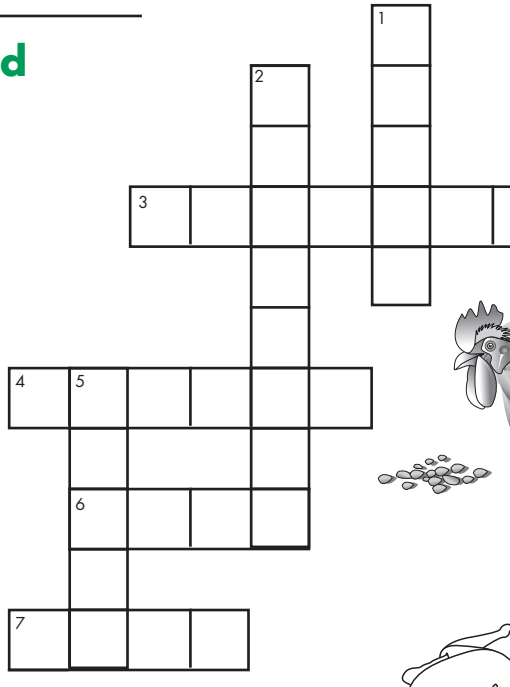
7. When a chicken eats, the food passes through the throat and into the crop. The chicken does not _ _ _ _. (4)

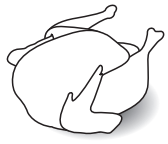
Down

1. An old-fashioned pen made from a feather (5)

2. The poultry product that can be used in some bed clothes (8)

5. Humans use these to chew but chickens do not have them (5)





***To be used with teacher guidelines, page 12**

Cereals and grasses

Name: _____

Date: _____

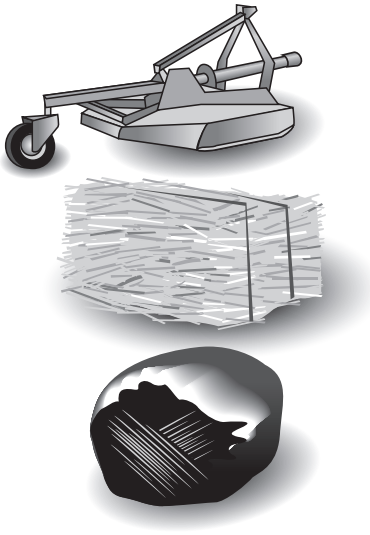
Did you know? Grass grows faster in Ireland than in any other part of the EU!

1 Use the words to fill in the blanks:

need, summer, pickled, cuts, plastic, dry, weather

Hay and silage

Grass grows best in spring and _____.
The farmer _____ the grass during the summer. The grass needs to _____ out to become hay. The farmer needs good _____ to make hay. To make silage, the grass is wrapped tightly in _____ . Silage is _____ grass and will keep for a long time. To make silage, the farmer does not _____ good weather.



2 Tick the correct boxes:

Grasses with grains that we can eat are called	☐ cereals	☐ silage	☐ fertiliser
Cereal that we use to make bread, pasta and flour	☐ corn	☐ wheat	☐ silage
Cereal that we use to make porridge	☐ oats	☐ rice	☐ corn
A cereal not grown in Ireland	☐ wheat	☐ oats	☐ rice
Maize is another word for	☐ oats	☐ corn	☐ wheat

***To be used with teacher guidelines, page 14**

Fruit and vegetables

Name: _____

Date: _____

1 Use the words below to fill in the blanks:

citrus, apples, greenhouses, strawberries, climate, sunshine

The _____ of a country decides the type of fruit and vegetables that can be grown. _____ fruits like oranges, grapefruits and lemons cannot be grown in Ireland as they need a lot of _____ . Although Ireland does not have much sunshine, we can grow a lot of fruit and vegetables in _____ where the temperature can be controlled. The three main fruits grown in Ireland are _____ , _____ and other berries.

2 Use the words below to describe the type of vegetables:

root, fruit, leafy, flower, bulb

Tip: Remember vegetables are described by the part we eat!

Broccoli

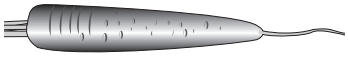
_____

Onion

_____

Tomato

_____



Carrot

_____

Cabbage

_____

3 We should all eat at least five portions of fruit and vegetables each day. Write down any fruit or vegetables that you ate yesterday:

_____

_____

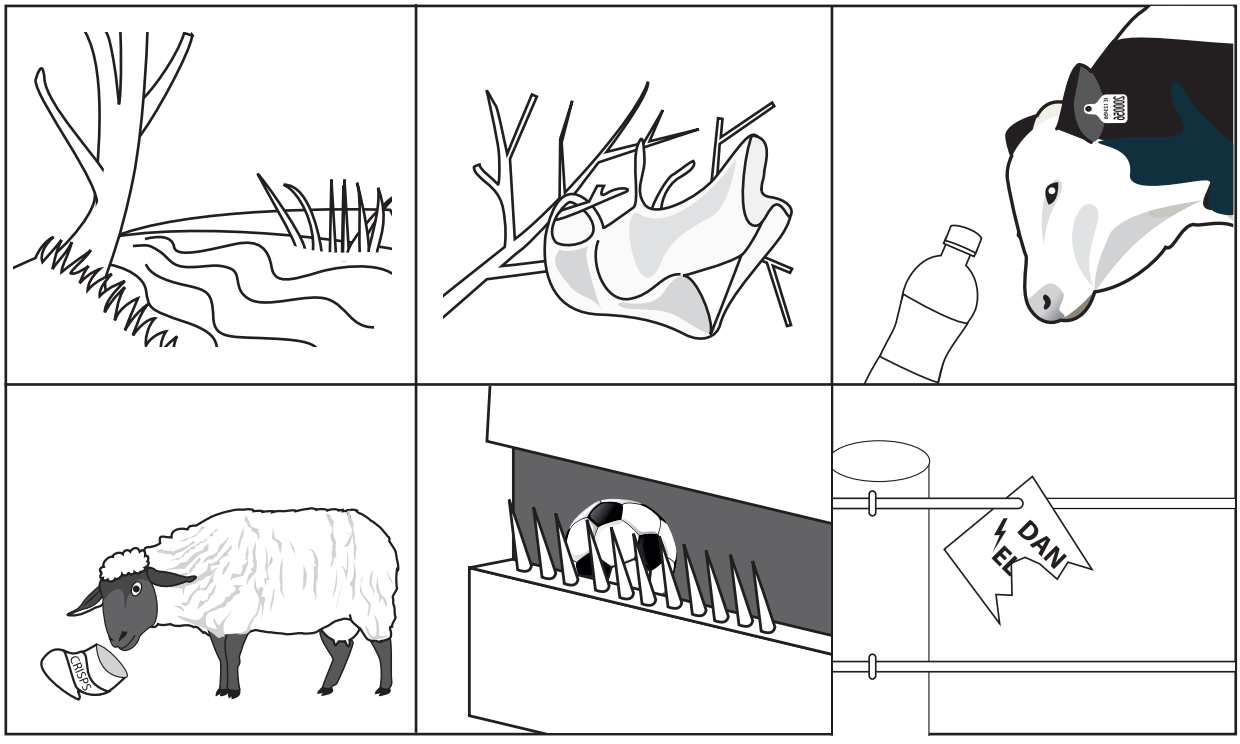
*To be used with teacher guidelines, page 16

Farm and countryside safety

Name: _____

Date: _____

1 Examine the picture and circle the ways in which the countryside is becoming polluted and dangerous



2 Read the sentence below. Decide if they are True or False

'No trespassing' means that you can enter the field.	T/F
You can get an electric shock from some farm fences	T/F
We should never climb over hedges or fences when the farmer is not there	T/F
Litter is also known as rubbish or waste	T/F
It is ok to throw out rubbish in the countryside	T/F
Littering can be dangerous for animals	T/F

***To be used with teacher guidelines, page 18**

Machinery safety

Name: _____

Date: _____

1 Use the words below to fill in the blanks

combine harvester dangerous trailers transportation drawbar

The farmer harvests his or her crops with a machine called a _____ _____ This machine has large blades which are very _____ _____ and loaders are two types of machinery the farmer uses for the _____ of animals and goods around the farm. We should never ride on the _____ of a trailer or on the trailer or loader itself.

2 Be safe around farm machinery

Find the words in the word search

Y	A	E	S	A	S	R	N	S	R	N
R	E	T	T	U	C	E	G	D	E	H
R	E	F	A	S	O	T	D	C	S	R
U	Y	I	A	U	M	S	S	A	E	U
L	M	E	U	O	B	E	G	R	L	G
S	E	S	S	R	I	V	N	C	T	B
A	R	T	S	E	N	R	R	H	S	A
S	I	L	A	G	E	A	H	S	A	L
P	Y	R	E	N	I	H	C	A	M	E
E	A	G	E	A	K	R	A	O	Y	S
S	E	S	R	D	M	H	Y	A	R	U

Silage
Combine
Harvester
Hedge cutter
Bales
Hay
Machinery
Slurry
Pit
Blades
Dangerous
Tank
Safe

*To be used with teacher guidelines, page 20

Electrical safety

Name: _____

Date: _____

1 Read the description below and match it to the correct word

The type of measurement for electricity	**Water**
Farmers take care when driving machinery in case they hit off these	**Sub-stations**
These contain dangerous electrical equipment	**Overhead electricity wires**
Electricity can flow through this	**Volts**

2 List 5 ways to stay safe around electricity

1. _____
2. _____
3. _____
4. _____
5. _____

*To be used with teacher guidelines, page 22

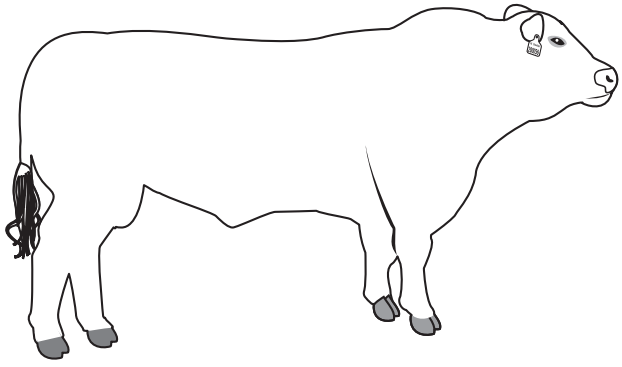
ESB Energy for generations

Farm animal safety

Name: _____

Date: _____

1 List ways in which the farmer keeps you and the bull safe on the farm



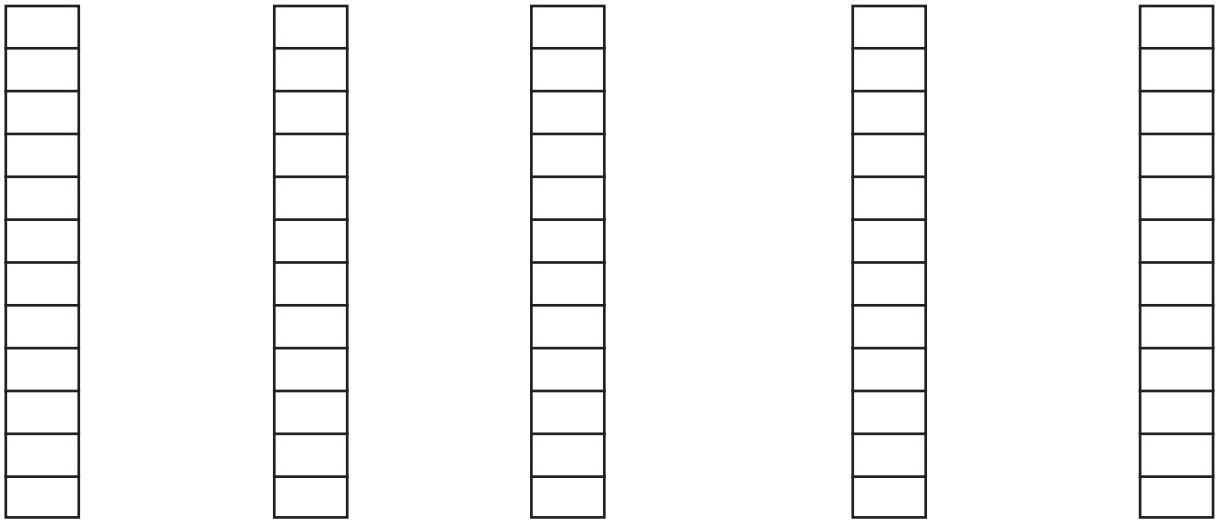
_____

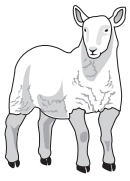
_____

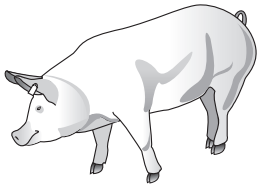
_____

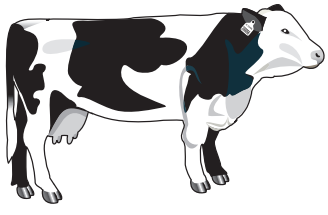
_____

2 Ask the students which animals they need to be most cautious with and graph them in class









*To be used with teacher guidelines, page 24

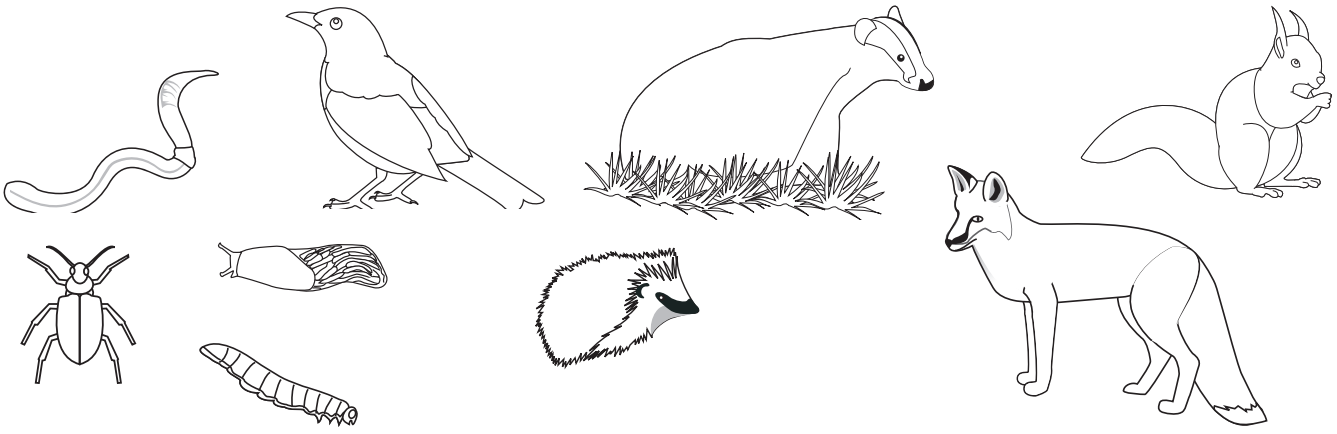
The hedgerow

Name: _____

Date: _____

1 The layers of the hedgerow

Draw an arrow to where each animal lives in the hedgerow below



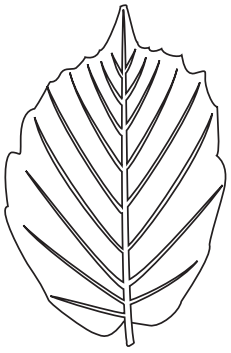
*To be used with teacher guidelines, page 26

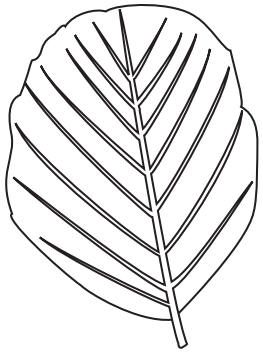
Air and trees

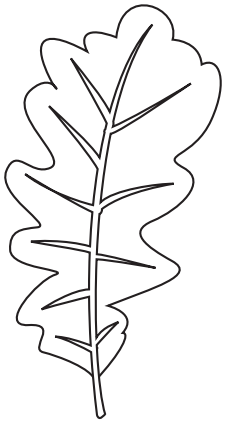
Name: _____

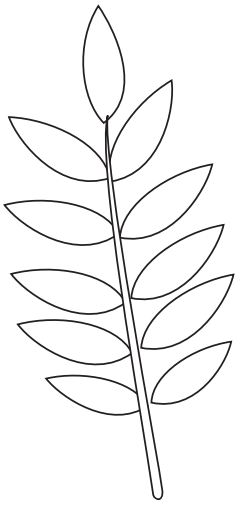
Date: _____

1 Identify each leaf









_____ _____ _____ _____

2 Complete the word search

e	e	n	t	i	o	a	k	e	l	e	i	a
i	t	g	a	g	e	x	n	a	x	c	i	y
i	c	r	a	d	y	e	y	t	d	c	s	t
o	s	u	e	e	e	s	o	g	x	l	l	i
e	t	a	d	e	w	i	d	r	e	o	g	c
o	x	y	w	a	s	h	n	u	e	n	n	i
e	e	l	t	i	e	a	f	y	d	s	i	r
o	e	g	u	r	n	L	d	e	f	x	l	t
e	d	i	x	o	i	d	n	o	b	r	a	c
i	n	d	o	s	b	e	x	e	b	a	h	e
i	s	u	s	d	r	r	l	c	r	e	x	l
r	e	o	a	g	u	o	d	x	d	i	e	e
x	f	i	y	g	t	o	n	r	s	k	d	r

Oxygen
Carbon dioxide
Fossil fuels
Wind
Electricity
Ash
Alder
Oak
Energy
Turbines
Exhaling
Air
Trees

***To be used with teacher guidelines, page 28**

Water

Name: _____

Date: _____

1 Draw each stage of the water cycle in the correct box

Evaporation	**Condensation**	**Precipitation**

2 Which of the following are renewable sources of energy?

Coal _____

Water _____

Gas _____

Oil _____

Wind _____

***To be used with teacher guidelines, page 30**

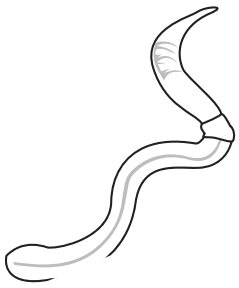
Soil

Name: _____

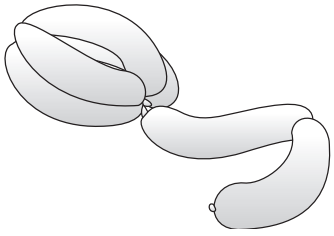
Date: _____

1 Answer True or False to the facts about the earthworm below

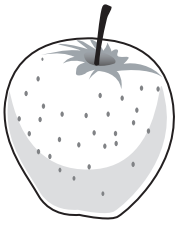
Earthworms like sunlight and heat	☐ True	☐ False
The earthworm ploughs the land	☐ True	☐ False
Earthworms have two legs	☐ True	☐ False
The earthworm is the farmers friend	☐ True	☐ False



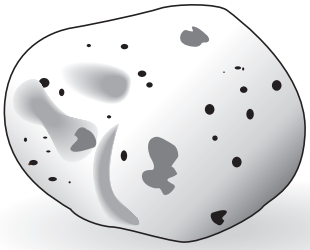
2 Colour the pictures of the foods that come from the ground where the earthworm lives



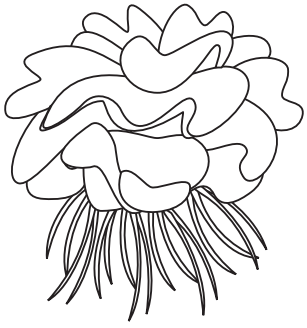
sausages



apple

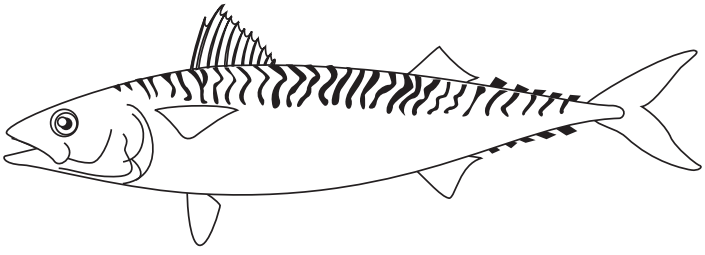


potato



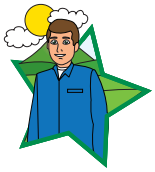
lettuce

milk



fish

*To be used with teacher guidelines, page 32



Dig in to CAP!

Name: _____

Date: _____

1 Word search

H	N	E	D	R	A	B	E	V	D	V	K	V	G	P
S	B	I	O	D	I	V	E	R	S	I	T	Y	T	F
N	E	N	O	S	I	F	Y	E	W	R	R	W	R	R
C	O	M	M	O	N	C	V	V	G	A	A	B	A	H
H	G	S	U	I	I	H	N	A	L	B	D	I	D	E
E	H	E	A	L	T	H	Y	A	B	E	I	E	I	Y
M	S	Q	O	T	A	I	G	G	L	I	T	S	T	S
I	S	P	R	T	N	Y	U	F	O	O	D	E	I	R
C	A	P	S	Y	D	H	A	E	L	S	O	W	O	G
A	G	R	I	C	U	L	T	U	R	A	L	T	N	W
L	L	W	P	O	P	U	L	A	T	I	O	N	Q	T

Find the words in the word search

CAP, common, agricultural, policy, chemical, soil, healthy, biodiversity, tradition, food, population

2 Draw a picture of a local tourist attraction in your area and what needs to be done to keep it clean and safe

***To be used with teacher guidelines, page 34**

Sustainability

Name: _____

Date: _____

1 Word search

H	V	R	D	H	A	B	E	V	D	V	K	V	G	P
F	A	T	M	O	S	P	H	E	R	E	W	F	F	F
D	D	H	P	D	S	T	A	R	V	E	T	I	U	N
E	N	V	I	R	O	N	M	E	N	T	R	R	T	R
S	R	E	D	S	E	E	Q	E	H	R	E	Q	U	E
N	E	D	D	E	I	F	A	E	A	R	T	H	R	Q
U	R	N	O	N	R	E	N	E	W	A	B	L	E	R
T	G	G	E	U	E	H	L	V	G	B	A	W	B	H
R	E	S	U	R	L	I	V	A	L	E	Q	B	E	E
I	S	U	S	T	A	I	N	A	B	I	L	I	T	Y
T	S	Q	E	T	N	Y	S	G	L	S	S	E	I	S
I	W	V	R	Y	D	H	G	A	S	S	E	S	G	R
F	O	S	S	I	L	F	U	E	L	S	V	E	H	G
N	L	R	E	N	E	W	A	B	L	E	Q	W	T	W

Find the words in the word search above

environment, future, fossil fuels, greenhouse, gasses, renewable, non-renewable, atmosphere, sustainability, earth, generation, Ireland

2 Read the sentences below. Decide if they are True or False.

Fossil fuels are a renewable source of energy	☐ True	☐ False
Greenhouse gases trap the sun's rays in the atmosphere	☐ True	☐ False
Water energy is provided by waves from the ocean	☐ True	☐ False
Ireland produces enough food to feed 100 people	☐ True	☐ False
Leaving the red light on your tv uses energy	☐ True	☐ False
Walking or cycling helps to protect the environment	☐ True	☐ False

***To be used with teacher guidelines, page 36**

Food security

Name: _____

Date: _____

1 List the five most important benefits of a healthy, balanced and nutritious diet

1. _____
2. _____
3. _____
4. _____
5. _____

2 Word search

H	V	R	D	H	A	B	E	V	D	V	K	V	F	P
F	W	F	Q	F	A	H	F	V	F	H	W	F	O	F
D	D	H	P	D	S	T	A	R	V	A	T	I	O	N
T	D	R	I	Q	I	R	H	E	F	D	R	R	D	R
S	E	E	D	S	E	E	Q	E	H	W	E	Q	E	E
N	E	D	D	E	D	F	A	R	M	I	N	G	D	Q
U	R	N	V	C	R	V	C	R	O	P	S	R	Q	R
T	G	G	E	U	G	H	L	V	G	B	A	W	B	H
R	E	S	U	R	V	I	V	A	L	E	Q	B	E	E
I	F	H	F	I	G	F	W	O	R	L	D	F	F	F
T	S	Q	E	T	S	Y	S	G	L	S	S	E	I	S
I	W	V	R	Y	R	H	E	A	L	T	H	Y	G	R
O	E	G	E	H	U	N	G	E	R	E	V	E	H	G
N	L	W	V	Q	A	H	Q	A	E	L	Q	W	T	W

Find the words below in the word search

crops, seeds, security, food, healthy, nutrition, hunger, farming, starvation, fight, world, survival, energy

***To be used with teacher guidelines, page 38**

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Food and the Marine

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